DRAFT

NEPAL CHILD SURVIVAL CASE STUDY
PROGRAM EVOLUTION AND LESSONS LEARNED

FULL REPORT

June, 2003

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BASICS II

USAID

MOST

TABLE OF CONTENTS

Figures

Tables

Acknowledgements

Documentation of Nepal's child survival programs was made possible by the Asia and Near East and Global Bureaus of the United States Agency for International Development (USAID) and by the USAID Mission in Nepal. This documentation is one of a series of case studies under development by USAID. It forms a part of the technical leadership function of the Basic Support for Institutionalizing Child Survival (BASICS II) Project, USAID's flagship for child survival.

The following individuals provided helpful perspectives and information, through interviews and informal discussions and through data and materials. The success of this analysis and documentation effort is largely attributable to their combined interest and support.

Dr. Baburam Acharya
Mr. Purushottam Acharya
Dr. Ramesh Adhikari
Mr. Jay Anderson
Mr. Prabhat Bangdel
Dr. H. K. Banskota
Dr. Kedar Baral
Mr. Ram Bhandari
Mr. Balaram Bhui
Mr. P. O. Blomquist
Dr. Rajendra Bohora
Dr. David Calder
Mr. Bimal Chapagain
Dr. B. D. Chataut
Ms. Wingsee Chen
Dr. Susan Clapham
Mr. Tek Bahadur Dagi
Mr. Abraham David
Ms. Dale Davis
Dr. Penny Dawson
Dr. Babu Ram Devkota
Dr. J. R. Dhakhwa
Ms. Anita Gibson
Ms. Amy Gilman
Ms. Molly Gingerich
Dr. J. N. Giri
Mr. Jorgen Haldorsen
Mr. Hem Hamal
Dr. B. B. Karki
Mr. Dev Dhoj Karki
Mr. Lajja Karki
Mr. Rajendra Karki
Mr. Sushil Karki
Dr. Tekendra Karki
Dr. Yagya Bahadur Karki
Dr. Neena Khadka
Mr. Uddhab Khadka
Dr. Suborna Khatri
Ms. Miriam Krantz
Mr. Namaste Lal
Mr. D.B. Lama
Mr. Janardan Lamichane
Mr. Kumar Lamichane
Mr. Keith Leslie
Ms. Naramaya Limbu
Mr. Charles Llewellyn
Dr. Pancha K. Manandhar
Mr. Pragyan Mathema
Mr. Stewart McNab
Dr. Judith Moore
Mr. Ramesh Neupane
Mr. Michael O'Dwyer
Ms. Kyoko Okamura
Dr. Eriko Onoda
Dr. David Oot
Mr. Mahdav Pahari
Dr. Badre Raj Pandey
Dr. Kalyan Raj Pandey
Ms. Sharada Pandey
Dr. Laxmi Raj Pathak
Ms. Anne Peniston
Ms. Katy Pepper
Dr. Bhoj Raj Pokhrel
Dr. Glenn Post
Mr. Dilip Poudyal
Dr. Ajit Pradhan
Ms. Agatha Pratt
Ms. Chanda Devi Rai
Mr. Om Rajbhandari
Mr. Ram Govinda Rajkarnikar
Dr. Tirtha Rana
Dr. Krishna Jung Rana
Mr. Dharampal Raman
Ms. Rebecca Rohrer
Dr. Suomi Sakai
Mr. Hari Krishna Shah
Dr. Hukum Dev Shah
Mr. Heem Shakya
Mr. Krishna Man Shakya
Ms. Bhawana Sharma
Mr. Shree Hari Sharma
Mr. Ashoke Shrestha
Dr. Bihari K. Shrestha
Mr. Dirgha Raj Shrestha
Ms. Gyanu Shrestha
Mr. Madhukar Shrestha
Mr. Ram Kumar Shrestha
Mr. Shyam Shrestha
Mr. Jagat Anand Singh
Dr. Jean Smith
Mr. Robert Steinglass
Mr. Shyam Subedi
Ms. Diane Summers
Dr. B. K. Suvedi
Ms.Chandeshwari Tamrakar
Mr. Madhan Thapa
Mr. Ravindra Thapa
Dr. Shyam Thapa
Dr. Sun Lal Thapa
Ms. Kate Thomas
Dr. Jim Tielsch
Mr. Hira Prasad Tiwari
Dr. Bal Kumar Vaidya
Dr. Kokila Vaidya
Dr. Klaus Wagner
Dr. Keith West
Mr. Frank White
Dr. Pandu Wijeyeratne

In addition to the Ministry of Health of the Government of Nepal and international organizations, the NGOs listed below provided valuable insights on the evolution of child survival programs in Nepal.

Adventist Development & Relief Agency
CARE
CORE Group
Department of Health Services/MOH
Department for International Development/UK
Environmental Health Project
Family Health International
Family Planning Association of Nepal
Institute of Medicine
Ministry of Health/HMG
Nepal Family Health Program
Nepal Fertility Care Center
Nepal Nutrition Intervention Project – Sarlahi
Nepal Pediatric Society
Nepali Technical Assistance Group
New ERA
PLAN International
Save the Children/US
Saving Newborn Lives
United Nations Children's Fund
United Nations Population Fund
United Mission to Nepal
United States Agency for International Development
World Bank
World Education International
World Health Organization

The team consisting of the following members is responsible for all views expressed in this report.

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Robin Houston, MOST
Lyndon Brown, USAID
Mark Lediard, MOST
Elaine Rossi, BASICS II
Mizan Siddiqi, BASICS II

Katie Breese (BASICS II) coordinated the team's activities and helped finalize the report.

Acronyms

A

ABER	Annual Blood Examination Rate
AD	Auto Disable
ADRA	Adventist Development and Relief Agency
AIDS	Acquired Immunodeficiency Syndrome
AEFI	Adverse Effects Following Immunization
AFI	Annual Falciparum Incidence
AFP	Acute Flaccid Paralysis
AHW	Auxiliary Health Workers
ANM	Auxiliary Nurse Midwife
ANC	Ante-Natal Care
API	Annual Parasite Incidence
ARI	Acute Respiratory Infection
AusAID	Australian Agency for International Development
AVSC	Association for Voluntary Surgical Contraception, now called EnGender Health

B

BASICS II	Basics Support for Institutionalizing Child Survival
BCHIMES	Between Census Household Information, Monitoring and Evaluation System
BCC	Behavior Change Communication
BCG	Bacillus of Calmette and Guerin (tuberculosis vaccine)
BFHI	Baby-Friendly Hospital Initiative
BMS	Breast Milk Substitute
BPC	Blue Plastic Cups

C

CBAC	Community-based Acute Respiratory Infection / Control of Diarrheal Diseases
CB-ARI	Community-based Acute Respiratory Infection
CBC	Communications and behavior change
CBGP	Community-based growth promotion
CB-IMCI	Community-based integration of childhood illness
CBO	Community-based organization
CDD	Control of Diarrheal Diseases
CDP	Community Drug Program
CDMS	Centre for Development and Management Studies
CEDAW	Convention on Elimination of All Form of Discrimination Against Women
CEDPA	Family planning NGO
CFR	Case fatality rate
CFWC	Chhetrapati Family Welfare Center
CHD	Child Health Division
CHL	Community Health Leader
CHV	Community Health Volunteer
CHW	Community Health Worker
C-IMCI	Community-Integrated management of childhood illness
CMI	Clinical Malaria Incidence
CPR	Contraceptive Prevalence Rate
CRC	Convention on the Rights of the Child

CRS	Contraceptive Retail Sales
CS	Child Survival

D

DACAW	Decentralized Action for Children and Women
DDC	District Development Committee
DFID	Department for International Development
DG	Director General
DHO	District health officer
DHS	Demographic and Health Survey
DoHS	Department of Health Services
DPCP	Decentralized Plan for the Child
DPHO	District Public Health Office/Officer
DPT/DPT3	Diptheria, pertussis, and tetanus vaccine
DWSS	Department of Water Supply and Sewage

E

EBF	Exclusive breastfeeding
EDCD	Epidemiology and Disease Control Division
EDP	External Development Partner
EHP	Environmental Health Project
ENA	Essential Nutrition Actions
EOC	Emergency Obstetric Care
EPI	Expanded Program on Immunization
EP	Enterprise Project (USAID)
EWARS	Early Warning and Reporting System

F

FCHV	Female Community Health Volunteer
FHD	Family Health Division
FP	Family Planning
FPAN	Family Planning Association of Nepal
FPLM	Family Planning and Logistics Management

G

GAVI	Global Alliance for Vaccines and Immunization
GCEP	Goiter and Cretinism Eradication Project
GMP	Growth Monitoring and Promotion
GON	Government of Nepal
GTZ	German aid agency

H

HF	Health facility
HIMDD	Health Institution and Manpower Development Division
HIV	Human Immunodeficiency Virus
HKI	Helen Keller Institute
HMG	His Majesty's Government
HMIS	Health management information system
HNP	Healthy Newborn Partnership
HP	Health Post
HuRDIS	Human Resource Development Information System

I

IBDC	Insect-born Disease Control
ICC	Interagency Coordinating Committee (on immunization)
ICHS	Integrated Child Health Survey
ICHSDP	Integrated Community Health Services Delivery Project
ICP	Inventory Control Procedures
IDD	Iodine Deficiency Disorder
IDWSSD	International Drinking Water Supply and Sanitation Decade
IEC	Information, Education, and Communication
IMCI	Integrated management of childhood illness
IMR	Infant Mortality Rate
IOM	Institute of Medicine
IPC/C	Interpersonal Communication and Counseling
IPPF	International Planned Parenthood Foundation
IPR	Infant Parasite Rate
IRH	Institute for Reproductive Health
ITB	Insecticide-treated bednets
IUD	Inter-uterine device

J

JHPIEGO	Johns Hopkins Program for International Education for Gynecology & Obstetrics
JHU	Johns Hopkins University
JJ	Jeevan Jal (oral rehydration solution)
JNSP	Joint Nutrition Support Program
JSI	John Snow, Inc.

K

KAP	Knowledge, Attitude and Practice
KfW/KFW	German Development bank

L

LCD	Leprosy Control Division
LMD	Logistics Management Division
LMIS	Logistics Management Information System
LSIP	Logistics System Improvement Plan
LTHP	Long-Term Health Plan

M

MCH	Maternal and child health
MCHW	Maternal child health worker
MG	Mothers group
MH	Maternal Health
MIS	Management Information System
MOLD	Ministry of Local Development
MMR	Maternal Mortality Rate
MMT	Mrigendra Medical Trust
MNT	Maternal and neonatal tetanus
MOF	Ministry of Finance
MOH	Ministry of Health
MOST	USAID's Micronutrient Project

MSH	Management Sciences for Health
MWRA	Married women of reproductive age

N

NAYA	Nepal Adolescent and Young Adult Survey
NCASC	National Center for AIDS and STD Control
NCDDP	National Control of Diarrheal Diseases Program
NCP	National Commission on Planning
NCP	Nun Chini Pani (homemade oral rehydration solution)
NCPS	Nepal Contraceptive Prevalence Survey
NDHS	Nepal Demographic and Health Survey
NEPAS	Nepal Pediatric Association
NFCC	Nepal Fertility Care Center
NFFPHS	Nepal Fertility, Family Planning, and Health Survey
NFHFS	Nepal Family Health and Fertility Survey
NFHP	Nepal Family Health Program
NFHS	Nepal Family Health Survey
NGO	Non-governmental organization
NHEICC	National Health Education, Information, and Communications Center
NHP	National Health Policy
NHRC	Nepal Health Research Council
NHTC	National Health Training Center
NID	National Immunization Day
NIP	Nepal Immunization Program
NMEO	National Malaria Eradication Organization
NMIS	Nepal Management Information System
NMOH	Nepal Ministry of Health
NMR	Neonatal mortality rate
NMSS	Nepal Micro-Nutrient Supplementation Survey
NNCC	National Nutrition Coordination Council
NNIPS	Nepal Nutrition Intervention Project – Sarlahi
NNJS	Nepal Netra Jyoti Sangh
NNPA	Nepal Nutrition Plan of Action
NNSS	Nepal Nutrition Status Survey
NNT	Neonatal tetanus
NPAN	Nepal Nutrition Plan of Action
NPC	National Planning Commission
NPHL	National Public Health Laboratory
NPS	Nepal Pediatric Society
NQoCMC	National Quality of Care Management Center
NRC	Nepal Red Cross
NSMP	Nepal Safer Motherhood Program
NTAG	National Technical Assistance Group
NTC	National Tuberculosis Center
NVAP	Nepal Vitamin A Program
NWO	Nepal Women's Organization

O

OP	Out-Patient
OPD	Out-Patient Department
OPV	Oral polio vaccine

ORS	Jeevan Jal (oral rehydration packets)
ORT	Oral rehydration therapy

P

PBHW	Panchayat-based Health Worker
PCD-V	Passive case-detection volunteer
PE	Polio Eradication
PEI	Polio Eradication Information
PEN	Polio Eradication, Nepal
PFAD	Planning and Foreign Aid Division
PHC	Primary Health Center
PHC	Public Health Center
PHCC	Primary Health Care Center
PHD	Public Health Division
PNC	Post-Natal Care
PN/NN	Perinatal/Neonatal
PSSN	Network of private medical practitioners
PVO	Private Voluntary Organization

Q

QoCMM	Quality of Care Management Center

R

RAM	Repair and Maintenance
RCH	Reproductive and Child Health
RCP	Radio Communication Project
RH	Reproductive Health
RHCC	Reproductive Health Coordinating Committee
RHD	Regional Health Directorates
RSO	Regional Surveillance Officer
RTC	Regional Training Center

S

SCF	Save the Children Federation
SDP	Service Delivery Points
SEARO	South East Asian Regional Office
SHP	Sub Health Posts
SM	Safe Motherhood
SMSC	Safe Motherhood Subcommittee
SFR	Slide Falciparum Rate
SPR	Slide Positivity Rate
STD	Sexually Transmitted Disease

T

TAG	Technical Assistance Group
TBA	Traditional Birth Attendant
TFR	Total Fertility Rate
TOT	Training of Trainers
TT	Tetanus Toxoid
TTC	Tetanus Toxoid Coverage

U

UCI	Universal Childhood Immunization
UNDP	United Nations Development Program
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
USOM	United States Overseas Mission

V

VAD	Vitamin A deficiency
VBDRTC	Vector-Borne Disease Research and Training Center
VDC	Village Development Committee
VHW	Village Health Worker
VITAL	Vitamin A Field Support Project
VSC	Voluntary Surgical Contraception

W

WHA	World Health Assembly
WHO	World Health Organization

I. Introduction

The successful implementation and measurable impact of Nepal's primary health care interventions over the past 20 years, accomplished despite limited progress in development overall, have begun to draw wide attention from international health experts and policymakers. In particular, Nepal has made notable progress in implementing child health, family health, and nutrition programs, which have been accomplished by significant declines in both mortality and fertility rates at the national level.[1]

This report documents the findings of an intensive effort to understand the changes that have contributed to the remarkable evolution of Nepal's primary health care services. The many lessons learned and documented results of individual interventions form the foundation of the exercise. The study includes the "why" and "when" of relevant events over time, with reflections from local actors on the critical decisions and key people that shaped those events. Report findings are further informed by the 2001 Nepal Demographic and Health Survey (NDHS) quantitative review of mortality and fertility outcomes for Nepal.[2]

A. Objectives and Methodology

A.1 Objectives and Study Questions

The overall objectives of this study were to:

- **Identify and understand the child health and family planning program strategies, actions, and characteristics that contributed most directly to results;**
- **Understand the process of Nepali change and evolution that resulted in the health improvements.**

The diagram in the Conclusion Section (Figure 43) depicts the systems and contextual elements of Nepal's health programs. These include investors and inputs; implementers, interventions, and activities; and results and beneficiaries. The aim of this study was to gather available information in as many of these areas as possible and then probe for answers to specific questions that would clarify change, relative efforts and effects, and interactions. These questions and their associated areas are outlined in the following table.

Table 1. Questions and associated areas

Area	Study Questions
Contextual and Environmental Analysis	What has been the program environment for maternal and child health? What program-related and other contextual or environmental factors are likely to have influenced reductions in child mortality in Nepal over the past 20 years?
(Description of relevant social, political,	What aspects of the situation or events stand out as unique or particularly influential?

[1] Sullivan, J. M. 2002. *Report on Infant and Early Child Mortality Estimates from Three National Surveys of Nepal.* ORC Macro.

[2] An annotated bibliography of reports collected during this review is available from USAID and BASICS II. A summary of this volume and findings of mortality surveys, titled "Nepal Child Survival Case Study Technical Report" is also available. A CD-ROM containing various reports on the Nepal child survival case study, including tools and reference materials is also available.

Area	Study Questions
governmental, and health situations over time)	What are the development priorities of this country? What are the major health measures and what have been the major trends over the study time period? What are the goals and priorities of the health sector at this time? Have these changed significantly over the study time period? How is the health sector structured and staffed? How does the health sector fit with other sectors?
Stakeholders, Actors, and Leaders **(External and internal investors and in-country implementers)**	Who were the stakeholders for child health and how did they relate to each other? What were the relationships between donors and government for child health? What were the relationships among donors? Where were the relationships among donors, government, and non-governmental actors (NGOs, faith-based organizations, etc.)? How did these relationships change over time? Were there any major changes in donor priorities and programs over the study period? If so, how did they change? What were the significant decision points for donor support of child health? Who were the child health leaders at community, district, and national levels? Why were they leaders? What were they able to accomplish? To what extent are the government and its key partners committed to making the vision for child and family health a reality (through political support, resources, policy and technical mandates, etc.)?
Child and Family Health Programs, Systems, and Activities **(Intervention content and activities; how interventions are organized by the government; systems of training, supervision, data management, logistics, planning and budgeting)**	What were the components of child health programs; what were the standards/guidelines used to define them; and how have they changed over time? How were the programs started (for example, by major initiative)? What were the target populations? What were the objectives and corresponding achievements of the interventions (by timeframe)? What were the indicators used to measure achievement? What were significant milestones of change or evolution? What were the replicable principles, tools, or frameworks of these interventions that were essential to their success? What was the relative priority accorded the different components over time? How were human resources allocated vis a vis these priorities? How were budgetary resources allocated? How were programs packaged and/or integrated by community, district, regional, and national levels? How were each of the programs integrated by function (e.g., type of health worker or special initiative)? How did integration change over time? How were the technical components distributed across health personnel and facilities? How were training activities aligned with this distribution? How was supervision aligned? What was the availability of trained manpower by level and timeframe? What was the level of turnover of trained manpower? What training approaches were taken by component, worker, and timeframe? What was the quality of these trainings? What were the supervision systems for each of these components/packages? What approaches were taken to supervision? Who supervised whom and what? What were the supervision/ improvement standards, and what was actually done? What was the effectiveness of supervision? What approaches were taken to quality and performance improvement? How

Area	Study Questions
	did key systems perform? How was performance measured? What improvements were successfully made? What was the evolution of improvement systems? What systems of monitoring and evaluation were used for child health interventions and programs? How have these systems changed over the study time period? How was monitoring and evaluation information used and by whom? What tools, manuals, frameworks, or activities were particularly effective for any technical component or system?
Program Components **(Communications; community mobilization, including FCHVs; information systems)**	What approaches were taken to community mobilization or participation? What was the level of awareness and priority accorded child health in communities? What have communities accomplished in child health over the study period? What evidence is there for community demand for health services or inputs? How was this demand created? How widespread is this demand and what were threshold levels of growth, if any? What approaches were taken to Behavior Change Communication (BCC)? Who were the target audiences? Where were these audiences along the spectrum of behavior change? What were the major channels used to reach these audiences? How were they sequenced or integrated? What were the short-term and long-term effects of communications efforts? What BCC materials, tools, or activities were particularly effective for changing behavior? What processes, approaches, tools, and frameworks were used to mobilize community structures that proved important for program success? What was tried but did not work out because it was not effective, too intensive to scale up, or for other reasons? What were the links between community structures/workers and peripheral health teams? What type of support did communities provide health teams and vice versa? How did this differ in government and NGO areas? Were some links formalized, or were they mainly informal? What role did community leaders play, at start-up and to maintain the program? What approaches were used to engage them? To what extent were improvements in FCHV/other community-based workers' skills, motivation, and capacity achieved? How were these outcomes achieved? Is there evidence of a link to program impacts? Was motivating community volunteers an issue? If so, at what stages of the program was this most critical, and how did the programs deal with this? How was quality maintained in the work of volunteers?
Policies, Guidelines, and Advocacy	What policies were put in place for each technical program component for child health? How were these policies developed and approved? How were these policies communicated throughout the health system, across sectors, and outside government (NGOs, communities, religious organizations)? What resources (budgets, expenditures) were put in place to support policy guidelines? Were they sufficient to carry out policy intentions? What was the strategy for advocacy? What advocacy activities were undertaken to change policy and resources for child health? Who were the advocates? What were donor-driven or donor-mandated actions? What actions came from government and from local NGOs, and what activities or areas were

Area	Study Questions
	championed by individuals or interest groups?
Partnerships and Coordination	How were child health programs coordinated over time? Were there any gaps or competing interventions? Who led coordinating functions? What partnerships existed at community, district, and national levels for child health over the study period? What did partnerships contribute to child health programs and achievements by level and measure of success? What were the characteristics of the most important partnerships? Why were these partnerships successful? How did partnerships develop or evolve?. What networks or coalitions of organizations or individuals existed for child health? What did these networks or coalitions contribute over the study period? How did the networks or coalitions develop or evolve?. What resources or changes were leveraged by partnerships, networks, or coalitions by area and study time period? What were the transaction costs of partnerships, networks, or coalitions over time?
Utilization and Outcome Results and Trends **(Refer to mortality data analysis papers also)**	What have been the population effects of each child health intervention? What have been the effects of package(s) of interventions? How has each of these changed over the time of the study period? Have there been any differences in effects by age group, gender, ethnic group, residence, or family education and economic level? What have been the intermediate outcomes of child health interventions? What changes have there been in coverage by service? What changes have there been in the quality of those services? What changes have there been in individual and household health behaviors?
Program Evolution and Scale	What was the impetus for moving ahead with each of the programs that appear to have played a part in mortality-rate reductions? What were the major milestones in program evolution? The milestones related to scaling up or geographic expansion of program interventions and inputs, addition or transformation of the technical design/approach, and/or transfer of ownership and participation. At each major milestone in scaling up or other type of program evolution, what trade-offs did program planners consider? Were changes made in approach, technical packages, resources, pace of expansion, approaches for maintaining quality, or evaluation/monitoring? What were critical decision points and how were these decisions made?

A.2 Methodology

The methodology for conducting this study included document review and analysis; in-depth interviews of key actors from the past 20 years at the national level, and to the extent possible, district levels; and facilitated group discussion and review of information that emerged. While district- and facility-level visits were planned, they were not carried out because of time limitations and security concerns. The type of data collected and purpose of each of the three collection and aggregation methods are noted below.

Table 2. Type and purpose of data collected

Method of Collection and Aggregation	Type of Data Generated
Document Review	Descriptions of main themes of what happened, background, chronology of program implementation, reported data, lessons learned
	Adds depth and explanation to document review, including

In-depth Interview	how and why things happened, policy evolution, coordination and integration, organizational actors and decision makers, changes and differences
Group Discussion	Common understanding of district-level experiences, the NGO–public sector interface, group review and refinement of individually generated information, group analysis of information combined from different sources

The study plan was to structure information collection through a set of review forms and guides for interviews and group discussions. In practice, while the questions covered by document review were structured by the forms, the aggregation and distillation of information was governed by subsections and table formats in the report outline. Interview guides were applied as far as possible, usually beginning with Systems Review. Interviews were semi-structured; respondents were encouraged to expand on ideas or to move from one topic to another as a new topic came to mind. Since interview questions were only asked of those respondents who had expertise and experience in a relevant area; not all questions were asked of all respondents. Interviews were documented by note taking and analyzed by the interviewer. The intent was to build a picture of an intervention or component over time.

Group discussions were organized as substitutes for district and health facility field visits. While these did not provide the same level of information that would have resulted from field visits, the discussions did yield observations about national programs and interventions from a district perspective. Separate guides were prepared for each group discussion; discussion was facilitated by a researcher.

The study's document review process identified an extensive list of published books and articles, as well as unpublished project reports, tools, and correspondence.[3] Most of these documents were reviewed for relevant descriptive information. In-depth interviews were conducted with more than 75 individuals with experience in one or more of the child and family health programs reviewed. Many of the interviews lasted for more than an hour and repeat interviews were requested from several key leaders. In general, respondents appreciated the opportunity to tell their stories and reflect on past successes and problems, and were generous with their time and attention.

Three group discussions were held to gather information about district- and community-level experiences. Two of the discussions involved regional staff of the Nepal Family Health Program (NFHP) (district-level employees). The third was held with representatives of non-governmental organizations (NGOs). The latter discussion covered community-level engagement and relationships between the voluntary and government sectors. In addition, several debriefing discussions were held with USAID and NFHP leadership, and with Department of Health Services (DoHS) staff.

Data were analyzed using a variety of qualitative techniques, which are described in later sections. Since much of the analysis was done on-site, the group could often ask clarifying questions about outcomes.

In the sections that follow, several terms describe particular aspects of the Nepal health program. "Systems" is used for those processes that generally make up most interventions; here they include planning and budgeting, training, supervision, logistics, data management, and service delivery. "Components" refers to processes that cut across programs. These include Behavior Change Communication (BCC), Information Education Communication (IEC), and social marketing in one

[3] Brown, L. and K. Breese. 2003. *Nepal Case Study Program Evolution and Lessons Learned: Annotated Bibliography of Reports and Materials on Child Survival Programs.* Washington, D.C. and Nepal: USAID, BASICS II.

group, and community mobilization, Female Community Health Volunteers (FCHVs), and information systems.

A.3 Limitations of the Study

The conclusions of this study are based on information collected and analyzed using qualitative methods by a small research team with limited time in Nepal. Limitations therefore stem from methods used, possible individual bias, level of access to documents and to experienced people, and the sheer complexity of the undertaking. Key limitations were:

- *Familiarity of the research team with past and present programs may have affected the interpretation of what was heard and therefore biased analysis.* Four members of the team had long experience in health programs in Nepal, although over varying time periods and in different technical areas. A fourth member of the team had recent experience, and a fifth member had little experience. Since team members were responsible for different technical areas, this may not only have biased individual sections but differentially affected how strengths and weaknesses were assessed. During the analysis phase, team members met as a group to query assumptions and observations in order to minimize bias, but time was limited and some areas were covered more thoroughly than others.

- *The methodologies used were qualitative and as a whole the package has not been validated in terms of assessing complex systems.* While team members were experienced in the techniques of data collection and initial analysis, the graphical and matrix methods used to analyze the data were largely chosen based on the team's experience. Attempts were made to test findings and conclusions by triangulation from more than one source of information; by review with respondents; and by research-team review and consensus building. However, the findings should not be interpreted quantitatively or as simple absolutes. In particular, the matrix scoring methods used for systems and components should not be interpreted as quantitative indicators of program performance.

- *Changes over time were documented by retrospectively constructing timelines and asking respondents to recall events or turning points.* In general, more data are reported, available, and remembered from recent times than from earlier times. In addition, there may be a tendency to denigrate the past in relation to the present. More importantly, there may be associations made between events and outcomes that do not represent actual links. While triangulation from different respondents helps minimize this limitation, there may be spurious associations, given the number of variables and events involved over a 20-year time period.

- *The complexity of each health intervention differs significantly in terms of behavior change required and supply system needs.* By using methods that compared intervention systems and components without taking such complexity into account, achievements may not be adequately documented or appreciated.

- *Time constraints limited data collection and analysis.* For example, it was necessary to limit the range of topics covered and the number of interviews conducted. In addition, it was not possible to adequately describe the investments, inputs, or financing mechanisms that are critical to understanding issues of effectiveness, scale, and sustainability. Furthermore, some selected interviewees were not available; in other cases, time constraints forced the team to drop planned interviews that were potential sources of good information. Finally, the order of interviews may have introduced bias when such choices were made, and minority viewpoints may be underrepresented.

- *It was not possible to make field visits to observe, interview, or conduct discussion groups.* Therefore, there is a lack of district- and community-level observation of program evolution. Also lacking is information on outcome dimensions other than mortality—for example, information on community satisfaction.

- *It is well documented that there are important proximate determinants of child mortality, such as education, literacy, and poverty.* This study is limited by its review of health-related interventions and behaviors only.

B. Situation Analysis

B.1 Social, Political, and Economic Context

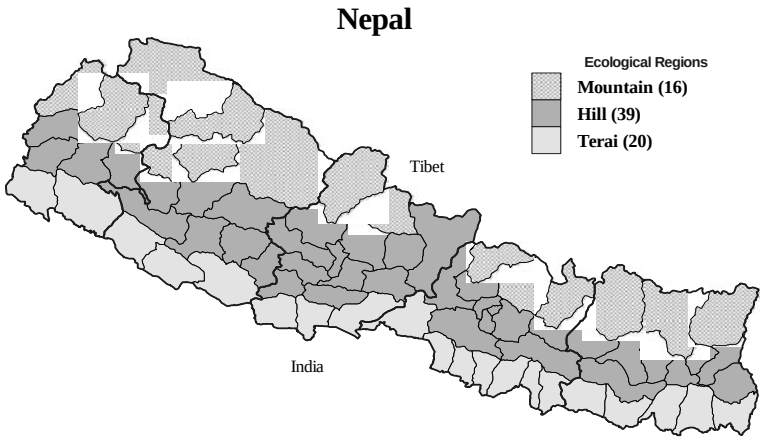
Nepal is a landlocked country with three distinct ecological zones. Nearly half of its 25 million citizens live in lowland Terai, which borders India. An additional 45% live in the mid-hills, and the remaining 6% live in the mountains that border Tibet, a province of China. Nepal's population is primarily Hindu, with Buddhist, Muslim, and Christian minorities. The country has a fairly large number of ethnic and language groups; for the most part, they have coexisted peacefully for decades. Nine out of ten Nepalis live in rural areas, with underdeveloped infrastructure—including roads and transportation, communications, and water and sanitation. Nepalis are primarily agriculturalists, although their access to productive land and forests is diminishing. Literacy remains low at 23% for females and 58% for males; access to primary school is growing only slowly. Nepal remains one of the poorest countries in the world, with an annual per capita income of $210 per year.[4]

Isolated from the world until the 1950s, Nepal has since undergone significant political change. By the 1980s, it was an established Hindu kingdom. The King's rule was carried out, through a panchayat system. In 1990, a grassroots political movement led to a new democratic, parliamentary government, with the King remaining as a constitutional monarch. Since then, there have been frequent changes in Prime Ministers and ruling party, with no one party establishing firm control. Disappointing economic growth and perceived corruption led to a Maoist uprising in 1997, and to the declaration of a state of emergency in 2001. The result has been increased power for the monarchy at the expense of local government; basic services have begun to decline in a number of districts.

For administrative purposes, Nepal is divided into five regions (Eastern, Central, Western, Mid-Western, and Far-Western), 14 zones, and 75 districts. Districts are further divided into Village Development Committees, or into municipalities in urban areas. Government services for most sectors are provided through an administrative structure that includes ministries, departments, and divisions. Together they set policies and guidelines, provide technical oversight, and develop plans and budgets at the national level. Regional directorates manage personnel and facilitate planning, budgeting, and reporting from the districts. Districts are the focal point for determining local needs and priorities, operational planning, budgeting and monitoring, while VDCs manage local facilities and support community-level workers and volunteers.

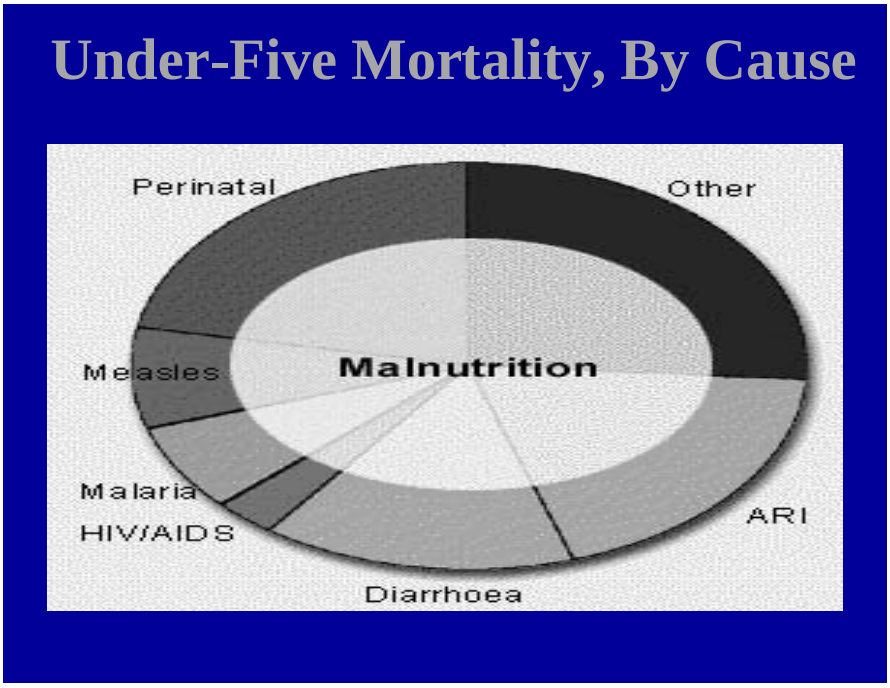
[4] 2000

Figure 1. Ecological regions and Districts in Nepal



Despite gains in family planning in recent years, the population of Nepal continues to grow rapidly; it is projected to double over the next 35 years, from 23 million to more than 46 million. This population increase will severely strain already-limited resources, and represents perhaps the biggest challenge to poverty alleviation in the country. Infectious diseases and maternal, perinatal, and nutritional problems account for 50% of all deaths in Nepal. Children under five account for 80% of the deaths from infectious disease.

Figure 2. Under-Five Mortality, By Cause



Although Nepal has made progress in reducing child and infant mortality rates, the next decade will require improving the quality of services to meet the goals of this still-unfinished agenda. The financing of primary health care services in Nepal is considered insufficient, at $3.10 per capita per year. Households account for more than 75% of all health expenditures in Nepal, with 13% coming from external donors, and 11% from internal government resources.

Through the country's health sector reform process, the central government has recently assigned priorities to health programs to ensure that the most significant public health problems are addressed. Priority 1 programs are noted below.

Table 3. Priority 1 Programs

PE
EPI
Pneumonia control
CDD
Nutrition
FP
Mother, Child Welfare
Safe Motherhood
Fertility health of youths
FCHVs
Epidemiology
Kala azar
Malaria
TB
Natural disaster and management
Leprosy control
HIV/AIDS control
Health education/publicity program
Integrated supervision and monitoring
Drug supply
Medical tools/equipment
Community drug/health insurance
HMIS

B.2 Trends in Child Health

Despite the constraints associated with delivery of health services in Nepal, there has been significant progress in implementing focused child health, family health, and nutrition interventions, and in improving health status outcomes. Interventions appear to have contributed to declines in mortality and fertility rates. Nepal's infant mortality rate (IMR) declined from 107 in 1988–1990 to 64 per 1,000 in 1996–2000, and U5MR went from 158 to 91 deaths per thousand live births. These numbers represent

declines of 40% and 42%, respectively, over the –10 year time period. The country's total fertility rate (TFR) declined from 5.1 to 4.1, a reduction of nearly 20% over the same time period.[5]

Figure 3. Trend in under-five mortality, 1979–1999

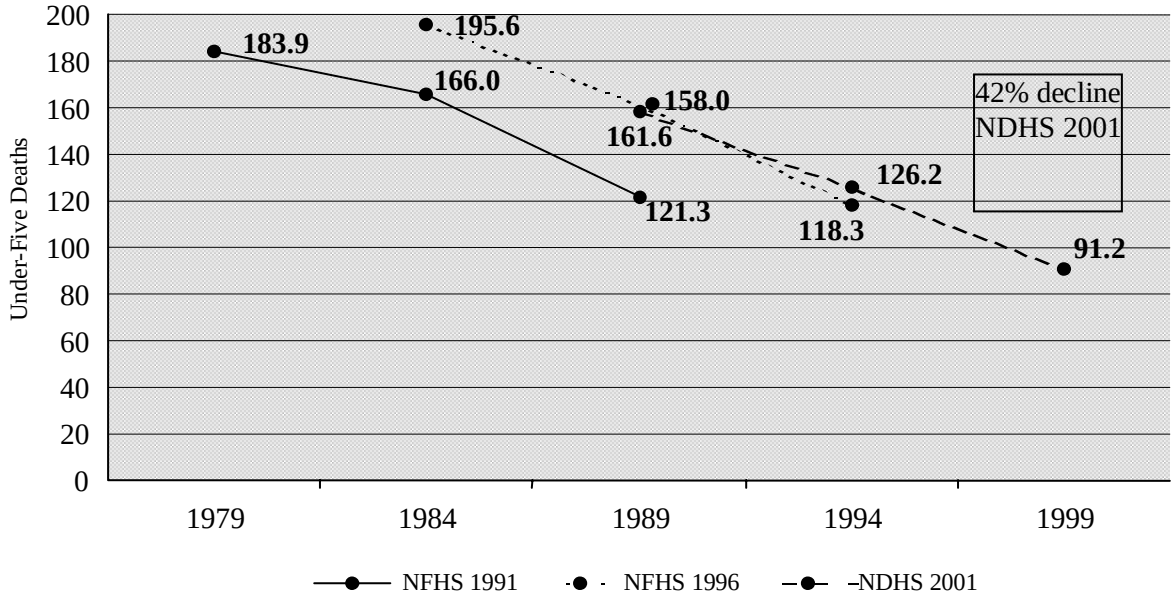
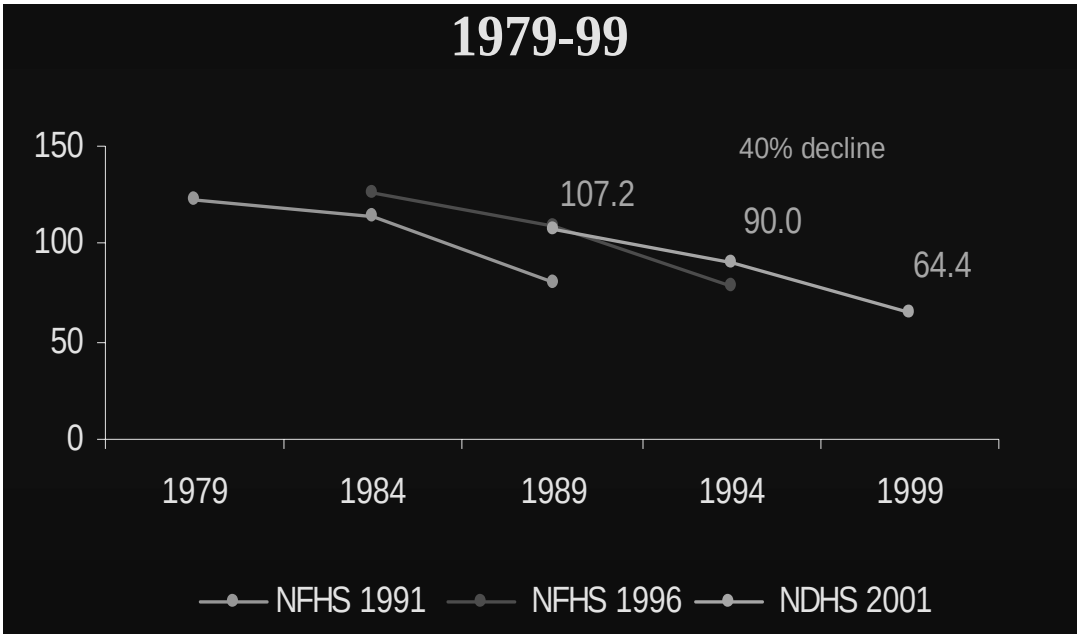


Figure 4. Trend in infant mortality, 1979–1999



[5] Sullivan, J. M. 2002. *Report on Infant and Early Child Mortality Estimates from Three National Surveys of Nepal*. ORC Macro.

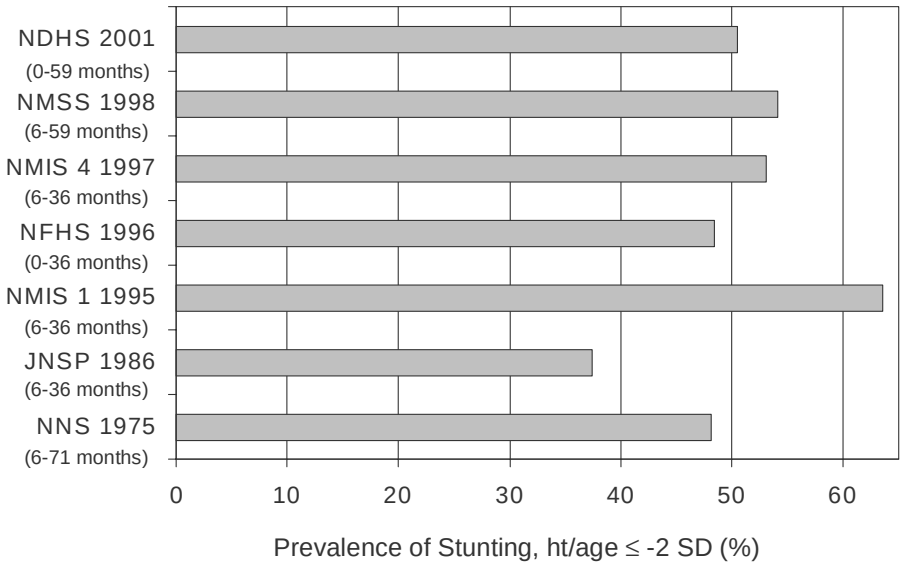
During the past two decades, utilization and behavior change data document considerable improvements in service utilization, and in household practices. These have included family planning, immunization, oral rehydration for diarrhea, improved recognition and treatment of pneumonia, and vitamin A supplementation. The NDHS found that over the past five years the proportion of children who are fully immunized by the age of one rose from 36% to 60%. The national Vitamin A program, which now includes all 75 districts, has maintained consistently high coverage, with capsule supplementation for children from 6 months to 5 years of age at 81%. And family planning has become more widely available, with current contraceptive use increasing from 15% to 39% among non-pregnant Nepali women ages 15–49, over the same 5-year period.

In contrast, the nutrition program—which includes growth monitoring and weaning and supplementary feeding programs—have had limited effects: Stunting and wasting have increased between 1996 and 2001. In 1998, over 50% of 6- to 59-month olds had stunted growth.

Figure 5. Trends in Key Indicators: Child Health

	1996	2001	Change
Vitamin A:	32%	81%	+153%
DPT3:	54%	72%	+ 33%
Measles:	57%	71%	+ 25%
CPR	29%	39%	+34%
Stunting:	48%	51%	+ 6%
Wasting:	47%	48%	+ 2%

Figure 6. Child Malnutrition in National Surveys, 1975–2001



Source: National surveys.

B.3 Key Partners

The key partners in Nepal's health sector include governmental, voluntary, and private-sector organizations and networks. The partners identified below have provided leadership, resources, or technical assistance over the past 20 years. A considerable number of smaller NGOs and CBOs from the voluntary sector have contributed important ideas or experiences, even if not identified here.

USAID has played a consistent and strong role in the initiation and development of nearly all of the key child survival and reproductive health interventions in the country. USAID's role in launching and expanding the Malaria, Family Planning, Vitamin A, and ARI programs has been particularly important.

Table 4. Key partners in Nepal's health sector

External Development Partners	National Government	Voluntary Sector	Private Sector
World Bank UNICEF UNFPA WHO GAVI/Vaccine Fund Bill & Melinda Gates Foundation USAID DFID GTZ JICA NORAD AusAID Indian Government Aid John Snow, Inc. Environmental Health Project Family Health International CORE Group Options MSH MNH Project Engender Health UC Berkeley PATH OMNI VITAL Johns Hopkins SPH JHCCPS Futures Group PMM Project	National Planning Commission Ministry of Health Department of Health Services Family Health Division Child Health Division Quality of Care Center Institute of Medicine	Family Planning Association of Nepal Nepal Red Cross Nepali Technical Assistance Group Nepali Netra Jyoti Sangh Mrigendra Medical Trust Nepal Pediatric Society Save the Children US Save the Children UK Redd Barna United Mission to Nepal CARE ADRA Action Aid CEDPA World Education International PLAN International Britain Nepal Medical Trust Safe Motherhood Network	Nepal Fertility Care Center New ERA Contraceptive Retail Sales Company MCH Products, Private, Ltd.

C. Summary of Child and Family Health Interventions

Significant outside development support to the health sector began in the 1950s, with resources to fight malaria and other communicable diseases as well as support for basic health system development. These initiatives reflected donor and government priorities at the time. By the mid 1960s, family planning and population became a priority, and over the following two decades specific child-survival interventions received attention, as both public health practice and development experience increased. By the early to mid-1980s, basic health services, including the Expanded Program on Immunization (EPI) and family planning, were available in all districts—although access was often limited to larger population centers.

During the 1980s and 1990s, there was considerable controversy over the relatively high funding levels for family planning services—especially sterilization—compared to substantially lower levels of support for other public health initiatives such as combating infectious disease and providing broader maternal and child health programs. The 1990s in particular saw a large shift in emphasis to improving access to multiple methods of contraception and increasing access to complete family planning information and counseling. These issues continue to be important, and—coupled with questions of cost-effectiveness, political priorities, and economic development—will shape the continuing debate over the use of available health resources in Nepal in the twenty-first century.

The interventions and programs reviewed in this report include:

Oral Rehydration for Diarrhea
Vitamin A Supplementation
Recognition and Treatment of Pneumonia/Integrated Management of Childhood Illness (IMCI)
Immunization (TT, DPT, Measles, Polio Eradication)
Family Planning
Nutrition (Breastfeeding, Weaning Foods, Maternal Nutrition)
Malaria
Maternal Care and Safe Motherhood
Water & Sanitation
Iodine Deficiency Disorders (IDD)

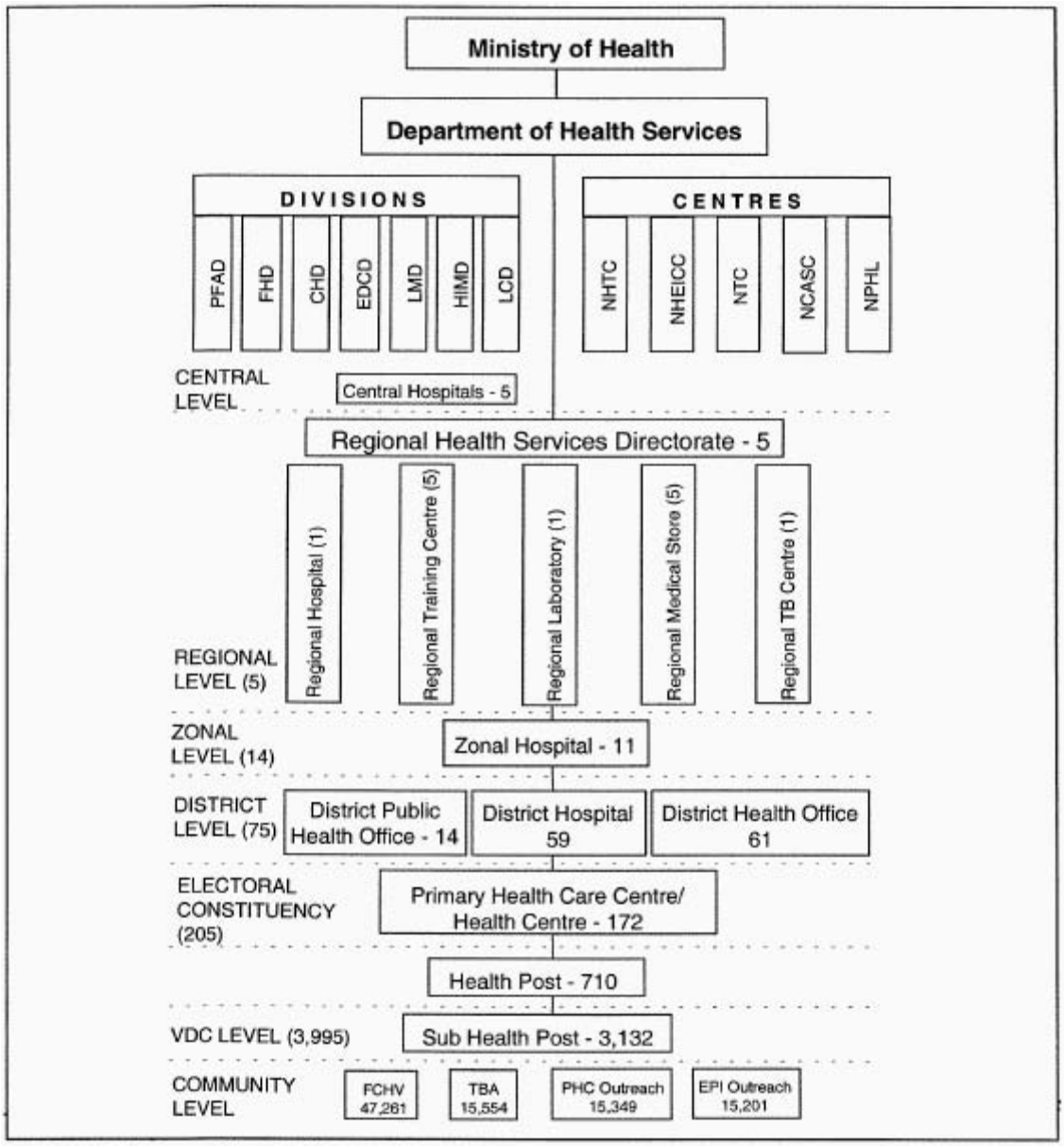
All interventions began in different time periods and were subject to fluctuations in interest and resources. In general, the 1980s were characterized by vertical, intensive projects, while the 1990s saw more integrated, decentralized programs. The number of interventions has increased over the past 20 years, as new or improved interventions such as vitamin A or IMCI have been developed. All are described in detail in the next chapter.

D. Nepal Health System Highlights

D.1 Current Structure

The Nepal health system includes public sector services, some NGO or faith-based organization services, traditional healers, drug shops, and a relatively small, but growing, private sector. Public sector services predominate and are currently structured as follows:

Figure 7. Organizational Structure of Nepal's Ministry of Health



PFAD	*Planning and Foreign Aid Division*	*NHEICC*	*National Health Education, Information and Communication Centre*
FHD	*Family Health Division*		
CHD	*Child Health Division*	*NTC*	*National Tuberculosis Centre*
EDCD	*Epidemiology and Disease Control Division*	*NCASC*	*National Centre for AIDS and STD Control*
LMD	*Logistics Management Division*	*NPHL*	*National Public Health Laboratory*
HIMDD	*Health Institution & Manpower Development Division*	*FCHV*	*Female Community Health Volunteer*
		TBA	*Traditional Birth Attendant*
LCD	*Leprosy Control Division*	*PHC*	*Primary Health Care*
NHTC	*National Health Training Centre*	*EPI*	*Expanded Programme on Immunisation*

Non-governmental and faith-based organizations generally work under an agreement with or in partnership with district and/or national-level DoHS offices. As a whole they reach a significant portion of the population, although they tend to work primarily in more accessible areas, such as the Central region. In addition, they have occasionally duplicated services and education. While some of the larger international and Nepali NGOs have been working in health services for a long time, it wasn't until the 1990s and the advent of democracy that there was an explosion of smaller NGOs working in the health field.

Nepal has many traditional healers throughout the country who provide a range of services and specialties. A large proportion of the population continues to seek care from traditional healers for common illnesses, especially for children. There have been some attempts over the past 20 years to involve traditional healers in such interventions as the distribution of contraceptives or ORS, but these efforts have been limited in time and geographic area. Private sector services have been available in urban areas for some time; more recently, they have become available in rural areas as well. These services are especially important in family planning, and their importance is likely to grow as the public sector faces continuing fiscal and political challenges.

D.2 Health Manpower

As with health sectors everywhere, manpower is the biggest resource and cost in delivering health services in Nepal. The Ministry of Health (MOH) is led and staffed by physicians with a range of supporting staff, including nurses, public health specialists, demographers, accountants, and administrative support personnel. The Regional Health Directorates are similarly staffed with physician directors and supporting professional and administrative staff. The plan is to employ physicians as District Health Officers (DHOs) and public health specialists as District Public Health Officers, with support from technical supervisors and administrative staff. In practice, DHOs have been difficult to recruit and usually prefer clinical practice in district hospitals to the more public health-oriented tasks needed for field support. Primary Health Care Centers (PHCCs) and Health Posts serve several Village Development Committees (VDCs) and are managed by HPICs, who are usually Health Assistants but may also be Senior Auxiliary Health Workers. PHCCs have support from female Auxiliary Nurse Midwives (ANMs) and Auxiliary Health Workers, along with other support staff, although there are difficulties keeping ANMs at post. Sub Health Posts are located in each VDC and are manned by female Maternal and Child Health Workers and VHWs; they provide support to FCHVs. There is at least one FCHV per ward (nine wards to one VDC), and in some areas where staffing levels have been determined by population, there are more.

D.3 Service Delivery

Pneumonia and malaria treatment services, Oral Rehydration Therapy (ORT), and basic family planning services are typically available at all levels of facilities, including the Sub Health Posts (SHP), provided supplies and staff are at post. More complex family planning services such as IUDs or voluntary surgical contraception (VSCs) may be available in hospitals but not in all districts. Immunizations are available in district centers and some PHCCs every day, although in facilities that lack refrigeration, they are only offered on a monthly, rotating basis. Basic preventive services and services promoting safe motherhood are available at all levels (including the SHP), when a trained maternal child health worker (MCHW) is at post. Basic emergency obstetric care (EOC) is found in only a small number of Safe Motherhood project districts, where support has also been available to hospitals. Vitamin A supplementation is offered twice a year on special child health days and is distributed through FCHVs in communities with district health staff support. FCHVs also provide re-supply of contraceptives and ORS. In about a quarter of the districts, they also supply pneumonia treatment. The success of service delivery depends heavily on the FCHVs in communities and the level of SHP and HP/PHCC staff engagement.

II. Child Survival and Reproductive Health Interventions

A. Control of Diarrheal Diseases Program, 1982–2002

A.1 Overview

The National Control of Diarrheal Diseases Program (CDD) began in 1982. The standard case management of diarrhea in health facilities and promotion of ORT at home were the main strategies of the CDD program. The program developed standard training modules and trained a critical mass of health personnel throughout the country. A working group comprised of development partners and the MOH served as the driving force for planning, budgeting, and pre-packaged ORS supply (Jeevan Jal packets).

After a comprehensive review in 1991, the CDD program was reinvigorated through district-level planning and community mobilization. District and Village Development Committees (DDC and VDCs) were included in social mobilization activities for the promotion of ORT. Similarly, peripheral-level health workers and FCHVs were given training on home management of diarrhea. By 1996, with FCHVs distributing pre-packaged ORS supplied by the district health system, the accessibility and availability of ORS in the community had increased markedly. Currently, more than a third of all ORS distributed nationally (1.4 million ORS packets) is distributed through FCHVs.

Despite program continuity**,** the ORT use rate has remained fairly flat: since 1991, between 47-50 percent. Contributing factors require further investigation. What is clear is that the strategy of establishing an ORT corner in all health facilities in mid-1990s, and the 1980s promotion of salt-sugar-water (Nun-Chini-Pani, or NCP) were not successful. Nevertheless, the HMIS data suggest that the number of severe dehydration cases and deaths from diarrhea has been reduced significantly over those years. The CDD program has subsequently been merged with community-based ARI (CBAC) and community-based IMCI (CB-IMCI), in 1998 and 1999, respectively.

A. 2 Timeline of NCDD Program, 1982–2002

Year	Activity
1982	National CDD Program (NCDDP) established
1983	Training modules developed and health workers' training begun
1984	First phase of NCDDP in 6 districts
1985	Second phase of NCDDP in 17 districts Diarrhea Diseases Household Case Management Survey
1986	Third phase of NCDDP in the remaining 52 districts Nun Chini Pani (NCP) campaign begun
1987	Nationwide study on container use to prepare ORS
1988	Evaluation of NCP
1989	NCP promotion discontinued
1990	Diarrheal Diseases Household Case Management Survey
1991	Reorganization of MOH NCDDP put under Family Health Division (FHD), losing vertical identity Nepal Family Health Survey Comprehensive review of CDD program
1993	CDD Reactivation Program begun

1994	NCDDP became a section within Child Health Division (CHD) Diarrheal Diseases Health Facility Survey FCHVs included in NCDDP as distributor of ORS packets
1995	Reactivation continued with training of health workers
1996	NCDDP merged into Community-Based ARI Program (CBAC)
1997	C-IMCI included CDD program in selected districts
1998	Survey on FCHV's Knowledge and Activities Related to Diarrheal Disease
1999	A study of the Blue Plastic Cup Distribution Activity, Chitwan District
2000	CBAC and C-IMCI continued
2001	DHS 2001
2002	CBAC and C-IMCI continued

A.3 Indicators, 1982–2002

When the CDD program began, the main indicator for routine monitoring was ORS Use Rate. The rate included packet ORS and home-made solution (nun-chini-pani). Later the rate was changed to ORT Use Rate, which included homefluids in addition to ORS packets or NCP. There have been several surveys of household case management of diarrhea since 1985. The following table shows the trend in ORS/ORT use rate over these years. Despite the program continuing for a long period, the ORT use rate has remained static over the last 10 years (between 47-50 percent).

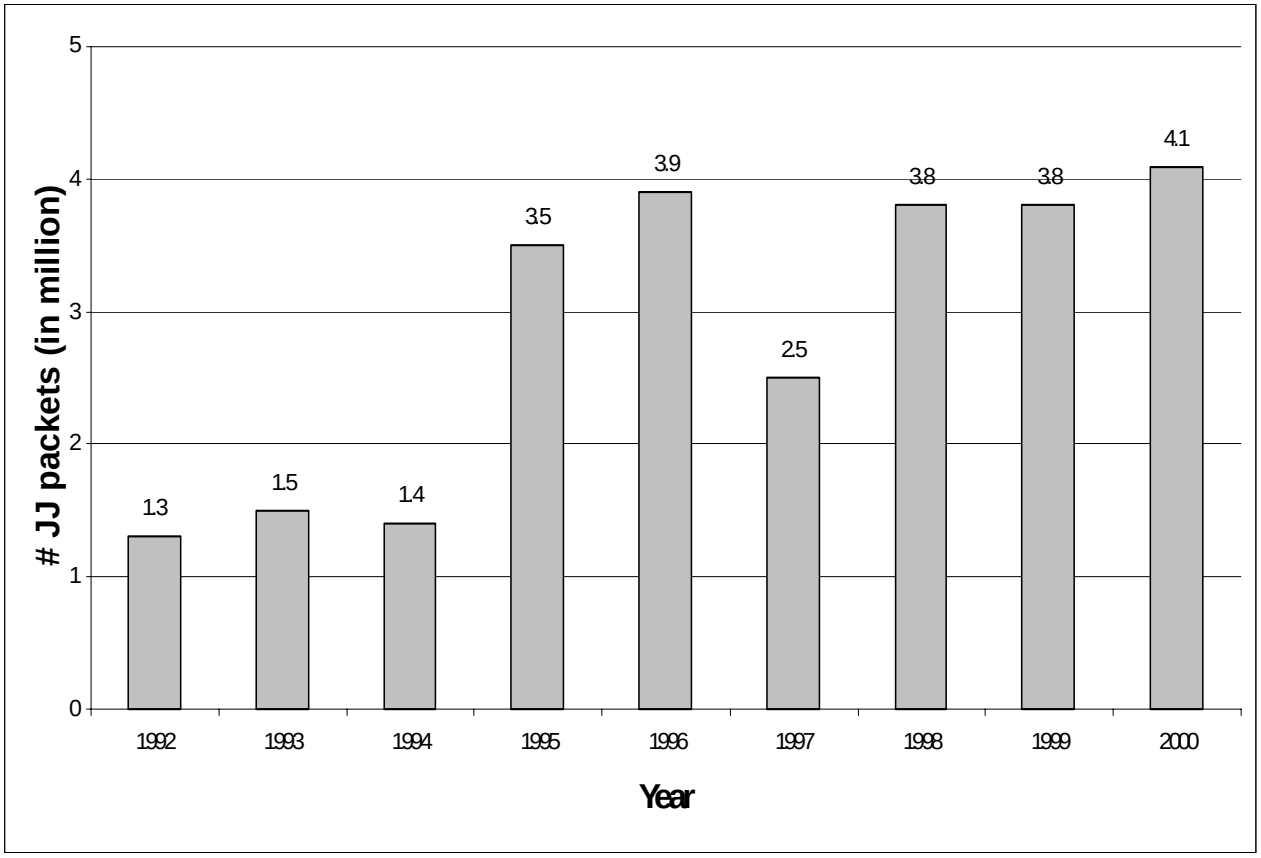
Table 5. Trend in ORS/ORT use rate, 1985–2001

Year	Survey	ORS Packet use rate	Homemade solution / fluid use rate	ORT use rate (ORS packets and home-made solution or fluids)
1985	Diarrheal Disease Household Case Management Survey	14%	12%	26%
1987	Evaluation of the Nepal national home-made oral rehydration solution (NCP) campaign	8%	11%	17%
1991	Nepal Family Health Survey	30%	20%	50%
1996	Nepal DHS	30%	19%	49%
2001	Nepal DHS	30%	17%	47%

Note: Homemade solution is sugar-salt water, also known as Nun-Chini-Pani (NCP)

The HMIS uses three main indicators: incidence of diarrhea, mortality due to diarrhea, and case fatality rate due to diarrhea. The annual HMIS report also includes the number of severe dehydration cases and the number of Jeevan Jal packets (JJ) distributed through the public sector in the districts, peripheral health facilities, and Female Community Health Volunteers (FCHVs). Since 1992 the supply of JJ to the districts has increased more than three times, from 1.3 million packets to 4.1 million packets. Although the incidence of diarrhea among under-five children remained high (13.1–17.7 per 1000), the HMIS data show that the total number of deaths due to diarrhea declined significantly since 1995. Similarly, case fatality rate due to diarrhea for under-five children also declined, from 2.56 per 1000 to less than 1 per 1000.

Figure 8. Jivaan Jal Supply to Districts in Nepal, 1992–2000



Source: HMIS, GON

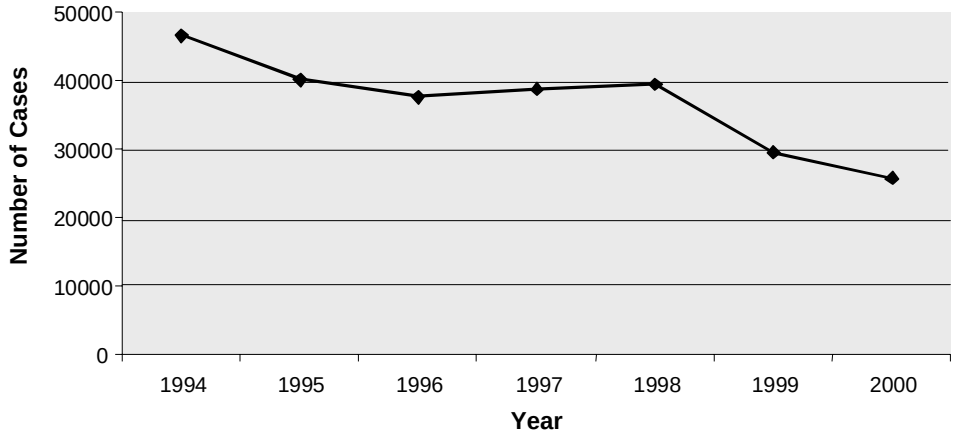
Table 6. Morbidity, mortality, and case fatality rate due to diarrhea, 1995–2002

Year	Incidence of diarrhea/1000 <5 years population	Total diarrheal deaths	Case fatality Rate/1000 <5 years Population
1995	14.3	1279	-
1996	13.1	1010	2.56
1997	15.4	683	1.43
1998	17.1	470	0.9
1999	17.2	655	1.2
2000	16.4	226	0.4
2001	17.7	229	0.4

Source: HMIS, GON

The other indicator collected by the HMIS is number of severe dehydration cases of diarrhea. Since 1994 there has been gradual reduction of number of cases of diarrhea. This is possibly due to increased awareness of ORT and availability of ORS at the community level.

Figure 9. Trends in Cases of Severe Dehydration with Diarrhea in Nepal, 1994–2000



Source: Health records, MOH.

A.4 Policy Highlights

The National CDD Program has gone through a series of policy changes over the years designed to improve progress toward widespread use of ORT. The first policy lasted more than a decade and emphasized case management within health facilities. Use of ORS in the home was added in the mid-1980s through national promotion of Nun-Chini-Pani. Apart from problems with the availability of ingredients, preparation was often imprecise and resulted in ineffective or sometimes dangerous solutions. The NCDDP subsequently abandoned NCP promotion. The other strategy, establishing ORT corners in all health facilities, was largely unsuccessful because diarrhea is highly seasonal, many facilities did not have continuous water supply, and equipment and manpower were insufficient. The approach worked mainly in hospitals where diarrhea caseload is typically high throughout the year.

In 1991 there was a comprehensive review of the CDD program by MOH, WHO, and UNICEF. This resulted in the reactivation program, which built on earlier program components but decentralized planning to district levels.

- Standard case management by health workers, including VHWs
- Promotion of ORT
- Establishment of ORT corners in health centers and hospitals
- Involvement of District Health Management in planning, training of health workers, and orientation of community leaders

In 1996, case management was decentralized even further to focus on VHWs, FCHVs, and local community structures such as VDCs. Policies were put in place to improve home management of diarrhea by providing ready access to ORS packets through FCHVs. In addition, drug sellers and traditional healers were trained, since they were often the first-line health providers sought by families.

In 1998, the CDD program was merged into the ARI program, and in 1999, with C-IMCI. CDD is now addressed in facilities through IMCI policies and in communities through CB-IMCI. The CB-IMCI Working Group, chaired by the CHD, now provides a venue for identifying policy and implementation issues, and for developing solutions.

The collective leadership of the working group has kept the program going and sustained it over … a long period of time.

A.5 Program Components

IEC/BCC

At the beginning of the CDD program, IEC and BCC material was limited to posters for case management in health facilities. Then the UNICEF-supported Nun-Chini-Pani campaign introduced radio jingles, which became very popular. Later still, TV spots were used to promote the packet ORS, Jeevan Jal, and booklets were developed for orientation of VDC and DDC members, along with training manuals for Health Post and Sub Health Post staff. In addition, FCHVs training modules contained messages on dehydration, home fluids, Jeevan Jal mixing and administration, continued feeding during and after illness, as well as a laminated counseling card. On a more sophisticated level, the development of interpersonal counseling skills was emphasized when CDD was integrated into CBAC and CB-IMCI programs.

FCHVs

In 1996, the CDD program modified its strategies to more effectively include FCHVs for promotion of ORT and home management of diarrhea. The FCHVs were given five days of training to support their distribution of Jeevan Jal in the community. FCHVs promoted CDD in mothers group meetings and became key contact persons for home management through home fluids, ORS, and feeding advice. This shift paralleled the activation of FCHVs through ARI and vitamin A programs.

Community Mobilization

Like other country programs in the region, Nepal's CDD program was strongly influenced by WHO, with a strong focus on case management at health facilities. The Nun-Chini-Pani campaign in 1986–1987 was the first attempt to raise awareness and mobilize at the community level. Schoolteachers, community health leaders, TBAs, and volunteers were successfully mobilized; over 100,000 volunteers were trained to prepare NCP. After the CDD reactivation program, program strategy was expanded to include social mobilization—the DDC and VDCs were mobilized for promotion of ORT, and FCHVs were included in the home management of diarrhea. In addition, NGOs began to experiment with activities such as blue plastic cup distribution to reach more households.

Community Mobilization: Blue Plastic Cup Promotion in Chitwan District

Because glasses and other containers used for measuring water for ORS were of different sizes, mothers had difficulty preparing the solution correctly. Providing a standard-sized blue plastic cup (produced locally) to the mothers through community mobilization solved this problem. Thus was launched the Blue Plastic Cup program (BPC).

Four different groups were mobilized for BPC purchase and/or distribution: VDCs, clubs/NGOs, FCHVs and Households. Representative assessments from the Chitwan district of the program's success include:

"They ([BPCs]) are important because during diarrhea they let you measure water correctly to feed Jeevan Jal." —FCHV

"Schools, local clubs and or/NGOs and, most importantly, VDCs, are key to generating community support," —VDC Chairman

"The mothers who received BPCs all demonstrated a thorough and correct knowledge of how to prepare ORS, in contrast to the mothers who did not have BPCs." —A study of the Blue Plastic Cup Distribution Activity, Chitwan District, Nepal, February 1999.

A.6 Program Systems

Planning and budgeting

Planning and budgeting were done at the central level by the NCDDP program using a top down approach. District teams have had little involvement in setting targets or in shaping implementation strategies or budgets. After the reorganization of health system and integration of activities at the district level, the District Public Health Offices became the focal point for CDD district activities, assuming responsibility for planning, training, and distribution of ORS.

Logistics

Production of ORS was a major obstacle at the beginning of the CDD program. At the outset, development partners provided funding for its manufacture by one company in country. (There have also been problems with distribution systems in the past, particularly within districts.) PHCCs and HPs would often run out of ORS, and early FCHV systems were not effective for re-supply. And, although the Contraceptive Retail Sales Company (CRS) incorporated ORS packets along with family planning products and supplied them to shops in remote places, the volume was not sufficient to make ORS available in most villages. In addition, attempts to produce ORS in districts through cottage industries have not had an appreciable effect on accessibility. Gradually, the MOH has absorbed the cost of ORS production and currently supplies most of the ORS distributed through the public and social marketing sectors.

Training

The CDD program invested heavily in training doctors, nurses, and peripheral health workers in case management of diarrhea. Curricula were developed based on WHO modules for health workers and

supervisory skills, and using standard training methods. The training created a large number of providers with adequate knowledge and skill in case management of diarrhea in a health care setting. While the initial training plan was made and managed from the central level, during the reactivation phase, additional modules were developed for FCHVs, drug sellers, traditional healers, and VDC members.

Supervision

Supervision of the CDD program has always been weak. This is due to lack of staff at the central and district levels and because there is little expectation of or support for feedback and improvement as part of central and district staff visits. This situation deteriorated after integrated supervision was introduced—funding and time diminished as the variety of technical areas and health centers to cover increased. In districts where C-BAC and CB-IMCI are active, however, efforts have been made to improve supervision with support from international NGOs. Introduction of supportive and appreciative supervision as well as collaborative work with district health offices has produced encouraging results in some areas.

Data Management

HMIS collects case management data from hospitals and primary health care facilities. The district-level data are then compiled and incorporated into an annual report produced by MOH. The report includes analysis of service statistics, illustrated by tables and graphs. In addition, data are compared with annual targets. The following statistics are produced:

Total diarrheal visits
Total diarrheal deaths
Incidence of diarrhea
Case Fatality Rate
Cases of dehydration:
- no; some; severe
Treatment of diarrheal cases:
- treated with ORS;
- treated with IV fluid
Monthly trend of diarrheal visits
Purchase of JJ
Distribution of JJ to districts
ORT set purchase

A.7 Partnerships and Coordination

Over the years, development partners have provided technical assistance (in a loosely coordinated manner) for training, surveys, promotion, and ORS packet production and procurement. International and local NGOs have aligned themselves with the national CDD strategy of promotion of ORT and case management of diarrhea. The national CDD program has been coordinated through a working group comprised of development partners and the appropriate sections of the MOH, with the CDD Program Manager as the leader. The working group has provided guidance in planning and has mobilized financial and technical resources.

A.8 Program Evolution: Scale, Sustainability, Transformation

The GON is committed to CDD as a priority program. It has kept the CDD agenda active by increasing its budget allocation every year. Currently, the GON supports roughly two thirds of the CDD program,

including the purchase and distribution of over 4 million ORS packets every year. As the program has evolved over time, the community and FCHVs have become more active, extending access and case treatment to the home, where most diarrheas can be managed appropriately. It is expected that the integration of CDD with ARI and subsequently with CB-IMCI will lead to further improvement in the coming years in the promotion and use of ORT and home management of diarrhea.

B. The Nepal Vitamin A Program

B.1 Overview

Undernutrition and childhood infection in Nepal have been historically high, and, although there has been some improvement, it has been difficult to moderate contributing causes. In particular, with limitations in both dietary quantity and diversity, it has been difficult to improve the overall nutritional status of children. Thus, it was logical to respond to the growing evidence of the importance of micronutrients as a way of improving this component of nutritional deficiency.

The prevalence of blindness has also been high in Nepal, and early studies attributed a high proportion to nutritional blindness. In the 1980s several organizations addressed the problem of blindness in Nepal through eye camps that provided cataract and trachoma care, and through distribution of vitamin A for nutritional blindness. This early work helped set the stage for the subsequent evolution of the Nepal Vitamin A Program (NVAP).

The role of vitamin A in child survival programs changed dramatically with the demonstration that correction of the deficiency also reduced child mortality. One of the sentinel studies showing this additional link was in Sarlahi, Nepal. It was followed by a community-based supplement program in Jumla, which also showed mortality reduction. These studies, combined with several studies estimating prevalence, provided a clear mandate for addressing vitamin A deficiency through a national program. Toward that end, a national workshop was convened in 1992.

The workshop resulted in the establishment of a multisectoral task force that developed guidelines for the national program. The guidelines included supplementation as a short-term strategy, and dietary diversification as a longer-term goal. Thirty-two priority districts were identified as a focus for initial efforts. Although the Nutrition Section of the MOH had fewer than 10 staff members, significant support from higher ministry levels allowed the program to be launched in 1993. Additional support came from both local and international NGOs, from the USAID-funded Vitamin A Field Support Project (VITAL), and from UNICEF, which provided vitamin A capsules. Implementation was carried out through a newly formed Vitamin A Technical Assistance Group (TAG), which subsequently became the National Technical Assistance Group (NTAG). NTAG continues to implement the program throughout the country.

Implementation in the initial 32 districts was highly successful. The strategy used included twice-yearly, fixed-date, 2-day campaign distribution; close record keeping; and mobilization of FCHVs for distribution. The program was phased in gradually, district by district. By 1997, all 32 districts included in the program were achieving high coverage. With this success, the program was gradually expanded to cover the entire country; all 75 districts were included by 2001.

The program has been successful country-wide, achieving over 80% supplement coverage in all districts. There has been no decline over time, even in districts with minimal input from NTAG. There is also evidence of a strong association of the program with the continued reduction in child mortality, as is demonstrated by the 1996 and 2001 DHS. In addition, there is evidence of empowerment of FCHVs and of strong community support, including a growing number of village development committees establishing endowments for FCHVs, with carryover to other programs also seen. In addition, there continues to be strong support from caregivers for the program. Given the magnitude of this success, there clearly are lessons to be learned from the history and implementation of the NVAP.

B.2 Timeline

See end of section

B.3 Indicator Tables

See end of section

B.4 Policy Highlights

The vitamin A program is a striking in its lack of difficulty with policy development and acceptance. International guidelines for management of nutritional blindness and eye findings were accepted early, and given the early mortality studies, it was not difficult to include supplementation. Thus policy issues were not of concern for the early eye programs, nor for programs using supplementation during the Sarlahi and Jumla studies.

In 1992, following the National Vitamin A Workshop, the MOH approved two policies—one for supplementation of children 6-60 months old, and the second for treatment of children with measles, severe malnutrition, prolonged diarrhea, night blindness, or ocular signs of deficiency. These policies, with minimal modifications, have remained in place, with Nepal smoothly incorporating policy improvements and new recommendations based on revised international guidelines.

In country policies and guidelines that sanction vitamin A supplementation by FCHVs have been key to program success; they were more readily accepted as appropriate than others, such as FCHV distribution of antibiotics for ARI. While policies affecting the logistics of medication distribution to health facilities have generally supported treatment protocols, the twice-yearly distribution of vitamin A meant that it was initially difficult to include capsule logistics as part of the overall health facility supply system. Similarly, it has been difficult to fully incorporate the capsule distribution by FCHVs in the HMIS monitoring system because a clear mechanism to move FCHV register data to the health facility-based reporting system is lacking.

Nepal's vitamin A policy has been influenced by ongoing research. Recently, new policies have been implemented to address vitamin A deficiency during pregnancy and lactation—directly addressing in-country research findings showing high prevalence of deficiency in pregnant and lactating women, and suggesting improvement in maternal mortality with supplementation.

B.5 Program Components

IEC/BCC

From its inception, the NVAP has included a strong IEC and behavior change component. This has been in part because of the dual objectives of the national program—supplementation *and* dietary change. For the former, it was necessary to develop materials for FCHVs and health facility staff, and to ensure participation in the twice-yearly distribution. For the latter, it was important to integrate dietary messages in all elements of the program.

From 1993 to 1997, during program implementation in the 32 priority districts, core materials for the program were developed. These included guidelines, case treatment protocol cards, and a short overview designed for health staff. In addition, a flipchart was developed for use by FCHVs at the community level, along with a variety of job aids that evolved as FCHVs took on more responsibility for other programs.

During this initial period calendars, posters, a newsletter, cinema slides, and radio programs were also developed to promote the distribution and awareness of the overall program. Over time, a variety of other communication and education methods have been used. These have included community parades that typically involve schools, theatre performances, and a unique magic show that highlights the importance of dietary sources of vitamin A as well as participation in distribution.

The program has also benefited from a significant amount of field time for supervision and support. These visits are designed to reinforce program messages using a variety of program tools. The also include exploration of cultural differences between ethnic groups in order to identify optimal communication channels and how to modify methods to capitalize on existing channels.

Although FCHVs have been trained to do some education during the vitamin A distribution, in practice this has proved somewhat difficult, since typically there are large numbers of children waiting to be dosed, often brought by siblings or neighbors rather than primary caregivers. However, FCHVs have been able to promote green leafy vegetables and yellow fruits and vegetables as appropriate dietary sources, and monitoring data over time suggest improvement in awareness of these sources. Whether this has been successful in improving dietary intake nationwide is not yet documented.

FCHVs

The success of the NVAP has depended on FCHVs—without their commitment to distribution, the program is unlikely to have achieved and sustained its high coverage. The FCHV program was established well before the NVAP. However, in the early days of the FCHV program, the role of the volunteer was not very clear, and there was somewhat limited community endorsement for FCHVs, and limited support from the government. With vitamin A capsule distribution, and with the apparent caregiver perception that the supplementation made their children healthier, a positive feedback loop has been established between communities and their FCHVs. This has had the effect of empowering FCHVs, and sustaining demand for their services.

Initially, the program trained and mobilized 17,000 FCHVs in the 32 priority districts. Training included program basics and management of distribution campaigns. Each FCHV was given a shoulder bag with the vitamin A logo, a flipchart and posters, and a register to record participation. This approach has been maintained as the program expanded.

Early in the program, some FCHVs were compensated for their work on an experimental basis. Compensation created a different dynamic within their communities, however, and appeared to threaten the long-term sustainability of the program. Review of these experiments suggested that the real motivator for FCHVs was not necessarily financial (which in any case would not be affordable for the MOH on a large scale), but rather their support from the communities they serve. It became clear that for the program to be sustained, some effort needed to be made to build community support mechanisms. Careful attention has therefore been given to financial management with regard to FCHVs. This has included discouraging compensation while at the same time working with community groups to secure some financial support. Thus the NVAP has developed a system to generate endowment funds managed by the VDC. These funds generate small interest payments that can be used to purchase tea and other tokens of support for FCHVs in recognition of their work.

The work of FCHVs has always been performed in the context of community and health facility support, and this has been reflected in the nature of both training and supervision. For example, training has always been multisectoral at the community level, and has included all levels of the health facility staff. And supervision serves to maintain community leader awareness and commitment from health facility staff. Introduction of the program to a district has been gradual, in part because of the importance placed

on orientations for a wide variety of community groups. As a result, the program is well known at the community level, and the role of the FCHV clearly defined. This approach—moving from a standard training to a comprehensive involvement of the whole community—has been one of the key elements of the success of the program.

Community Mobilization

The Vitamin A Program has depended on caregivers bringing or sending their children to distribution points for to receive the capsules, and doing so on a regular basis twice yearly until a child is over five years (60 months) old. Coverage figures suggest that the program has been successful in mobilizing caregivers to do so.

The program has used a variety of methods to mobilize communities. By phasing in the program district by district, NTAG has been able to operate with an adequate number of staff in the field during distribution, and to encourage district staff, donors, and central MOH staff to observe distributions. This approach, plus IEC efforts, have built broad-based awareness of the Vitamin A Program. The approach has also allowed district staff and community leaders to decide what methods to use to encourage local participation. In some districts, teachers have been actively involved while in others, the VDCs have played a more significant role. The periodic nature of the intervention, along with its simplicity, may also contribute to its success. Finally, the perception of benefit from the capsule itself may be a powerful motivator for participation.

Thus, the relative ease with which the program achieves ongoing participation may relate to:

- Apparent benefit to the health of the child, and rarity of side effects
- Familiarity and trust with the FCHV
- Low rate of capsule shortage
- Consistency of the intervention—occurring regularly every Spring and Fall
- Community-based nature of the intervention, with services brought close to homes

The polio eradication campaign, largely carried out through National Immunization Days NIDs), has also achieved high coverage rates through significant community mobilization. In contrast to Vitamin A, the cost for NIDs has been high, in part due to a more complex intervention and in part due to higher funding levels for activating staff and community groups. In addition, the long-term sustainability of the polio campaign carries higher costs. The global eradication goal for polio has justified these additional costs. In contrast to polio eradication, once a district has received training and initial support for vitamin A, the ongoing costs are quite small.

B.6 Program Systems

Planning, Budgeting, and Leadership

The national Vitamin A Program falls under the Nutrition Section of the MOH. From its inception, however, the ministry has used the services of a Nepali NGO to help implement the program through the government health infrastructure, including FCHVs. This arrangement is somewhat unusual, with the ministry setting policy and providing oversight to the NTAG, which has been given a 10-year period to implement the program nationwide. NTAG has also had responsibility for designing a budget to support implementation.

The NVAP is planned at the central level, supported at the district and community level, and once established, continued by FCHVs at the community level. The budget includes a significant donor contribution for establishing the program in a district (with support from central program staff), and for supply of capsules. Once established in a district, support from central program staff is limited. Instead, the work is included as part of the annual activities of FCHVs, with minimal additional cost to the government (assuming continued provision of capsules from donors).

The model for expansion has been to lay a foundation for the program in selected districts each year. Following the first distribution in a new district, central staff provides additional support. After two distribution rounds, however, the districts manage the program themselves, with limited support and 'backstopping' from central staff. Thus planning has involved creating and refining a system for introducing the program; then providing support and monitoring results.

In addition, planning has been data driven, with the initial 32 districts chosen on the basis of high prevalence rates, and with ongoing district support determined by coverage rates and logistic issues.

The program has also benefited from strong central leadership support at critical stages. The early work on eye findings and the research projects completed in 1989–1990 established the scientific basis for the program and allowed rapid policy development. Early support at MOH senior levels allowed rapid progression from the National Workshop to implementation in the selected initial districts. For example, recognizing the value in complementing the small MOH Nutrition Section with an implementing NGO partner expanded the manpower available to develop the program. And leadership within NTAG further grounded the program through use of participatory training methods, supportive and positive supervision approaches, and persistent solicitation of support for FCHVs.

Logistics

Logistics for the NVAP center around capsule supply and supply of IEC materials and supplies for FCHVs. Logistic supply is thus less complex than for other programs such as EPI or Family Planning programs. To date, there has been little reduction in coverage from capsules not being available at distribution sites.

However, capsule supply has not fit easily into the overall MOH drug logistic system because of the program's twice-yearly distribution schedule. Thus, while the routine drug distribution system has been effective in getting vitamin A to health facilities for case management, a separate system has been needed to get the population-based quantities to FCHVs in time for each distribution. This has been accomplished with support from NTAG, which helps districts with estimates of need, and provides emergency allocations when the routine distribution system has not provided adequate capsules for a given distribution.

The program benefits from the fact that the capsules are light and easily transported, with no cold chain requirements—capsules have a long shelf life when properly stored. The quantities needed by any given FCHV are small, and easily carried. The initial training and subsequent annual refresher meetings often provide a venue for re-supply prior to each distribution. However, refresher meetings are not always held, leaving FCHVs dependent on VHWs for re-supply. While this link with outlying health facilities is not always reliable, FCHVs nevertheless manage to get the capsules they need in a variety of ways, and shortages have been minimal.

From the program's inception, capsule supply to Nepal by UNICEF has been excellent. It does, however, require close cooperation among other donors, coordinated by UNICEF. No distribution has been delayed due to lack of capsules at the national level. In the past 3–5 years, improvement in the national logistic

system (including the logistic information management system (LMIS)) has made logistic supply to districts much easier. This has reduced the need for logistic support from NTAG, increasing the sustainability of capsule supply.

Training

The initial training program for NVAP was extensive, and has been a critical element of the program's success. Each district, when incorporated into the program, received training support from NTAG, and this support was consistent from the beginning of the national program in 1993 to completion of all districts in 2001. The training consisted of:

- Introductory multisectoral training that built awareness and introduced the basic elements of the national program
- District health facility staff training that helped build support for logistic management and FCHVs as well as clinical case management
- FCHV training that built skills in community mobilization, capsule distribution, and nutrition education.
- Refresher training to help with supply logistics and to support advocacy for the program.

NTAG performed the trainings through coordination with district staff prior to the first distribution for each district. NTAG then supported the district with refresher training prior to the second distribution. After the second distribution, training became the responsibility of the district, with NTAG providing some backstopping on request, or in response to concern about coverage or other program elements. NTAG also assisted with orientations for specific groups; with advocacy at the national and district levels; and with technical and advocacy meetings in support of the national program.

The style of training has been important because it has helped build support and self-sufficiency at the district level. Training was fully participatory, and designed to allow time for addressing specific questions and concerns from district staff. FCHV training was also participatory, with demonstrations and practice sessions. Refresher orientations were designed to address issues that FCHVs raised, allowing them to find solutions to common problems. The time devoted to developing the curriculum for each training aspect was initially extensive. With refinements over the years, it serves as a model for other national vitamin A programs.

Supervision

The NVAP program has emphasized support for districts and their FCHVs from the beginning, with supervisory visits done frequently as a district begins the program. In addition, this field time is used for program promotion, and to answer questions and address concerns. Thus each contact that NTAG staff has with district staff or community members has served to build awareness about the importance of the program. In addition, NTAG has actively recruited others to visit distribution sites during each distribution, including senior MOH staff and key donor representatives. Supervision has not been used for evaluation, and thus is not premised on critical review. Instead, supervision has been designed to support those doing the distribution, helping find solutions to common problems. This philosophy has contributed to the acceptance of the program, and ultimately to ownership at the district level.

Supervision has, however, been used for monitoring, with field visits resulting in short checklists and reports fed back to NTAG. This information has been used to understand how NTAG can improve its support at each level, and also to understand some program elements that can not be monitored by other

means. This has included assessment of FCHV knowledge, and distribution of appropriate capsule by age, based on observations at distribution sites.

NTAG thus provides ongoing support for districts, based on expressed need. This includes support for refresher training, support for promotional efforts, and logistic support.

Data Management

The critical indicator of NVAP success is capsule coverage. Indicators of dietary awareness are also important, although it has been difficult in Nepal (as well as other countries) to change dietary behavior even with improved awareness. Indicators of quality of services, and of logistic supply are also important, particularly if coverage is not optimal. These indicators have been monitored using a variety of methods.

Routine data collection for the HMIS initially did not include any indicators for vitamin A. Nor did the HMIS include reporting of services provided by FCHVs. Thus, there were no data available from routine reporting relating to the vitamin A program. In 1996 vitamin A distribution from health facilities was reported, but this reflected mostly clinical case treatment and some, but incomplete outflow of capsules to sub-health posts for distribution. For this reason a separate monitoring system was designed to provide coverage information, and trend information for a selection of other indicators.

From the beginning of the program, however, population-based district mini-surveys were developed to ascertain coverage, and these have continued. The surveys use an EPI cluster methodology and a well-tested household algorithm to determine the proportion of children who have received a capsule during the last distribution. All districts new to the program have been surveyed following their first distribution, with a random selection of other districts surveyed **after** each distribution. The program has been able to survey an average of 15–20 districts each year.

In 2000, an aggregate data set was created, combining all mini-surveys. This data set allows review of each indicator over time to monitor trends. Although the mini-surveys have evolved over time, most indicators have been preserved, including indicators of awareness of vitamin A-rich foods and awareness of the consequences of vitamin A deficiency, among other variables.

There has been some controversy about the validity of this means of coverage assessment: since the mini-survey is completed by those responsible for the program, there is the potential for bias. From the beginning, however, the training of the enumeration teams completing the mini-surveys has stressed accuracy and data quality. Nevertheless, to address these concerns a number of independent coverage assessments have been completed. These include an assessment in the Karnali zone in 1997; the Nepal Micronutrient Status Survey in 1998; the UNICEF BCHIMES survey in 2000; and the recent DHS in 2001. These have all confirmed the basic coverage estimates by the program itself.

In addition, the mini-surveys have provided information beyond coverage, and this information has been used by a number of other programs. For example, additional modules have been added to provide data on the CDD/ARI and IDD programs, as well as on de-worming and anemia. Modules have also been added for NGO-specific program needs. In addition, data collection methods and mini-survey results have been shared among district staff as well. This has resulted in better understanding of the program as well as a greater sense of ownership at the district level.

B.7 Partnerships and Coordination

The success of the NVAP has been greatly enhanced by coordination and collaboration among multiple partners. For example, there has been a strong partnership between USAID and UNICEF, and more

recently, with AusAID. This has involved working around security issues that had been preventing some donors from funding activities in some districts. There has also been good coordination among these donors in integrating vitamin A program activities with other program needs, such as the addition of other modules to the mini-surveys and integration of several IEC activities. Coordination among donors has resulted in relatively stable funding for the program as it expanded to all districts over a 10-year period.

The program has also involved multiple NGOs. As noted above, NTAG itself serves as the implementing NGO for the national program. In addition, NGOs with a strong district presence have been recruited to both help establish the program and provide ongoing support. These NGO partnerships began with those involved with eye care; they have continued with support from CARE, SCF, and HKI, among others. NTAG has been skillful in defining clear roles for NGO partners, while maintaining consistency in program introduction.

B.8 Program Evolution: Scale, Transformation, and Sustainability

There are a number of unique elements in the development of the NVAP. The first is its evolution from basic research to its phased implementation until all districts were included. The program capitalized on the initial research (which demonstrated high levels of deficiency and reduced mortality with supplementation) by shaping a national policy and then launching a program to implement that policy, starting with the most highly endemic districts. With success in these initial efforts, the program gradually expanded.

Second, the program developed a set of tools and methods for training, supervision, and monitoring that remained consistent as the program was established in successive districts. This was made possible in part by the consistency of the technical implementing group, NTAG, and its unique relationship with the MOH. With each distribution, NTAG evaluated its own performance in regard to training effectiveness, community involvement, and, ultimately, coverage. NTAG thus developed and refined an approach that worked, and applied it until all districts were included. In particular, the approach stressed quality—quality of training, quality of supervision, and quality of monitoring—and used the results to successfully advocate for the program's expansion.

Third, the program generated ownership at the community level. This was done in part through continued lobbying for support for FCHVs, and through the multisectoral orientation of community members. In addition, mothers' groups played an important role, helping to select and then support the FCHVs. While the nature of the intervention undoubtedly contributed to such community-level commitment, NTAG also made a contribution by stressing that the program was carried out by and for community members. And, although NTAG operated somewhat independently at the central level, perhaps reducing initial government ownership, at the district and community level, commitment was strong. The strength of community commitment is seen in the dedication of the FCHVs, who continue to work without compensation. It is also illustrated by the increasing number of VDCs that are establishing endowment funds in support of the FCHVs.

Fourth, the program did not rush to expand. After the initial 32 districts were completed, there was some pressure to expand rapidly, with the goal of reducing the time that deficient children would carry a higher mortality risk. However, there was concern that rapid expansion would not allow an adequate foundation to be built in terms of district and community support. In addition, accelerated expansion would have required greater manpower, which could have undermined attention to the quality of program elements, and reduced the level of sustainability that has been achieved.

Finally, the program does appear to be sustainable. Coverage has remained high, with no decline so far. Nor has NTAG support decreased. Over time, logistic supply has improved, with NTAG devoting less

time to emergency logistic management. And districts continue to support the distributions, with greater involvement of health facility staff and ongoing commitment by FCHVs, in spite of additional responsibilities added to their repertoire.

Table 7. Nepal Department of Health Services Annual Report: Objectives and Strategies for NVAP

Year	Objectives	Key strategies	Indicators
1996	To virtually eliminate vitamin A deficiency	Supplementation Advocacy for dietary change Training for case management Post-partum supplementation	Vitamin A supplement coverage
1997	same	same	same
1998	same	same	
1999	same	Added: Explore fortification of suitable food vehicles Strengthen use of vitamin A treatment protocol Advocate for low-dose vitamin A during pregnancy	same
2000	same	same	same

The Evolution of the Nepal Vitamin A Program: Chronology

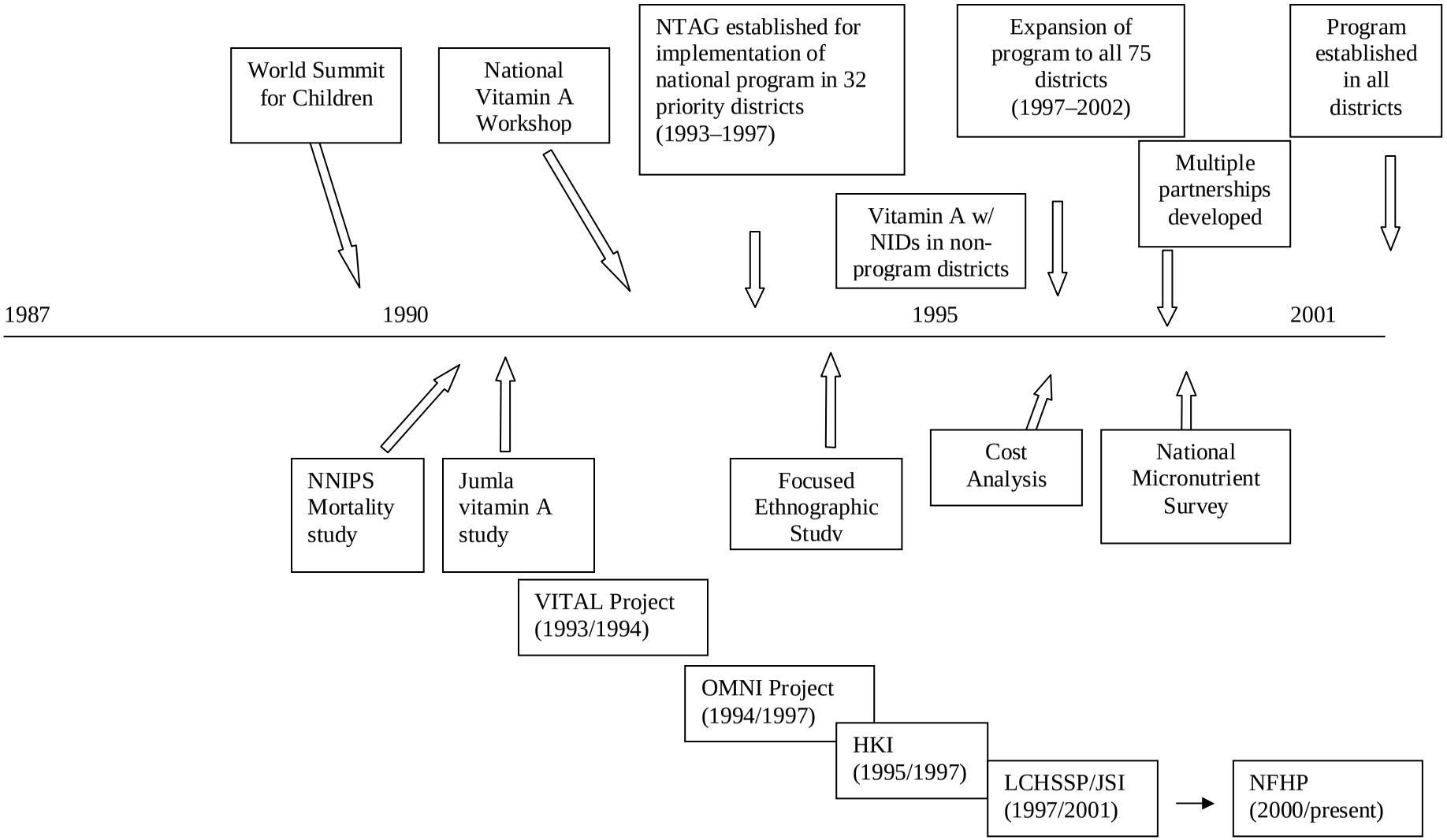


Table 8. Vitamin A Program Indicators over time from Benchmark Surveys

	1993[1]	1995[2]	1996[3]	1998[4]	2000[5]	2001[6]
Mean serum retinol (<5y/o)				0.89		
Percent low serum retinol (< 0.7 umol/l)				32.3%		
Bitot spot prevalence	3.1%	0.9%		1.9%		
Child night blind prevalence		0.9%	1.0%	1.2%		
Pregnant and lactating women night blindness *			18.0%	16.7%		19.6%
Percent coverage in pgm districts		66.0%		87.4%	89.5%	
Percent national coverage (all districts)			32.0%			81.0%
* In last pregnancy						

[1] New Era, Report on the prevalence of xerophthalmia in 10 districts of the mid- and far-Western districts of Nepal, Kathmandu, Nepal, USAID, 1996.
[2] Children and Women of Nepal, 1996: from MOH, STC, UNICEF, CIDA and NMIS reports
[3] NFHS, 1996
[4] Nepal Micronutrient Status Survey, 1998
[5] BCHIMES, 2000
[6] NDHS, 2001

Table 9. Vitamin A Program Indicators over time from Department of Health Services Annual Reports

	1995	1996	1997	1998	1999	2000
Blindness	10247	8964	7782	7034	7327	7860
Blindness as % of OPD visits	0.05	0.042	0.036	0.032	0.032	0.0334
Hospital measles cases			140	158	244	277
Hospital measles crude fatality rate			2.9	1.9	0.4	0.4

Figure 10. Blindness in Nepal, 1995–2000

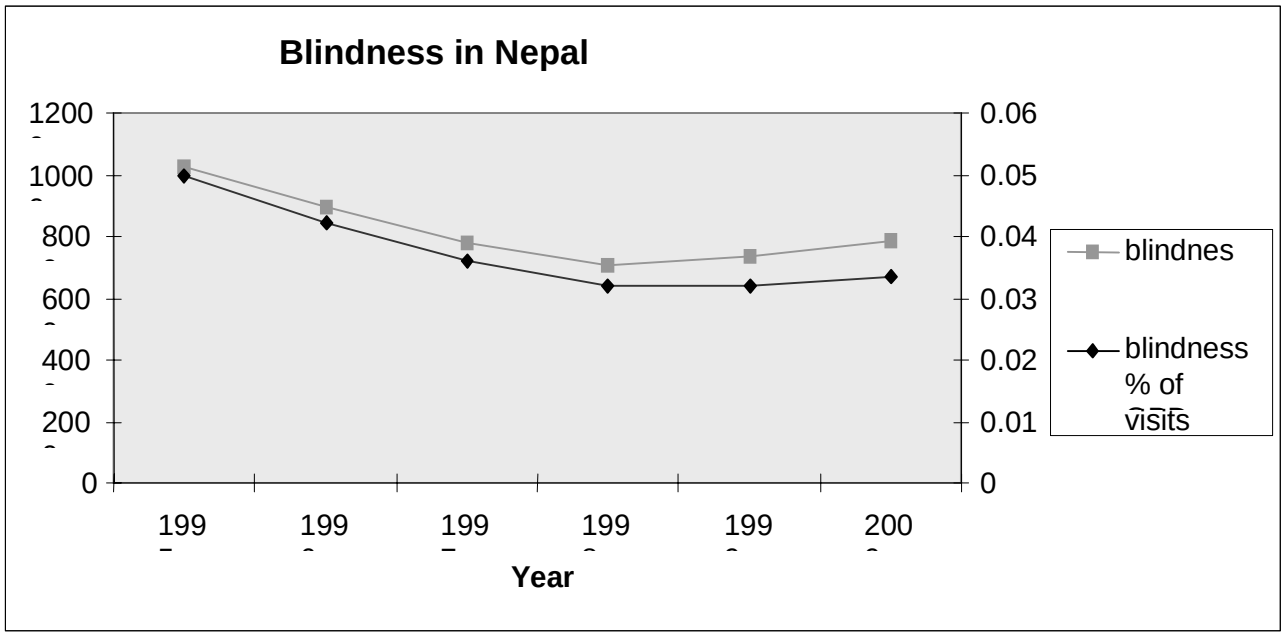


Figure 11. Hospital reported measles, 1997–2000

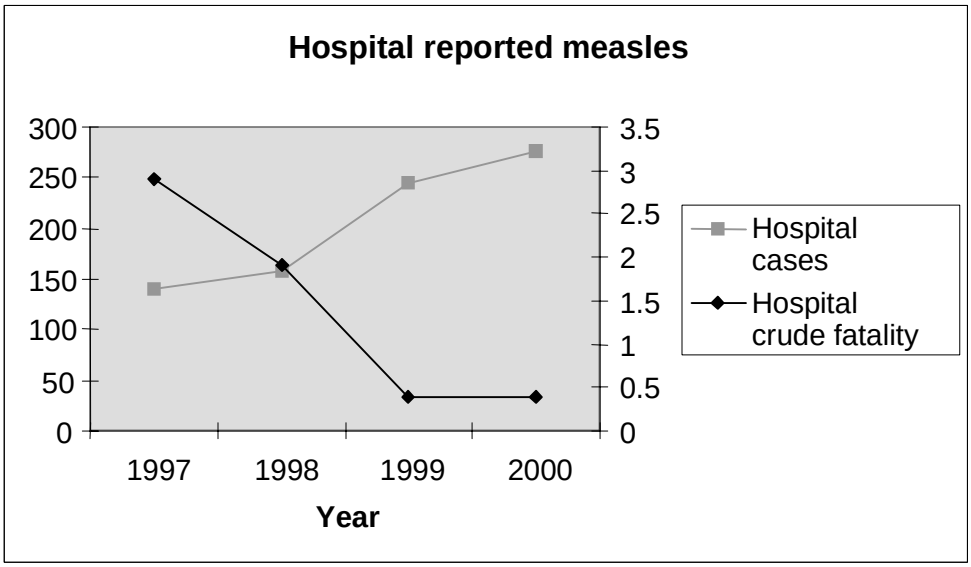
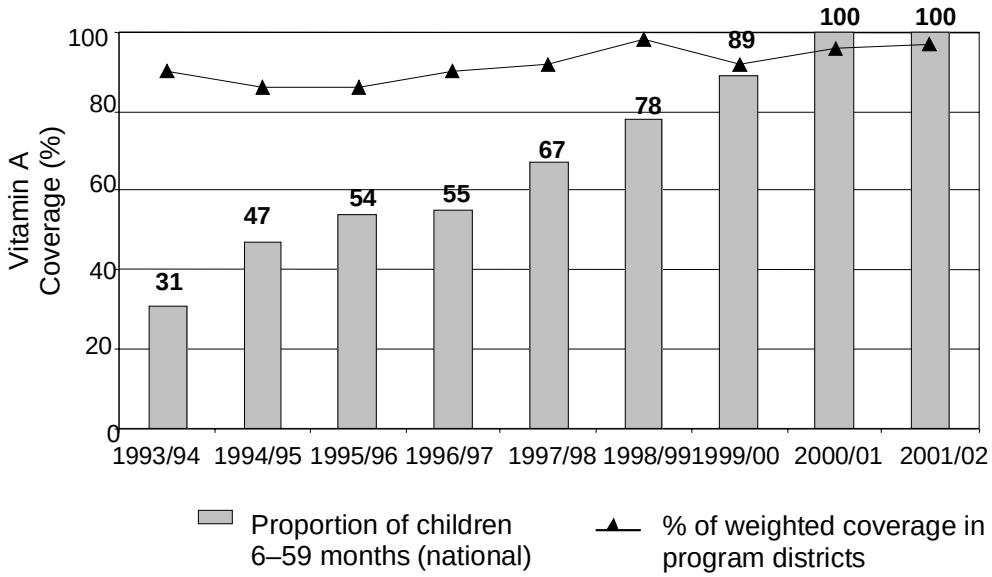


Figure 12. National Vitamin A Coverage



Source: NTAG/MOH Postdistribution mini-surveys

Figure 13. Cumulative Number of Districts Covered by NVAP

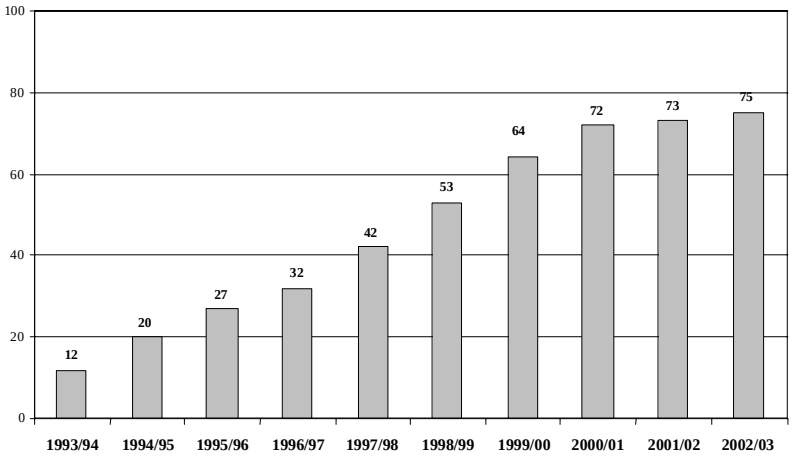
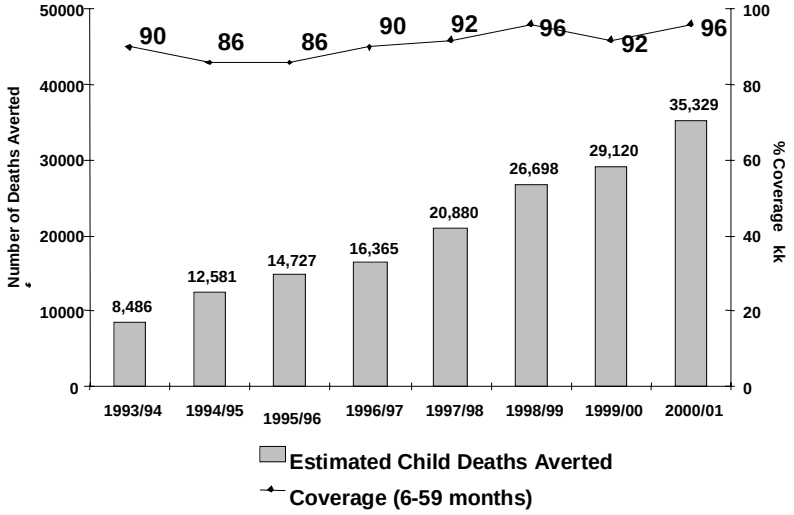


Figure 14. Child Deaths Averted by Vitamin A Supplementation



C. The Nepal ARI/IMCI Program

C.1 Overview

Pneumonia, or acute respiratory infection (ARI) has been recognized as one of the two leading causes of child mortality for some time in Nepal. Basic training for health workers has therefore included management of pneumonia. In spite of this training, however, relatively few pneumonia cases reach health facilities, and those that do may not do so in time. For this reason, alternative ways to improve case management of pneumonia in Nepal have been explored. Initially, two research projects established the fact that case management could be improved by bringing services closer to communities through the use of trained community workers. Furthermore, one study demonstrated that community-based treatment reduced child mortality. This work was expanded to two more districts, and ultimately led to a controlled operational research program.

The operational research allowed comparison of a referral model against a community treatment model, using FCHVs for case management. The results, reviewed by a WHO technical committee, supported community-based treatment under WHO diagnosis and treatment protocols. This work resulted in expansion of community-based treatment first to an additional 14 districts, and later to 21 more districts. The expansion also included management of diarrheal disease and, more recently, movement toward a full community-based IMCI model.

From the beginning, the community-based component has been tied to orientation of health facility staff in order to provide optimal support for FCHVs and for referred patients. This approach has continued as the program has expanded; currently there is a link between the health facility-based IMCI training and the community-based component.

The program has been successful, although it has not yet reached all districts. Although it has not been possible to measure child mortality, the proportion of expected cases receiving treatment has increased dramatically in program districts, and there is a suggestion that the proportion of severe cases seen at health facilities has decreased. Quality of care indicators suggest that there is almost no inappropriate use of antibiotics, and that the program is well accepted in communities.

Nevertheless, a number of issues currently face this program. First, there is no finalized policy for community-based treatment of pneumonia, and there are still concerns in the MOH about use of antibiotics by lay workers. Second, the complex program is difficult to launch in districts, and, when combined with the IMCI health facility training, is costly. Third, the program has been less successful for other aspects of the overall IMCI package, with some family planning activities receiving inadequate attention. Finally, the amount of centralized support needed over time is not known, raising some concerns about whether the program can become self-sufficient with minimal external input supplementing the internal inputs that the government and districts can provide.

C.2 Timeline

See end of section

C.3 Indicator Tables

See end of section

C.4 Policy Highlights

The policies regarding ARI are evolving. There is a clear commitment by MOH to reducing the under-five mortality from ARI, and strong support for the IMCI approach. However, the policy for case management, including antibiotic use by FCHVs, is not yet firmly established, and debate continues on this subject.

Community-based treatment through FCHVs evolved from the early pilot studies to ARI programs in selected districts (the Community-Based ARI Program or CB-ARI), to inclusion of diarrhea interventions (Community-Based ARI and CDD or CBAC) and finally to the community-based component of IMCI (CB-IMCI).

The Department of Health Services' Annual Report (2000–2001) defines the current indicators used for monitoring progress with ARI management. These include the ARI-specific mortality rate, the ARI case fatality rate, and pneumonia incidence. The general strategies include education of mothers; training health workers, including CHWs; and utilization of "operational studies to define local ARI problems and to measure the effect of introducing new ARI approaches." Furthermore, the specific strategies mentioned in the Ninth Five-Year Plan are:

- Training all levels of health workers
- Expanding community-based IMCI training in two more districts
- Supplying cotrimoxazole pediatric tablets and timers to all FCHVs in 11 districts.

Thus, the policies are clear regarding the importance of ARI and the need for improved facility-based case management. They are less clear, however, for long-term case management by community volunteers.

Several other policy issues have affected the program. First, the WHO guidelines and training materials were adopted early, and by the 1990s were incorporated in all aspects of training. Second, while structural changes within the ministry, such as creation of the Child Health Division, may have changed training implementation, they did not affect the basic mechanisms for ARI training and subsequent IMCI training. Third, while policies affecting the FCHV program have the potential to influence the community-based segment of the program, to date they have not prevented slow expansion of CB-IMCI, including treatment by FCHVs.

C.5 Program Components

IEC/BCC

In spite of pneumonia playing such a large role in child mortality, there has not been a large-scale, focused educational campaign for ARI management directed toward the entire population. Early in the program, when the emphasis was on treatment at health facilities, very little was done to encourage early diagnosis and treatment. However, with the evolution of the CDD program (which included ARI), there have been efforts directed toward specific messages for parents with sick children, such as the importance of continued feeding during illness. The messages have been developed in response to KAP findings from small surveys and other program data. And WHO-recommended messages have been included in training at all levels: for example, health workers are trained to convey important messages for caregivers. Some additional work has been done with retail pharmacies to try to improve appropriate use of antibiotics. However, in general, this component of the ARI program has not been prominent.

With its inclusion of the IMCI module, there has been a greater emphasis on the importance of counseling and education at health facilities. The community-based, or CB-IMCI component contains more targeted messages to caregivers, including recognition of symptoms and more timely self-referral.

FCHVs

FCHVs had no initial role in ARI management; efforts were limited to case treatment at facilities. In 1986, studies were initiated in Pharphing and Jumla that were designed around the use of "ARI workers" who were trained to recognize and treat pneumonia through active case detection. The Jumla study included enumeration of births and deaths, and was thus able to estimate the program's impact on mortality rates. These studies were important for Nepal because they demonstrated that lay workers could manage pneumonia using the WHO-recognized diagnosis by counting respiratory rates and using standard treatment protocols. The Jumla study showed increasing community utilization of services and a significant reduction in child mortality. Neither study showed significant inappropriate antibiotic use.

These studies were operationalized in two additional districts, Dang and Chitwan, through pilot projects. These pilot efforts highlighted two important program elements: First, training needed to be focused and thorough, with attention to both supportive supervision and to refresher meetings. Second, cotrimoxazole supply was critical, with interruptions undermining the credibility of the community workers. The studies again demonstrated that community-based treatment could be delivered, and that quality of care could be maintained.

Broader application of these sentinel efforts was delayed, in part because of ongoing debate on policy issues and in part because of funding difficulties. In 1995 a working group was established that included key members from the ministry, UNICEF, USAID, and other technical experts. This working group helped to establish the ARI Strengthening Program, which then launched the final definitive study in four districts.

This study was designed to compare two districts in which FCHVs would be trained to diagnose and refer and two in which they would be trained to diagnose and treat. The study looked closely at quality of care, including the degree to which FCHVs followed the WHO guidelines; their accuracy in diagnosis; their decisions on referral; and in treatment districts, adherence to age-appropriate dosing and treatment. An external assessment of the studies concluded that the treatment model was more effective, and that it should be cautiously expanded.

This set the stage for the subsequent use of FCHVs for community-based management of ARI, and a program was developed to expand the treatment model to 14 districts over several years. This expansion, now up to 21 districts, has included strong supervision, and close attention to appropriate treatment. All the quality of care indicators have remained strong, with no evidence that community workers contribute to inappropriate use of antibiotics, or delays in referral of very severe cases.

Community Mobilization

Community mobilization has been a component of the community-based ARI program, although perhaps not as intensely as in the Vitamin A program. FCHVs themselves serve as community mobilizers by encouraging caregivers to bring children with ARI symptoms to their attention for correct diagnosis. In addition, the program includes orientation for community leaders and members of the VDCs as well as different community organizations, such as Mothers Groups.

Whereas broad community mobilization is critical for a twice-yearly event such as vitamin A supplement distribution, the day-to-day ARI program has depended on individual FCHVs to generate trust and self-referral.

C.6 Program Systems

Planning, Budgeting, and Leadership

With regard to planning and budgeting, there has been a somewhat parallel evolution of the health facility-based segment of the ARI program and the community-based component. Initially, ARI management was incorporated as an integrated component into health facility activities, which allowed centralized and district planning for training and logistics management—all done as part of overall health service delivery planning.

Planning for facility-based ARI management changed with the establishment of the National ARI Control Program and the solid incorporation of WHO guidelines in 1988. This provided new impetus for improving capacity at all levels within health facilities, and also led to support for incorporating the findings of the various studies on community-based treatment. With the establishment of the ARI Working Group in 1990–1991, planning became a coordinated effort between the government, key Nepali scientists and technical experts, and donors.

Community-based programming evolved less from initial focused planning than from completion of different studies by different groups in different parts of the country. While the studies provided early proof of the capacities of lay community workers, the implications of the findings had not yet become mainstream within WHO or other international organizations. Thus centralized planning for incorporating these findings was delayed in Nepal; it was not until the pilot study on referral vs. treatment that community-based treatment gained acceptance. And even with such acceptance, the government has moved cautiously with expansion to additional districts.

Planning for the community-based ARI component has also been intertwined with planning for the overall FCHV program. Thus decisions affecting such steps as the expansion to population-based FCHVs has carried implications for the ARI program. Other programs also influence the prioritization of FCHV activities, with a resulting impact on how refresher training is done. However, there has not been a good mechanism for planning and integration of the interests of other programs and their use of FCHVs, beyond perhaps the link between ARI and vitamin A programs.

The ARI Working Group has remained key in the evolution of subsequent activities, continuing as an active group with regular meetings. It is this group that has guided the evolution toward IMCI, and that has helped formulate the guidelines governing the evolution of community-based programming.

Logistics

Antibiotics have always been part of the routine logistics supply system for health facilities. In addition, antibiotics—particularly commonly used ones such as cotrimoxazole—are sold in pharmacies, even in relatively small villages. While there is a longstanding preference for the free drugs offered at government health facilities, studies in the 1980s did suggest that households

spent more for health services than had been thought. The use of the private sector to obtain care and medications is an issue for pneumonia case management.

Logistic supply to health facilities has in the past suffered from poor storehouse management, poor distribution to health posts and sub-health posts from district centers, poor coordination between district hospitals and other facilities, and difficulties with expiration and inventory management. It is likely that this resulted in some loss of trust in health facilities, as reflected in qualitative studies on health facility use.

The government has recognized these problems, and with assistance has implemented a logistics management information system that has improved the entire logistics system. Within the past 5 years, logistics have improved dramatically, as reflected in improvements in stock-out rates and other indicators. The result is that drug availability is a relatively minor problem for management of pneumonia at health facilities.

The community-based ARI component depends on the overall logistics system to ensure adequate cotrimoxazole supplies to FCHVs. The linked training in IMCI and CB-IMCI has helped motivate districts to be attentive to FCHV resupply needs. Nevertheless, the mechanism for resupply remains weak, and the program has required strong supervision to prevent FCHVs from stocking out of cotrimoxazole when needed. Although several mechanisms have been tried to address this problem, including work with cost recovery, resupply remains an issue with the community-based program.

Training

Training at the health facility level reflects changes in planning and changes with the establishment of the National ARI Program and adoption of the WHO guidelines for ARI management. These changes required expanded training with the WHO training materials, which was done in 1988–1989. The revision included changes in CDD training as well as, linking the two major causes of childhood deaths in a combined program.

In 1994–1995, the WHO IMCI approach was introduced, and an IMCI Working Group established to address training at the health facility level. The IMCI training package was extensive, usually offered over 11 days, and tiered to include workers at all levels at each health facility. This training is being implemented in selected districts, with the goal of slow expansion to all districts.

Recently, the training has been contracted to the Nepal Pediatric Association (NEPAS). This has resulted in more rapid expansion and also in greater involvement of the pediatric clinical community in approaching pneumonia management as a public health issue. While this approach is costly, since it involves central NEPAS pediatricians in multiple levels of training, it has received excellent reviews for improving the capacity of health facility workers.

Community-based training has evolved on a somewhat different track. After the 1989 Jumla study, extensive training materials and job aids were developed and tested. These were applied in expansion to Dang, and later contributed to the development of materials used for the ARI Strengthening Program and subsequent expansion. Additional tools and job aids, as well as an extensive monitoring system to follow quality of care indicators, were developed as the ARI program expanded first to CBAC and later to CBIMCI. Community-based training has always been linked to facility-based training, and this has continued with the introduction of IMCI.

Supervision

Supervision was initially done as part of the supervisory responsibilities of different levels of health facility workers, as part of routine clinical service delivery. The introduction of community-based ARI management has included extensive support to FCHVs through supervisory visits. From the beginning, the visits have been done in support of community work, and this style of supervision has been important in ensuring that FCHVs are confident about their abilities.

Supervisory visits also provide critical data with which to track how well the program is being implemented. Routine completion of a supervisory checklist provides data on appropriate antibiotic use, correct dose for age, correct assessment and diagnosis, and proper referral and follow-up. Supervision has also required coordination among partners, since data collected are aggregated centrally, contributing to feedback to districts and their supporting partners.

Data Management

Routine HMIS captures morbidity and mortality data on ARI, including classification (no pneumonia, pneumonia, severe disease). The routine LMIS includes information at the health facility level on stock out for cotrimoxazole. These two mechanisms thus provide basic trend information for the health facility-based program. In addition, however, the cases presenting to the health facility also provide insight about what is happening in the community-based program. Specifically, the proportion of severe cases presenting to health facilities appears to decline with the introduction of the community-based program, probably due to that component's contribution to early treatment of pneumonia.

The community-based program depends on a more vertical monitoring system based on supervisory visit reports. (Initially this monitoring system was specific for ARI.) Several indicators have been important for the program over the years. First, the number of cases treated can be used, in conjunction with an estimate of the expected number of pneumonia cases for the district, to compute the proportion of expected cases receiving treatment. This proportion increases dramatically from about 20% without community-based treatment to nearly 70% with the program established. This improvement probably reflects both the realities of the disease and the habitual use pattern for health facilities. Pneumonia is difficult to distinguish from ARI (particularly in younger children), and this may delay treatment by caregivers. In addition, progression from ARI to pneumonia can be rapid, making it more difficult for caregivers to make a judgment call about when to seek care at a health facility. The past experience with frequent lack of drugs may have reduced trust in health facilities. These factors are addressed by community-based treatment.

Quality of care, as an area of potential concern, is also addressed by the supervision system. FCHV registers are reviewed, and the proportion with correct dose for age recorded. The proportion completing a third-day follow-up visit is included, and when possible, the FCHV is observed (or questioned) to assess diagnostic skills. To date, these indicators have remained high once the program is established. It is not clear, however, how dependent the indicators are on support provided by regular supervisory visits.

With the inclusion first of diarrhea management during CBAC and later the constellation of childhood diseases with CB-IMCI, the monitoring system has been expanded to include additional indicators—using the same supervisory visit system for data collection.

C.7 Partnerships and Coordination

Partnerships have been critical to the community-based ARI program. Initially, partnerships provided the funds and some technical assistance for completion of research efforts. These included partnerships between the MOH, senior Nepali researchers, the Nepal Red Cross and the Mrigendra Medical Trust, technical assistance groups, and external donors. Program expansion required cooperation between these partners, and a later partnership with WHO helped establish and assess the initial four pilot districts, which compared treatment to referral models.

Partnerships have also been critical to expansion of the program. USAID, UNICEF, and AusAID have all contributed to expansion for the initial 14 districts. Later other partners, including CARE, PLAN, ADRA, and SCF, have included CB IMCI in their district work. This has allowed more rapid expansion than might otherwise have been possible.

Partnerships have also been important in training. The expertise developed with the vitamin A program within the NTAG has been applied to community-based training. More recently, NEPAS has been the key organization for training at the health-facility level. Both have allowed more rapid expansion, and provided a higher quality of training, by bringing experience and clinical expertise to each training level.

Perhaps the most critical partnership has been with the CB-IMCI Working Group. This group, with a measure of consistent membership over the years, in addition to broad-based representation from the MOH, donors, and NGOs, has been involved with policy development, guideline review, program assessment, and all major decisions as the program has evolved.

C.8 Program Evolution: Scale, Transformation, and Sustainability

While the ARI program has evolved significantly since the early relevant research in the late 1980s, it does not yet cover the majority of districts—this process will take a number of years. While there has always been attention to treatment at the health-facility level, the program was strengthened by the introduction of the WHO guidelines, which helped make case management of pneumonia a priority. IMCI introduction was also a benefit, with its emphasis on a more integrated approach to priority childhood illnesses. The latter transformation did, however, bring the additional burden of a lengthy training process, which will take a number of years to complete in all districts.

The community-based program has evolved along a parallel track, always linked but somewhat independent, with different needs for supervision and monitoring. This component has made a complete progression from controlled research to pilot programs to gradual expansion. The evolution has been monitored closely, with attention to issues of appropriate case management by lay workers.

The complexity of the community-based component has required careful introduction to districts, and a gradual phasing-up. Thus the program has not yet been introduced in all districts, and is not likely to be so for a number of years. Furthermore, it is not yet clear how much central and external support will be required once the program is established. Experience to date would suggest that such continued support will be required for re-supply of drugs and equipment for FCHVs, refresher training to reinforce skills and motivation, and monitoring to ensure quality case management.

Table 10. Nepal Department of Health Services Annual Report—Objectives and Strategies for ARI

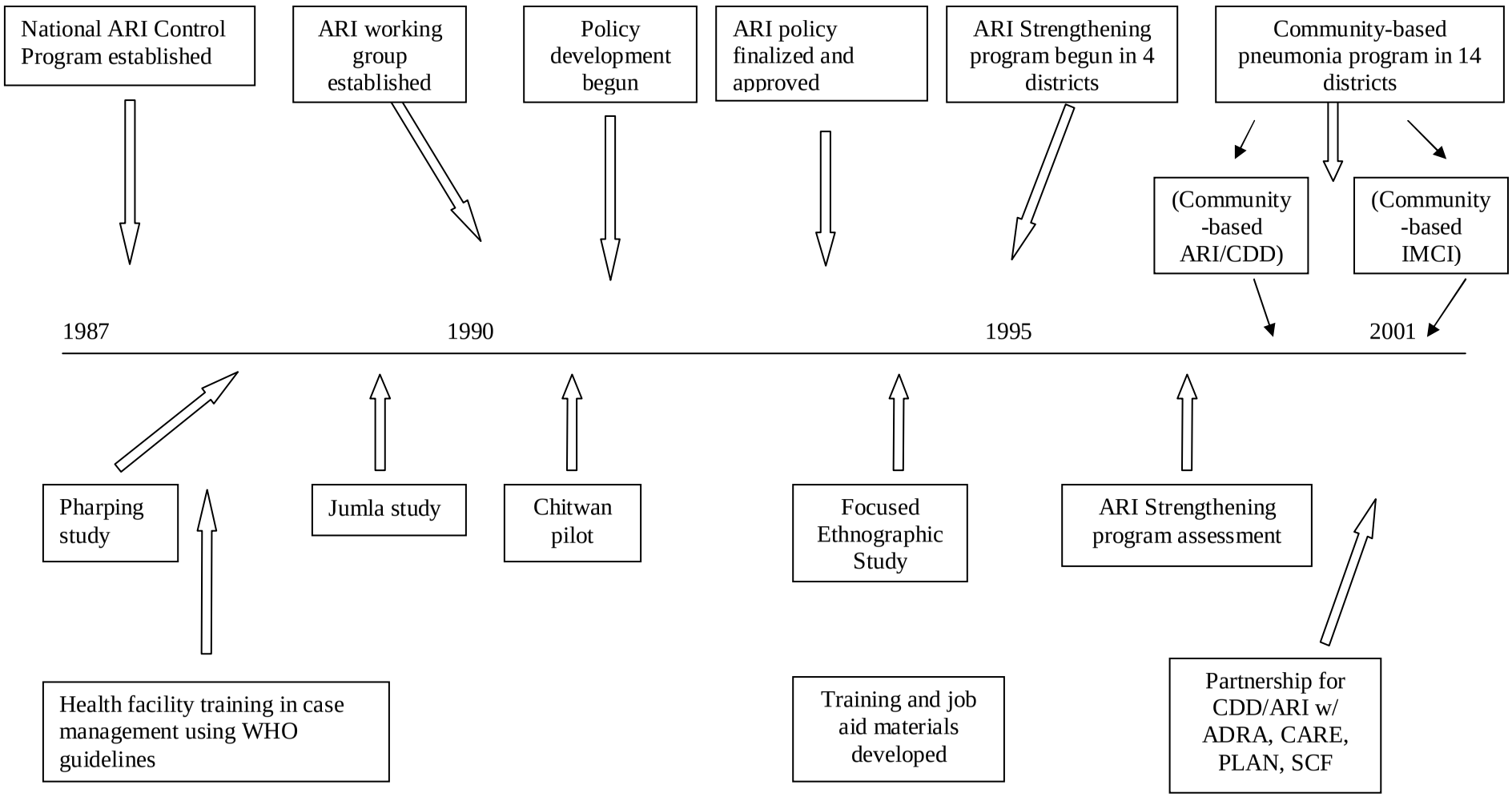
Year	Objectives	Key strategies	Indicators
1996	Reduction of under-5 related morbidity and mortality from ARI. Improvement in situation of child health.	Education for early recognition. Train HW on WHO case mgt.	Under 5 ARI mortality ARI case fatality rate. Under 5 incidence of ARI. Under 5 incidence of pneumonia.
1997	same	Same, and Train HW and CHW in case mgt.	same
1998	same	Same	same
1999	same	Same	same
2000	same	Same	same

Table 11. Objectives and Strategies for IMCI[6]

Year	Objectives	Key strategies	Indicators
1999	same	Give CB-IMCI training in 3 districts	
2000	same	Give CB-IMCI training in 2 more districts	
2001	To achieve commitment to CB-IMCI. To mobilize DDC and VDC for CB-IMCI. To ensure quality and sustainability. To develop mechanism for expansion. To improve systems of supply. To promote and support CB-IMCI in DACAW districts.	To ensure correct case management for pneumonia, diarrhea, malaria, malnutrition, and measles. To extent pneumonia case mgt beyond HF through VHW/MCHWs and FCHVs. To increase ORT use rates, through same To reduce inappropriate antibiotic use for no pneumonia and diarrhea. To improve knowledge and practices of mothers. To improve adequate supply of ORS, cotrim and other essential drugs for IMCI.	
2002	Remove: Develop a mechanism for expansion. Add: Improve referral mechanism from community to HF and HF to hospital.	Same	

[6] From Nepal Department of Health Services Annual Reports, 1993–2000, and Thapa, S.L. History of the Nepal IMCI Program, 2001.

The Evolution of the Nepal ARI Program: Chronology



The Evolution of the Nepal ARI Program: Chronology and transition to IMCI

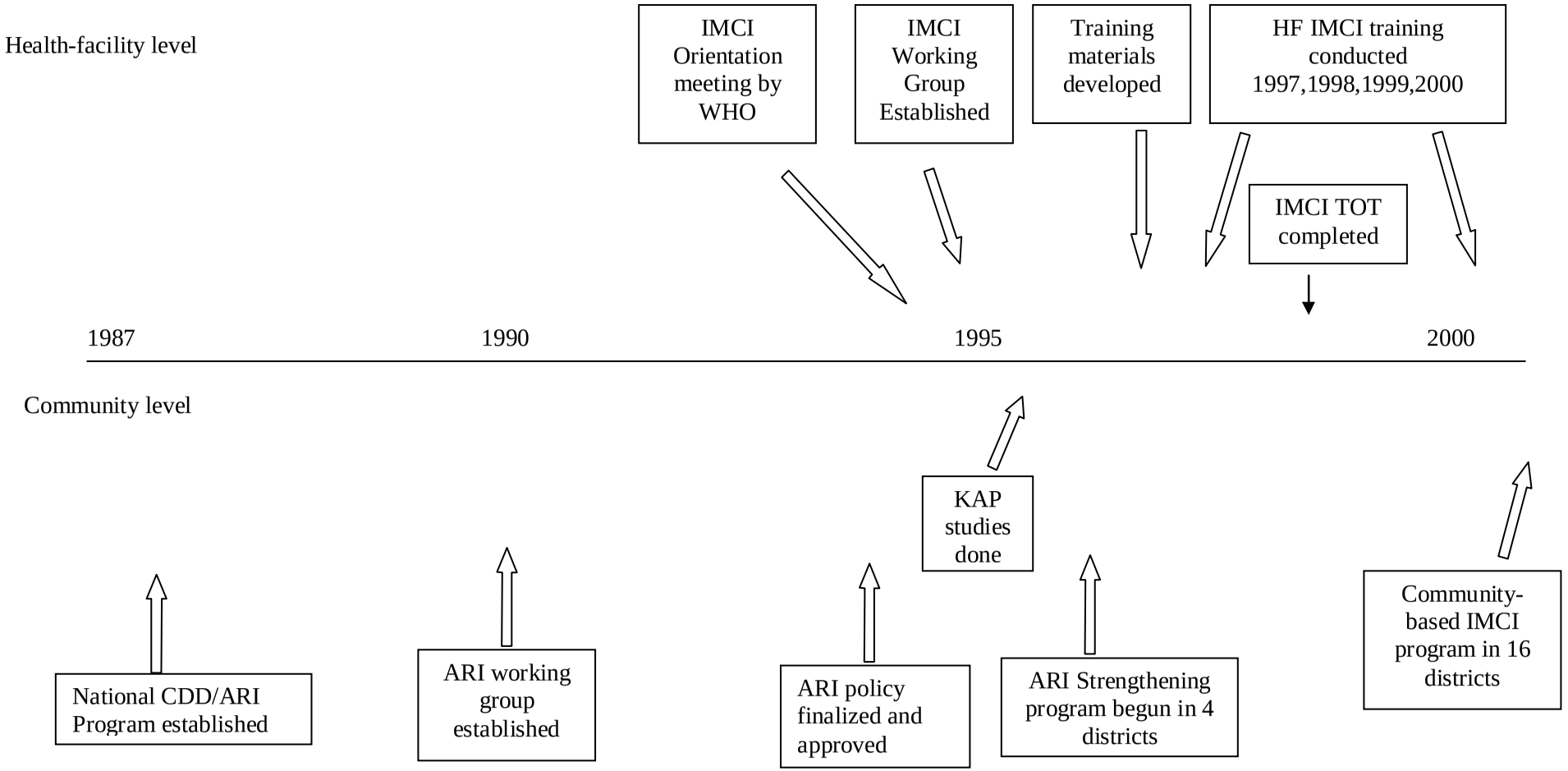


Table 12. ARI/IMCI Indicators over time from benchmark surveys

INDICATOR	YEAR						
	1991[1]	1992[2]	1995[3]	1996[4]	1998[5]	2000[6]	2001[7]
Number of ARI episodes/year (<5y.)		4.8				1.2	
ARI prevalence (national est.)	27.8%		30.0%	34.0%	30.0%	29.0%	23.0%
% w/ ARI seeking care				18.0%		31.6%	23.7%

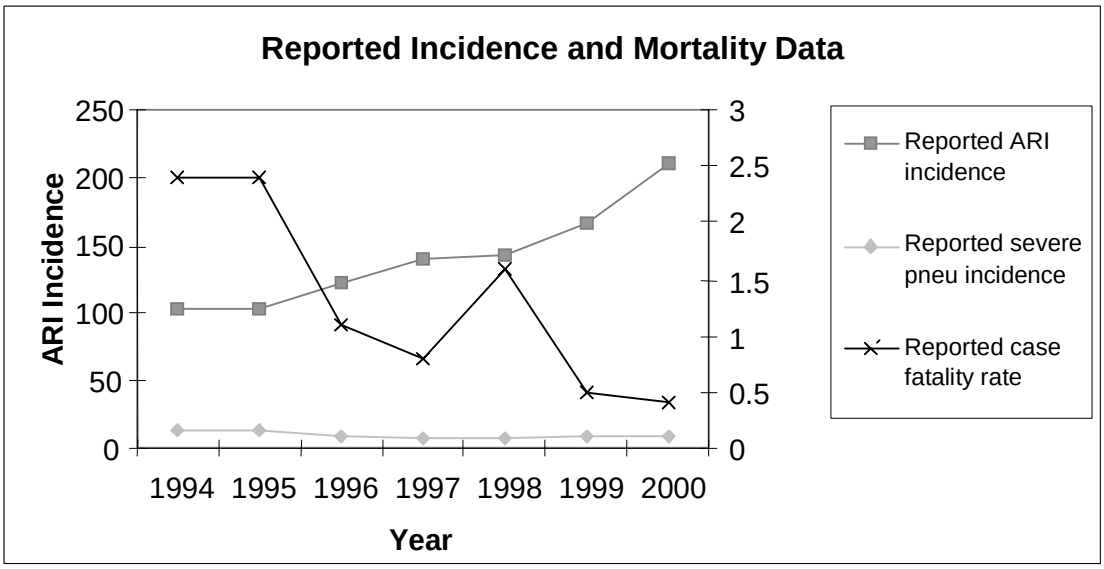
Sources:
[1]NFFPHS, 1991
[2]Children and Women of Nepal, 1992
[3]Children and Women of Nepal, 1996: from 1995 NMIS reports
[4]NFHS, 1996
[5]Nepal Micronutrient Status Survey, 1998
[6]BCHIMES, 2000
[7]NDHS 2001

Table 13. ARI/IMCI Indicators over time from Department of Health Services Annual Reports

	1994	1995	1996	1997	1998	1999	2000
Total reported pneumonia*	146736	125364	149019	178887	186582	213111	281106
Total severe pneumonia*	41066	38726	25966	25304	25017	29257	29961
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
% severe	0.131	0.12	6.8%	5.7%	5.3%	5.3%	4.1%
reported deaths	745	720	403	346	727	267	269
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
Reported ARI incidence	103	104	123	140	144	166	210
Reported severe pneu. incidence	12.8	13	8.4	8	7.7	8.7	8.7
Reported ARI mortality rate	0.25	0.24	0.13	0.11	0.22	0.8	0.78
Reported case fatality rate	2.4	2.4	1.1	0.8	1.6	0.5	0.4
*new cases							

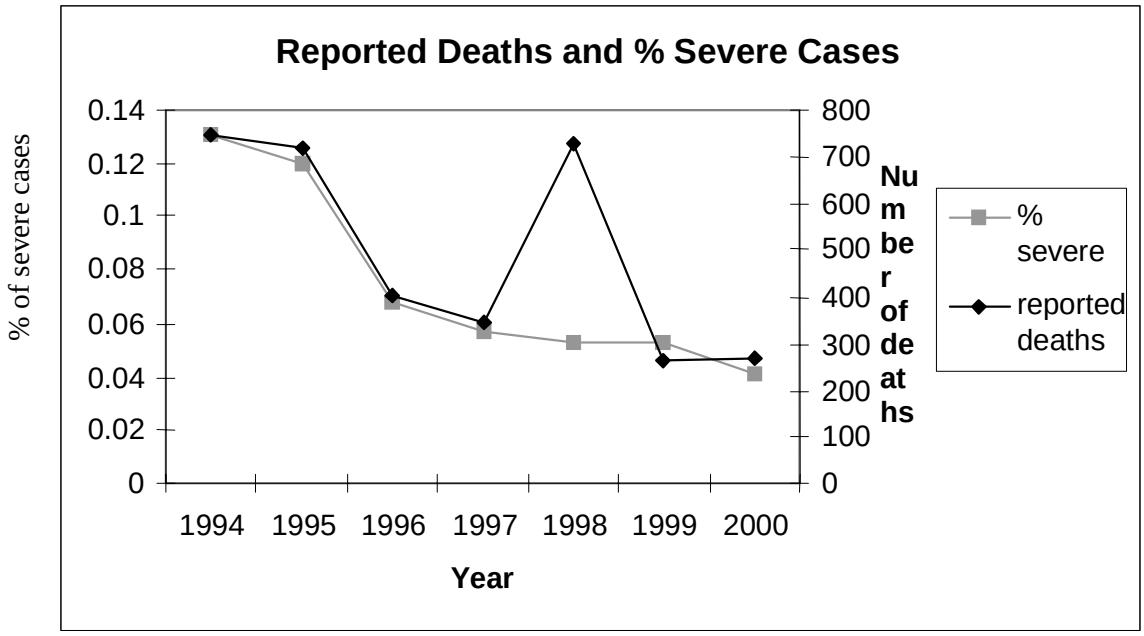
Source: DoHS records

Figure 15. Reported Incidence and Mortality Data



Sources: Surveys and routine DoHS data

Figure 16. Reported Deaths and Percentage of Severe Cases



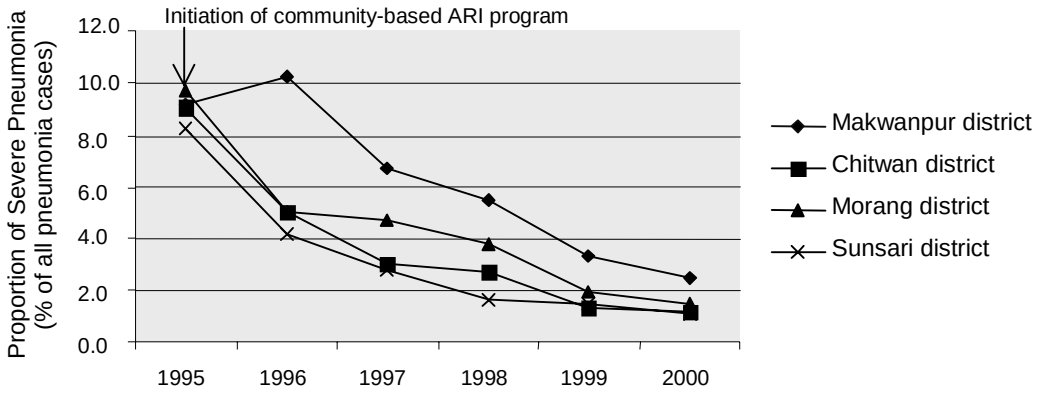
Source: DoHS records

Table 14. ARI/IMCI district data over time from Department of Health Services Annual Reports for selected program districts

% severe pneumonia (of total cases reported):						
Districts	**Year**					
	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Makwanpur	9.1%	10.2%	6.7%	5.5%	3.3%	2.5%
Chitwan	9.1%	5.0%	3.0%	2.7%	1.3%	1.2%
Morang	9.6%	5.0%	4.7%	3.8%	1.9%	1.5%
Sunsari	8.3%	4.2%	2.8%	1.6%	1.5%	1.1%
Jhapa	8.0%	7.6%	9.1%	7.2%	3.1%	2.6%
Parsa	5.7%	4.5%	5.9%	3.8%	2.8%	3.1%
	1995	**1996**	**1997**	**1998**	**1999**	**2000**
Siraha	3.2%	4.3%	2.9%	4.0%	3.1%	1.5%
Bara	8.0%	5.4%	6.1%	6.1%	3.5%	3.1%
Rautahat	4.5%	5.0%	2.8%	3.9%	4.5%	2.4%
Rasuwa	13.0%	9.7%	5.7%	3.2%	3.1%	3.2%
Bardiya	10.7%	3.0%	3.7%	2.8%	2.3%	0.7%
Kanchanpur	6.7%	5.4%	5.4%	4.1%	5.6%	2.2%

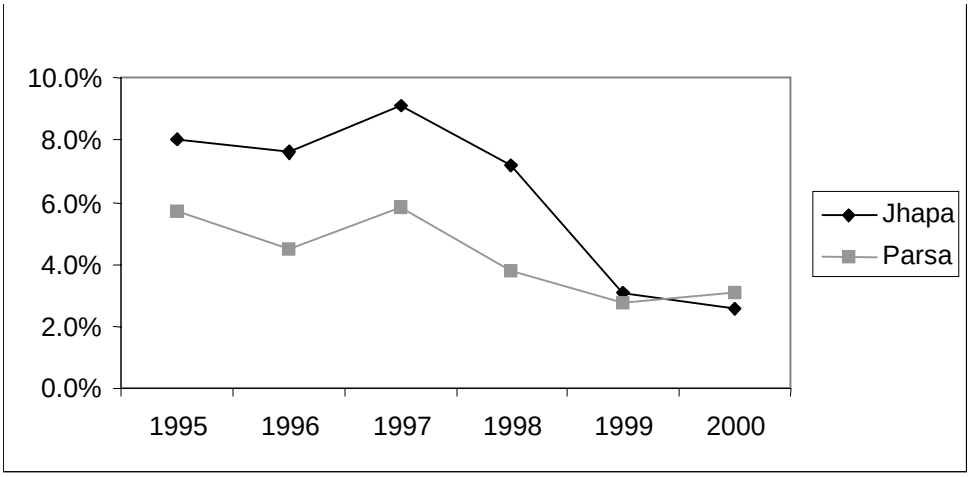
Source: Routine DoHS records

Figure 17. Proportion of Severe Pneumonia Cases Recorded in Program Districts



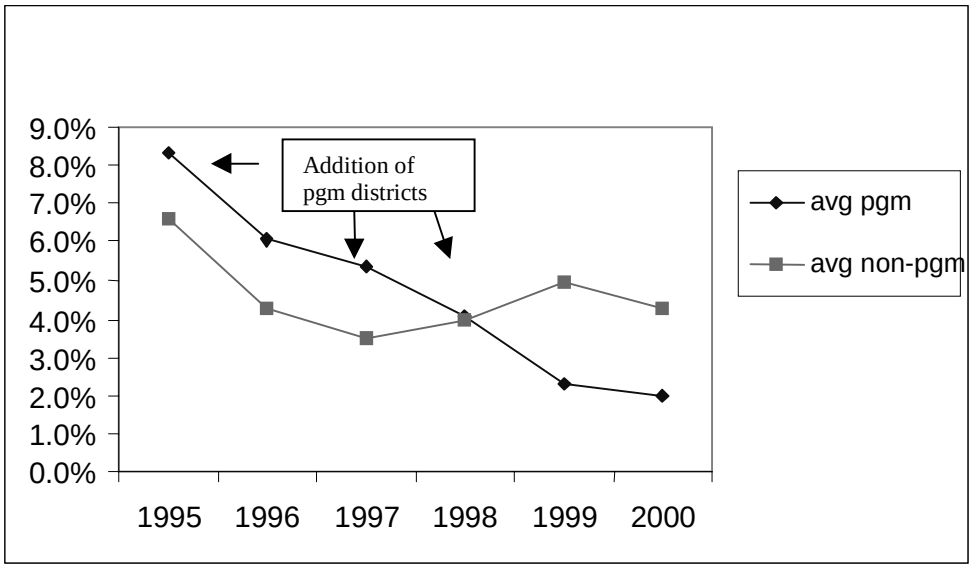
Source: DoHS routine data

Figure 18. Proportion Severe Pneumonia: Initiation of CB-ARI Program in 1998



Source: DoHS routine data

Figure 19. Percentage Severe Pneumonia in Program and Comparative Non-Program Districts



Source: DoHS routine data

Figure 20. Districts Reached and < 5 Years of Age Population Covered by Years

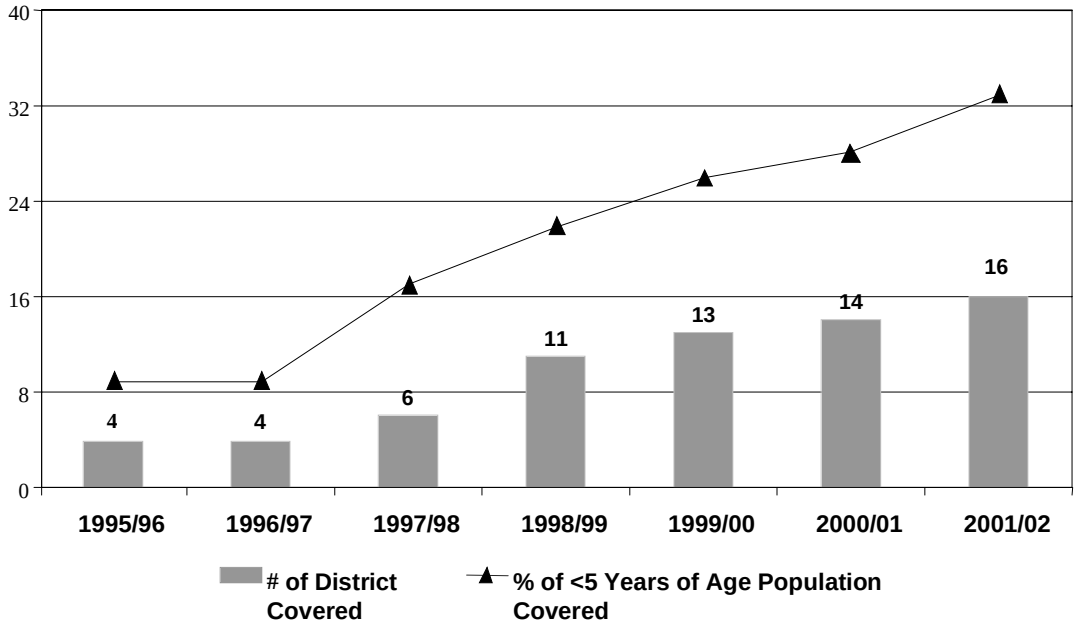
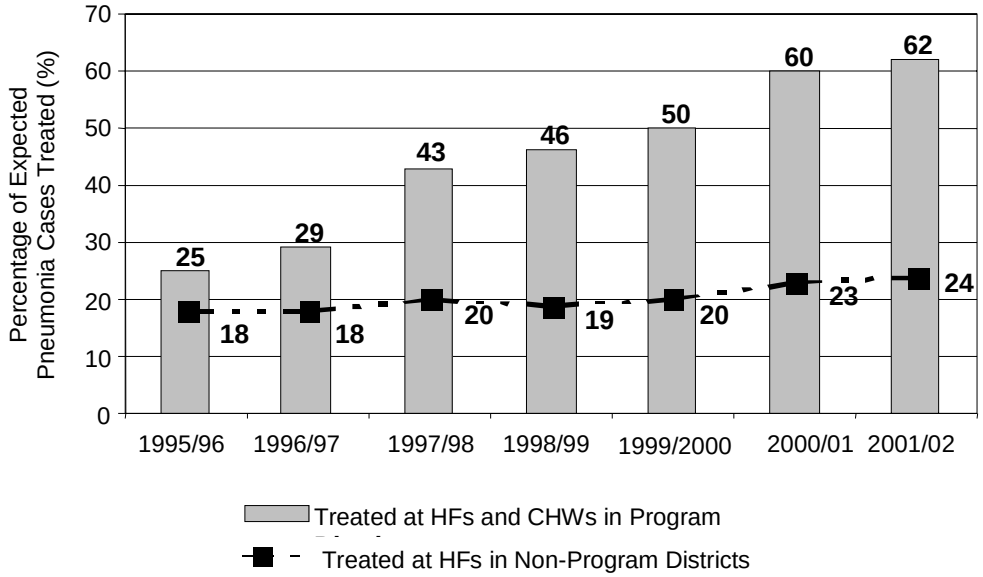
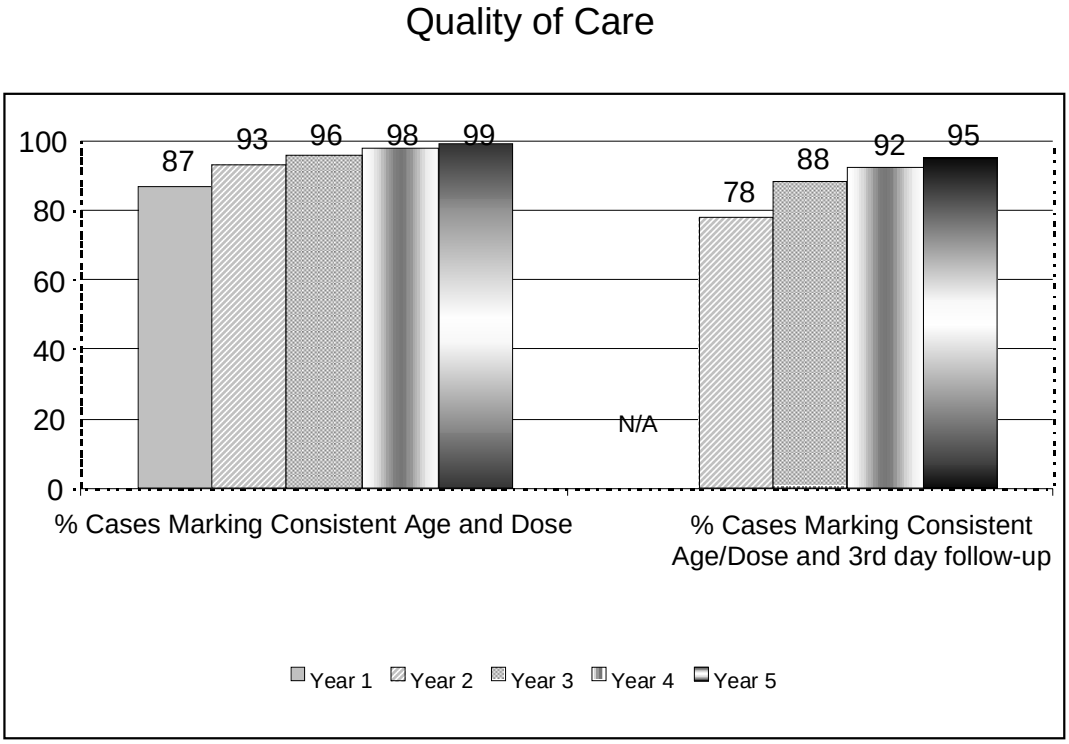


Figure 21. Percentage of Expected Pneumonia Cases Treated in Program Districts



Source: Derived from routine program statistics, ARI morbidity estimates, and population census. See report text for details.

Figure 22. Quality of Care



D. Expanded Program on Immunizagion

D.1 Overview

Nepal introduced the Expanded Program on Immunizagion (EPI) in 1977 with DPT and BCG vaccines in three districgs. By 1988, the program had expanded to all 75 districgs of the country, with six antigens included in the program. By 1990, Nepal achieved 80% coverage for all antigens except measles and tetanus toxoid. This level of success was followed by a period of difficulgy in maintaining routine immunizagion systems and subsequent declines in coverage.

In 1996, Nepal joined the global polio eradicagion initiagive and successfully implemented Nagional Immunizagion Days (NIDs), reaching 3.8 million under-five children with two rounds of oral polio vaccine. Since ghen NIDs are being held every year. The data from the surveillance sysgem indicate ghat Nepal is moving toward polio eradication in the near future. In the meantime, routine immunization has improved and is being revitalized under increased government investment and GAVI/The Global Fund support.

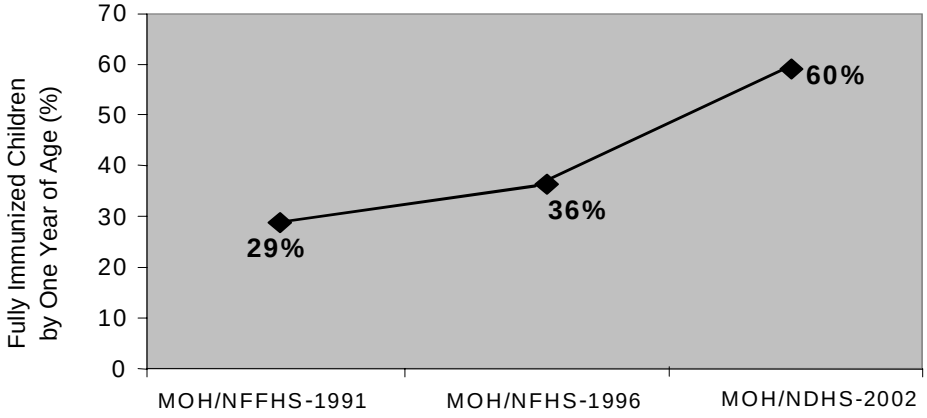
D.2 Timeline of Expanded Program on Immunization in Nepal (1977–2002)

Year	Acgivity
1977	Expanded Program on Immunizagion launched as a vertical project wigh DPT and BCG vaccines in ghree districts
1979	Tetanus Toxoid introduced
1980	International EPI review Polio and Measles vaccines introduced
1982	28 districts covered by EPI wigh 6 antigens
1985	Follow-up review of EPI
1987	Integration of EPI at ghe service point
1989	EPI covered all 75 districts and all antigens
1990	Nepal achieved Universal Child Immunization (UCI) goal International Review of EPI program in Nepal
1991	EPI as a vertical project was dissolved National Health Policy formulated
1993	Government of Nepal started paying for vaccines EPI became parg of the Child Health Division of the MOH
1995	Nepal initiated polio-eradication activities
1996	First NID was conducted in Nepal
1998	MOH conducted coverage evaluation survey
1999	Nepal applied for GAVI finding Initiated basic EPI training of health workers
2000	Assessment of Nepal Immunization Program and development of multiyear plan
2002	GAVI funding received; Introduced Hepatitis B in two districts

D.3 Indicators for immunization, 1980–2002

The coverage indicators for immunization come from two sources: routine HMIS and special survey data. The special surveys have been conducted periodically with support from international agencies. The trend for fully immunized children (12–23 months) between 1991 and 2002 is shown below. Over these years there has been a gradual improvement of coverage, from 29% in 1991 to 60% in 2002.

Figure 23. Trend in Immunization Coverage, 1991–2002



Source: National surveys.

Nepal Fertility, Family Planning and Health Survey (NFFHS). 1991.
The coverage data are from children aged 12-23 months with immunization card and vaccinated by 12 months of age.
Nepal Family Health Survey (NFHS). 1996. The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.
Nepal Demographic and Health Survey (NDHS). 2002.
The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.

The table below summarizes reported data collected by the EPI program from the immunization sessions at the VDC level and reported by the health post/health centers to the district public health office. The district-level data are then added together to produce national-level data. The routine data shows a rapid improvement in the early phase of the program—for example, achieving 80% of DPT3 coverage by 1990. The routine data continued to show high coverage of all antigens for the same period.

Table 15. Percentage of Routing BCG, DPT3, and Measles Coverage in Nepal, 1980–2002

Year	BCG	DPT3	Measles
1980	22	8	-
1981	32	16	2
1982	59	18	2
1983	53	28	11
1984	58	27	24
1985	67	32	34

1986	66	38	37
1987	88	46	37
1988	96	75	58
1989	86	72	57
1990	98	80	68
1991	83	74	64
1992	82	72	64
1993	78	68	61
1994	67	63	61
1995	76	65	71
1996	92	75	80
1997	96	78	85
1998	86	76	73
1999	93	76	81
2000	94	77	82
2001	95	76	81

Source: HMIS, Government of Nepal

D.4 Policy Highlights

In July 1987, the Government of Nepal decided to integrate the key vertical project activities for child health and family planning in the districts. A District Public Health Officer (DPHO) was given responsibility for overseeing primary health care, which was managed through district public health offices. The government identified 675 Ilaka health posts, and adjusted staffing and strengthened services through the integration and crossover training. Thus DPHO and HP staff became responsible for immunization, delivered not through one-purpose vaccinators, but through multipurpose Village Health Workers.

After the installation of a democratic government in 1991, the EPI project was reorganized, losing its vertical structure at central levels to be merged with the Family Health Division. The number of central-level personnel was reduced from more than 200 supervisors, cold chain workers, training officers, and monitoring staff to a handful. Beyond a significant impact on supervision, training, and follow-up, considerable institutional memory was lost. In 1994, the Child Health Division (CHD) was created within the DoHS. The EPI program was included within CHD as a section, and held responsible for policy, guidelines, and general strategies. The section is headed by a Chief and supported by a Public Health Officer. Other functions of EPI are carried out by the Epidemiology and Disease Control Division; the Planning and Foreign Aid Division of HMIS; the Logistics Management Division for Supplies; the National Health Training Center; the National Health Education, Information and Communication Center; and the General Administration Division. These five regional health service directorates support 61 district health offices and 14 zonal district public health offices in 75 districts. Lack of manpower at the central level has remained a major obstacle to effective operation of EPI programs.

The Local Self-Governance Act of 1999 brought the health system closer to the community in terms of utilization of health services and cost sharing of PHC services. The local government is increasingly involved in the management of the health system, particularly at the VDC level. The VDC mobilizes resources and volunteers for special campaigns such as MNT or NIDs. The health management committee at the VDC level provides the linkage between the community and the health system, as well as the mechanism for dealing with issues related to health care provision. Thus, for the first time the public health system has come closer to the local government and been held with some accountability.

The EPI program has been heavily supported, both technically and managerially, by international agencies and development partners. Therefore, most EPI guidelines are drawn from global experience, although there have been number of studies conducted to collect country-specific data for incidence and prevalence of vaccine-preventable diseases.

The vertical nature of EPI and magnitude of project resources and geographic scope, together with intense donor scrutiny for more than a decade created an environment that fostered local public health leaders. Thus for several years strong champions, able to mobilize development partners, influence government policies, and mobilize communities, headed EPI. Several of them have now become regional public health leaders.

D.5 Program Components

IEC/BCC

During its initial phase, the program produced posters and pamphlets for display at health post and EPI outreach sessions—these were modeled on standard WHO messages. During UCI, a broader range of media were used to mobilize large numbers of people. At that time, radio was the media channel with the broadest reach. The polio eradication program, which began in 1995, used multiple communication channels (including posters, flyers, radio, television, street drama, and folk songs) to blanket communities and households.

FCHVs

In 1988, the Nepal Government introduced the FCHV program as a mechanism to provide community-based services. Since then, FCHVs have become primary motivators for immunization and other health-related activities at the community level. Each FCHV forms mothers' groups; VHWs visit these groups once a month to provide health education. Topics covered include immunization, diarrhea, ARI, family planning, antenatal, and post-natal care. In 1998, a survey conducted by the MOH found 45% of mothers reporting that FCHVs visited during the previous two months and discussed immunization. Apart from FCHVs, Traditional Birth Attendants (TBAs) were mobilized during National Immunization Days as part of polio eradication activities.

Community mobilization

Community mobilization became part of health service delivery during the UCI period (1988–1989), with community health leaders, school teachers, local business and social groups, and TBAs all mobilized for immunization. In addition, the King and Queen of Nepal visited districts and launched campaign activities. With this large-scale mobilization at the district and VDC levels, Nepal achieved the UCI goal of 80% coverage for all vaccines, except measles.

An even larger thrust for community mobilization has been undertaken for NIDs, starting in 1996. FCHVs have mobilized communities through mothers' groups, while DDC members, VDC chairmen, and community leaders have encouraged people to bring their children to distribution sites.

D.6 Program Systems

Planning and budget

The MOH and its development partners conducted EPI planning on an annual basis. The vertical EPI central office at the national level was responsible for overall planning (expansion, targets, vaccine

requirements, budget, training, IEC, and supervision) as well as donor coordination. Currently, the EPI office is located in the CHD, and prepares plans and budgets as one section within the division. More recently, an Interagency Coordination Committee (ICC), comprised of development partners and the MOH, has been activated as part of GAVI funding requirements. The committee is chaired by the DG, and is now the driving force behind annual planning, identifying gaps, and securing funding.

During the period 1986–1990, when the UCI goal was set, district-level planning and micro-planning at the VDC level helped identify weak and high-risk areas. Various local strategies were implemented to improve coverage.

Logistics

Vaccine procurement, storage, supply, and distribution was a major challenge for EPI as the program expanded rapidly in the country. This was partly due to Nepal's difficult topography and limited infrastructure for roads and electric power. However, the program successfully established a cold chain system from the central level to service delivery points located several days walk from roads. Two international reviews, conducted in 1985 and 1990, found the cold chain to be one of the strongest in the region. Vaccines met WHO standards of quality, and serious over- and under- stocking were seldom experienced.

By 1985, a new management and information system had been introduced at regional and district level. It was based on expected usage and a margin for safety and balance in stock, rather than on fixed-quota supply. Distribution of vaccines from the central cold store to regional and district cold stores was accomplished through a combination of air, road, and courier systems. Other immunization supplies such as needles, syringes, forceps, aluminum pots, spirit lamps, immunization kit boxes, and immunization cards and registers were supplied from the central store, where adequate stocks were usually maintained.

In 1989, after an assessment of existing cold-storage devices in all 75 districts, an overall supply plan was developed. The first batch of equipment was distributed in June 1988 and a second in July 1989. By 1990, all 75 districts, 5 regional cold stores, and one national cold store were fully equipped. All health posts were equipped with one static cold box, while about 4000 VHWs were provided with steam sterilizers and vaccine carriers. Sub centers for cold chain were established within the districts, helping to keep vaccines close to field sites and reducing the burden on the district cold store for supplying vaccines in distant places.

Between 1986 and 1990, the logistics and cold chain systems were further strengthened. Manpower for cold chain management was increased from 20 cold chain assistants and 10 cold chain technicians to 105 and 20, respectively. Each district cold store was supervised daily by a cold chain assistant and each regional cold store was supervised 24 hours a day through the rotation of 3 cold chain assistants.

The late 1990s and early part of the new millennium were characterized by the aging of cold chain and other EPI equipment. Funds for maintenance and upgrading were limited, as Nepal's government invested increasing amounts in vaccine procurement and donors put funds into other technical interventions. More recently, however, as part of GAVI preparation for the introduction of new vaccines, plans and budgets for replacement of cold chain equipment with donor funding have been applied.

Training

The national EPI office has been responsible for national, regional, and district-level training. During the first decade of the program most of the training was held at the central level. Since there were then very limited human resources for EPI at the district level (one supervisor; one cold chain assistant), cascade

training was not possible. After integration, training of workers from different vertical programs was organized into combined courses. In 1999, review of worker performance recommended providing refresher training. Subsequently, manuals were developed for VHWs and MCHWs, and trainings were conducted at regional and district levels. Over the last three decades the EPI project has thus trained a large number of peripheral-level workers who are skilled at vaccination, counseling, community mobilization, cold chain, and reporting.

Supervision

Before integration, supervision of the immunization program was conducted primarily from the central level. The vertical project consisted of five technical and three administrative sections, each headed by a section chief with supervisory responsibilities. The district had an EPI Supervisor who was in charge of supervision of VHWs. Various checklists were developed for supervision, with both indirect and direct methods applied. However, supervision was always a weak link. Feedback from central-level supervisory visits was received only occasionally and was usually punitive. While health post staff were supervised by central- and district-level supervisors, the HP staff seldom provided supervision to the VHWs at outreach sessions. While funds for supervision were generally adequate at central and district levels, sufficient funds were not channeled to health post staff to carry out field supervision of VHWs. Although the technical understanding of the supervisory staff was good, many lacked skills for supportive work with lower-level workers.

After integration, district level supervisors (with widely varying background and experience) have been expected to make supervisory visits that cover all technical interventions on each visit. This has contributed to a lack of time for any one technical area. In addition, district-level funds for supervision have been considered inadequate.

Data Management

Routine Monitoring

The HMIS routinely reports EPI coverage data by antigen and dose for children under one year, and for pregnant mothers. At the lowest level, the VHW produces a report from the EPI register each month and submits it to the SHP. The AHW at the SHP aggregates VHW information and sends the report to the concerned PHCC or HP. All data from the SHPs and the PHCC or HP is aggregated and sent it the DHO. The DHO in turn compiles all PHC/HP data, including data from the district hospital, and sends it to the DoHS at the national level. The DHS then compiles and reports data for national-level coverage. The quality of the data is, however, questionable; there is a general tendency to overestimate immunization coverage, from the SHP to the national level. It is thus difficult to use the data for planning, monitoring, and evaluation.

Coverage surveys

At the beginning of the EPI program, coverage surveys were conducted periodically to monitor the program, through WHO 30-cluster survey methodology. Between 1980 and 1990, 44 coverage surveys were conducted in various districts by a special EPI team, with resulting data analyzed using COSAS. After 1990, however, the EPI program did not routinely conduct such surveys, although surveys have been conducted in some districts by NGO programs working in child survival.

Special surveys

During the last decade, five special surveys have been carried out by different agencies in collaboration with MOH. The coverage data for BCG, DPT3, OPV3, and Measles from these surveys is shown below. All five surveys included children 12–23 months of age and immunized by one year of age. Except for 1991, all surveys used card or history to calculate coverage. (The 1991 NFFHS survey data do reflect children who had cards at that time.) All surveys showed a gradual improvement in immunization coverage during the last 10 years. The coverage data for measles in two surveys (1998 and 2000) showed higher coverage compared to other surveys.

Table 16. Coverage data for BCG, DPT3, OPV3, and Measles

Year	Source	BCG	DPT3	OPV3	Measles
1991	NFFHS	73	42	42	57
1996	NFHS	73	51	48	45
1998	NMOH	86	76	70	73
2000	BCHIMES	87	65	74	82
2002	DHS	83	71	90	64

NFFHS, 1991: The coverage data are from children age 12-23 months with immunization card and vaccinated by 12 months of age.
NFHS, 1996: The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.
NMOH Routine Immunization and NID Coverage Survey Report, 1998: The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.
BCHIMES, 2000: The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.
NDHS, 2002: The coverage data are from children aged 12-23 months with card or history and vaccinated by 12 months of age.

D.7 Partnerships and Coordination

Development partners played a crucial role in achieving and sustaining EPI in Nepal. Coordination between development agencies at the central level was key to planning, mobilizing resources, identify gaps, provide technical assistance, and arrange periodical international reviews. The EPI Chief provided day-to-day liaison with donors and partners and kept them informed of the needs and progress of the program. Continued global commitment and funding kept the EPI agenda active among partners and government. Non-government organizations supported all national EPI programs, although in limited areas.

D.8 Evolution: scale, sustainability, transformation

Estimated impact of Nepal EPI on Morbidity, Disability, and Mortality

The true success of EPI lies not in coverage but in its effectiveness in preventing morbidity, disability, and mortality. The following table makes assumptions based on selected reference data to calculate the estimated impact of Nepal EPI on morbidity, disability and mortality against neonatal tetanus, polio, measles, and pertussis.

Table 17. Estimated impact of Nepal EPI on morbidity, disability and mortality against neonatal tetanus, polio, measles, and pertussis

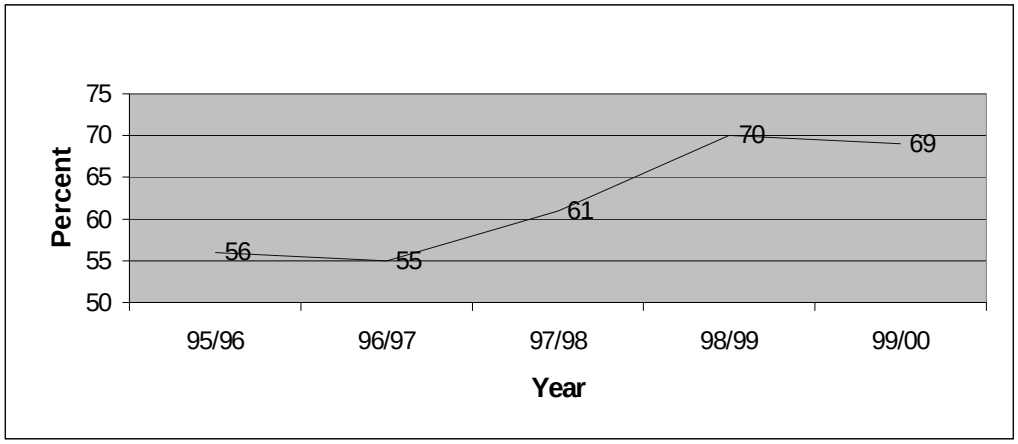
Disease	If no EPI	Currently Prevented	Currently Not Prevented	% Prevented
Neonatal Tetanus Deaths	10,200	4131	6069	41
Polio lameness	4000	4000	0	100
Measles Morbidity	748,480	486512	261968	65
Measles Deaths	22454	14596	7860	65
Pertusis Morbidity	640,000	363,520	276,480	57
Pertusis Deaths	6400	3636	2764	57

Assumptions:
Population 2002 = 23 million, Births = 800,000, Surviving Infants = 748,480
Children <5 = 335,0257
NNT: Mortality with no immunization: Incidence 15/1000 live births. CFR 85%
Using 2 doses in pregnancy as protective (45% X 95% Efficacy = 4131 Cases Prevented);
Polio: Pre –EPI Estimate 5/1000;
Measles: Measles Attack Rate 100% of 748,480 children surviving to age of infection (748,480 X Coverage 82% X Vaccine Efficacy 80% = 486512 Cases Prevented);
Measles Mortality = Morbidity X CFR of 3%
Pertusis Attack rate 80% of 800,000 children (640,000 cases).
Using 3 doses of DPT as protective (640,000 X Coverage 71% X Efficacy 80% = 363,520 Cases Prevented)
Pertusis Mortality = Morbidity X CFR of 1%

Financial sustainability

EPI started as a donor-driven program in the 1980s with all vaccines contributed to the GON, largely by UNICEF. Over the last 10 years there has been a gradual but significant increase in contribution from the government, which now funds more than two-thirds of vaccine procurement. GON funding has increased from 56% in 1995 to 70% in 2000.

Figure 24. Trend in HMG Contribution for EPI, 1995–2000



Source: DoHS routine data

The GON started allocating funds for purchase of vaccine in 1993. Nepal is now self-sufficient in national requirements for tetanus toxoid, DPT, and measles antigens. Since 1999, the Government of Nepal is also

paying for some BCG vaccines. Since 1996, donor contributions have primarily been in the area of polio eradication—the GON has provided approximately 10% of the costs of polio activities. From a financial perspective, the EPI program is one of the most sustainable programs in the country.

Transformation and way forward

The GON applied for GAVI funding in 1999 for the introduction of Hepatitis B vaccine. After two rounds of applications, Nepal received funding and has introduced Hepatitis B in two districts. Notably, AD syringes have been used for the first time. The ICC, comprised of donors and partners, continues to evolve as a coordinating and leadership body.

In the 1980s, the EPI program extended a standard service into remote and undeserved areas, often beyond other primary care interventions. While extraordinary (and ultimately unsustainable) investments were made as part of UCI, EPI raised expectations by demonstrating that reaching children even in difficult locations could be done. During the mid 1990s some of these gains were reversed, largely due to structural changes in the MOH and donors turning their attention to other important child health problems. Even so, the GON has increased investment in vaccines and EPI remains a priority one program. More recent improvements in coverage and the introduction of GAVI have built on some of the early foundations, and the ICC is now grappling with the longer-term issues of stable financing, injection safety, and quality of services.

Polio Eradication in Nepal

Overview

Nepal endorsed the global commitment for polio eradication in 1995. Since then the country has systematically carried out polio eradication activities. NIDs, begun in 1996, continue today, and achieved high coverage (96%) of Oral Polio Vaccine (OPV) administered to 3.8 million children under age five. Supplemental immunization activities such as sub-national NIDs and mop-up campaigns have also been carried out successfully. The campaign strategy of NIDs and innovative IEC/BCC approaches mobilized the entire population to toward the single goal of polio eradication.

The polio eradication effort has utilized various national-level committees to mobilize resources as well as the support of both the public and private sectors. Effective coordination between development partners and the government were key in ensuring logistical and technical support in implementing the huge program. In 1998, an active Acute Flaccid Paralysis (AFP) surveillance system was put in place. Since 2001, Nepal has had zero cases of wild poliovirus. However, early interruption of any wild poliovirus and sustaining zero transmission lies in maintaining high quality surveillance and detection of imported cases from neighboring India. An additional challenge is expanding the surveillance system to include measles and neonatal tetanus, and institutionalizing these efforts within the government system. As in other countries, the Nepal Polio Eradication effort is primarily supported by external assistance supported by development partners. This is a serious limitation for sustainability, particularly for social mobilization for NIDs and the surveillance system. The long-term impact of polio eradication on the country's immunization and health systems has yet to be realized.

Timeline for Polio Eradication in Nepal (1995–2002)

Year	Activity
1995	HMG declared April 7 "Polio-free day" Nepal endorsed resolution WHA 041.28, committing to eradication of polio by the year 2000
1996	1st NID observed on December 26, 1996
1997	2nd round of 1st NID observed on January 17, 1997 1st round of 2nd NID
1998	2nd round of 2nd NID 1st round of 3rd NID AFP surveillance started Polio Eradication, Nepal (PEN) established SAARC countries decided to hold the NID on the same day
1999	2nd round of 3rd NID 1st round of 4th NID
2000	2nd round of 4th NID 1st round of 5th NID
2001	2nd round of 5th NID 1st round of 6th NID
2002	2nd round of 6th NID

Indicators

OPV Coverage during NIDs, 1996–2002

More than 3.8 million under-five children are given OPV during each NID. So far, 6 NIDs of 12 rounds (each NID has 2 rounds) have been held. Routine reported coverage is greater than 100% in most of the rounds. The 1998 MOH survey found 97% and 96% coverage in the first and second rounds respectively of the second NID.

The other indicator of polio eradication is AFP surveillance. Since 1998 the system has improved, with AFP case reporting up significantly. All other indicators related to surveillance (timeliness of reporting; stool specimen collection) have also improved. Since 2001 no cases of wild poliovirus have been found.

Table 18. Cases of AFP and Wild Polio virus in Nepal, 1996–2002

Year	AFP Cases	Wild polio Virus Cases
1996	15	1
1997	35	1
1998*	68	0
1999	234	2
2000	182	4
2001	175	0
2002	167	0

*Note: AFP surveillance started in 1998

Policy, guidelines, leadership

The polio eradication initiative has received support from the highest authorities in the country, including the King and Prime Minister. The commitment of the government has been endorsed by the parliament. The government declares a holiday during the NID and has also created various high-level committees to support planning and implementation. Since this is a global initiative, standard international guidelines are used. Mop-up campaigns and a high-risk approach have been added to the NIDs strategy. WHO has provided key technical support for AFP surveillance and other development partners have ensured funding.

Program Components

IEC/BCC (events, approaches)

Radio and TV spots have been used for NIDs notification and to explain AFP surveillance. Regional radio networks have been used to air messages in local languages. TV and radio interviews with focal persons are aired extensively. Printed materials such as posters, NID banners, and pamphlets are also used during the campaign. Some districts develop their own IEC materials, including caps and t-shirts with NID logos and slogans, to create awareness about the polio eradication campaign. Press conferences held by the Minister of Health to convey information about NIDs are covered in journals and newspapers. In addition, TV and radio spots, newspaper articles, placards, flash cards, and interpersonal communication are used extensively to disseminate AFP case notifications.

FCHVs

FCHVs have been involved from the beginning of the polio eradication program. They are particularly active during NIDs, when they work with VHWs and other volunteers to encourage communities to bring children for polio vaccination. This role is in contrast to FCHVs' work in the vitamin A program, where FCHVs provide the supplements directly.

Community Mobilization (approaches, events, processes)

Approximately 25,000 health workers and 100,000 volunteers are engaged in NID activities. The Prime Minister, Health Minister, and various dignitaries have inaugurated NIDs by personally administering OPV to a child. In addition, other ministries are involved during NIDs. At the district level and below, DDCs, municipalities, and VDCs participate in mobilizing families, with additional support from private organizations, clubs, and business groups working at the community level. The AFP surveillance system uses such community structures for case notification and for raising awareness about AFP cases when they occur.

Program Systems

Planning

Several committees, noted in the table below, have been created to encourage planning participation and subsequent support.

Table 19. Committees created to encourage planning participation and subsequent support

Committee	Chairman	Function
Central NID Steering Committee	Prime Minister	Highest level committee for social, economic, and political commitment
National NID Coordination Committee	Minister for Health	Make policies; coordinate related activities and provide guidelines to other committees and agencies for successful implementation of NID
National Executive Committee on NID	Secretary of Health	Identify and mobilize resources; provide effective supervision and monitoring for effective implementation of NIDs
NID IEC Committee	Director General, DoHS	Design and help produce and implement IEC activities related to NIDs
Regional NID Coordination Committee	Regional Director, DHS	Coordinate NID-related activities at the regional level; mobilize resources, provide effective supervision and monitoring system for NIDs
District NIDs Coordination Committee	District Development Committee	Plan, coordinate, implement, and evaluate all NID-related activities at district level
VDC/Municipality NIDs Coordination Committee	Mayor/Chairperson of the municipality/VDC	Carry out all activities related to NIDs at VDC/Municipality level

Regional-level reviews and planning workshops are held before NIDs. Orientation of health workers; training of volunteers; planning for NID cold chain systems; coordination with NGOs, INGOs and GON; and reporting and financial management are discussed during the workshop.

Logistics

The various international development partners supply cold chain equipment and vaccines. The NIDs vaccines are distributed ahead of time from the central Cold Room to regional and district headquarters. From district headquarters, vaccines are supplied to sub-centers, with sufficient time for vaccine distribution. From the sub-centers, vaccines are distributed to PHC/HP/SHP, and from there to outreach clinic sites. Where necessary, airlines and private transport systems are used. In remote areas, porters, horses, and ponies were also used as means of transport.

Training

Volunteers, schoolteachers, and VDC/DDC/municipality members are given orientation to NIDs and AFP surveillance. Standard guidelines in local languages have been developed, and health workers given training in AFP surveillance, using a fixed field guide.

Supervision

Various partners used a checklist to carry out supervision and monitoring of NID activities. Feedback was given to the National Coordination Committee. The Regional Surveillance Officer supervises sentinel sites for AFP surveillance.

Data Management

OPV coverage is calculated at the end of each round and has been reported since 1996. In 1998, an MOH survey included OPV coverage.

The AFP surveillance system is supported by the Regional Surveillance Officers of PEN. WHO provides managerial and technical support to PEN and the AFP surveillance system. Over 300 sentinel sites are now reporting AFP cases on a weekly basis. The report is compiled and distributed by PEN. The CORE group, supported by four international NGOs, is also part of PEN and provides support through their network.

Partnerships and Coordination

The polio eradication effort is an excellent example of public/private/NGO partnerships—all have participated in various activities and various levels. NGO Coordination Committees of various districts helped ensure NGO participation in NID activities. A network of four international NGOs, supported by CORE, are supporting PEN in AFP surveillance and supplementary immunization activities. Apart from NGOs, professional organizations have also contributed to NID activities.

Coordination

The Central NID Steering Committee, chaired by the Prime Minister, is the highest-level body coordinating polio eradication activities in the country. Similarly, Regional and District Level Committees coordinate polio eradication activities, particularly during NIDs.

Evolution: scale, sustainability, transformation

Polio eradication efforts in Nepal have been successful, with high coverage during NID and an active surveillance system in operation. Since 2001 no wild polio cases have been reported in Nepal. Early interruption of wild poliovirus and maintaining zero transmission depend on continued high-quality

surveillance and detection of imported cases from neighboring India. The challenge is to expand the surveillance system to include measles and neonatal tetanus and to institutionalize it within the government system. Like other countries, the Nepal Polio Eradication effort is primarily supported by external assistance from development partners. This is a serious limitation for sustainability of the approach, particularly the social mobilization for NIDs and the surveillance system. The long-term impact of polio eradication on routine immunization and the health system is yet to be dealt with.

E. Family Planning

E.1 Overview

Access to and use of quality family planning services in Nepal has increased measurably in the past two decades, and likely resulted in decreased mortality risk for both women and their children. Use of modern contraceptives among married women of reproductive age rose from 8% in 1981 to 39% in 2001.

Until 2001, Nepal was the only country in the world where life expectancy for women was lower than for men.[7] This reflected the overall status of women, making it perhaps even more remarkable that a significant increase in contraceptive prevalence rate and a decline in total fertility rate have taken place. Among the many factors leading to this change are declines in infant and child mortality, improvements in sanitation, and increases in female literacy as well as overall educational gains for women.

Population and family planning programs began early in Nepal, in the 1950s, and have enjoyed major inputs from donors over the course of five decades. Initially, the Ford Foundation and USAID were the sole international organizations involved; United Nations agencies and international NGOs became involved in the 1960s. By 2000, more than 20 multilateral, bilateral, and private sources supported the family health program in a variety of ways. USAID has been a major partner throughout, and has usually been the largest single provider of both technical and financial resources to the family planning program.

While increases in the availability and use of contraceptives have been steady, targets set by HMG and donor partners were often not met in the early decades of the program. By the 1990s, government objectives were more realistic; linked to planned and funded programs, the program had established policy and physical infrastructure to support objectives. By 2000, targets for prevalence rate increases and fertility rate decreases were either entirely or largely met.

Non-Governmental Organizations

Family planning service delivery in Nepal began in 1959 with the establishment of the Family Planning Association of Nepal or FPAN, an International Planned Parenthood Federation (IPPF) affiliate. Closely linked to the royal family, it worked under the guidance of the Social Services National Coordination Committee, which is traditionally headed by her Royal Majesty the Queen of Nepal. Like all IPPF affiliates, it has a Board of Volunteers; during several key periods the Board Presidency was held by influential female members of the royal family. In close collaboration with the MOH, FPAN provides both temporary and permanent contraceptive methods. In addition, until 1989 FPAN operated a Repair and Maintenance (RAM) Center for voluntary surgical contraception (VSC) equipment under contract to the MOH's FP/MCH project. By 2002, FPAN was delivering services in 34 districts from their own fixed sites, as well as through coordination with the MOH on a variety of VSC camps and outreach activities. In the 2001 DHS, almost 5% of current family planning users cite FPAN as the source of their method.

[7] UNDP Human Development Report, 2000; Y B Karki, personal correspondence 12/2002.

The Nepal Fertility Care Center (NFCC), founded in 1988, has implemented a number of projects and programs with support from a variety of funding sources. These projects focus on quality of care of RH services and the expansion of access to quality services through key partnerships with the MOH, CRS, and private drug stores. Also participating is the PSSN Network of private medical practitioners.

In addition, NFCC has taken over management of the RAM Center and now provides support in maintaining both public- and private-sector VSC and infection-prevention equipment.

A variety of other NGOs provide family planning services, including the Red Cross, Marie Stopes, and ADRA. Altogether, NGOs provide almost 8% of such services in Nepal.

Government Sector

The MOH began providing family planning services in 1966, and by 1985 provided at least some services in every district through fixed sites and VSC camps. For more than a decade, however, program reach was limited by shortages of available qualified staff. This issue was addressed in the early1980s when a large number of female health workers were recruited to focus on client recruitment, community mobilization, and education.

On the community level, Panchayat-Based Health Workers and Community Health Volunteers (CHV), primarily based at or near local government health posts, have been active in recruiting clients and providing information. Mother's Groups have also played an important role in some geographic areas, as have NGOs such as the Nepali Red Cross, the Labour Organization, and the Women's Organization. By 1990 leadership at the MOH—with the support of key donors—was already considering new approaches for "beyond the health post" extension to reach more of the predominantly rural population with both information and services.

In the mid- to late-1980s, implementation of the national family planning program began to reflect greater concern with quality of services, including choice of methods, counselling, and demand creation activities in line with King Birenda's announced Basic Needs Initiative. This initiative specifically cited both child survival and family planning as national priorities.

Despite these advances, the MOH and key donors acknowledged in 1986 that gains in the family planning program were having a limited effect on the fertility rate, largely because of the age at which most couples were choosing sterilization. While the CPR continued to rise, albeit more slowly than hoped for, the total fertility rate decline was much slower than anticipated, since most VSC acceptors were already in their thirties and had already completed their families. The results of the 1986 Nepal Fertility & Family Planning Survey confirmed the trend. In combination with international pressure to consider issues of program quality, a greater effort was placed on expanding access to more methods and appropriate counselling, and to improving the quality of already-existing services. Additional strategies to increase information and education through mass media and community education, as well as through counselling and outreach, were developed and implementation begun during this period.

When integration was jump-started in 1987 at the MOH, the FP/MCH Project took on a different role, as it began to provide consistent support for service delivery through District and Regional Health Directorate programs. The central and peripheral authorities together became responsible for the phased-in integration of family planning services to all hospitals and health posts. In June 1990, the MOH completed much of the integration process by transforming the remaining vertical projects—including FP/MCH—into divisions of the MOH. Family planning was among the last programs to be integrated, and in the process resources, and perhaps momentum and privileges as well, were lost.

Beginning in 1988, the MOH began a program of "institutionalization" of family planning services through a "systematic effort geared towards developing the infrastructure required to make a full range of family planning services available through the Ministry of Health's existing health network."[8] By 1993, 15 districts had institutionalized FP sites (FP/MCH project; USAID), and a total of 21 were institutionalized and continued to receive support from USAID. Institutionalized districts received a significant amount of technical and financial support for the training and systems support required, including the introduction of improved systems for logistics, monitoring, and reporting.

VSC has been the cornerstone of family planning services in Nepal for decades, serving the needs of thousands of families who wish to limit their family size. From 1976 until 1991, more than 90% of users of modern methods used sterilization. Over time, such reliance on permanent methods led to critical program reviews, including a hard look at the system of payments to providers and clients. Service provider payments for sterilization services were begun in 1968, expanding over time to include payments to all personnel involved in recruiting or assisting the acceptor.[9] This system has been crucial to the operation of seasonal VSC camps, which have staffing needs that greatly exceed the capability of MOH to fill. IUD service delivery also had a provider payment attached, but a small one. In 1982, the National Commission on Population adopted a policy of payments to each acceptor of VSC services as compensation for wages lost and/or transportation. By the late1980s, the MOH and its donor partners were proposing alternative systems and phase-out of the incentives system. By 1993, institutionalized districts paid no remuneration.

One important element of supporting quality clinical care in family planning services was the 1991 development of National Medical Standards (first edition) for Contraceptive Services. By 1993, dissemination of the standards was underway. In addition, USAID provided support to establish and maintain a National Quality of Care Management Center at the MOH, which, while focused on the institutionalized districts, also trained a whole cadre of health professionals in new ways of addressing quality of care.

In 1991, after the change to a democratic government in 1991 and the MOH completed integration, there was an increase in the number of active donors and technical partners at the central level. For example, USAID- funded agencies provided important levels of technical and financial assistance; UNFPA and the World Bank provided assistance; and new bilateral agencies, including DFID and KFW, increased their involvement in family health.

The World Bank's Population and Family Planning Project, implemented by the MOH, was launched in 1994 and reached 72 districts with at least some inputs. MOH programs in 24 districts benefited from intensive support, including funding and facilities construction as well as support to overall manpower and strengthening of systems. The end-of-project assessment in 2000 documented many positive trends, including increased CPRm, which was later verified by the 2001 NDHS. These trends reflect the investments of HMG and development partners, several of which worked in multiple districts during this period.

Other Ministries received, and continue to receive, donor and private funding in support of a variety of activities related to family planning and the implementation of national population policies. Through these programs, school curriculum and literacy courses include population and family planning information. In addition, they support population policy discussions and encourage the involvement of labour and other parastatal organizations in population education.

[8] Workplan for Family Planning and MCH Activities, Nepali Fiscal year 2050-2051; MOH, 1993–1994.
[9] Workplan for Family Planning and MCH Activities; MOH, 1989–1990.

Above the Ministerial level, donors have supported national dialog on key development policy issues, including population issues in such government institutions as the National Planning Commission and the Parliament.

The Private Sector

In 1978, the Contraceptive Retail Sales (CRS) Company was founded. The event marks the beginning of large-scale private sector involvement in family planning work in Nepal. (The associated social marketing program is discussed in more detail in Section III. A.)

In the late 1980s, USAID's Enterprise Project helped a number of manufacturers integrate family planning services into the health package offered to their employees, extending the reach of the national program into the workplace.

In addition, a growing number of Nepali men and women have been procuring their family planning services from the private sector, including private doctors, clinics, and hospitals as well as drug stores. The overall contribution of this sector to family planning service delivery has grown from 4.7% in 1991[10] to 7.3 in 2001.[11]

E.2 Intermediate Results

Table 20. Family planning, fertility and related social indicators: Benchmarks

Family Planning and Fertility	**1976**	**1981**	**1984–1986[3]**	**1986**	**1991[6]**	**1993–1995[7]**	**1996**	**2001[7]**
CPR (modern)	2.9[1]	7.6[2]		15.1[6]	24		28.8	38.9
Unmet need for FP:								
Spacing						14.3%		11%
Limiting						17.1%		16%
Median age at 1st birth		20						20
TFR			5.1 5.47[4]			4.6 4.95		4.1
Related Social Indicators								
Age at Marriage (w)		16.1						16.9
Literacy rate								
Male								69.6
Female			11.5[5]					32.5

Sources:
[1]Nepal Fertility Survey, 1977
[2]UNFPA, 1989 (cited in Nepal Demographic and Health Survey, 2001)
[3]NFFPHS, 1986
[4]Retherford and Thapa, 1999
[5]Isaacson, Joel ed., Half a Century of Development
[6]NFHS, 1996
[7]NFHS, 2001

[10] Nepal Fertility and Family Planning Survey, 1991
[11] NDHS, 2001

Table 21. Program Monitoring Indicators[12]

INDICATOR	1997	1998	1999
Availability of temporary methods	90	101	113
Counseling service	42	62	72
Explanation of informed consent form	23	66	93
Infection prevention : boiling technique	90	105	115
Collection and disposal of used syringes	69	94	99
Availability of client education materials	45	102	109
Supplies of commodities	99	90	117
Staffing : training	48	45	63

Table 22. MOH Reported Indicators[13]

INDICATOR	1994	1995	1996	1997	1998	1999	2000
Spacing Method (Acceptors as % of MWRA)	5.26	6.08	7.00	7.92	8.28	9.43	10.39
Estimated CPR		26.20	29.01	31.28	33.15	36.45	37.59
Family Planning Current Users (% of target achieved)	83	103.7	107.8	106	104	105	108

E.3 Timeline and Milestones

As in most countries, the development of a successful national family planning program in Nepal has required a combination of strong leadership, donor funding, technical evolution, support systems, and a sound policy framework. The following chronology suggests the timing of key events and input from important leaders.

Chronology of Key Events in Population and Family Planning, 1959–2002

1959:
-Family Planning Association of Nepal (FPAN) established

1963:
-MOH initiates MCH Program

1965:
-Nepal National Family Planning Policy adopted

1966:
-MOH begins family planning service delivery

[12] These indicators reflect 24 sites working with the Nepal Quality of Care Management Center, data as cited in AVSC Working Paper No. 13, January 2001. Scores are aggregates reflecting all 24 sites, with 5 points possible per site or a total score of 120.
[13] Data taken from DoHS, MOH/HMG, Annual Reports for the years listed.

1967:
-HMG and USAID sign bilateral accords that include first family planning project

1968:
- Family Planning/Maternal & Child Health (FP/MCH) Project (USAID until 1979)—first formal link of FP and MCH within MOH
- Strong leadership of FP/MCH at MOH
- FP/MCH Board established; chaired by Minister of Health

1971:
- Integration of Health Services Project (USAID) helped lead to plan for national rural health system

1972-1974:
- Pilot of new village health worker program (Panchayat-based health workers or PBHW, USAID); role in advocating for FP important

1975:
- Population Policy Coordination Board established under National Planning Commission
- Organization of mobile VSC camps

1976:
- Nepal Fertility Survey; results led to greater awareness of population growth issue
- Integrated Health Services Project (USAID until 1981)
- Expansion of PBHW program

1978:
- National Commission on Population (NCP) established, replacing the Population Policy-Coordination Board; chaired by Prime Minister
- Nepal Contraceptive Retail Sales Project (CRS) established (USAID)

1979:
- UNFPA Pop Sectoral Assessment published
- Family Planning Project (USAID) closes (62 districts benefited)

1980:
- UNFPA First Five Year Plan (multisectoral)
- Integrated Rural Health/FP project (IRH/FP in 48 districts, USAID)

1981:
- Nepal Contraceptive Prevalence Survey (NCPS)

1982:
- Integrated Community Health Services Development Project (ICHSDP) established; covers 23 districts and FP/MCH Project (USAID) provides family planning services in 52 additional districts, creating nationwide program
- National Commission on Population reorganized into National Population Commission; still chaired by Prime Minister
- HMG/NPC and MOH strategy leads to expansion of sterilization camps
- Incentive system for providers and clients introduced for VSC services

1983:
- National Population Policy and Strategy (NPS) approved (NPC moved this forward under Prime Minister, USAID funding, strong staff)
- CRS converts to private sector company status

1984:
- UNFPA Project—Her Majesty's leadership of Social Welfare Council
- Integration of population theme into other sectors (education, etc.)
- Significant increase in sterilization caseload
- Minister of Health Sushila Thapa; emphasis begins on counselling and client-friendly services

1985:
- King Birenda announces Basic Needs Initiative (includes CS and FP)
- Prime Minister leads NCP forward
- IRH/FP Project extended for 3 years
- PBHW recruitment criteria change to require female workers

1986:
- Nepal Fertility & Family Planning Survey (NFFPS)
- Shift in sterilization policy away from motivation and client incentives
- Family planning services integrated in 23 districts (MOH)

1987:
- Begin integration of all MOH vertical programs at district level nationwide

1988:
- Nepal Fertility Care Center (NFCC) founded
- Population Studies Center established at Tribhuvan University, Kathmandu
- Institutionalization of FP services begins at MOH

1990:
- Child Survival and Family Health Services (CS/FHS) Project begins (USAID)

1991:
- Nepal Fertility, Family Planning & Health Survey (NFFPHS)
- National Health Policy
- National Medical Standards (first edition)—Contraceptives

1992:
- Reorganization at MOH; Integration of Services applied to central systems

1993:
- Radio Communications Project beings (USAID)
- LMIS created, integrated
- Proliferation of local NGOs begins

1994:
- ICPD in Cairo—broadens and defines RH focus
- Population and Family Health Project (World Bank)

1995:
- USAID Project started annual meetings of DHOs and DPHOs

1996:
- Nepal Family Health Survey (NFHS)
- Ministry of Population and Environment created
- Launch of Quality of Care Management Center (QOCMC, USAID funding)

1997:
- Ninth Five-Year Plan 2054–2059 (1997–2002)

1998:
- National Reproductive Health Strategy

1999:
- Second Long-term Health Plan (LTHP, 1997–2002)
- Local Self-Governance Act

2000:
- Nepal Adolescent and Young Adult Survey (NAYA)
- Strategic Analysis to Operationalize Second LTHP
- Amendment to National Reproductive Health Policy: Unmarried men and women now have access to family planning services
- Population and Family Health Project ends (World Bank)

2001:
- Nepal Demographic & Health Survey (NDHS)
- Muluki Ain (11th Amendment) enacted—Women's Empowerment: Legal age for marriage raised to 20 for women, 25 for men and changes in inheritance laws to protect women and their children
- Nepal Family Health Program 2001–2006 (NFHP; USAID funding)
- Nepal Contraceptive Retail Sales Company reorganized
- HMG State of Emergency announced

2002:
- Abortion is legalized (June)
- Reproductive Health Social Marketing Strategy, USAID

E.4 Policy Highlights and Guidelines

Over time, the policy framework for national population programming, including family planning and—more recently—reproductive health services in Nepal has grown and become more reflective of international standards. For more than forty years, USAID and UNFPA have supported a number of initiatives to create and support high-level government committees to pursue needed population policies and monitor demographic trends through the powerful National Planning Commission. In 1982, the National Commission on Population (NCP) was created as a result of the fourth reorganization of the policy structure. Under the direct leadership of the Prime Minister, the NCP led to a renewed commitment to family planning and, in 1983, the promulgation of a revised population policy. While hopes were high that this structure would remain viable over the long run, by the mid-1990s it was not meeting regularly; currently it has not met for at least 18 months. Nevertheless, during this period several important legal reforms affecting family welfare and reproductive health were enacted, including the Eleventh Amendment and the revised Reproductive Health Policy of 2001.

Service delivery has also long benefited from approved policies and guidelines. The Nepal Family Planning Policy of 1965 gave specific authorization for the delivery of family planning services by the governmental sector, and services began in 1966. Informal and formal standards and guidelines were developed and revised between 1966 and the present. More recently, the 1990s were a critical period for improvements. The decade brought the clear statement that the main goal of Nepal's National Health Policy (1991) relating to the Reproductive Health and Family Planning Program is to "expand coverage and sustain adequate family planning services down to the village level through all health facilities."[14]

The 1998 National Reproductive Health Strategy reaffirms the GON's continued move away from target-driven national plans and toward human development and individual well-being. The Government of Nepal, a signatory of the 1994 Plan of Action of the International Conference on Population and Development, acknowledges the need to do more to involve women and youth in programs and services, and to reach out to poor and marginalized groups. In practice, annual targets are still an important element of annual planning and reporting, but new indicators related to quality of care and access to services are now also monitored. The National Adolescent Health and Development Strategy of 2000 reflects the revised Reproductive Health Policy, which includes the confirmation that unmarried men and women now have access to family planning services.

The Tenth Plan, including its Medium-Term Strategic Plan now being implemented, notes that family planning and other key RH components are First Priority Programs under the plan.[15] While most components of this ambitious program are donor-funded, HMG does contribute to the purchase of contraceptives and funds a proportion of recurring costs.

E.5 Program Components

IEC/BCC and Social Marketing

IEC received substantial donor and HMG support in the early years of the program. Both the vertical FP/MCH project and the Integrated Community Health Project focused significant resources on reaching the ambitious targets for permanent methods. Through the mid 1980s, both projects publicized the mobile sterilization camp services through extensive radio announcements and local events aimed at recruiting acceptors. Cash incentives for all participants in the recruitment effort energized the effort, which was approached in an intensive campaign fashion. IEC for family planning was largely a radio-based saturation approach emphasizing the time and place for sterilization services, and exhorting clients to come to the camps for what was called their "Golden Chance" to limit family size.

Government promotion of temporary methods was less aggressive, overshadowed by the campaign approach for sterilization. A major source of IEC for temporary methods was the social marketing project begun in the mid-1970s with the creation of the Nepal Contraceptive Retail Sales Project, or CRS. An early hallmark of the project was an inventive nationwide contest to create Nepali-language brand names for the pill and the condom. Leading social scientists advised the CRS on the approach. Marketers held regional and district meetings to explain temporary methods and invite people to compete for prizes by naming the products. The pill was eventually named "Rose" (Gulaph in Nepali), and the condom was called the "Shield" (Dhaal). This naming of products was followed by an intensive nationwide marketing effort that saw colorfully painted vehicles distributing the products throughout regions. The campaign also featured a wide range of creative radio spots coupled with abundant marketing collateral placed in pharmacies and shops throughout Nepal. Despite chronic management and administrative difficulties, the

[14] DoHS, HMG Annual Report, 1997/1998.
[15] Medium term Strategy Plan, Tenth Plan; HMG/N, 2002.

CRS project and its first-ever nationwide mobilization of marketing and advertising resources contributed to increased awareness of temporary methods, which currently account for a significant portion of distribution. During 2001–2002, CRS was responsible for nationwide distribution of 20% of condoms, 7% of injectables, and 33% of oral contraceptives. CRS also markets safe birthing kits and bleach, which the project packages according to GON standards.

In the mid-1980s, the CRS project added ORS packets (Jeevan Jal) to its product line, and mobilized a rural sales force that included traditional medical practitioners to distribute and sell the packets. Repeating its success with pills and condoms, the CRS project increased its sales from just over 90,000 ORS packets in 1984, its first year, to nearly 600,000 the following year. CRS staff believed that extending its contraceptive product line to ORS strengthened its appeal to its market.

Despite the vigorous marketing and awareness-raising efforts, client dissatisfaction with pills led IEC efforts toward the more difficult and laborious task of supporting field workers with improved educational materials. Pretesting and production of materials grew in importance, as the need to balance permanent and temporary methods became more apparent. In the mid-1980s the radio campaign began to incorporate more entertainment-oriented approaches. For example, both the government and the CRS project turned to broadcasting songs to encourage planning for small families; some of these songs were created through contests among traditional troubadours, known as "gaines." The singers were brought together in family planning workshops, where they were encouraged to create songs to popularize the small family as a norm. Brief dramas were also produced to highlight the benefits of small families. The core message was the comparison of the small, happy family with the struggling large family.

As UNFPA's multi-sectoral approach to population became the primary donor IEC activity in the mid- to late-1980s, messages and materials were redirected toward the broader themes of population and resources in participating sectors. The IEC division changed its role as author of campaign-style, focused messages to one of support agency for other Ministries such as agriculture, which were adding population components to their fieldwork. In 1988, when the institutionalization process began and incentives were withdrawn, the intense campaign approach drew to a close and IEC efforts turned toward support for fieldworkers, and to regional- and district-level meetings and workshops. Trained IEC staff began to leave the field, production facilities were dismantled, and the program entered a period of drift, reducing its role to producing materials for other agencies on a broader set of topics. Throughout this period, the FPAN ran an active IEC radio and print effort, drawing on royal and other senior-level leadership support and focusing on temporary methods.

In 1993, USAID/Nepal actively reentered the IEC arena, supporting a focused effort through the JHU/PCS project with targeted messages and materials to address still-unmet needs for family planning. Known as the "redline" strategy, the effort focused on applying state-of-the-art behavioral science research and programming. The intervention took the form of a radio communication project (RCP) that used an entertainment-oriented approach to reach defined audiences of providers and clients. The effort was supported with training and print materials as well as a community mobilization field approach led by CEDPA. Although the effects of communication inputs on behavior change are notoriously difficult (and expensive) to determine, an evaluation of the first major phase does support the conclusion that the strategy was successful in changing behavior among targeted providers and consumers.[16]

With awareness rising sharply, increased adoption of family planning now required improvements in providers' ability to offer interpersonal communication and counseling (IPC/C) to prospective clients. The evaluation demonstrated that training and distance education in IPC produced positive changes in

[16] "Impact of the Integrated Radio Communication Project in Nepal, 1994–1997" D. Storey, M. Boulay et al. Journal of Health Communication, Volume 4, pp.271–294, 1999

provider behavior, and that clients exposed to the RCP adopted family planning at higher rates than those who were not exposed.

The evaluation led to further expansion of a blended approach, in which distance education for providers was coupled with targeted messages to reach clients with an unmet need for family planning. The RCP has been the lead vehicle for behavior change in family planning, and has moved through successive phases in which message content has been expanded to incorporate more maternal and child health content. The project has assumed intellectual leadership in IEC/BCC through the integrated health approach. Of note is that the project engages a wide range of GON and NGO health staff in the major design stages of each phase of programming. This produces a high level of stakeholder support and agreement about the core messages and strategy. An indication of the impact of this approach was the incorporation of research-based IEC in the GON National RH/FP IEC Strategy for Nepal 1997–2001.

FCHVs and other community-based workers

The role of various types of community-based workers and volunteers in the provision of family planning education, counselling and services dates back to the inception of the national program. While use of certain types of incentives created an environment that was not automatically supportive of quality counselling and client rights, it did ensure a high level of involvement of community workers in outreach campaigns. Both INGOs and NGOs such as FPAN now implement strategies that rely on the smooth functioning of trained heath volunteers, and have therefore invested heavily in training and supporting them. Some project assessments[17] note that the role of these volunteers is vital in linking communities to the health service delivery structure outside of large urban areas.

The Panchayat-based Health Worker (PBHW) system, while seriously flawed, did bring information about limited family planning services—especially sterilization—to some communities. The 1996 MOH annual report notes, "One of the main reasons for the failure of this program when expanded on a national basis is the involvement of politically-motivated recruiters. The district FP officer is bound to appoint whoever is recommended by the Pradhan Pancha…it is politicized and thus program managers have less control over their employees."[18] Hence, a good portion of paid workers under the program were either not appropriate to the work required or were not interested in working. While many more of the current paid government workers are both qualified and female, their role in providing quality counselling or outreach to communities seems limited. Many other primary care programs have drawn similar conclusions, and attempted to find alternative methods for delivering needed services.

Among the alternatives is the well-documented FCHV program. Volunteers were first used in a pilot project more than thirty years ago in Nepal. By the mid 1980s, 43 districts had groups of Community Health Leaders, or CHLs, that supported MOH outreach programs by going from health posts out into communities at least twice a month when they were active. Since most of the CHLs were men, FP activities tended to be limited to basic messages and referral to HPs for services.

In 1988, when the FCHV program was initiated, motivation for small families, child spacing, and FP methods were included in the basic training package. FCHVs were designed to fill several needs: to distribute condoms, refer for temporary methods, counsel about side effects, and resupply oral contraceptives. With limited training and community perception of FCHV roles, however, these tasks were difficult to perform, and FCHVs tended to concentrate on child survival activities. At least some FCHVs have requested additional training in order to better support the FP program, but to date this has not systematically taken place. While the carrying capacity of FCHVs for treating additional themes is

[17] CEDPA 2001; Asia Foundation 2002.
[18] Annual Report of MOH, HMG/N, 1996.

unknown, it is clear that improved access to information and services at a community level and outside of the physical government health structure will become more important in meeting current demand and supporting demand creation.

In 1996, FCHVs provided 1.5% of all married current users of a modern family planning method with their oral contraceptives or condoms; in 2001, the DHS indicates 1.7% of such clients received their contraceptive method most recently from a FCHV. Routine data available from the MOH suggest that the role of FCHVs in the resupply of temporary methods is important, with 18% of oral contraceptives distributed through the MOH system supplied to clients by FCHVs. (The FCHVs provide a relatively low level of referrals for other services.) Since the proportion of new acceptors choosing resupply methods is growing each year (see Section II, E.2), the development of a clear strategy for community-based work in support of family planning is important.

Community Mobilization

The use of community mobilization approaches in family planning was primarily tied to creating support for the VSC camps from the 1970s through the period of institutionalisation in the late 1980s. During this pre-democracy period, the Panchayat structure took the lead in regions and districts by convening rally-style meetings to urge all sectors to support the camps, and to appeal to fieldworkers from various sectors to reinforce these messages and assist with logistics and transport. Organizing the time-bound camps with their well-publicized services was a natural fit for such a mobilization effort.

FPAN, by drawing on the prestige of its royal patrons and the elites who were associated with them, also contributed to such gatherings, in addition to using prominent figures to add importance to regional and district meetings to promote family planning.

The National NGO Coordinating Council mobilized the Nepal Women's Organization and other prominent NGOs, including the Ex-Serviceman's Organization (made up of returned Gurkha soldiers), to inaugurate regional seminars and workshops highlighting family planning throughout the 1980s. The presence of such organizations was newsworthy; the print press and radio did extensive reporting of visits made by dignitaries to national, regional, and district events.

At the local level, District Health and Family Planning Officers were expected to engage the local Panchayat structures in endorsing family planning. In the early 1980s, with UNFPA supporting a multi-sectoral approach to population and family planning, Family Planning Officers were given funds to conduct multi-sectoral workshops for their counterparts from the Ministries of Education, Agriculture, and Local Development, with the expectation that they would participate in community events supporting family planning and offer their fieldworkers orientation on family planning. Success with these approaches was limited.

The FP/MCH project intermittently organized mother's groups to support recruitment of family planning acceptors in the mid-1980s, and their IEC division used these groups and others as Radio Listening Groups to ascertain the impact of radio programming on potential acceptors.

In recent years (the mid-1990s to the present) the JHU/PCS team worked with Save the Children and CEDPA to organize community discussion groups to listen to and provide feedback to broadcasts.

E.6 Program Systems

Planning and Budgeting

Beginning in 1966, planning for national-scale family planning service delivery suffered from donor and partner fragmentation. Coordination under the MOH was not a priority, since activities were not integrated and projects were managed separately. Before 1990, the MOH implemented family planning and sometimes population policy work as vertical programs in "projectized" form, with parallel planning and budgeting mostly completed at the central level.

While annual DHO and RHO meetings began in 1994, they were expensive undertakings; over time they evolved into an annual meeting of Regional Health personnel at the central level for the purposes of annual review and planning.

This centralized planning, based on targets, was primarily about the planning for and implementation of sterilization camps, and the extension of basic services to district seats.

During the 1980s, planning for the sterilization camps was largely done on a regional or district level, while budgeting remained centralized. Once institutionalization of family planning services began, planning and some budgeting of activities needed to take place at the district level. Assessment results noted that human resource programs based on improving basic management and planning skills were needed in most districts, underscoring the importance of planning carefully for any decentralization or devolution of skills to district teams. Currently, planning and budgeting remain primarily central MOH functions, with input from regions and a small number of districts on a semi-annual basis. In recent years, trends indicate progress toward more realistic planning and accurate budgeting, but not toward broader participation in these functions in recent years.

Training

Until the last decade, training consistently reflected program priorities in clinical family planning training, but often neglected counselling, infection prevention, and management training.

The FP/MCH project established five Regional Training Centers (RTCs) early in the national family planning program. After 1987, they were combined under integration into overall primary health care RTCs. These RTCs were tasked with providing basic and refresher training on all FP/MCH topics to community health workers and volunteers. Responsibility for clinical FP training was at first retained at the central level, at the main MOH clinic under the FP/MCH Project, but then extended to include NGO and private-sector sites that had the high case loads appropriate to clinical training. While some trainers needed to be reoriented and retrained, over time expectations for the performance of these RTCs were quite high.

For in-service family planning training today, all materials are standardized and the certification process is the same for all providers. Long-term and permanent method training for clinicians has required a high level of continuous investment to keep up with demand for services. After a few years, many providers do not remain available for work in sterilization camps, creating a continuous need for newly trained providers and experienced trainers. None of the RTCs, however, have been able to provide enough clients for regular sterilization trainings, which are now based at three accredited sites: ADRA, FPAN, and Chhetrapati Family Welfare Center (CFWC) in Kathmandu.

Although for many methods the length of training has been reduced since 1993, base and refresher training programs still have had a difficult time meeting their goals to support growing demand

throughout the country. IUD master trainers, primarily nurses, have been chronically in short supply due to their overall limited numbers and transfers within the system to positions in which they are no longer available to provide training services.

RTCs, INGOs, and NGOs often collaborate to provide needed training and refresher training to providers in family planning and related quality of care topics. Although many community-based workers, including MCH workers and FCHVs, would benefit from additional supportive supervision, follow-up training, or base training; the national training system does not yet seem capable of regularly responding to their needs. While districts and regions have some capacity for meeting in-service training needs, planning and funding availability as well as manpower use issues prevent in-service training from taking place on a regular basis.

An important innovation that is beginning to show results is the distance education program by radio funded by USAID. Begun after a 1993 assessment, the program may help to improve provider performance and inter-personal communication with family planning clients.

While training is not the only component of the national family planning program that suffers from inadequate manpower, it is one of the systems most weakened by staff shortages and losses to transfers, promotions, and movement to the private and NGO sectors. (Although collaboration between public- and private-sector institutions in family planning training has been successful and receives continued support from both types of institutions.)

Supplies/Logistics

Serious problems with contraceptive logistics have plagued family planning service delivery, especially as the proportion of users of temporary methods began to grow in 1986. While commodities had been donated freely since the 1960s, often the right products were not in the right place at the right time. Stock-outs and wastage at the district level, as well as difficulties with inventory and forecasting at the central level led to the development in1990 of a modified request-based or "pull" system at the request of the MOH.[19] In addition, USAID bilateral projects worked on contraceptive logistics, and later on the entire drug management system, to decrease stock-outs and improve cold chain logistics for both family planning and child health programs.

Improved overall logistics system design, increased worker performance, improved infrastructure and practical reporting tools, and upgraded warehouses and storerooms are the result of technical and material support provided by outside partners to the MOH at all levels over the course of two decades. Steady improvements in logistics have helped stabilize and support growth of the national family planning program, including increased use of resupply methods.

Contraceptive security strategic planning is another arena in which HMG/MOH and outside partners have worked closely to identify issues, develop solutions, and plan and implement them. USAID, DFID, KfW, UNFPA, FPAN/IPPF, and the MOH/HMG are all involved in on-going monitoring of the situation. The current scenario projects enough resource availability until 2007 to ensure contraceptive security for the country.

Supervision

The development of a viable supervisory system was not a priority until the last 10 to 15 years; prior emphasis had been on sterilization camps and district responsibility for health post and sub-health post

[19] Workplan for Family Planning and MCH Activities; MOH, 1990–1991

activities. Like training, supervision requires basic planning, resources, and willing personnel with the technical skills to support the system.

Until the institutionalization of family planning services in 21 districts (see timeline and public sector overview), public sector supervision was virtually two separate systems, one for sterilization camps and the second for static sites. When the push for expanding access to methods other than sterilization began, it created the need for a new supervision and monitoring system geared to the changing profile of the family planning program.

Through the QoCMC, such systems were developed as quality monitoring systems. Since 1997, the MOH annual report has dedicated a significant portion of the family planning chapter to discussions of field visit findings. These are supportive or participatory supervision visits, and includes use of tools to monitor progress and identify problems as well as a protocol that includes team treatment of issues. Visits are conducted at regional, district, and site levels. Until 2001, this supervisory system operated regularly in at least 21 districts and less regularly in at least 12 others. Since 2002, approximately 28 districts have received supervisory visits.

In addition, the MOH has identified the need to develop a standardized, integrated supervision tool to support overall MCH supervision. Current plans slate the development and field testing of this tool for 2002–2003.

Data Management

Until 1990, each donor-funded project reported directly to the National Commission on Population, although often only on new acceptors. The available data over-stated the success of the program and duplicated efforts. In 1989, a new Management Information System (MIS) was tested in four districts; starting in 1990, it was expanded to the rest of the country. The MIS now collects information on new and continuing users, enabling the MOH to track continuation and drop-out rates. CPR is the stated measure of evaluation for each district, based on annual targets calculated with routine data from the MIS. Survey data collected approximately every five years is used to confirm calculations.

Until the integration of the MIS into the integrated HMIS system in 1992–1993, the creation and development of the family planning vertical MIS had received both technical and financial assistance from USAID and UNFPA. Under the MIS, a large amount of information was collected, including specific data on each client that was not replicated in the new HMIS. UNFPA funded much of the new integrated system but did not drop large amounts of collected data for family planning during the transition.

Monitoring and evaluation have benefited greatly from a functioning national system. Overall, both MOH and outside partners seem satisfied with the quality and quantity of data available. For example, CPR data is available by district per year and is calculated based on current users. As a proxy for survey data, it compares relatively favourably to DHS data from both 1996 and 2001.

A large amount of available data is used at the national level for planning purposes, including the preparation of long-term plans. HMIS is also used for district-level planning and program monitoring. Data and analysis are also shared monthly with the National Planning Commission to monitor national family planning and safe motherhood trends.

As with other MOH systems, data collection and management is most consistent at the central level, where trained personnel and equipment are more readily available and where requests for information arrive regularly.

Numerous issues exist for data management at the district level. For example, while there has been a "zigzag pattern" of CPR in some districts, no retro-feedback or supervision to such districts has not taken place. In addition, data is incomplete, since no private-practice data is included. And for private partners who do wish to provide information, there are sometimes compatibility issues. For example, the FPAN system does not comply with MOH system requirements.

Thus major changes in what data is collected and how it is used have taken place in the past decade. Targets now play a lesser role in monitoring and evaluating the family planning program than in earlier periods. The contraceptive prevalence rate has consistently been important over time. While in comparative terms, Nepal's HMIS is a solid system that functions far above average HMIS, but it could nevertheless be further improved and exploited to better serve programmatic needs.

E.7 Partnerships and Coordination

While partnerships that support Nepal's national family planning program have always been crucial to the growth of the program, they have not always been easily maintained. Nevertheless, leveraging funds between donor groups, private voluntary organizations, and NGOs in support of MOH plans has been critical, and has added both value and scale to a growing national program. Over time there has been a steady increase in both the number of partnerships and the level of support to key programs.

Coordination at the central and district level has significantly improved, as NGO Coordination Committees, often headed by INGOs at the district level, have taken responsibility for achieving the added value that coordination can bring. At the national level, improved coordination in vital areas, including policy development, contraceptive security, and medical standards, has led to better planning and use of available resources.

But relationships and the definition of roles between governmental and non-governmental sectors in the provision of family planning services are sometimes problematic, and coordination is not always easy, especially if MOH partners do not perceive ready benefits to their investment in coordination. However, during several periods in recent years, key population donors did coordinate particularly well, leading to important developments in policies and standards, contraceptive security, and support to the logistics system.

Leadership

According to document review and interviews, there are several leadership categories for Nepal's population program:

- Royal family members, especially women
- Demographers and public health professionals trained abroad
- Physicians in decision-making positions at the central MOH
- Private-sector public health professionals who have taken risks in starting new ventures

In all these cases, the leaders exhibited characteristics that tend to be unusual in Nepal: willingness to stand apart and have different opinions, and often the willingness to work within an existing structure to promote change. A number of champions for the national family-planning program in Nepal have been women.

Many of these leaders created situations that would help move the program forward, such as supporting the idea of health volunteers distributing oral contraceptives. Other leaders used existing circumstances to push harder for a major gain. And still others invested time and enormous effort in new institutions or in new technical specialty areas, such as HMIS within the MOH, or the NFCC in the private sector.

E.8 Evolution: Scale, Sustainability, and Transformation

The evolution of the national family planning program in Nepal reflects decisions made at key crossroads, including a national push for sterilization camps, an emphasis on improving logistics, and a focus on regional training centres. In spite of difficult physical conditions, the Nepal program had some services available to clients in every district as early as 1982. As the graph shows, while steady progress was made from 1976 onward, it took until 1986 for real momentum and a solid program to allow the CPR to increase at a reasonable rate.

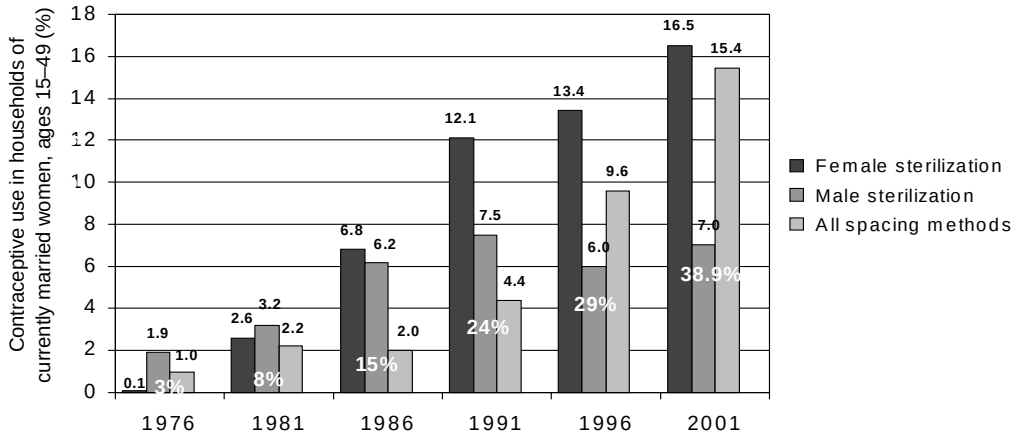
The program hit a number of bumps at different times that required corrections of some magnitude. The sterilization incentive program was one; the lack of balance between family planning and other health service delivery programs was another.

One evaluation of the family planning program noted, "The project devoted most of its funds and attention to FP, and more specifically to VSC. Child spacing and other health interventions received very little attention from the Project until 1985–1986….Since then, while substantial progress has been made in promoting temporary methods, progress in meeting other basics needs such as CS services has been much slower…."[20]

While issues of scale have been addressed in some cases—for example, access to sterilization services in all districts—others still need work, including rolling out high-quality counselling services and quality monitoring, increasing access to acceptable long-term methods, and finding a viable and sustainable solution to community-based service delivery.

[20] From Pratt et al, Evaluation of IRH/FP Services Project, 1988.

Figure 25. Trends in Family Planning Coverage, by Method, 1976–2001



Source: USAID/Nepal, updated with data from 2001 from the DHS.

Internationally, the Nepal family planning program has gained attention and recognition. The program is often represented at regional meetings and invited to present strategies and successes at conferences. Neighboring countries recognize the strengths of the program, and send health staff to learn how it is done. For example, Bangladesh sent a delegation in 1999, as they were considering how to revive and perhaps reform their family planning program. Professionals from Cambodia, India, Vietnam, and Pakistan have been trained in sterilization in Nepal, and refreshed their skills and learning about national training programs.

In spite of all the good news, a broader look at the health sector paints a more sober picture:

An analysis of the country's second long-term health plan notes, "Though health indicators have improved significantly, particularly in the past decade, they are still lower than what might be expected by comparison with countries of a similar socio-economic profile and level of health funding. The health system is not adequately meeting the needs of the most vulnerable groups: women and children, the rural population, the poor, the disadvantaged, and the marginalized."[21]

While the fertility rate has dropped, younger women are still having too many children too young, endangering their own health and that of their children. In order to have greater impact on maternal and infant mortality, the national family planning program needs to increase the number of women and their partners who decide to delay first births, and who have birth intervals of at least three years. Poor women and the disadvantaged are most at risk, reflecting a program that is not yet mature.

[21] Strategic Analysis to Operationalise Second Long Term Health Plan. Draft Report (4 Feb 2000). Nepal. (Vol 1) 1997–2017. P.7

F. Infant feeding and child nutrition, 1975–2002

F.1 Overview

During the last 25 years Nepal has made little progress in improving childhood nutrition. Several years after the first nutrition survey in 1975, the GON created a National Nutrition Coordination Council to oversee nutrition activities. A national workshop in Pokhara produced the Pokhara Declaration, which outlined a strategy to address malnutrition through a multi-sectoral approach that involved agriculture, health, education, and local government. A nutrition section was established at the Directorate of Health Services in 1978. The first multi-sectoral nutrition program, the Joint Nutrition Support Program (JNSP) of the mid-1980s, did not succeed and was discontinued. The Pokhara strategies were revised again in 1986 (Pokhara II) and nutrition was added to all subsequent five-year health plans. For many years, growth monitoring of children remained the major nutrition activity at health centers. Over the years, the program has had little coverage and has lacked skilled manpower, supervision, and support at all levels. An infant is weighed on average only 1.5 times in the first year of life, mostly during immunization contacts. A 1999 national plan of action for nutrition remained a paper document, with little commitment from the government or from development partners.

While the public sector struggled with nutrition, NGOs initiated various nutrition rehabilitation programs with innovative approaches in their own catchment areas. Development of a locally available weaning food and application of a positive deviance approach were successful in limited areas. In recent years, a community-based development approach with local government structures is being tried with more encouraging results. NGOs were actively involved with MOH in developing the national nutrition guidelines in 1999.

Breast-feeding is universal in Nepal. According to 2001 DHS data 98% of children under two years are breastfed to some extent, while 54% of infants are exclusively breastfed for 4–5 months. Programs such as the Baby Friendly hospital initiative (BFHI); IEC/BCC for infant feeding; and inclusion of nutrition messages in CDD/ARI, IMCI, and Family Planning programs were the major interventions that took place during the last decade for promotion of breast-feeding. The adoption and approval of a breast milk substitute (BMS) code in 1992 was another milestone.

During the last 23 years (1975–1998) the average annual reduction of stunting in under-five children was only 0.6 percent. More than half of under-five children in Nepal are now stunted. Lack of strong leadership at the government level, a low level of interest from development few partners, and few successful cost-effective nutrition interventions were the limiting factors, in addition to poverty and Nepal's overall socioeconomic development.

F.2 Key Program Elements

The key program elements included policy-level work for various nutrition activities, promotion of growth monitoring at the health facilities, promotion of breast feeding through BFHI and BMS Act, and inclusion of nutrition messages in different programs, including CDD, ARI, CBAC, and C-IMCI.

In order to promote breast-feeding, the BMS Act was approved by the government in 1992. In addition, to increase awareness and provide appropriate counseling to mothers, BFHI were undertaken, training doctors and nurses in different hospitals on breast-feeding during the period 1993–1996.

In 1999, a national plan of action for nutrition was formulated and endorsed by the government. The policy provided a framework for addressing national nutrition in an integrated manner involving health and other sectors as major players. However, the document did not draw support either from relevant

government ministries or from development partners. However, in 1999 a national guideline for nutrition was published for the first time by MOH, in collaboration with NGOs.

The MOH growth-monitoring program is carried out by health workers in health centers. The program, however, has poor coverage and poor quality. Donors primarily provide supplies and logistics for growth monitoring programs. There has nevertheless been a chronic shortage of Salter scales, and growth-monitoring cards are only intermittently available.

Two vertical programs—CDD and ARI—have included breast feeding and continued feeding during and after illness as part of the case management of diarrhea and pneumonia. Doctors, nurses, and health workers have been trained in these two key nutrition issues by the two programs. And, when the CDD/ARI program became community-based, FCHV training modules also included nutrition, making the FCHVs the source of nutrition information at the community level. Similarly, facility-based IMCI-trained doctors and nurses covered breast-feeding, growth monitoring, and complementary feeding. C-IMCI also included nutrition as one of the components in training health workers in their districts.

F.3 Evolution (key stages, interaction, health events)

Although the NNCC was a high-powered body, it did not play a strong leadership role in bringing together all the ministries. At the same time, the lack of any tangible program and leadership in the country also made it difficult to give voice to the issue of nutrition.

Over the years, as micro-nutrient programs took the place of nutrition, various programs addressed iodine deficiency disorders and vitamin A supplementation. The nutrition section, headed by a single person, had to manage all vertical micro-nutrient programs as well as nutrition programs in the country. While the vertical programs had managers and focal points at the district level, other section activities did not have such support. Lack of trained nutrition manpower in nutrition was an obstacle to providing effective training. Nepal has no institution for nutrition studies, research, or training. As a result the country has only a few nutritionists, who have been trained overseas.

It has been difficult to develop partnerships among the MOH, development partners, and NGOs for nutrition. The development partners have had difficulty addressing the country's huge nutrition problem without any evidence of successful community-based nutrition interventions. And lack of leadership from the government has further isolated the nutrition agenda. Similarly, the innovative approaches used by NGOs have not reached government policy-makers.

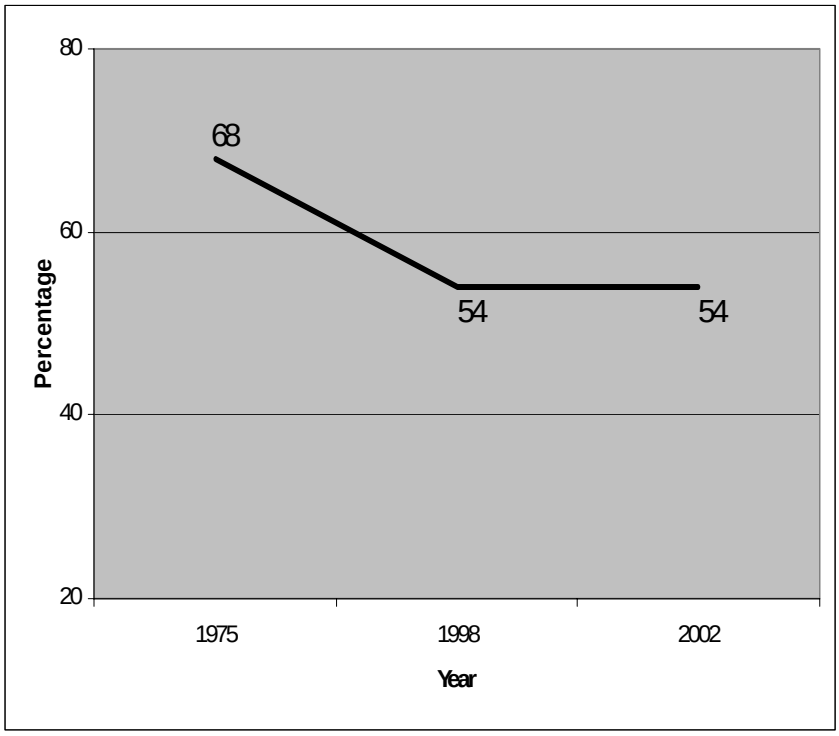
Despite the poor record over the last two decades, nutrition is again gaining attention. The DoHS is planning to set up a review commission to address the issue, and development partners are looking for community-based multi-sectoral approaches to fund.

F.4 Timeline of Infant Feeding and Child Nutrition in Nepal, 1975–2002

Year	Policy and Programs to improve child nutrition
1975	Nepal Nutrition Status Survey
1977	National Nutrition Coordination Committee (NNCC)
1978	Pokhara I Nutrition Planning (NNCC and Nutrition Unit)
1983-84	Joint Nutrition Support Program (JNSP)
1986	Pokhara II Nutrition Planning
1991	Nepal Family Health and Fertility Survey (NFHFS)
1992	Breast Milk Substitute Act
1993	Baby Friendly Hospital Initiative started
1996	Nepal Demographic and Health Survey (DHS)
1997	Decentralized Planning for the Child Program (DPCP)
1998	Nepal Nutrition Plan of Action (NPAN) Nepal Micro-nutrient Supplementation Survey (NMSS)
1999	Guideline for nutrition messages for health worker and household behaviors by the Child Health Division of MOH
2001	Nepal Demographic and Health Survey (DHS)
2002	Decentralized Action for Children and Women (DACAW)

F.5 Indicators

Figure 26. Trend in stunting of under-five children (6–59 months) in Nepal, 1975–2002



Data sources: 1991 Nepal Family Health and Fertility Survey
1996 Nepal Health Survey
2001 Nepal Demographic and Health Survey

Table 23. Breastfeeding and Complementary Feeding

Variable	1991	1996	2001
Prevalence of breast feeding	97%	98%	98%
Exclusive breast feeding 4–5 months	-	62%	54%
Median age of breast feeding	30	31	33
Early initiation of breast feeding (within 1hour after birth)	22%	18%	36%
Complementary feeding at 6–7 months	-	64%	53%

Data sources: 1991 Nepal Family Health and Fertility Survey
1996 Nepal Health Survey
2001 Nepal Demographic and Health Survey

G. The Nepal Malaria Program

G.1 Overview

Malaria has played a significant role in Nepal's history because of its endemicity in the most agriculturally productive part of the country: The entire Terai zone, the southern area of Nepal that borders India, was so affected as to be nearly uninhabitable. (The first documented study, in 1925, showed an 80% spleen enlargement in children, and there were an estimated 2 million cases of malaria out of a population of 5 million.)

After King Tribhuvan assumed control of the country in 1950, many vertical development projects began, including efforts to control malaria. These efforts evolved fairly rapidly, with the establishment of the Nepal Malaria Eradication Organization (NMEO) in 1958. Over the next few years, eradication efforts were started in the entire endemic area of the country.

The 1958–1977 eradication efforts focused primarily on insecticide spraying, other vecto-control measures, and distribution of antimalarials, with the primary objective being eradication. With the failure of the global effort for eradication, the program changed to the Malaria Control Program, with a reduction in spraying efforts accompanied by aggressive case detection (to reduce transmission), and a focus on selective spraying and case management (to reduce morbidity). After 1986, the malaria program was administered through primary health care, with further de-emphasis of spraying and a focus on prevention of mortality, control of epidemics, and containment of p. falciparum. In 1993, with structural changes within the MOH, the Malaria Control Division was dissolved and activities carried out instead under the Disease Control Section.

G.2 Key Program Elements and Results

Policy changes for the malaria program have been dramatic. Initially, the NMEO had significant size, with a large central staff. The government passed the Infectious Diseases Act of 1964, which provided the legal framework for the program. By 1965 the program had a permanent staff of 2,349 in 83 differently titled positions. There were an additional 4,500 people employed seasonally from November to December and from March to June. By 1970, there were nearly 3,200 permanent staff, and more than 16,000 temporary staff.

The policy shift toward integration in 1983 (ICHSDP) marked the beginning of the decline in staffing for malaria efforts. With the decrease in spraying efforts, reported malaria cases increased from 14,000 in 1980 to 42,000 in 1985, and slide positivity also increased. In addition, the number of reported falciparum cases increased dramatically, with the first 3 indigenous cases found to be chloroquine resistant in 1984.

The structural change in 1987, with decentralization to Regional Health Services Directorates, further decreased staffing for malaria, although 'vertical' staff remained at each regional center, and at the districts. With the final incorporation of malaria activities under the Epidemiology and Disease Control Division, both central and regional staffing decreased again, with 4 vector-borne disease control posts centrally, 3–4 posts for each region, regional malaria teams with 12 staff, and 3–4 vector-borne disease posts at district offices. Active case detection was then carried out by VHWs, and passive detection by volunteers.

Program component changes reflected policy shifts. During the eradication years, IEC was secondary, and the program carried out activities in villages without substantial involvement of community members. Malaria teams mapped villages, numbered houses, measured houses (to compute spray volume needed) and later sprayed houses. In addition, parasite surveys were done on children, with nearly 700,000 slides

collected by 1967, and over a million by 1973. In essence, the program was brought to the community level through a substantial centralized, vertical program.

With integration of malaria activities and the shift toward case management, greater communication efforts were needed. Educational efforts increased to improve anti-malarial use, to increase awareness and behavior change related to improvement in environmental conditions conducive to transmission, and to increase use of bed nets. Since the decrease in staff prevented major community mobilization efforts per se, improving surveillance activities has required further training among district staff, mostly coordinated through the Vector-borne Disease Training and Research Center (VBDTRC) in Hetauda.

Currently, FCHVs are not used extensively for malaria control. In selected districts there has been training for FCHVs designed to improve case management.

Planning and budgeting were centralized and extensive during the eradication era. The program received significant funds from the United States Overseas Mission (USOM) and WHO, and was seen in the context of a growing global eradication effort. In 1963, the program organogram included a board, a chief officer, six section heads under which there were eight units with four regional headquarters. Planning was centralized, but Zonal officers were given line authority and some autonomy in carrying out field activities. Budgets were adequate until late in the eradication effort.

With integration, planning remained centralized, but became fragmented, with districts addressing malaria to varying degrees. While anti-malarials are included in district and HP stores, they are also readily available in local pharmacies in varying combinations—complicating case management efforts.

Logistics were complex for the eradication era because of the spraying effort. This was ameliorated by the seasonality of activities, adequate staffing, and by strong support from both the government and donors. Assessments at the time noted difficulties with communication and supervision, reducing spraying coverage; assessments mention ‘failure of logistics’ as one of many administrative constraints. However, overall the program ran fairly smoothly, with logistic difficulties not prominent until later in the program.

After integration, logistics has been less of an issue than appropriate use of available antimalarials. In addition, logistic management of focal outbreaks has been difficult, in part because of difficulties with surveillance and mounting a timely response. This has recently been addressed through the implementation of an early warning and response system (EWARS).

Training was clearly a critical component during the preparatory phase of the eradication effort. International courses were provided to senior staff, with many completing master’s degree requirements in the US and other countries. A large number of field workers required training for spraying, in addition to the cadre of workers needing skills in reading blood slides. Training was done by both the central and field training sections, and included both basic and refresher training at all levels. Training was tiered, and phased in by zone, with the Central zone initiating the preparatory phase in 1960, during which recruitment and training were carried out. All zones had completed the preparatory phase by 1966.

During the transition from eradication to control, training was less critical, since there was a large pool of trained workers with a diminishing number of positions for them. However, in 1990–1991, the program work plan called for recruiting community passive case-detection volunteers (PCD-Vs). Workshops were held in 50 districts, and nearly 5,000 volunteers were trained to assist with blood slide collection from fever cases and administration of presumptive treatment. This helped maintain the annual blood examination rate (ABER).

With full integration and dissolution of the Malaria Control Division, the remaining malaria workers assumed additional responsibilities, and blood slide collection decreased in priority. Training public health staff remained a key strategy for the program. Training became the responsibility of the VBDTRC, which had limited staff.

Supervision followed a similar pattern as training, with a tiered decentralized system supporting field workers at the peak of eradication efforts, and a decline in supervision with the shrinking of the malaria program. There was also less specific support for malaria at the district level, given competition from other programs for transport and field time.

When the malaria program began, there was no integrated data management system; each vertical program managed its own monitoring system. This was especially true for the malaria program, which maintained specific indicators over time to track progress. These included amount of insecticide used, number of households (and total population) protected for the spraying effort, and a number of surveillance indicators related to active and passive case detection. Management of these data was done through the extensive vertical staffing pattern, with some input from WHO related to the global effort. Through at least 1978 the organogram reflects a statistics section under the malaria program.

As the program changed, key indicators remained and were ultimately incorporated into the integrated HMIS. The current HMIS includes ABER, slide positivity rate (SPR), parasite indices, and slide falciparum rates (SFR), as well as other indicators. Some program-specific reporting remained, mostly related to spraying activities. In 1996, for example, the program reported 19,418 households sprayed, covering an estimated 134,379 people. Case reporting is done through the HMIS, but since many cases do not receive care at health facilities, the reported data are not complete.

G.3 Program Evolution: Scale, Transformation and Sustainability

The first chapter of the malaria program, the Insect-Borne Disease Control (IBDC) program, was the first public health program in Nepal, and represented one of the first partnerships between the government, WHO, and USAID. The expanded NMEO created a giant network of trained staff, with the influence on future programs difficult to measure.

The malaria program went from nothing at all in 1950 to initiation in all endemic zones by 1966. The program put in place the mechanisms needed for a program of spraying as well as active and passive case detection, designed to stop transmission in all the identified endemic districts (initially 40). The program changed the definition of its mandate as it evolved. The initial IBDC program had program activities in only 17 districts, with spraying reported as protecting a maximum of 882,000 people in 1957. By 1974, the NMEO program was initiated in 40 districts, carrying out activities in all endemic areas up to an altitude of 4000 feet. This expansion did not appear to reduce the effectiveness of the program; indicators such as slide positivity continued to improve.

More recently, the change in the program's mandate has resulted in markedly reduced activities in the endemic districts, with attention to focal outbreaks and containment of falciparum malaria. Although the reduction in prevalence achieved during NMEO remains, the current limitation in integrated program activities is associated with worsening of other indicators. In addition, these limitations have affected surveillance, resulting in reduced data on which to assess program progress. The program is currently trying to address these limitations through improvement in sentinel surveillance and reporting.

The malaria program is a case study of evolution due to changes in global policy; changes in national policy, capacity and needs; changes in the distribution of the vector and disease; and changes in the effectiveness of the intervention. The interplay between these factors transformed a huge vertical

eradication effort, through a transition period of integration, into a relatively minor component of preventive and clinical services delivered through health facilities.

The significant malaria policy changes were in part driven by structural changes within the Ministry; in part by the global change from eradication to control; and in part by the change in disease pattern from highly endemic in the entire Terai zone, to focal endemic areas, following the massive initial eradication effort. Even today, the problems facing the malaria program—increases in falciparum malaria, emergence of resistance, focal outbreaks against a background of slowing increasing endemicity—are different from those facing the program initially, which were mainly how to stop transmission in a large geographic area.

Tracking any aspect of the program, such as manpower, expenditures, or surveillance activities, would show this gradual transformation. With regard to program systems, policy shifts have dramatically affected both the resources available and the way in which the malaria program has functioned. The eradication effort involved an extraordinarily complex planning process, including geographic phase-in plans; preparatory, attack, and consolidation program phases; and establishment of trained staff at all levels. Training efforts were massive and technical, and the logistic management of spray equipment and supplies were complicated by changes in insecticides over time with the emergence of resistance. In addition, monitoring was not done through the usual case reporting by districts, but rather by an independent slide collection and examination system designed to track slide positivity rates. The sheer numbers involved with both spraying and slide collection are testimony to the intensity of the malaria effort from the late 1950s to the early 1980s.

With each structural change came a decrease in resources available, and a shift in management from central to more peripheral levels. In part, this reflects the success of the initial eradication effort, which resulted in making the Terai more agriculturally productive and making the disease more focal and epidemic in nature, thus changing program needs. In part the changes reflect the failure of the global eradication effort, and the marked reduction in resources available for malaria programs worldwide. And in part the changes reflect the fact that insecticides were becoming less effective, making vector control a less efficient approach. Finally, the changes reflect the transition from vertical programming to an integrated approach to disease management and preventive services—something promoted by those focusing on efficiency and sustainability.

The early program probably represents one of the earliest community mobilization efforts for health programs in the country. Community members were initially skeptical, expressing concern that blood was being drawn for religious purposes, but became engaged and supportive once spraying reduced the irritation of mosquito infestation. Community groups were used to help recruit the passive case detection volunteers, who continue to report on a limited number of slide examinations. With integration and the decline in resources, interaction at the community level has decreased. This also reflects the change toward case management, with attention directed toward improvement in treatment at health facilities. Recently, there has been increased attention to personal preventive measures, particularly impregnated bed net use, and this has involved increasing use of community groups.

The nature of malaria makes discussion of sustainability difficult. Changes in vector dynamics, both vector and parasite resistance patterns, and cross-border issues all affect the likelihood of reducing malaria morbidity and mortality. Clearly the eradication effort was not able to reduce transmission below the point where the parasite could maintain itself in the population. However, even without eradication, the program had a huge impact on prevalence. Current efforts are quite modest, contributing only to outbreak containment and prevention of rapid increases in incidence. There is evidence that these efforts are not preventing a gradual rise in incidence, nor an increase in falciparum malaria. Both the government and donors have responded to this concern by supporting increased surveillance. Whether these efforts are

successful, and whether they can be integrated in such a way that they require diminishing external support, is not clear.

It is difficult to estimate the impact of the malaria program on mortality. Clearly the reduction of the extremely high prevalence in the Terai reduced mortality, with an effect likely lasting into the 1980s. With the decrease in prevalence, the contribution of malaria to mortality likely decreased. In addition, as the program decreased in size and the focus shifted to case management, cases were detected and treated, further decreasing mortality impact. In addition, case fatality for falciparum malaria is higher, and with its modest rise might have come an increase in mortality. However, as the malaria program was shrinking, the availability of antimalarial drugs was increasing, to the extent that currently there is a problem with inappropriate and incomplete use. Finally, the cohort of people less likely to have had to live with chronic malaria was less likely to be susceptible to other illness (particularly for pregnant women), and the mortality impact from this may have moved through time as that cohort aged. Mortality from malaria among children born in the 1960s was undoubtedly higher than today. However, in the past 10 years, the impact of malaria among children is less likely to have changed.

Table 24. Objectives and Strategies for Malaria[22]

Year	Objectives	Key strategies	Indicators
1954 IBDC	Control of malaria in Terai and inner Terai in Eastern and Central Nepal	Entomologic surveys Geographic reconnaissance Household spraying	Infant parasite rate (IPR) Child parasite rate (CPR) Annual Blood Exam Rate (ABER) Slide Positivity Rate (SPR) Spraying indicators
1958 NMEO	Eradication of malaria in Nepal	Preparatory phase, attack phase, and consolidation phase approach Household spraying Active case detection and rx Passive case detection	Same
1978 Malaria Control Pgm	Control of malaria in endemic areas of Nepal	Household spraying and vector control Active and passive case detection and rx	Same
1993 Disease Control Section	Prevention of mortality Reduction in morbidity Epidemic control Containment of falciparum	Stratification of endemic areas Active and passive case detection; use of PCD Vs Surveillance Focal spraying	Same
1996	Prevention of mortality due to malaria Reduction of malaria morbidity Prevention and control of p. falciparum epidemics Evaluation by supervision, monitoring and evaluation	Early dx and rx Development of laboratories Selective indoor residual spraying (epidemics) Promotion of personal protective measures, including bed nets	Annual Parasite Incidence (API) Slide Falciparum Rate (SFR) Rate of pf positives Annual Falciparum Incidence (AFI)

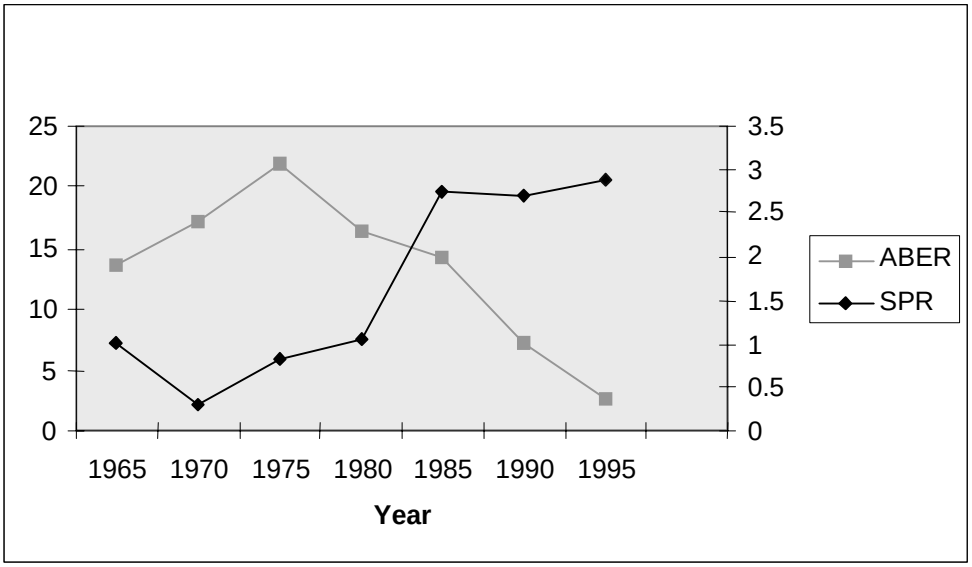
[22] From Jung, R.K., History of Malaria and Malaria Control in Nepal, 2001 and Nepal Department of Health Services Annual Report, 1996–2000

1997	Add: Containment of pf and drug-resistant malaria	Add: Workshops for MO and DHO on resistance	Add: Clinical Malaria Incidence (CMI)
2000	Same	Add: Enhanced community participation through Roll Back Malaria initiative	Same

Table 25. Nepal Malaria Indicators: Program Data

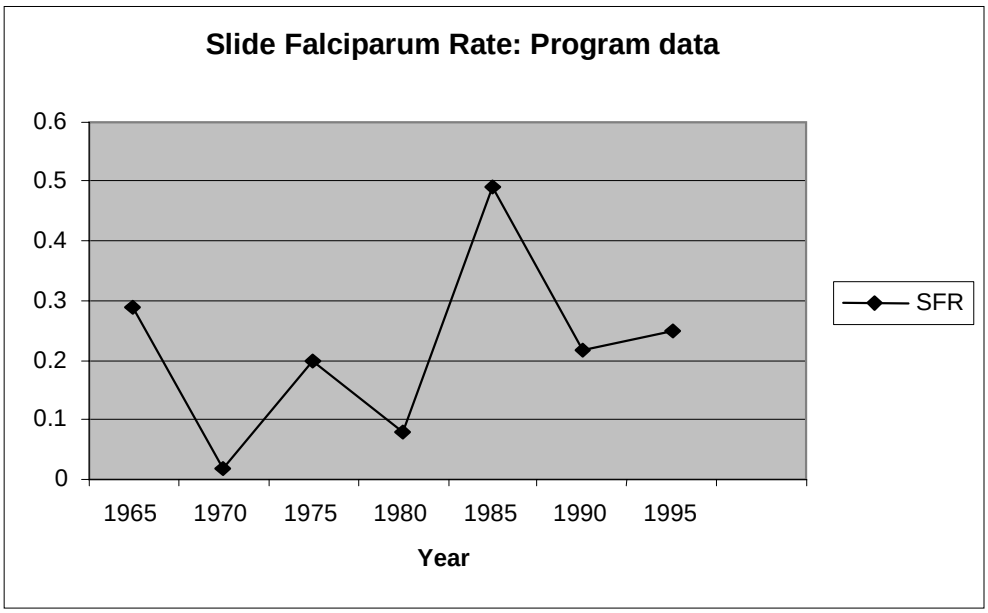
INDICATOR	**YEAR**						
	1965	**1970**	**1975**	**1980**	**1985**	**1990**	**1995**
ABER	13.66	17.12	21.88	16.23	14.31	7.28	2.57
SPR	1.02	0.29	0.83	1.07	2.75	2.7	2.87
SFR	0.29	0.02	0.2	0.08	0.49	0.22	0.25
Data Source	History of Malaria and Malaria Control in Nepal, Dr. R.K. Jung, Aravali Printers, New Delhi 2001						

Figure 27. Annual Blood Examination Rate: Program data



Source: DoHS records

Figure 28. Slide Falciparum Rate: Program data

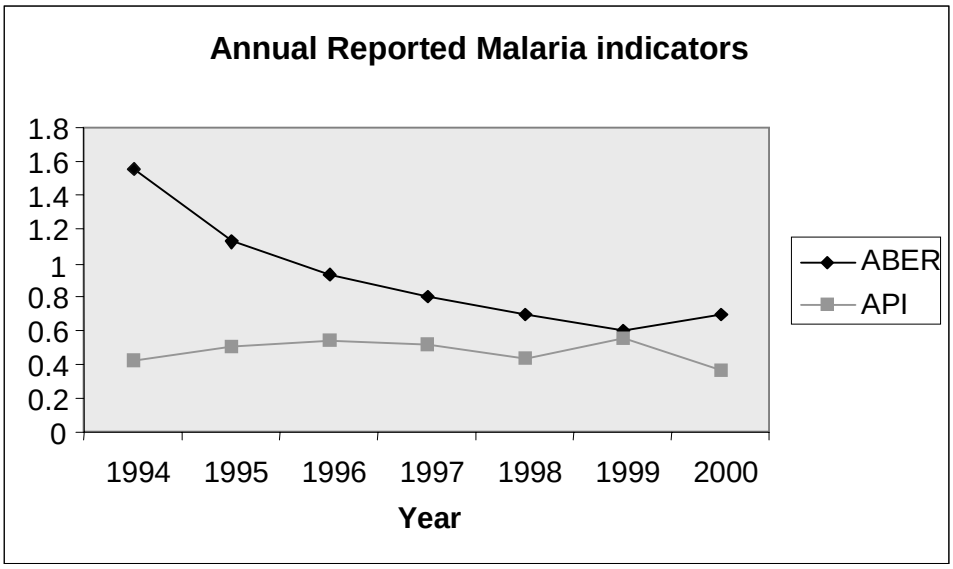


Source: DoHS records

Table 26. Nepal Malaria Indicators: Department of Health Services Annual Reported Data

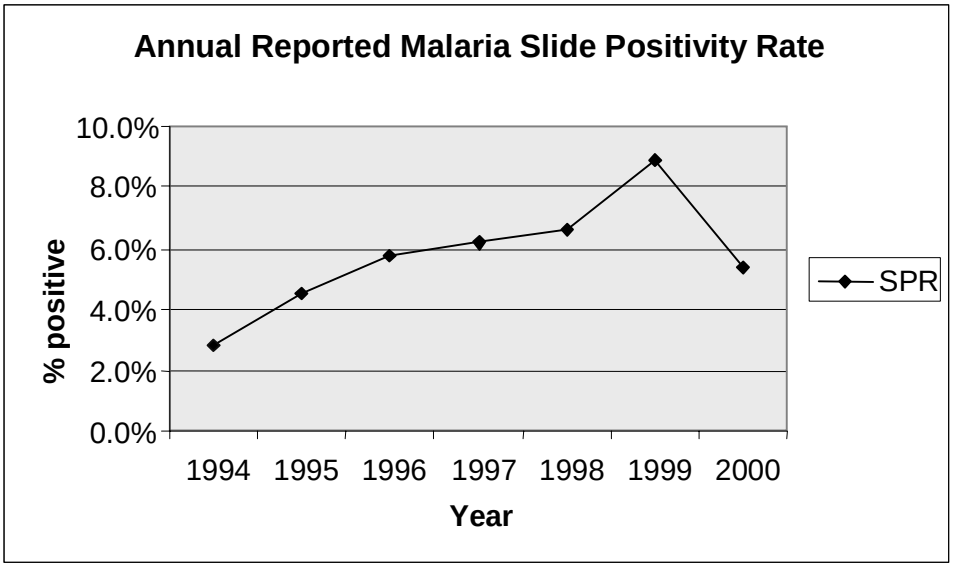
MOH Annual Report Data							
	1994	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**
ABER	1.55	1.13	0.93	0.8	0.7	0.6	0.7
API	0.43	0.51	0.54	0.52	0.44	0.56	0.37
SPR	2.8%	4.5%	5.8%	6.2%	6.6%	8.9%	5.4%
SFR			0.2%	4.6%	3.7%	0.5%	0.5%
Total cases	8597	10516	8349	8145	7110	9313	6188
Falciparum cases			350	371	260	529	596

Figure 29. Annual Reported Malaria Indicators



Source: DoHS records

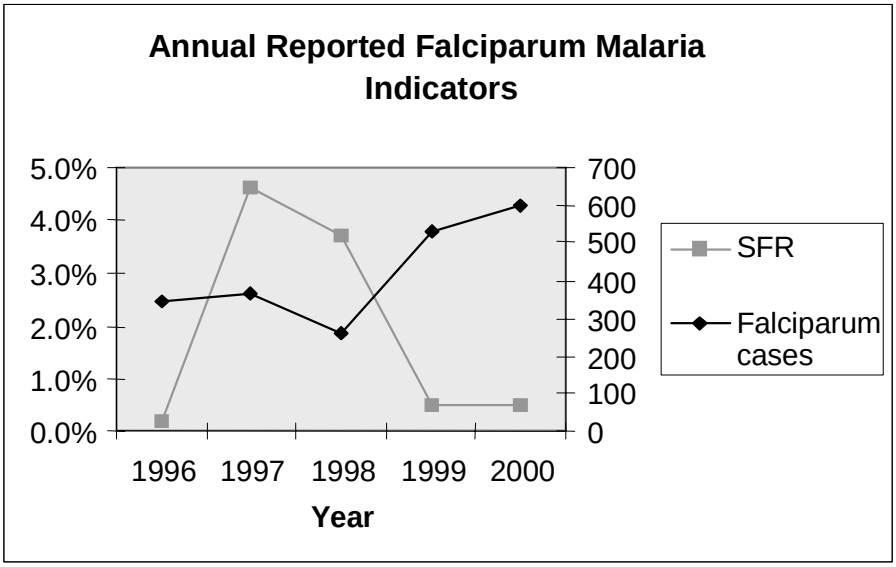
Figure 30. Annual Reported Malaria Slide Positivity Rate



Source: DoHS records

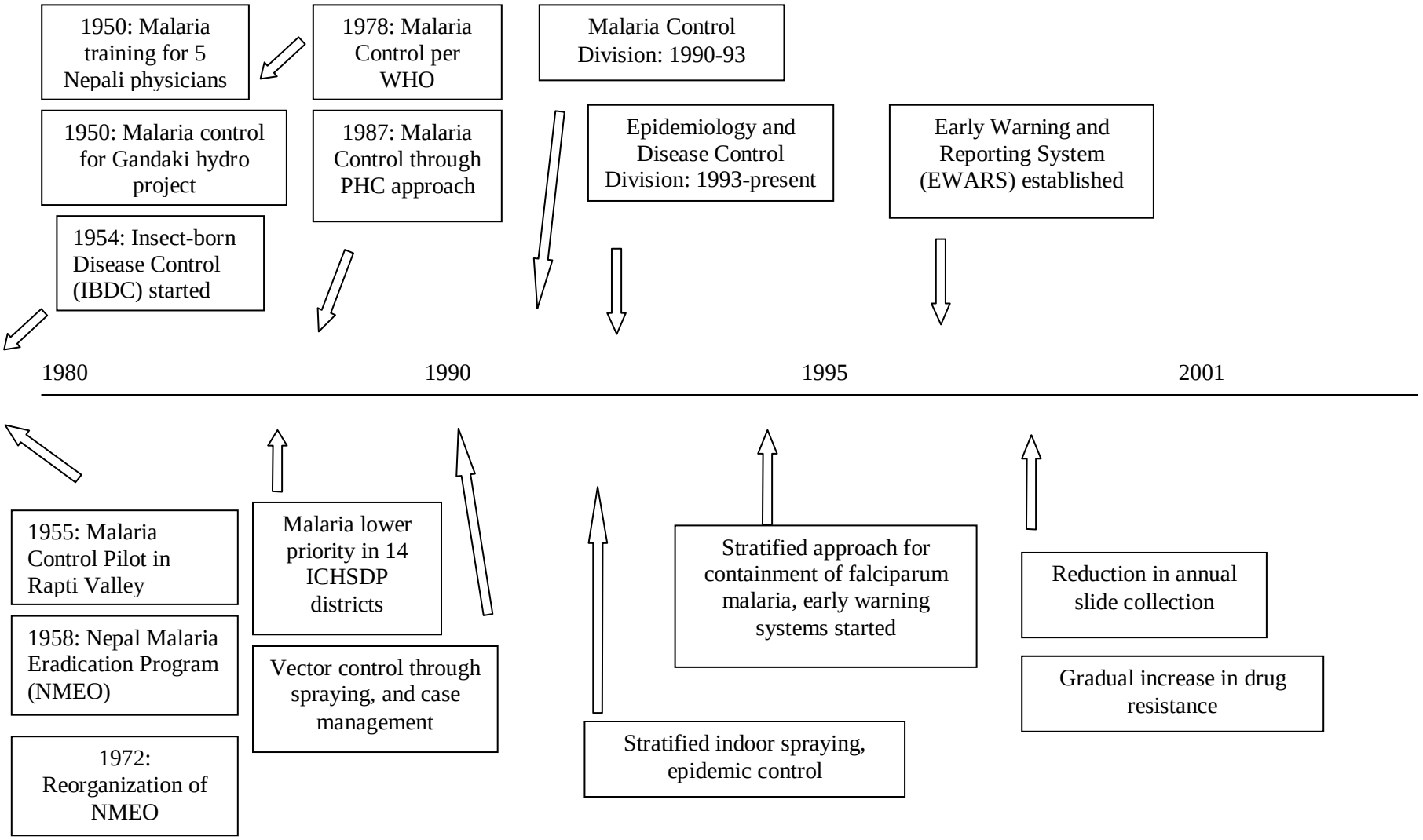
Nepal Malaria Indicators: Department of Health Services Annual Reported Data

Figure 31. Annual Reported Falciparum Malaria Indicators



Source: DoHS records

The Evolution of the Nepal MALARIA Program: Chronology



H. Maternal Care and Safer Motherhood

H.1 Overview

While significant strides have been made in the reduction of child mortality in Nepal, maternal mortality remains relatively high, at 539 deaths per 100,000 live births. Maternal mortality is a relatively rare event, but for every death there may be 100 women with maternal morbidities that affect them and their children. The root causes are many, including early marriage and childbearing, poor maternal nutrition, iron deficiency anemia, short birth intervals, limited antenatal care, predominance of home births without skilled attendance, lack of access to Emergency Obstetric Care (EOC) services, and almost no postnatal care. Even recently, more than 90% of women deliver at home; more than 50% of pregnant women received no antenatal care; and less than 20% received a postnatal visit. Pregnancy and childbirth are largely governed by cultural beliefs and traditional practices. Choices are limited by poverty and perceptions that health services are not needed, not adequate, or not appropriate, especially in rural areas.

In the late 1970s, outside urban areas and hospitals, maternal care services moved from the vaguely defined skills of largely male providers such as HAs and AHWs available at health posts, to the training and posting of female Auxiliary Nurse Midwives (ANMs). In practice, ANMs were often not at post nor recognized as adequate maternal care providers because they were usually urban, educated, and unmarried. These barriers to care, combined with the preference for home delivery, resulted in a focus on training TBAs beginning in the mid 1970s and carrying through to the early 1990s. In order to support TBAs and to extend the possibility of skilled attendance at birth into communities, the GON created a new cadre in 1989 called Maternal and Child Health Workers (MCHWs). These were women recruited from communities, given 3 months training, and placed in SHPs to work with VHWs, AHWs, and TBAs. By 1992, more than 22,000 TBAs had been trained, and—as many other programs had—they moved into microplanning and local participation.

In the early 1990s, studies of the causes of maternal mortality and the effectiveness of TBAs in the prevention of maternal mortality resulted in a major shift of global attention and resources to a Safe Motherhood approach. This approach is predicated on the provision of Basic and Comprehensive Emergency Obstetric Services in tandem with increasing community recognition and utilization of these services. The operational focus is on reducing three delays: delay in seeking care, delay in reaching care, and delay in receiving care. The debate over the utility of TBAs continued in Nepal, and in 1997 the FHD completed an assessment of trained TBA contribution to maternal and neonatal morbidity and mortality. This assessment showed increases in use of preventive services, clean delivery practices, and immediate breastfeeding among those using TTBA services and among those living in TTBA areas. Despite these findings, funding for the TBA program was reduced by donors and shifted into the new Safe Motherhood program.

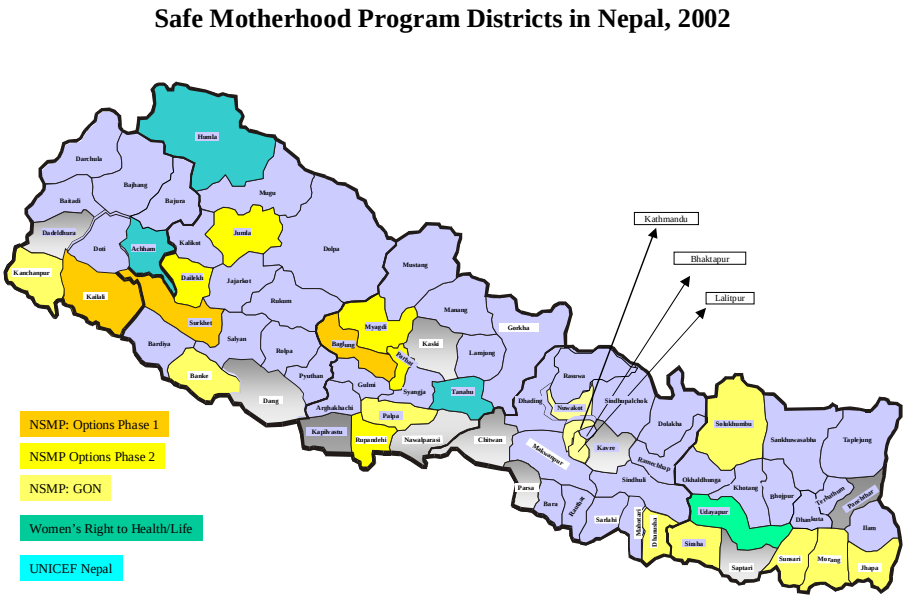
In recent years, Safe Motherhood has been an official priority program, with strong leadership in the FHD and the DoHS. The program is funded and implemented through several groups, which are coordinated through the FHD and Safe Motherhood Subcommitee (SMSC) of the RHCC. The GON has officially designated 25 Safe Motherhood Districts, including: Kanchanpur, Dang, Kaski, Palpa, Chitwan, Parsa, Kathmandu, Kavre, Lalitpur, Solukhumbu, Siraha, Saptari, Morang, Jhapa, Panchthar, Sunsari, Nuwakot, Dhanusha, Baglung, Rupundehi, Surkhet, Banke, Dadeldhura, Jumla, and Kailali. Several donor-funded programs provide additional support to the development of Safe Motherhood services. The first is the National Safer Motherhood Program (NSMP), a joint FHD-Options project funded by DFID, which provides infrastructure strengthening, training, performance improvement, and BCC/community mobilization to increase access. It is active in nine districts. UNICEF has two projects related to Safe Motherhood, including the Community Based Mother and Child Care Project in 15 districts and the Nepal Women's Right to Life and Health Project, implemented in four districts by DoHS, UNICEF, ROSA, and

Columbia University with support from the Bill & Melinda Gates Foundation. The first project focuses on promoting knowledge and practices related to safe motherhood, and increasing community action for the management of complications of pregnancy and childbirth. The main objectives of the second project are to strengthen EOC services at district hospitals, PHCCs, and HPs. USAID also funds supporting activities through MNH/JHPIEGO and supplemental work plans with the FHD and NGO work.

H.2 Timeline of Maternal Care and Safer Motherhood, 1974–2003

1974	UMN trained 100 TBAs in Lalitpur district
1975	GON trained 88 TBAs in 44 districts (2 per district)
1983	DON adapted WHO TBA training kit; designed training with RTSA/Hawaii
1984	DON initiates training of TBAs in 5 districts
1987	Levitt study of perinatal practices and TBAs (14 districts)
1988	3,329 TBAs trained in 10 districts; NGOs trained 1,175; National TBA program initiated with Redd Barna, WHO, UNICEF, DON
1989-1990 1991	600 TBA trainers trained; 4,919 TBAs refresher trained in 33 additional districts; National Health policy cites Safe Motherhood as a priority
1992	TBA microplanning to reach/train 22,000 TBAs; Formation of Safe Motherhood Task Force
1993	Shift to Safe Motherhood Program
1994	GON approved National Safe Motherhood Policy and Plan of Action (1994-1997); Clean Delivery Kits sold by MCH Products, Ltd.
1996	National Clean Delivery Awareness Day;, Safe Motherhood Network initiated; Making Safe Motherhood Work in Nepal by DoHS; Maternity care guidelines finalized
1997	National Intersectoral Workshop on making safe motherhood work; DFID funded NSMP starts, needs assessment surveys in 3 districts; Assessment of TBA contribution to prevention of maternal/neonatal mortality and morbidity
1998	Implementation in 3 districts; National Reproductive Health Strategy and Safe Motherhood Policy finalized; Maternal Mortality Study conducted
1999	Donor support to training of TBAs ends (USAID, Redd Barna); clinical protocols for health workers developed
2001	NSMP expands to 6 more districts (9 total); Safe Motherhood Plan (2001–2016) developed; National Safe Motherhood Training Strategy developed
2002	EOC monitoring begins in HMIS; UNICEF Master Plan of Operations with focus on districts and local government
2003	Neonatal Health Strategy in final stages of approval

Figure 32. Safe Motherhood Program Districts in Nepal, 2002



H.3 Key Program Elements and Results

Indicator Tables

Table 27. Maternal Care and Safer Motherhood Benchmark Indicators

Indicator	DHS 1991	DHS 1996	BCHIMES 2000	DHS 2001
Pregnancy Outcomes (% live births)	NA	93%		92%
Perinatal Mortality Rate	NA	61 deaths per 1,000 pregnancies in previous 10 years		47 deaths per 1,000 pregnancies in previous 5 years
Maternal Mortality Ratio*	850**	515	539	

*Methods for collecting and calculating the MMR differed by survey so trends cannot be analyzed
**1992 UNDP report, estimated for 1988

The preceding table illustrates the high perinatal and maternal mortality experienced in Nepal. However, it is difficult to assess trends because of varying methods of data collection and changes in definitions. In 1998, the FHD conducted a Maternal Mortality and Morbidity study to better document maternal health problems. While this study did not calculate MMRs, it analyzed the deaths of 132 women of reproductive age that had been recorded in three districts. Nearly half of the recorded direct obstetric deaths were due to postpartum hemorrhage. Another 16% of the deaths were due to obstructed labor; 14% were due to

hypertensive disorders; and 12% were due to sepsis. Less than a third of these women had antenatal care, 70% died at home, and just over 10% were attended by a trained traditional birth attendant.

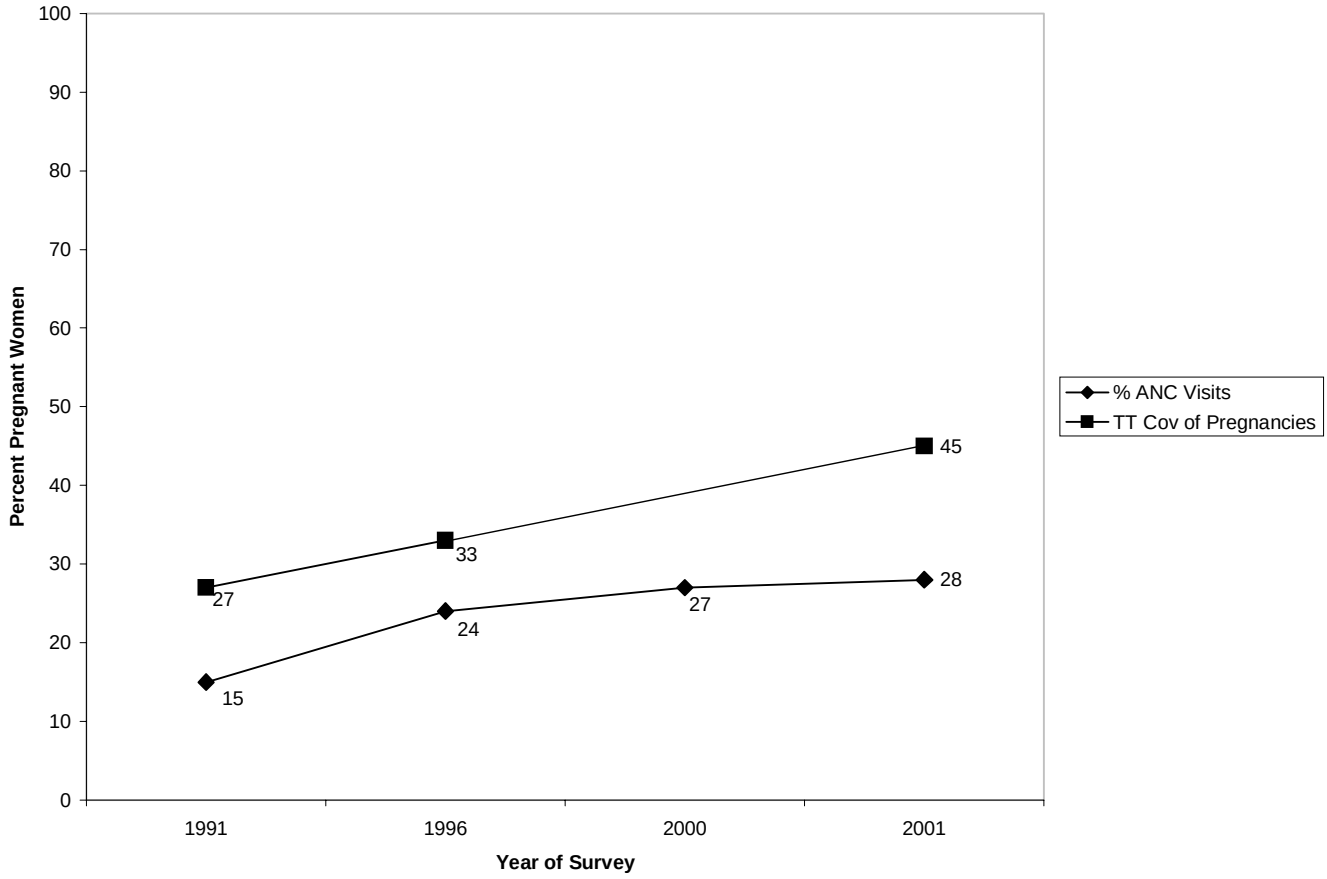
Table 28. Service Utilization Indicators

Indicator	DHS 1991	DHS 1996	BCHIMES 2000	DHS 2001
% ANC visits with doctor, nurse, or ANM	15%	24%	27%	28%
% women with two or more doses TT during most recent pregnancy	27%	33%	89%	45%
% deliveries at home	93%	92%	88%	89%
% deliveries attended by a health professional	8%	9%	13%	13%
% deliveries attended by a TBA	25%	23	15%	23%
% women who delivered receiving postnatal care within 24 hours	NA	13%	7%	17%***

***Received care within two days

Second-tier survey indicators include those that assess utilization of ANC, TT coverage of pregnancy, place of birth, skilled attendance at birth, and utilization of PNC. While utilization of ANC appears to have increased nearly two-fold over the last decade, it still only reaches a small proportion of all pregnant women (28%). Coverage with tetanus toxoid has also increased to nearly 50% of women for their previous pregnancy, although more recent data may be higher because the survey figures do not reflect more recent MNT campaign activities. As noted earlier, utilization of skilled care at delivery is low (13%) and has not increased dramatically despite investments in training and services. And PNC is almost non-existent, with 17% of postpartum mothers visited within two days, but with little reported demand for such a service.

Figure 33. Utilization of Maternal Preventive Services Antenatal Care and Tetanus Toxoid Coverage



Source: National surveys

Figure 34. Place and Attendance at Birth Nepal

Source: National surveys

Table 29. HMIS Reported Indicators

Indicator	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
First ANC visits as % of expected pregnancies	16	19	21	26	27	35	41
Average # ANC visits per pregnant woman	1.8	1.8	1.9	1.8	1.9	1.7	1.8
Deliveries conducted by TBAs as % of expected pregnancies	NA	2	3	4.5	4.5	5.3	6.5
Deliveries by trained person as % of expected programs	3	4	6	8.1	13.4	13.5	13.8

In the context of these statistics, the FHD's current strategy is to increase access to services at hospitals and PHCCs through establishment of basic and comprehensive EOC, and skilled attendance through MCHWs at the community level. However, to enable people to reach care when and where it is needed, community mobilization to increase access is being carried out. One example is organizing community

groups for emergency financing and transportation arrangements. One important vehicle for mobilization has been the national Safe Motherhood Network, a growing advocacy group of partners that has used events and national holidays to raise recognition of the importance of and commitment to Safe Motherhood services. This network has extended its influence to district levels as well, and while loosely organized, has raised awareness and built acceptance of family support for women's health with few resources.

BCC and IEC have also been important program components. As described in the NHEICC Draft (II) document "National IEC Strategy for Safe Motherhood in Nepal" (June 2001), a comprehensive approach to IEC to encourage both safe motherhood policy and behavior change is envisioned. As a theory-based strategy with clearly defined target audiences and messages, the plan encompasses a series of phased inputs at national, district, and VDC levels all designed to move multiple audiences through a "continuum of behavior change" to achieve results. Since essential obstetric care, or EOC, services are not widely available, the initial phases describe "scene-setting" steps in areas where services do not exist.

The overall objective of the initial phase focuses on increasing the general public's "awareness and appreciation that pregnancy is a special condition and that maternal deaths can be averted through special care." The strategy has set advocacy objectives for policy makers, elected representatives, and influential community leaders to create an "enabling environment" for women's rights, and to obtain political and resource commitments. In subsequent phases, the IEC approach targets women, husbands, mothers-in-law, health workers, and others with crisply defined, behaviorally-oriented messages that have been developed jointly with GON and NGO principals through a series of national-level workshops and meetings begun in November of 2000.

The strategy includes extensive use of all media channels to achieve its ambitious goals. While a specific implementation plan remains to be developed, the strategy has identified donor and GON sources for funding its proposed mix of media, materials, and local interventions.

H.4 Program Evolution: Scale, Transformation, and Sustainability

Two decades ago, health services for most of the population of pregnant women either before, during, or after delivery were minimal and relied on care in understaffed, undersupplied rural health facilities. The training, equipping, and supervision of TBAs was an attempt to improve key practices through providers that had better access to women in their homes. One problem with the TBA approach in Nepal has been that many deliveries are conducted by relatives, and it is only in some areas that a recognized cadre of providers exists. Evaluations of the TBA program did reveal improvements in clean delivery practices, but these did not address the fundamental problem of maternal mortality, including recognizing and arranging treatment for women in life-threatening situations. The shift from training TBAs to BEOC/CEOC resulted from a major change in the thinking underlying global strategies (and subsequent funding priorities), as well as a concerted long-term effort to develop policies and plans at the national level. Contributing to this shift was increasing global attention to women's health and empowerment, starting with ICPD in 1994, to which Nepal was a signatory.

The DoHS, with considerable support from donors, is phasing in a complex program at the district level. Facility-based services are established first, followed by a series of activities that raise awareness and mobilize communities to take appropriate action. While several donors are working in this area, the phased process takes time and only a small proportion of the country is actively covered. Given the changes needed in infrastructure, training, and clinical systems, as well as the need to change deeply rooted cultural practices in a context of long-term poverty, the time required to develop fully implemented programs with significant utilization in districts is likely to be long.

The Safe Motherhood Program has benefited from effective partnerships and coordination, especially at the national level. The SMSC was reported to be one of the three most effective working groups addressing substantive issues over time. Part of the success has been dedicated support to staff that manage it, as well as strong leadership within the DoHS. The NSMP has extended its coordination and partnership approach to the district level, where district SMSCs are being established as part of district RHCCs. Other activities have also been decentralized, including local development of IEC materials. More than other health programs (except perhaps HIV/AIDS), Safe Motherhood has been built on a firm foundation of commitment to individuals' rights (in this case, the rights of women) and the expectation of multisectoral action. This commitment has led to the evolution of advocacy groups such as the Safe Motherhood Network and provided a broader range of actors that participate in the change process. It remains to be seen, however, what the overall effect may be on community norms and support for pregnant women.

The sustainability of Safe Motherhood programs is not immediately clear. There has been considerable investment to date and some effort to generate community support, but the long-term inputs for things such as facilitation of hospital training, quality improvement, and supervision needs of MCHWs are still unknown. Progress has been made on increasing community participation and utilization of services in limited areas, but larger-scale implementation may have requirements that are not yet known. The rate of implementation of Safe Motherhood improvements at the district level has been in the three- to five-year time range, with more time required to increase utilization of services to a majority of the population that needs them. This implies that reaching all 75 districts will take years, particularly in the context of the political unrest that characterizes many of the more remote areas.

While Safe Motherhood programs are aimed at reducing maternal mortality, they are intrinsically linked with child health. The child mortality problem in Nepal has shifted with the success of many of the other child survival interventions described earlier; today the highest proportion of child mortality now occurs in neonates (60%). The health of neonates is linked to the health and nutritional status of their mothers during pregnancy, clean and safe delivery, and appropriate newborn care from the moment of birth onward. Access to newborns is therefore through their mothers.

Table 30. NMR and IMR, 1987–2001

Year	Neonatal Mortality Rate	Infant Mortality Rate	Share of NMR in IMR (%)
1987	45.2	113	40
1992	52.4	107	49.0
1996	50	79	63.3
2001	38.8	64.2	60.4
Change	6.4	48.8	

Source: State of the World's Newborns Nepal. SC US 2002

The challenge now for child health programs is to bridge the structural and intervention gap to Safe Motherhood so that both maternal and neonatal mortality are reduced. To date, collaboration and partnership between the two groups has been viewed as less important than their individual activities. This may change as the official Neonatal Health Strategy is finalized, when it will become imperative to child health that Safe Motherhood succeed.

I. Other

I.1 The Nepal Iodine Deficiency Disorders Program

Overview

Like many mountainous countries, goiter and cretinism have been recognized in Nepal for a long time. Goiter prevalence has reached 62% and cretinism 5% in some remote mountain communities. The Government of Nepal recognized this problem early, and instituted control measures directed initially only at endemic areas, using iodized oil injections followed by capsules. In addition to the injection/capsule program, as early as 1973 the government has also used the para-statal organization, the Salt Trading Corporation, to subsidize transport and distribution of iodized salt to endemic areas.

Nepal imports most of its salt from India. In the 1990s, following the World Summit for Children, greater emphasis was put on iodized salt as the primary intervention for IDD. This resulted in the establishment of iodization units at five key border entry points, and establishment of a monitoring system to check imported salt. In addition, promotional efforts to improve household iodized salt use were increased. In 1999, the Salt Production and Distribution Act was passed, which mandated universal salt iodization.

Indicators for the IDD program have improved dramatically, with cretinism disappearing, goiter prevalence decreasing dramatically, and the most recent assessment of urinary iodine suggesting elimination of IDD.

Key Program Elements and Results

The IDD program has been shaped by policy decisions over time. Initially, the program responded to the high prevalence in endemic areas, with the sub-clinical aspect unknown for the rest of the country. This resulted in the creation of the Goiter and Cretinism Eradication Project (GCEP), which used teams of vertical workers to give injections, and later capsules. This vertical program expanded in 1984, receiving a large portion of MOH nutrition funds. In 1987, GCEP received 70% of MOH nutrition project funding—more than the Nutrition Project, Nutrition Health Education, the Blindness Project, and Joint Nutrition Support Programme.[23]

Iodized salt was not excluded from government policy, and partial transport of iodized salt to endemic areas (mainly far Western Nepal) began in 1973. Emphasis on this dimension of the program increased in the 1990s, when there was greater global awareness of the sub-clinical effects of iodine deficiency, and an emphasis on universal salt iodization. The MOH Annual Report reflects this policy shift with a change in objectives and key strategies (See Table 31). By 1998 the focus was on universal salt iodization, and in 1999 the Salt Production and Distribution Act mandating iodization of salt for human consumption was passed.

Program components changed with the policy shift from injections and capsules to iodized salt. With the GCEP, local radio programs provided information on the reasons for the injections, and on the location of injection teams. Teams then used educational materials and teaching aids in their work at the community level. There was also an effort to engage local political leaders in helping mobilize the population to participate in the injection program.

[23] From Children and Women of Nepal, 1987, adapted from MOH Development Budget FY 2043/44

Expansion of the iodized salt effort, from subsidized distribution toward universal iodization that included salt promotion, was not the result of classic social marketing, but of logo development, mass media awareness building (on both IDD and iodized salt), and the inclusion of IDD in basic training at all levels.

Program systems also changed. In many respects, the shift reflected the change from vertical programming, with separate planning, budgeting, and training, to a different kind of vertical program—one that had more systems integrated. With the early GCEP, vertical teams maintained their own supervision and data collection, using targets and injections/capsules given to measure progress. Since the injections prevented deficiency for up to 5 years, planning focused on covering the endemic population. In 1987, more than 2.5 million injections had been given. Since this represented only a small proportion of endemic areas, a second round of injections was launched.

The increased emphasis on salt iodization coincided with the trend toward integration in Nepal, and this contributed to the de-emphasis of the injection/capsule program and a focus on increasing use of iodized salt. While the subsidy for transport of iodized salt to endemic areas continued, greater emphasis was placed on moving toward universal iodization and improving the quality and availability of adequately iodized salt. This has required close review of cultural practices around preferred types of salt, retail storage practices (which can increase iodine losses), and on 'leakage' of non-iodized salt across the Indian and Tibetan borders.

Program Evolution: Scale, Transformation, and Sustainability

The iodine program began with a focus on 28 of Nepal's 75 less-populous districts; initially it achieved only modest coverage. By the mid 1980s the program was more robust, but then declined with the shift away from vertical programs and the emphasis on iodized salt. This shift has resulted in increased overall population coverage, thus addressing the growing concern about sub-clinical deficiency in the 'non-endemic' districts.

The nature of a universal salt iodization program has required a certain verticality. Issues related to production-level quality assurance, management of losses at retail shops, and packaging are relevant only to fortification programs, and in Nepal, other fortification efforts are just beginning. However, at the national level, the IDD program is within the Nutrition Section, thus integrating planning, budgeting, training (for health worker awareness), and, to the extent possible, logistics and data management. Specialized training is still required—for example, laboratory training for re-iodization sites, and for inspectors checking retail-level iodized salt. The HMIS records capsules provided, but since there is no component of salt iodization that links to health facilities, separate monitoring for salt is needed.

The salt iodization program is moving toward sustainability, with less input required from the government. The majority of household salt is iodized, with a system in place to monitor salt entering Nepal and for addressing lots that may arrive with inadequate iodine. While there continue to be issues related to adequacy of iodization for some popular types of salt, impact indicators nevertheless suggest that overall, the program has been highly successful in eliminating iodine deficiency.

Both benchmark surveys and MOH reports suggest success. While early studies showed goiter rates over 50% and high cretin rates, no recent cases of cretinism have been documented and other indicators have improved dramatically. The key benchmark study recently was the Nepal Micronutrient Status Survey (NMSS) in 1998. In this nationally representative study, median urinary iodine levels were normal for both women and children, suggesting elimination. (See Table 32.) The progression of other indicators is also suggestive. (See Figures 35 and 36.)

As iodized salt coverage improves, it is likely that the residual capsule program will be stopped, and the program will rely on universal salt iodization. With strengthening of the regulatory environment and improvement in salt quality and packaging, the program is likely to sustain its success, barring dramatic changes within the salt industry.

While iodine deficiency is not a strong direct contributor to mortality, the severe deficiency seen early in Nepal is likely to have made a significant contribution to stillbirths and early perinatal deaths. The impact of recent improvements is likely to be manifest through the indirect effects of improved intellectual capacity, with all its implications for literacy and future improvement in health awareness and care giving.

Table 31. Nepal Department of Health Services Annual Report: Objectives and Strategies for IDD

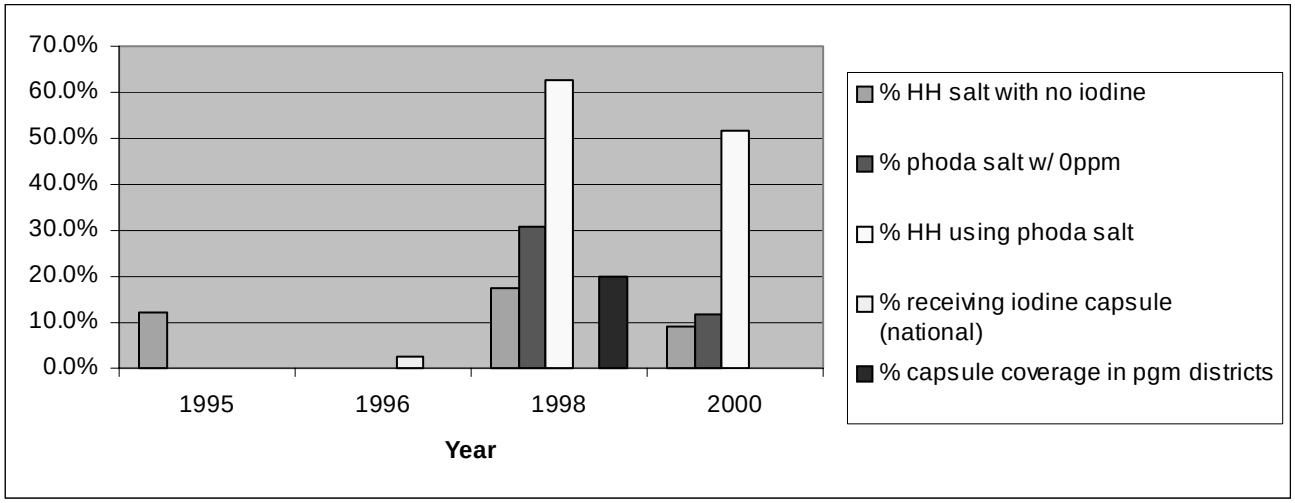
Year	Objectives	Key strategies	Indicators
1994	To reduce IDD to 9% by 1998 through iodized salt and iodized oil injections/capsules Ensure knowledge of IDD in 50% of the population in 40 targeted districts Establish monitoring system	Supplement of iodine capsules/injections to children < 15 yrs and women < 45 years Increase iodine content of salt to 50ppm from 30ppm by end of 1996 Enact legislation for mandatory salt iodization by 1996	Number of women (15–45) who received iodine injection/capsule Number of children (1 mo. to 15 yrs.) who receive capsules/injection
1995	Elimination of IDD by 2001	Add: Advocacy for iodized salt through mass media	Same
1998	Same	Enact legislation for mandatory salt iodization by 2001 Add: Increase IEC for iodized salt	Same
1999	Same	Add: Prohibition of sale of non-iodized salt by implementing the Salt Production and Distribution Act of 1999 Strengthen salt monitoring Launch iodized salt campaign Integrate monitoring with Vitamin A mini-surveys Explore iodization of Tibetan salt	Remove: previous indicators Add: Iodized salt coverage Urinary iodine excretion
2000	Same	Add: Prepare regulations to support Iodized Salt Production and Distribution Act	Same

Table 32. Key IDD Indicators over time

INDICATOR	YEAR					
	1979-82[1]	**1985/86[2]**	**1995[3]**	**1996[4]**	**1998[5]**	**2000[6]**
Cretin prevalence	2.8%	0.4%				
Goiter prevalence (all ages)	56.7%	39.7%				
Goiter prevalence (<5 y/o)					40.0%	
Goiter prevalence (women)					50.0%	
Median UI (< 5 y/o)					144	
% Low UI (<100ug/l)		52.0%			35.0%	
% With no iodine			12.0%		17.2%	9.3%
% Iodized >30ppm			49.8%		26.7%	
% Iodized > 15ppm			64.0%		55.1%	62.6%
% Phoda salt w/ 0ppm					30.8%	11.9%
% Using phoda salt					62.5%	51.8%
% Receiving iodine capsule (national)				2.7%		
% Capsule coverage in pgm districts					20.0%	

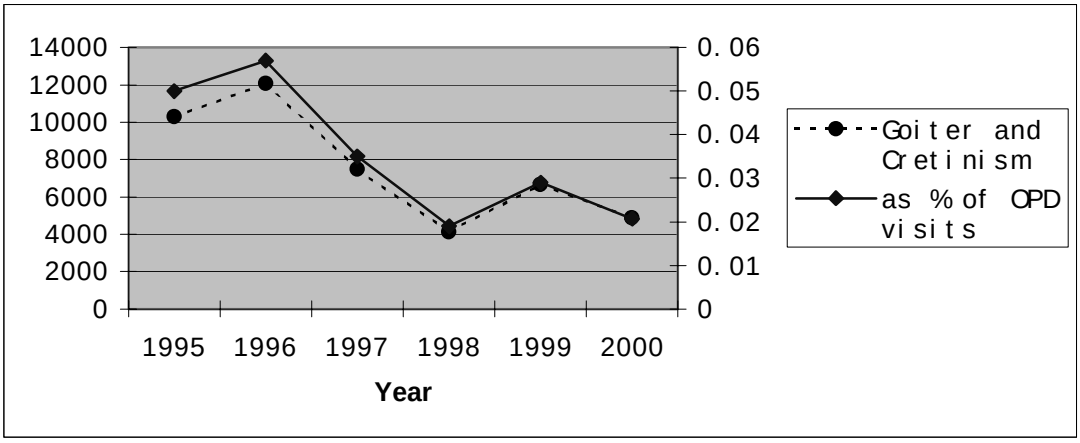
Sources:
[1]Children and Women of Nepal, 1987, from Adhikari, RK: Trends in Nutritional Status Since 1975 in Nepal, UNICEF, 1991
[2]Children and Women of Nepal, 1992: from Acharya, S. IDD in Nepal Assessment of Program Impact, MOH/UNICEF 1989
[3]Nepal Multiple Indicator Surveillance, Cycle 1, GON/UNICEF, 1995
[4]NFHS, 1996
[5]Nepal Micronutrient Status Survey, 1998, and references cited
[6]BCHIMES, 2000

Figure 35. Key IDD Indicators from Benchmark Studies



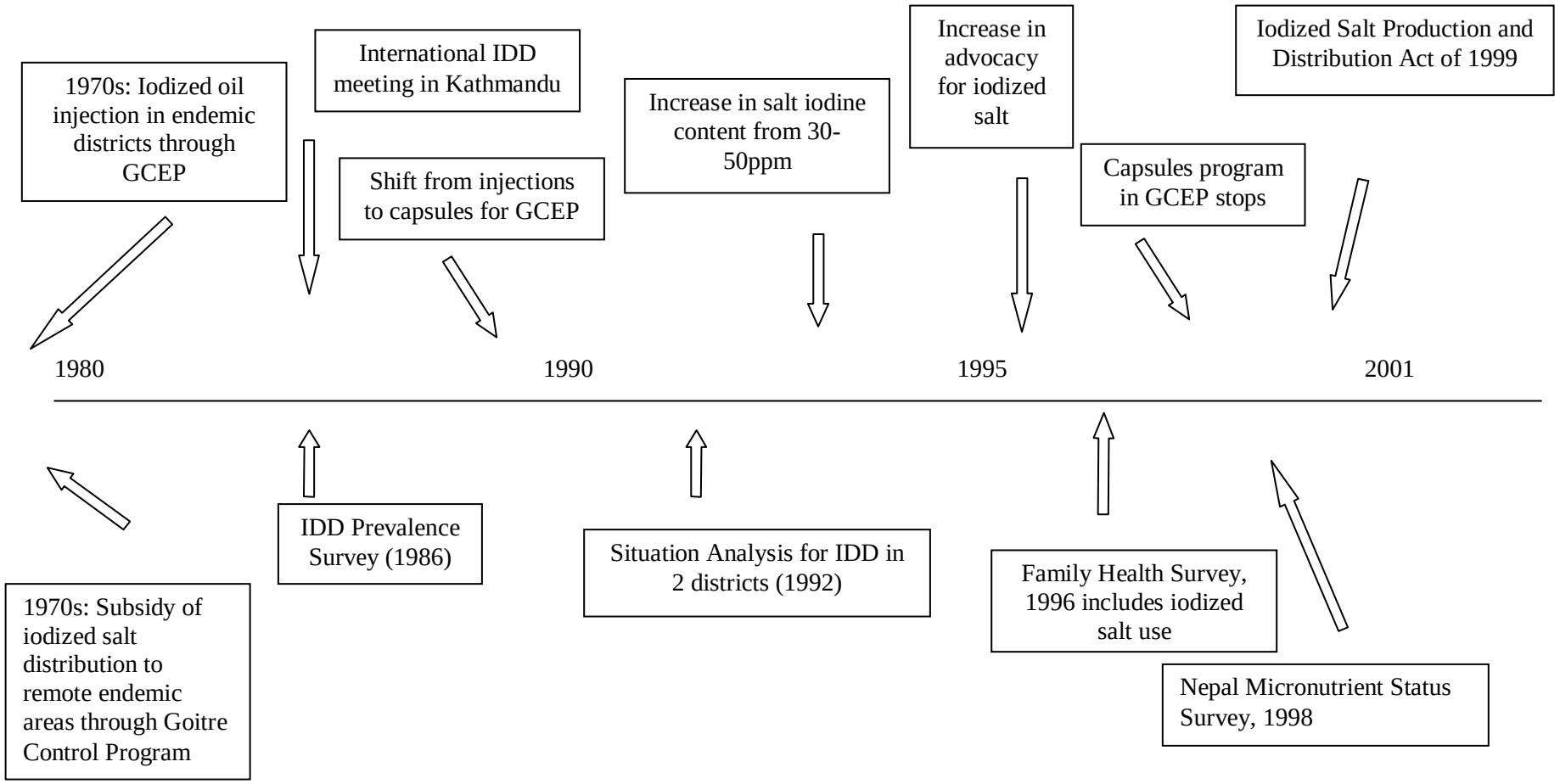
Source: Surveys (see text)

Figure 36. MOH Reported Goiter and Cretinism



Sources: Surveys and DoHS records

The Evolution of the Nepal IDD Program: Chronology



I.2 Water and Sanitation

Overview

Access to safe drinking water and improved sanitation and hygiene are crucial interventions for the control of diarrheal diseases, with their associated reductions in infant and child mortality. Other benefits of improved water supply, such as decreasing the time women spend in obtaining water each day, may contribute to mortality reduction as well. Since the early 1970s Nepal has made significant progress in extending access to safe drinking water. Water supply was first identified as a development priority in the Fourth Five-Year Plan (1970–1975). The Department of Water Supply and Sewage (DWSS), now under the Ministry of Housing & Physical Planning, was established in 1972 and has maintained primary responsibility for planning and coordination of the sector since that time. GON resources and the work of DWSS were initially directed toward water systems for municipalities and other large projects. Much less attention was given to the needs of rural communities, even though 95% of Nepal's population lived in rural areas during those years.

Key Program Elements and Results

Therefore, by the end of the Fifth Plan in 1980, 58% of urban households were reported to have access to safe drinking water while only 8% of rural households had access. Overall national coverage was just 11%.[24] From 1980, however, coverage began to expand more rapidly. In 1977, the United Nations had designated 1980–1990 as the International Drinking Water Supply and Sanitation Decade (IDWSSD). With active leadership from UNICEF, financial and technical support for the sector greatly intensified. The government responded with a bold 10-year commitment to provide drinking water for 67% of Nepal's rural and 94% of the urban population by 1990.[25] This commitment was built into the country's Sixth and Seventh Five-Year Plans.

The Basic Needs Program, introduced by King Birendra in 1987 and aligned with decentralization policies already on paper, promoted a more equitable allocation of resources. The program emphasized provision of basic services, including water and sanitation, throughout the country—but particularly for rural families and communities. These expressions of global and national political will, followed by timely mobilization of resources (over half coming from external donors), helped accelerate the expansion. Along with gravity-flow piped water systems appropriate in the hills of Nepal, the Terai Tubewell Program extended access to a large and rapidly growing segment of the population living in districts along the Indian border. Although GON's ambitious targets had not been reached, DWSS was able to report that rural coverage increased to 33% and urban coverage to 67% percent (36% of the population overall) by 1990.[26]

The World Summit for Children, held in September 1990, proclaimed global development goals for the year 2000. GON, supported by UNICEF and other international partners, subsequently developed a National Program of Action that set new targets for water and sanitation coverage (also incorporated into the Eighth and Ninth Five-Year Plans). These commitments drew further attention to the fact that, while access to safe drinking water was greatly improved, little progress

[24] GON/MHPP & WHO/UNDP Nepal: Drinking Water Supply and Sanitation Sector Review and Plan (1991-2000), Final Draft January 1991, quoted in *Children and Women of Nepal, A Situation Analysis 1992* (NPC and UNICEF), p. 151.
[25] GON/Central Bureau of Statistics & UNICEF Nepal: Report on the Situation of Women, Children and Households (BCHIMES), September 2001, p. 33.
[26] Ibid, p. 33.

had been made in sanitation and hygiene. In 1990, DWSS reported that 34% of urban households and only 3% of rural households (6% percent nationally) had latrines or other sanitary means of excreta disposal.[27]

Starting in the late 1980s, the importance of community participation and ownership and, in particular, the role of women in achieving behavior change related to water and sanitation has been increasingly recognized. Acting on this recognition, UNICEF, along with other donors and INGO partners, was influential in orienting GON policy and strategy toward more community-based approaches. Since the late 1980s. a larger proportion of funding and program efforts have been focused on wide-scale social and community mobilization, combined with behavior change communication. Women now have much greater involvement as *agents* of change. Users' groups have been organized and empowered to manage their water systems, forests, and other local resources. These processes have coincided with, and largely benefited from, the institution of multi-party democracy and further steps toward government decentralization. Among the latter, the Local Governance Act of 1999 stands out. Implementation of the Act has put practical decision-making authority, as well as resources, in the hands of local people.

All of this has contributed to progress evident in four national surveys conducted over the past decade (see graphs at end of section). Most recently, in the 2001 NDHS, 75% of rural and 97% of urban households reported having access to safe drinking water, for a total of 77% nationally. Households with latrines or appropriate alternatives increased to 25% in rural areas, and 80% in urban, areas, for a national total of 30%. While these figures clearly show the need for further improvement, they represent encouraging recent progress in a sub-sector of Nepal's development that has been highly resistant to change.

Future Impact

Available data cannot reliably link access to safe drinking water or sanitary means of excreta disposal with declines in infant or under-five mortality in Nepal. Both of these interventions have been associated with lower prevalence of diarrheal disease in many settings, and might therefore be expected to reduce mortality caused by diarrhea. In Nepal, the proportion of total households with access to safe drinking water has increased quite steadily over the past 15 years—from approximately 23% in 1987[28] to 77% in 2001,[29] an increase of more than threefold. This coverage has clearly contributed to better quality of life for many households, and may have led to fewer episodes of watery diarrhea, averting severe dehydration and death for some children as well.

However, as observed in UNICEF's Master Plan of Operations 2002–2006, "Provision of water supply reduces the incidence of diseases, but without sanitary facilities and behavioral changes, the situation will not change significantly." In Nepal, the proportion of households with latrines or other options for sanitary disposal of excreta has remained quite low, although some progress *has* been made in the past 15 years—from 5% in 1987 to 30% in 2001,[30] a *sixfold* increase. This expanded coverage may have prevented diarrhea deaths as well, especially in families with access to safe drinking water, education, and other services. At the same time, the most economically marginal families, whose access to services is usually poor, also tend to have children who are

[27] GON/MHPP & WHO/UNDP Nepal: Drinking Water Supply and Sanitation Sector Review and Plan (1991-2000), Final Draft January 1991, quoted in *Children and Women of Nepal, A Situation Analysis 1992* (NPC and UNICEF), Table 3.11, p. 151.
[28] UNICEF: Children and Women of Nepal – A Situation Analysis, 1987, p.144.
[29] MOH/DoHS/FHD, New Era & ORC Macro: *Nepal Demographic and Health Survey 2001*, p. 20.
[30] Ibid.

less well nourished and most vulnerable to diarrhea and other infectious diseases. These children are also more likely to die. Protecting them and providing their families with equitable access to water and sanitation is a persistent challenge, which must be met for these interventions to achieve their full impact.

Program Evolution: Scale, Transformation, and Sustainability

Factors contributing to the success of water and sanitation programs in Nepal include:

- A strongly felt need for improved water supply on the part of families and communities; little persuasion has been required to convince them of its benefits.
- Global policies and goals, effectively promoted and supported by UN agencies, most notably UNICEF: the International Drinking Water Supply and Sanitation Decade; Declaration of the World Summit for Children; and Plan of Action containing Goals for the Year 2000.
- National policies, most notably Basic Needs, decentralization and local governance, along with a five-year planning cycle that has proven responsive to global priorities, availability of donor funding, and (to a notable extent) the needs of families and communities in Nepal.

Consistent leadership from UNICEF, both in long-term commitment of funding as well as innovative technical assistance. The latter has included development of technical guidelines (12 volumes) and practical field manuals for design and construction of gravity-flow water systems, as well as development and introduction of hand pumps and other appropriate technology;

- Support for local production of plastic pipe and other manufactured components for water systems; capacity-building for and promotion of community ownership, operation and maintenance of water systems; intensified focus on sanitation and hygiene, with advocacy and support for developing a national sanitation strategy; creative social mobilization and behavior change communication, based on thorough formative research; empowerment and mobilization of women as agents of change, including those now training others as sanitation promoters in all districts of Nepal.
- A wide base of support, including financial and technical assistance from other UN agencies, multilateral and bilateral donors, and international and national NGOs over many years. These contributions have varied in scope and duration but, in the aggregate and combined with the leadership of UNICEF mentioned above, have permitted steady progress in most districts of the country.
- Emphasis on community involvement and ownership, and especially on the participation of women.

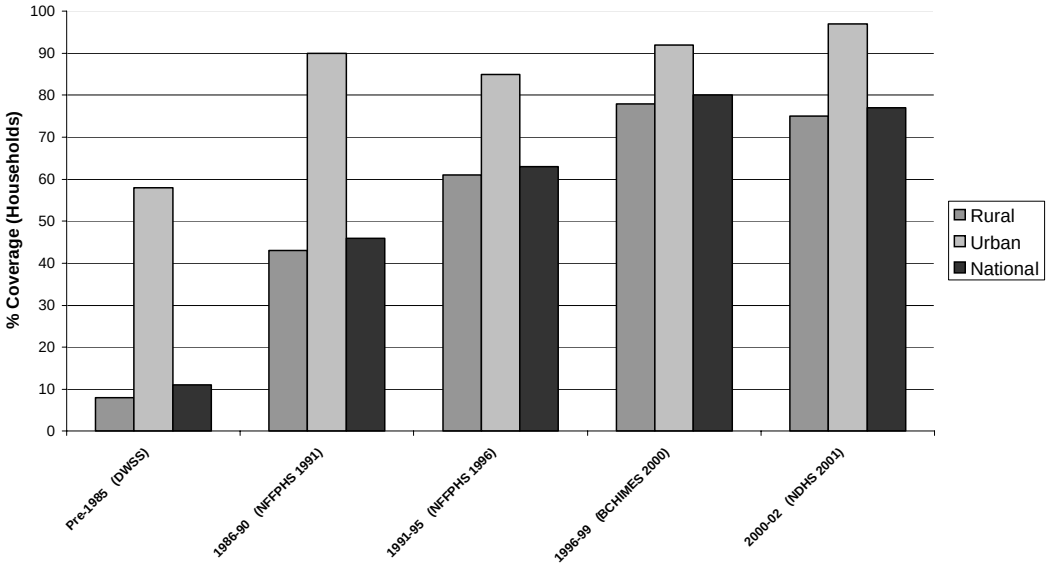
Factors that have impeded the success of water and sanitation programs in Nepal include:

- Lack of any felt need for hygiene and sanitation corresponding to that for improved access to safe drinking water on the part of rural families and communities in Nepal: benefits have not been perceived to outweigh costs, and associated changes in behavior are complex and difficult to achieve.
- A relative lack of progress in hygiene and sanitation in the face of rapid population growth contributes to the collective burden of diarrheal disease and parasitic infestation in Nepal, reducing the impact of otherwise commendable achievements in providing access to safe drinking water to most households.
- Inadequate leadership on the part of GON. Despite its nominal role as lead agency for water and sanitation, as designated by GON in the early 1970s and reinforced in the National

Sanitation Policy of 1994, the Department of Water Supply & Sewage has primarily focused on engineering aspects of water systems, and has never demonstrated the flexible and proactive leadership required for this multisectoral development challenge. Territoriality often interferes with cooperation among GON sectors, including DWSS, Ministry of Local Development, Ministry of Health, Ministry of Education, and the Associations of DDCs and VDCs.

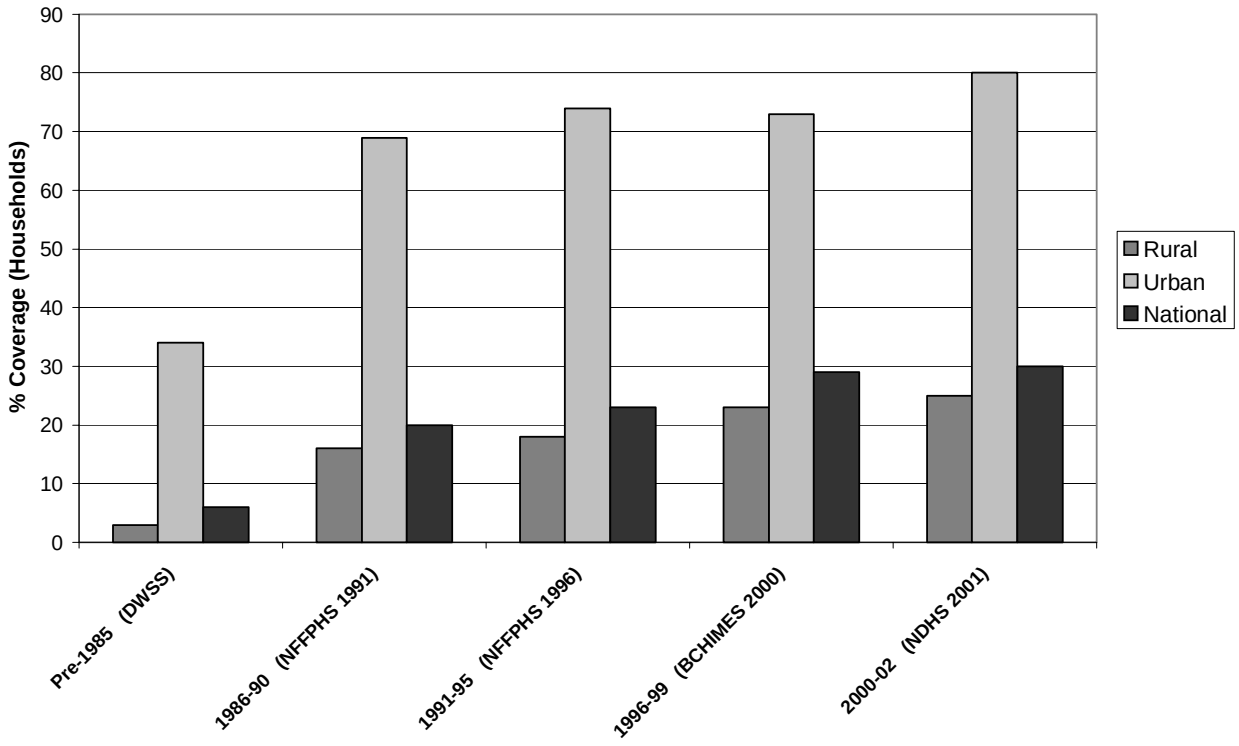
- Weakness of coordination among diverse stakeholders and implementing partners active in the water and sanitation sector—DWSS has not taken sufficient initiative to date. No other partner has the mandate for this, although UNICEF's influence will continue to be felt. The National Sanitation Action Steering Committee and the Rural Water Supply and Sewerage Fund Development Board, established in recent years, may also take on more active coordination roles as they mature.
- Limited commitment to, and capacity for, monitoring and supervision at the national level. No comprehensive database, or means of routinely collecting complete data on water and sanitation coverage, has been developed to date. DWSS reports have consistently under-estimated coverage, since they only keep track of systems constructed by GON, without taking DDC, VDC, NGO, or private initiatives into account.
- Despite the stated importance of women's role in water and sanitation, and the considerable investment by UNICEF and others in training local women as sanitation promoters (literally Sanitation Women Workers), there has been no systematic effort to involve Nepal's 46,000 Female Community Health Volunteers in these efforts. Prevention of diarrhea, along with key messages regarding safe drinking water and hygiene and sanitation are included in FCHV basic and refresher training. Failure to utilize this dynamic cadre of local women may be due to a misperception of their workload and ability, or limited awareness of their outstanding contribution to MOH programs. This in turn may reflect the marginal and ambiguous role MOH has been expected to play in the water and sanitation sector over the past 30 years.
- Lack of a national policy or any standards for water quality. Attention has been given to increasing coverage and ensuring access, with little emphasis on testing water supplies for biological, chemical, and physical contamination. This has become a critical issue in recent years, for rural as well as urban communities, given rapid population growth and discovery of groundwater contamination in a number of Terai districts, where tubewells provide much of the water supply.

Figure 37. Access to Safe Drinking Water



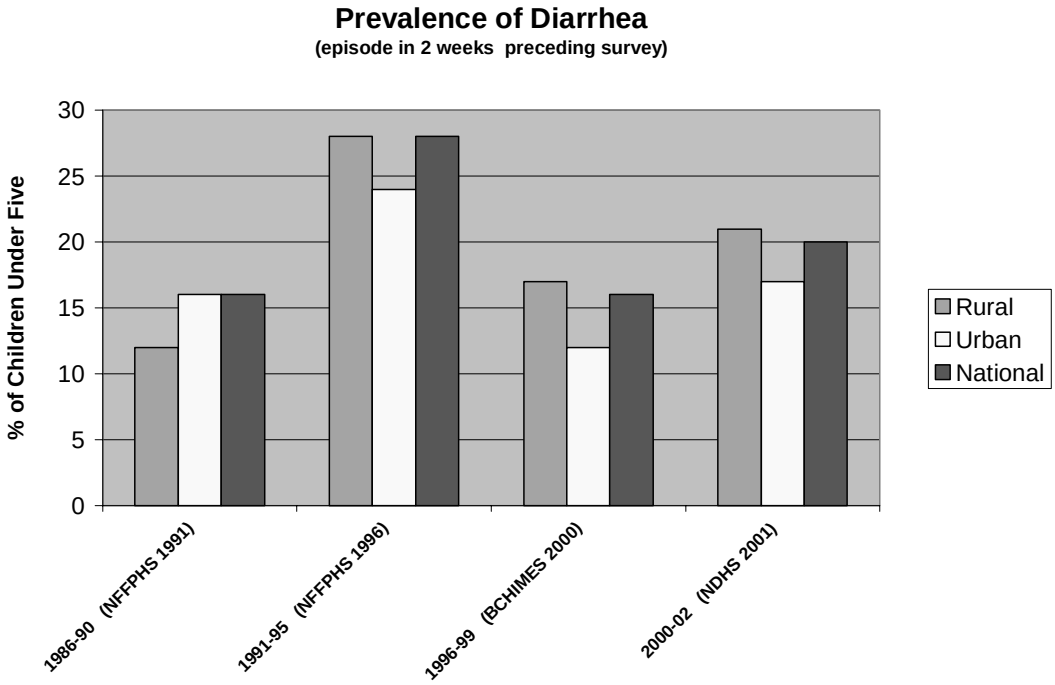
Source: Surveys

Figure 38. Sanitary Disposal of Excreta



Source: Surveys

Figure 39. Prevalence of Diarrhea (episode in 2 weeks preceding survey)



Source: Surveys

III. Cross Cutting Components

A. IEC, BCC, Social Marketing

A.1 Overview

Nepal has a rich history of strategies for changing health knowledge, attitudes, and behavior. Beginning in 1975 with the first Long-Term Health Plan, Nepal has participated in the evolution of the field of what is currently called "behavior change communications," or BCC. Over the years, its multi-ethnic and multi-lingual villages and districts have been virtual laboratories for the evolving strategies of health education; Information, Education and Communication, or IEC; social marketing; social and community mobilization; enter-education; and, most recently, BCC. Through these successive chapters, Nepal has influenced its population to make a myriad of changes. From virtually no knowledge of family planning, it has managed to bring nearly universal knowledge of modern contraception to a marginally literate population. In addition, despite chronic malnutrition, Nepal has had a major impact on child mortality through a world-class Vitamin A supplementation program. And it has mobilized some of its faith healers to complement their traditional practices with promotion of ORT and child-survival technologies. Its prestigious Gurkha soldiers have marketed family planning, as have its itinerant troubadours and Brahmin priests. Most importantly, thousands of marginally literate village women —the Female Community Health Volunteers—now mobilize mothers and communities to adopt healthful behaviors. Despite Nepal's daunting terrain and limited communications infrastructure, there have been impressive results in changing health knowledge, although major challenges remain to address the gap between awareness and practice. What Nepal has done and how it has been done is the focus of this review and analysis.

A.2 The communication environment

Mass media reach and exposure

Radio: Radio has been and remains the medium with the greatest reach in Nepal. In the early 1980s, radio was estimated to reach less than half of the population, of whom only half were able to understand the language of the broadcasts. With electricity available to under 15% of the population, and the cost of batteries beyond the reach of many, the impact of radio on the audience was quite limited. In recent years, these numbers have grown, but remain modest for the rural population. Choice has grown with the addition of FM stations, including new community-based radio in five districts. Radio ownership has nonetheless grown slowly, from 37 to 38 per thousand between 1996 and 2000.

Listenership is hardly pervasive, especially in rural areas, although the Radio Nepal signal now reaches 90% of the districts. While over half of women in urban areas report daily listening since the mid-1990s, the situation is different for the rural population. According to the DHS, 37.4 % of ever-married women in rural areas reported listening to the radio daily, compared to 34.7% in the 1996 Family Health Survey, an increase of under 10% in five years. Significant improvements in the quality of radio programming have reportedly increased the impact of the broadcasts on listeners' health and family planning knowledge. The radio infrastructure is growing rapidly, and now includes a growing number of FM stations broadcasting in more of the major languages of Nepal.

Television: Television broadcasting began in 1986. Although the television signal now covers over 40% of the country, Nepal Television reports that only 23% of the population has broadcast access, which is concentrated primarily in the southern and central regions. Not surprisingly, the urban-rural division is far greater than that for radio. While the 2001 DHS reports that 76.5% of ever-married urban women watched television at least once a week, only 17.5% of rural women watched weekly, up from 7.6% as reported in the 1996 Family Health Survey.

Press: Nationally circulated press was limited to only two major newspapers until 1990, when the transition to democracy led to a five-fold increase in registered periodicals and newspapers by 1996. It is currently estimated that there are now more than 1,000 dailies and weeklies in the country. Nevertheless, low literacy levels restrict the reach of newspapers to a small percentage of the population. Of ever-married rural women, only 3.3% reported reading newspapers at least once a week in 1996, and the number grew to only 5% in 2001. Numbers of urban women readers have remained about the same over the five-year period (27.1% in 1996; 28% in 2001). Access to all three major media channels reflects socio-economic status. Of those with no education, 60% of women and 50% of men have no exposure to mass media.

Cinema halls: A USAID/Nepal study in 1983 (JHU/PCS) found that total attendance at cinema halls, primarily located in urban and Terai areas, was nearly equal to radio listenership at the time. A 1991 report from GON listed 143 cinema halls and annual attendance of 17 million. Although current numbers are not available, cinema halls continue to attract a large audience, with programs such as family planning and Vitamin A using them regularly as sites for brief slide presentations. The Polio Eradication program sponsors slide productions in five local languages. The NHEIC places increasingly large numbers of cinema slides in the halls, producing as many as 15 slide sets per year, and reporting as many as 9,000 screenings in 1995–1996.

Traditional media and communication: Although difficult to quantify, folk media are considered pervasive in rural Nepal. Troubadours abound in the middle hills, and puppetry and village theater are common in all regions. Many NGOs and INGOs have been active in mobilizing folk media as dynamic components of community education and mobilization. A 1980 UNFPA study estimated that there are as many as 400,000 full- or part-time traditional medical practitioners, many of whom are considered highly credible sources of communication in rural Nepal. Many programs have sought to mobilize these practitioners to support health education efforts and, in some cases, to help distribute such products as contraceptives and ORT packets.

National and local events tied to health and family planning themes have been another form of communication and mobilization. These events are often tied to the religious and cultural holidays and processions that are a central part of Nepalese tradition. They provide opportunities to highlight specific themes or actions, including World AIDS Day, World Environment Day, and National Immunization Day.

Socio-cultural environment for communication

Nepal's cultural and linguistic diversity, coupled with low literacy and prevailing fatalistic beliefs, present serious challenges to bringing about health attitude and behavior change. Although achievements in health knowledge and awareness are noteworthy, the "KAP gap" has remained a stubborn obstacle for many programs. This is especially true for programs in which targeted behaviors are complex and may conflict with entrenched values and cultural practices. The status of women is also a barrier, especially in programs such as family planning, which touch on normative behaviors such as interspousal communication about intimate matters. The 2001 DHS reports that 58.6 % of married women and men never discuss family planning. A

couple's decision to limit family size through adoption of a permanent method is therefore less demanding than the routine use of temporary methods that may involve regular decision-making. The popularity of injectables suggests that fewer decisions enable better compliance.

This gap is not unique to family planning. Even with apparently less controversial behaviors, such as using ORS, high awareness among mothers does not translate into similar levels of practice. Social distance between trained health workers and program beneficiaries is another obstacle. With Nepal's hierarchical caste structures, plus prevailing cultural gaps between literate workers and less-literate or non-literate villagers, persuasive communication is difficult. When the behavior being promoted requires a change in norms, a cultural "outsider" has limited credibility, and may have less ability to articulate the benefits of the practice in terms that are relevant to the potential adopter. This problem is compounded by the general lack of emphasis on the development of interpersonal communication and counseling skills among health workers.

Given this set of problems, centrally designed mass media approaches alone cannot be expected to reduce the KAP gap. Behavior change will increase with improved interpersonal communication that is supported by media and the mobilization of communities to develop locally relevant forms of understanding and ownership of health programs. With Nepal's constraints, IEC and BCC need to be integrated with active programs of community mobilization. This trend appears to be underway.

Review of IEC/BCC staff and institutional capacity development

During the mid-to-late 1970s, USAID/Nepal supported long-term international training in health education for GON health and family planning staff. Some 10–15 Nepalis earned MPH degrees in the US, and returned to become leaders of well-financed, well-staffed and equipped health education units in the major vertical programs. Up to the late 1980s, the two major vertical programs—the FP/MCH Project, and the Integrated Community Health Project—developed educational strategies, media, and materials and conducted active field programs to train regional and district staff in IEC methods. These included interpersonal communication and group and community education processes. Both projects carried out operations research and evaluation activities as components of their strategy design, testing field-based approaches, pretesting materials, and forming radio listening groups to complement and inform their use of radio.

The FP/MCH project had its own printing, radio, and video production facilities. The Integrated Community Health Project had smaller, but parallel, facilities, sharing production resources with the FP/MCH staff. As integration accelerated, personnel transfers and relocation of project offices led to the gradual elimination of the capability—both human and material—that had been developed. Nearly all trained staff migrated from GON to national and international donor and NGO groups, and an era of robust IEC programming gave way to a model of outsourcing IEC products and services without a core strategic direction.

The 1991 National Health Policy led to the creation of centers for IEC and training. In keeping with this policy, the National Health Education, Information, and Communications Center (NHEIC) was established in 1993. The Center has only one staff member with postgraduate training in the field; many NHEIC professional posts (for "gazetted officers") are vacant. Although health education technician positions exist at the district level, NHEIC annual reports from 1994 to the present state that they are neither trained nor involved in IEC activities. All of the annual reports to the present refer to a lack of IEC personnel, budget, programs, and materials. The 1997–1998 report specifically identified as a major problem the "lack of health education professionals at all levels." Perhaps as a consequence of this manpower problem, many of the

technical programs (such as IMCI, Family Health, and CDD) create their own IEC activities, using the NHEIC for materials production and distribution based on messages the technical programs furnish to the NHEIC.

Additional expertise in IEC has been made available to the technical programs through a variety of alternative arrangements. Since 1993, USAID/Nepal has provided increasing levels of technical and budget support through Johns Hopkins University's PCS program. This has included an expatriate resident adviser and a growing team of local consultants focused on developing state-of-the-art IEC and BCC products and processes. Although initially focused on family planning, this assistance has been expanded to child health over the years, and is now an integrated part of the NFHP. In addition, UNICEF and UNFPA have furnished local and expatriate consultant services, as well as methodological and financial support.

Highlights of successful IEC/BCC[31] approaches

Radio: The most methodologically sophisticated IEC/BCC initiative in Nepal is that undertaken by the JHU/PCS Radio Communication Project (RCP) and its GON and NGO partners. Its objectives and approach have been complex, utilizing a rigorous analysis and research process as a preamble to mounting a creative response. The main objectives have been to:

1) Increase service use and contraceptive use by clients
2) Improve the quality of services and service delivery, especially the interpersonal communication and counseling skills of clinic-based health service providers
3) Enhance the image of health service providers
4) Satisfy a large unmet need for contraception in Nepal

The need for such a comprehensive strategy stemmed partly from the complexity of the behaviors to be changed among multiple target audiences, and partly from a need to overcome a legacy of problems associated with a wide range of family planning beliefs and practices. Formative research into the nature of the problems was applied to the development of targeted messages that were delivered in a regular, sustained media strategy. The strategy integrated message themes into an entertainment-oriented social drama. A significant investment in evaluation research permitted program designers to assess the impact, and replan subsequent phases in light of the findings. Ongoing pre-testing and focus group discussions are used to continually identify such issues as media behavior patterns, key benefits, and messages with maximum appeal, as well as linguistic patterns for use in mini-dramas and spots. The components of the strategy are integrated to achieve synergistic effects for maximum impact. In addition, the strategy has been progressively expanded to incorporate new content.

As mentioned earlier, the attitudes of many health workers toward their clients have been an obstacle to creating the climate of trust and respect required for persuasive communication. The RCP content focused on both sides of this equation, using a systematic approach to translate values into identifiable and achievable steps. Programs targeting clients encouraged them to value their rights to informed choice, as well as to participate in a counseling process. Parallel distance-

[31] Over the years under review in this document, there have been changes in terms and methodologies applied to the process of planned change in health knowledge, attitudes, and behavior. The terms "health education" and "information-education-communication" (IEC) have been used in the U.S. and the developing world since the 1970s. They are used interchangeably as applies to Nepal. "Behavior change communication" (BCC) has begun to be used as a term in Nepal. It refers to applying social science and behavioral theory to bringing about concrete and measurable changes.

education programs for providers modeled a step-by-step approach to counseling. The desired behaviors were carefully analyzed and broken down into understandable parts of a whole. While respecting creativity and originality, programs have also been rebroadcast periodically over the life of the project, serving both to increase the number of listeners exposed and to reinforce learning for listeners who may have heard only some of the broadcasts.

Working in collaboration with NGOs, the RCP project built in interactivity with listeners, and further reinforced messages through locally available print materials as supplementary learning aids. The aids allowed providers to deepen their specific knowledge of how contraceptive methods work, and how to minimize the spread of incorrect information. Radio listeners were regularly encouraged to write to the production team to share their responses, creating regular feedback that is applied to future program design.

The RCP project assured both widespread support and the maximum transferability of methodological skills by involving a broad spectrum of participation in the successive design phases of the project.

Vitamin A: Some of the same success factors were associated with the Vitamin A project, managed by NTAG. The main terminal behavioral objective of the Vitamin A project—twice-yearly distribution of capsules—is considerably simpler than the family planning objectives. Nonetheless, their communication and mobilization approaches shared certain values, and the wide-scale success of the Vitamin A program bears witness to the efficacy of the approach. As an example, the NTAG leadership insisted on treating the primary outreach workers, the FCHVs, with maximum respect, including the use of a Nepalese language honorific title ("Jyu") when addressing them. Although not a common practice, this small but potent gesture of respect characterized the way the program treated its collaborators, and the way mothers were to be treated in turn.

The program also featured creative media and communication approaches to popularize desired behavior. These included creating innovative program elements such as the sale (for a modest sum) of "tikas" (small religiously symbolic forehead stickers) with fruits and vegetables to stimulate awareness of the nutritional messages accompanying Vitamin A promotion. In addition, cinema halls were important venues for projection of promotional slides. An innovative feature of this promotion was involving cinema hall managers in discussions about the importance of the slides, which were delivered and then collected later by NTAG staff. The message to the cinema hall managers was that the projection of the slides was a valuable community service and needed to be treated accordingly.

At the community level, NTAG staff conducted special outreach efforts to hard-to-reach communities often left out of local programs. Training for fieldworkers was highly participatory, involving extensive role-plays designed to build confidence, support, and a sense of ownership for the program. The FCHVs were trained to work with local leaders to plan capsule distribution at the micro level, to respond to the unique conditions at that level. The information requirements for the Vitamin A program were not overly demanding. Emphasis in the training programs for FCHVs and their collaborators was on developing the confidence and commitment needed for program success. The training approach was made highly entertaining and also empowering for the women participants, many of whom had never taught others before. Women were urged to chant together, rally-style, proclaiming that the Vitamin A program was *their* program, not the NGOs' or the government's. As simple as it may seem, this set of attitudes and approaches led to high levels of motivation for those who needed to motivate and organize others.

As described in the earlier chapter on Vitamin A, the program carefully developed and tested a range of training and educational materials, paying careful attention to local planning strategies. In addition, it is worth noting that the innovative breakthroughs in respect-based empowerment added considerable vitality and zest to a program that has achieved high levels of coverage and produced epidemiologically significant outcomes.

EPI: Not unlike vitamin A supplementation, the EPI program has had a less complex and controversial behavior to promote, but it too has achieved impressive levels of coverage. Its IEC strategy has been based in a disciplined, intensive adherence to its core messages, and careful attention to the source of the messages. Although the grassroots have been mobilized to support EPI activities, the program has enjoyed unequivocal and regular support in a top-down strategy. The King has been the major voice of the program, endorsing it vigorously and often. The royal endorsement has been accompanied by a cascade of endorsements and exhortations from the top of the national, regional, and local establishments. The message has been exceedingly clear and simple: immunization is an important service, and it should be delivered at a specified time, place, and date. These times have been adhered to year after year in a way that ritualized the service, and allowed them to be embedded in the memories of parents. Fortunately, logistics and supply have generally been in step with the creation of demand, and this simple IEC strategy has been appropriate and adequate.

Social Marketing: As discussed in the chapter on family planning, the use of social marketing approaches has been led by the Nepal CRS project. Prior to the mid-1970s, the private sector had never been mobilized for a social aim. Today, a growing number of family planning services are available through the private sector, with an estimated 7% of contraceptive clients receiving services privately. CRS introduced modern approaches to advertising and marketing when it "branded" contraceptives and commissioned a major marketing initiative. It also opened up wider distribution of contraceptives and ORS packets by reaching out to a nationwide network of small commercial outlets for these products.

The CRS contribution to the distribution of ORS packets is especially remarkable. In 2001, CRS sold 2,391,309 ORS packets. This is more than twice as many as were sold at the peak of the previous distribution program in 1988. CRS discontinued sales for five years, resuming in 1998–1999, when it immediately sold nearly 2.4 million packets. It has had an average sales volume of over 2 million packets in the four years since it resumed distribution. Although its management and organizational problems have persisted, its results over many years suggest that the social marketing approach still warrants consideration as an adjunct to government- and NGO-led health and family planning programs.

UNICEF initiatives in communication: UNICEF has been a key source of strategic and financial support in IEC/BCC throughout the period under review. Beginning in the late 1970s, UNICEF pioneered innovative approaches to IEC programming. UNICEF ushered in the era of field-based materials pretesting in Nepal in the late 1970s, with a breakthrough study of visual communication that changed the landscape of materials design. Using the print materials being produced and distributed in vast numbers, the UNICEF review discovered that many of the materials in use were ineffective, as they had not recognized the lack of visual literacy of their audiences.

Today, UNICEF is continuing to innovate with a communication thrust aimed at addressing the underlying obstacles to the adoption of healthful behaviors. UNICEF is launching a "life skills" initiative designed to support confidence-building, decision-making, problem solving and conflict resolution skills for women. Since 1997, UNICEF has also been funding advocacy initiatives to

support the Convention on the Rights of the Child (CRC) and the Convention on Elimination of All Forms of Discrimination Against Women (CEDAW).

In Nepal's unique circumstances, the IEC/BCC process for health must be integrated with advocacy, community mobilization, and strengthened interpersonal communication and counseling. The programs that have done so are those that are achieving the most significant results.

B. Female Community Health Volunteers (FCHVs)

B.1 Overview

The FCHV program of 2002 is a culmination of community volunteer programs that began in Nepal in the late 1970s. The move toward community participation and volunteers was stimulated by the 1978 Alma Ata conference "Primary Health Care for All," and was reinforced by donor interest and resources that were made available to the MOH immediately afterward. The MOH was in the process of extending health care services into rural areas through the ICHP and saw volunteers as a useful way to move forward. This resulted in policy guidelines to train and place 30,000 volunteers during the Sixth Five-Year Plan (1980–1985). The result was the launch of a program with few operational guidelines, minimal planning and written directives to train people at local levels. In 1980, the Community Health Leader (CHL) program was started in three districts as a pilot project. Over the following five years it was expanded to 16 districts, with an emphasis on basic training.

CHLs were chosen in consultation with panchayat leaders and trained by district and HP staff. Nearly all were male, with the exception of Baitadi District where the decision to recruit only females was made. The job description of the CHL was long, and covered activities for all major primary health care-related services and behaviors. It was estimated that the CHL would donate 6 hours per week to perform his or her role; some were active in such areas as motivating for VSC camps or distribution of ORS. However, the program was evaluated in 1985 and CHLs were found to be largely inactive, unable to interact effectively with mothers and children and receiving little supervision or support from the HP.

In 1988, leadership at the MOH was transferred to a female Minister with a strong commitment to women's empowerment and political participation. With her influence and a strong champion at the Secretary level, the FCHV program was launched. The FCHV program has been a special unit under the supervision of the Additional Secretary in cooperation with the Public Health Division. The Additional Secretary provided the impetus for transferring a group of well-known and respected trainers to develop it. The MOH implemented the program at district and ward levels in partnership with the NWO (Nepal Women's Organization). The program specified that a Mothers Group be established in every ward; that each MG select one respected and willing female over the age of 25 years to be trained; and that with the help of VHWs, begin to address common health problems and encourage villagers to make use of preventive services. The original objective of the FCHV program was to promote the active involvement of community women in the motivation, education, delivery, and utilization of MCH and FP services in order to reduce mortality and fertility. From the outset, FCHVs were to be both empowered and competent to carry out their assigned health-related tasks, and their success was to be measured on the basis of health results.

During the following decade, the FCHV program continued to expand rapidly to cover the country. After 1993, as the health system extended primary health care services to SHPs and began a shift toward local management through VDCs, FCHVs became an important and successful resource to a set of child health intervention projects. (The influence of FCHVs on health services utilization and outcomes through these interventions has been described in detail earlier.) FCHVs have been the cornerstone of the National Vitamin A Program in all 75 districts, the critical service provider for ARI and more recently CB-IMCI in 16 districts, active mobilization agents for national Polio Eradication, and important resupply agents for FP

commodities. By 1995, the objectives of the FCHV program had evolved to include a clear focus on community mobilization and empowerment:

> To empower rural women with the basic knowledge of primary care especially related to the health of women and children
>
> To enhance self help in primary health care in the communities through mobilization of local women and other resources
>
> To promote community participation for the best utilization of health and family planning services in order to reduce infant and maternal mortality and fertility rate
>
> To increase community awareness of public health issues

In the last several years, as recognition of the FCHV contribution to the success of community-based health interventions has increased, many core primary health care programs have sought to use them. This has raised questions of work burdens on the FCHV and why they are more successful with some interventions than with others. At the national level, there has been some retrenchment of attitude toward using paid health staff with longer training, and shifting FCHV roles back toward health education and away from service provision. The program is now at a crossroads and is undergoing a strategy review that will look at job descriptions, roles, systems, incentives, and financing. This is timely; since the inception of the program there have been shifts in health problems and community needs, changes in community participation in the public sector health system, expansion of the system to include a tier closer to communities, and a significant amount of experience and understanding of actual FCHV contribution to community health.

B.2 Timeline and milestones of FCHV program, 1975–2003

Year	Item
1975	Integrated HPs will have village health committees
1978	Alma Ata "Primary Health Care for All"; Donor pressure to increase community participation and volunteers; Health Inspectors workshop on community volunteers
1979	ICHP translated "Where there is no doctor" for a volunteer manual
1980	Sixth five-year plan guidelines to train 30,000 volunteers; CHL pilot program initiated in 3 districts
1981–1984	CHLs expanded to 13 additional districts
1985	CHL program evaluation
1987	CHLs discontinued with the shift to FCHVs
1988	Community Volunteers Program Review published; FCHV program initiated 27 districts (19 in Central Region, 8 in Midwest Region) in partnership with NWO; Mothers Groups initiated
1989	Six-month performance review in Central Region
1990	NWO dissolved, 100 Rs monthly allowance discontinued
1991	FCHV program in 58 districts; HEAL is initiated
1992	FCHV diagnostic assessment by New Era; Recommendation to shift to population-based strategy; HEAL continues
1993	FCHV basic training changed from 12 to 15 days; refresher training changed from two six-day sessions to review meetings 2 days 2 times per year; FCHVs deliver Vitamin A in first districts; PHC Outreach Clinics started (ORCs)
1994	FCHV program in 75 districts

1995	MOH says FCHVs can diagnose and treat child pneumonia; ARI Strengthening Program in 4 districts (2 treatment, 2 referral); HEAL starts again; Population-based strategy expanded to 28 districts
1996	Assessment of FCHV Program by VaRG; HEAL continues
1997	Assessment of ARI Strengthening Program and decision to expand FCHV treatment approach; FCHVs given ORS, pills, condoms from HPs; FCHVs delivering vitamin A in 32 districts; Post-literacy HEAL
1998	FCHVs delivering CBAC program; Post-literacy HEAL; Radio Program Listener's Groups for FCHVs starts
1999	FCHV orientation program for 727 VDCs; 1527 mothers groups; Post-literacy HEAL; Pilot FCHV Endowment Fund in Ilam
2001	Shift to CB-IMCI program for FCHVs
2002	Volunteerism study; FCHVs delivering vitamin A in 75 districts; FCHVs providing CB-IMCI in 16 districts
2003	FCHV Strategy Review; FCHVs will deliver CB IMCI in 21 districts

B.3 Indicator Tables

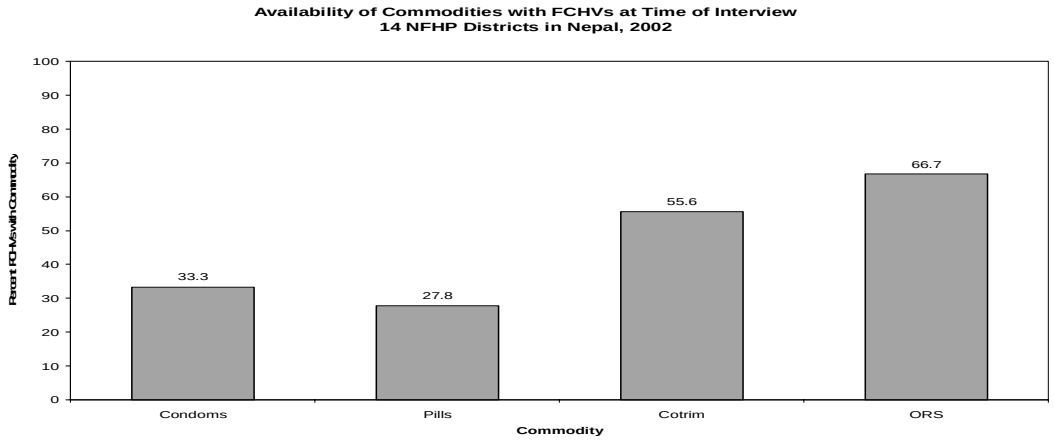
The number of FCHVs trained and estimates of active FCHVs are noted in the table and graph below. What is remarkable is that the program went rapidly to scale over a 6- to 8-year time period that included major political changes. In contrast to the rest of the health system, there has been a relatively low turnover of FCHVs, anecdotally estimated at 5% per annum. There are stories of aging FCHVs refusing to retire or turning over responsibilities to daughters-in-law.

Table 33. Number of FCHVs trained and estimates of active FCHVs

Year	Number Trained	Cumulative Number Trained	Number Active
1988/89	13044	13044	13044
1989/90	6609	19653	12624
1990/91	4689	24342	18468
1991/92	3110	27452	22833
1992/93	4379	31831	24857
1993/94	4619	36450	28914
1994/95	5667	42117	32325
1995/96	5127	47244	35187
1996/97	4040	51284	35707
1997/98	2404	53688	46584
1998/99	311	53999	46584
1999/00	-	53999	45555
2000/01	2300	56299	45600
2001/02	2487	58786	45951
2002/03	-	58786	48549
Total	58786		48549

Performance indicators for FCHVs are included in Vitamin A, ARI/CB-IMCI, and Family Planning sections in earlier chapters. In 14 districts, the NFHP project also tracks the availability of four key commodities that FCHVs are intended to have in constant supply. In a sample survey done in 2002, a total of 12.1% of FCHVs interviewed had all four key commodities in stock (condoms, contraceptive pills, cotrim, ORS). The supplies of condoms and pills appear to be much lower than supplies of cotrim and ORS.

Figure 40. Availability of Commodities with FCHVs at time of Interview (14 NFHP Districts in Nepal, 2002)



Source: Survey of FCHVs, NFHP 2002

The following table shows the number of participants in HEAL literacy classes by year of implementation. In the first two years HEAL provided both basic and post-literacy classes. In 1995 when it was restarted, it provided only post-literacy classes.

Table 34. Participants in HEAL Classes by Year

Year	1991	1992	1995	1996	1997	1998	1999	2000	2001	Total
Participants	1,225	675	4,183	6,782	10,790	12,050	10,018	10,740	9,482	65,945

Source: NFHP project records

B.4 Policy Highlights

When the FCHV program was initiated in 1988, policy guidelines specified that they be females over 25 years of age from the ward they would serve, preferably but not necessarily literate. This was the first time that the largely nonliterate population of village women was given the opportunity to participate in primary health care programs at national scale. Without government insistence that they be female, it is likely that VDCs and wards would have put forward male candidates, as they had in the past. Policy also specified the establishment of a Mothers Group in each ward to mobilize and educate a broader group of village women.

Another notable aspect of policies at this juncture was that the leadership unit in the MOH published and distributed a "Yellow Book" that clearly explained all the guidelines, rules, and procedures. This was critical for ensuring that the program was implemented as intended, especially given the breadth and rapidity of expansion. Even so, there were problems at the outset with selection of FCHV candidates who tended to be politically important or connected rather than willing volunteers.

In 1992, following an evaluation by New Era, the MOH decided to implement a population-based, rather than a ward-based FCHV strategy. Since population densities and distances between houses and villages vary by ecological zone, FCHVs were to be distributed accordingly:

1 per 400 population in Terai districts
1 per 250 population in Hill districts
1 per 150 population in Mountain districts

This was intended to make the FCHV workload more feasible and to provide better coverage of vulnerable populations. There has been some debate over the relative costs and benefits of the population-based strategy. On the one hand, it is costly because it greatly expands the need for training, supervision, and resupply. On the other hand, it is an attempt to provide better access in Nepal's widely varying topography. Perhaps the biggest question still to be answered is whether access is actually improved with the application of a generic population formula.

In 1995, a critical policy development occurred when FCHVs were authorized to distribute vitamin A capsules in twice-yearly campaigns. In 1996, the MOH granted permission for specially trained FCHVs to treat childhood pneumonia with cotrimoxazole. This greatly expanded community access to timely treatment, and ongoing monitoring of FCHVs has provided evidence that quality has been maintained. At this time, senior officials are again questioning this policy, which has the potential to undermine continued expansion of the program.

In 2001, guidelines for FCHV endowment funds were promulgated by the government, based on early experience supported by NTAG. Endowment funds are savings accounts that generate interest and are established at VDC level to support FCHVs and their work. They are under the control of an Executive Committee that is comprised largely of FCHVs, with support from the VDC chairperson and HP/SHP representative. While work with incentives for FCHVs has been undertaken since the beginning of the program, this is the first mechanism to show widespread promise.

B.5 Systems characteristics

Planning and Budgeting

In the early years of the FCHV program it was located within the Public Health Division, although planning and budgeting were done separately in direct consultation with the Additional Secretary. When leadership changed, FCHVs were more closely incorporated into the PHD. After the reorganization in 1993, the FCHV program was placed in the FHD and basic training was taken over by the NHTC. In 1994, the CHD was split from the FHD. The FCHV program remained with the FHD, which led to planning and coordination problems for child health activities. In practice, as targeted programs and NGOs worked directly with FCHVs at local levels, the role of the central FCHV unit diminished. Given the current priority programs and interests of the DoHS, and compared to early time periods, FCHV unit leadership is unremarkable and policies or guidelines often follow demonstration and action on the ground.

Donor support originally came from USAID, UNICEF, and UNFPA, and there was significant contribution from the GON through the Red Book. The latter contribution was largely the result of strong lobbying on the part of the Minister and the Additional Secretary. Work plans and budgets were done annually, including supplemental budgets for USAID. Over the years, government financial support for the program has waned, and it has been largely donor supported for the past several years. The three original donors remain, but have been joined by others such as FINIDA for various periods of time. In the late 1990s, donor support was characterized by negotiations to fill in as resources became scarce. Some of the promised commitments were not met, such as UNICEF shortfalls for supervision support in one year. In the past several years, UNICEF has shifted focus to the district level, with some national-level capacity building.

National-level FCHV work plans and budgets are done separately for UNICEF, USAID, and UNFPA and are coordinated by the FCHV unit in the FHD. However, with the exception of intervention-specific plans such as for Vitamin A, FCHV work plans are largely the creation of donors.

A recurring theme in discussions with both DoHS and donors is that the FCHV program is expensive. Donors want the government to invest more budgetary resources and to decrease their own funding in the interests of sustainability. The expense of the program is reported to be driven by its scale and the need for ongoing supervision and monitoring that enables FCHVs to be effective. Current government budgets for supervision are being drastically decreased, as the cost of managing the political crisis increases. Thus current negotiations between donors and government have been reduced to "Who will pay?" as both sides face less flexibility and fewer resources. Of note is that the cost discussion rarely includes the relative benefits.

Supplies/Logistics

FCHVs were originally supplied with a kit box that contained simple first aid supplies, ORS, and cetamol. They were required to buy the box with their training allowance funds and were instructed to sell them in order to resupply through HPs. The original system for resupply was poorly planned and required that FCHVs introduce the idea of charges for items to clients. The early system did not work well, although some resupply was done through local shops and HPs.

The supply system was redesigned and commodities such as ORS, oral contraceptives, and condoms were distributed from HPs to FCHVs in the late 1990s. Cotrimoxazole was added in CBAC/CB-IMCI districts supplied through HPs, although this program experienced stockout problems in early years. Since stockouts seriously undermined community trust and use of FCHVs for child pneumonia, special efforts were made to improve the system. Currently, in 14 NFHP districts the availability of supplies with FCHVs is relatively good for ORS (67%) and cotrim (56%), but relatively low for pills (28%) and condoms (33%).

Experiments with cost recovery for cotrim were carried out in Makwanpur and Siraha districts with good results. While they must be introduced after communities recognize the value of FCHV treatment of pneumonia, they did effectively increase access and local ownership.

Training

In the beginning, FCHVs were primarily non-literate, older women, so non-literate training manuals and materials were developed in 1988–1989. The non-literate manual was developed through an unusual partnership between the MOH (expertise in health), World Education (expertise in non-formal education), and local artists (experience in visual literacy). The literate manual used the same artwork, but also built on the messages in the original CHL manual. Training focused on a limited set of subjects (first aid; diarrhea/ORT; FP, including small, child-spaced families, condoms, and resupply of pills: EPI; nutrition; pregnancy/delivery; sanitation; how to conduct a Mother's Group meeting; and referral). In most cases the role of FCHVs was to educate, promote, and motivate to carry out healthy behaviors in the home and to use HP services. They were also able to provide first aid treatment.

Training guidelines were developed and a cascade training design was implemented. One FCHV per ward was selected and over a six-month period in early 1989, more than 4,000 completed 12 days of basic training. By the end of 1989–1990, more than 13,000 had been trained. Coverage continued to be expanded rapidly. By 1991, 58 districts were completed, and by 1994, all 75

districts were completed. In 1993, training was shifted to the NHTC and a new strategy was implemented, because the six-day plus six-day refresher training sequences were difficult to support. The original 12-day basic course was extended to 15 days, and refresher trainings were reconfigured as refresher/review meetings, conducted for two days, two times per year. Altogether, 58,786 village women have been trained to date, with 48,549 considered still active in their communities.

As health problems and FCHV roles have evolved over the past decade, FCHVs have been trained in new subject areas with additional modules. These include ARI treatment, vitamin A, polio eradication, HIV/AIDS, malaria, and kala azar. Often these trainings have been conducted on individual subjects by program staff in the relevant subject areas, and not through the NHTC.

Incentives

The most controversial part of the early FCHV program was the decision to provide a stipend of 100 rupees per month as an incentive for volunteering. Some observers felt this was a only a token amount that demonstrated support, while others felt it would undermine the selection process and set the FCHV apart as a paid employee. The issue of sustainability was raised within the MOH and MOF, and by donors—many of whom declined to provide support for it. FCHVs received the stipend for approximately one year; when leadership changed, it was discontinued. Over a decade later, the 100 R\rupee issue is still raised as an example of a problem that the FCHV program has had.

The issue of incentives vis a vis local support for FCHVs has been addressed in various ways over the past 14 years. Minor improvements have been made with incentives, including sign boards, kit bags, and IEC materials. There have also been programs of official recognition and awards through a nomination process for “best local FCHV.” And individual NGOs have experimented on a small scale with group organization and income-generation activities.

One of the first programs established in response to the incentive issue was HEAL. In 1991, HEAL was initiated as a basic post-literacy course that was offered to Mothers Groups and FCHVs. If a local FCHV was literate, she was encouraged to be a group facilitator; if not, she was encouraged to take the course. While the HEAL program was successful in increasing literacy for village women, it reached only a relatively small number of potential participants in the national FCHV program—USAID declined to fund it for several years. In 1995, it was restarted as a post-literacy course, and after seven years has reached more than 65,000 women through Mothers Groups. While the HEAL results are positive in literacy terms and in improving the ability of participating FCHVs to do their work, the program’s limited reach means it has not resolved the incentive issue.

In the meantime, changes have been made in local self-government and the devolution of authority and ownership of SHPs and local health activities to VDCs. The status and perceived effectiveness of FCHVs have also increased with the achievements of the Vitamin A and ARI programs. In this more positive environment, the FCHV Endowment Fund was established on a pilot program basis in one VDC of Ilam district. As of 2001, 15 districts together had 144 VDCs that had contributed to an endowment fund. A study done in 2002 demonstrated that stakeholders believe FCHVs need the funds to support their work; that FCHVs are using the funds to improve service delivery rather than as a personal salary; and that the guidelines and logistics of executive committees and accounting work effectively. The FCHV Endowment Fund is thus viewed as a growing and successful effort to improve the sustainability and effectiveness of the work of FCHVs.

Supervision and Support

Early evaluations of the FCHV program identified system weaknesses in the areas of supportive supervision and reporting. There were also performance problems in more complex areas, such as advising women about the side effects of oral contraceptives. In the early 1990s, attempts to improve supervision through district health systems ran into the same problems as most vertical programs: budgets were believed to be insufficient, supervisory skills were often punitive in nature and limited to checking on targets and reported data; and the designated supervisors were not recognized or rewarded for implementing a supportive approach. However, there was evidence that increased contact with VHWs resulted in higher levels of knowledge and activity on the part of FCHVs. When Vitamin A and ARI program interventions were implemented, supervision and refresher/review meetings were strengthened for those activities. The Vitamin A program insisted on a respectful, supportive approach that involved local authorities and health staff. Both the Vitamin A and ARI programs incorporated local collection and use of data as the foundation for understanding performance. In these instances, supervision improved.

However, standard supervision in the form of refresher/review meetings conducted by district and health post staff remains a systemic problem. Budgets have been severely cut or are used for alternative purposes, changes to travel and per diem allowance rules for SHPs have eliminated monetary incentives, and the conflict situation has introduced yet another barrier to staff travel. FCHVs continue to be neglected through weak overall health system supervision.

B.6 Partnerships and Leadership

The FCHV program was launched with charismatic leadership that valued the FCHV as a social change agent as well as a health promoter and provider. This resulted in increased government and donor support, as well as an ingrained sense of ownership on the part of MOH operational managers. Philosophical and operational leadership in the Vitamin A program developed at a critical time for FCHVs, building on the political changes in the country and organizational changes in the MOH. The quality of this leadership has been recognized internationally as well as nationally, and continues to address more difficult and long-erm issues, such as local support for FCHVs. Nepal has also demonstrated innovative, programmatic leadership in the scale and success of the CB-IMCI program. While this has received less international attention, it is in fact one of the only examples that other countries can replicate in extending access to childhood pneumonia treatment services at scale in low-resource settings. At critical points, donor leaders have particularly effective in FCHV program development—for example, providing resources at critical moments and lobbying for innovation and expanding the scale of implementation.

B.7 Evolution: Scale, Sustainability, Transformation

The FCHV program is notable for its national scale, the rapidity with which it was developed and implemented, and its effectiveness for particular child health interventions. In addition, the program is unique internationally in terms of its emphasis on women and social change, its extension of critical child health services into communities, and for its impact—at least in areas such as vitamin A and pneumonia case management. In this context, the current debate between donors and government over costs and support is perplexing. The question of how to maintain and strengthen the skills of FCHVs and further improve health outcomes is being reduced to "Who will pay the bills year by year?"

C. Community Mobilization

C.1 Overview

Mobilizing communities is the most crucial step in bringing about many of the behavior changes that are required to improve health status in Nepal. Through an effective community mobilization process, norms that impede adoption of desired behaviors can be changed, and ownership of programs can be achieved. Complex issues of social distance and cultural barriers can best be addressed through communities awakening to address their own problems—effectively eliminating such distance and barriers. Stimulating community mobilization, however, is not an easy task; there is no standard formula for success.

The major successes in this area have come from INGOs and NGOs, many of which have developed or applied structured techniques. Government initiatives have a distinctly mixed record; they are less likely to be a source of innovation and leadership in community mobilization. And indeed there is an inherent paradox in a government agency or staff member playing a leadership role in what is essentially a process of people in communities taking ownership of programs. Government's role is to facilitate and legitimize the process, and to meet as many as possible of the demands for services that flow in from communities. The evolution of decentralization policies is one positive step that GON has played in enabling communities to mobilize for local solutions. Another is making resources available, such as endowment funds and other VDC-level budgets.

Community mobilization programs in Nepal have ranged from local efforts focused on a single, measurable objective to major campaign-style approaches focused on broad themes that involve organizations from the national to the village level, with extensive mass and traditional media support.

This review will highlight some of these approaches and processes, along with some of the more successful applications of community mobilization in Nepal.

The earliest example of community mobilization in the health programs under review is the malaria program. The program required community acceptance in several areas; initially it was needed to overcome misconceptions about why blood was being drawn. Community involvement was also needed to recruit volunteers for case detection. And more broadly, although there was no apparent systematic application of community mobilization processes, the basic nature of the program required community participation and endorsement.

The family planning program in the 1970s and 1980s used a form of community mobilization to create support and recruit acceptors for VSC. District family planning officers teamed with local Panchayat leaders to mobilize communities to adopt sterilization. With UNFPA support for a multisectoral approach to population and family planning in the 1980s, more active programs were launched to engage workers from many sectors to stimulate demand for family planning services.

UNICEF has long been a leader in community mobilization efforts in the area of water and sanitation, and in engaging communities in a wide range of advocacy and self-help initiatives. However, despite decades of program support, the data from the 2000 BCHIMES revealed that 73% of rural households still do not have a toilet. To improve this record, in March of 2001 UNICEF supported the first-ever National Sanitation Action Week, a major initiative to mobilize communities nationwide around awareness and action in latrine construction. Timed to coincide

with World Water Day, the event had as its main objective motivating 40,000 families to construct new latrines, and for the public at large to adopt hand washing as a key hygiene practice. At the National level, a senior Minister launched the week with a press conference. National television and radio covered the event extensively, as did the press at all levels. A contest was held for members of the press with rewards for articles on successful sanitation projects.

Two of the Regional Directorates held major rallies, and all instructed their District Offices to support the initiative. In response, 71 of the 75 districts organized cleaning campaigns to bring people of different social groups together in support of the campaign. Educational materials were distributed nationwide, and community miking was used widely to create awareness and support. In some 53 districts, NGOs were mobilized to create and stage street dramas, and in half of the districts video programs were presented. District and village development committees in half of Nepal's districts reportedly conducted door-to-door visits to raise awareness and promote latrine construction. Monitoring reports suggest that the target of 40,000 latrines was nearly achieved. Several districts showed remarkable responsiveness to the mobilization effort. For example, Baglung District reportedly doubled the percentage of homes with latrines in response to the mobilization effort.

According to a number of reports, the mobilization was successful on many fronts, and the effort will be repeated. One of the stated weaknesses of the program was lack of funds to enable interested families with insufficient means to construct latrines. For following years, UNICEF has recommended that VDCs receive revolving funds to support the latrine component.

National Immunization Days have been effective in mobilizing communities to achieve impressively high coverage rates. In the first NID in 1996, a key component of the strategy was a district-level effort to involve the political sector and as many government and non-governmental actors as possible. The district health office was used as a base for organizing activities. The elected district development president chaired a high level committee, for which the district health officer acted as secretary. Parallel committees were formed at the village level with members from political groups, teachers, students, and health workers. The mobilization was campaign-style, with a massive IEC support program using radio, television, school rallies, street speeches, skits, songs, posters, and pamphlets.

Although there have been many high-profile media inputs to the NIDS mobilization process, a 1998 report (Routine Immunization and NID Coverage Survey 1998, issued by the Child Health Division) cites FCHVs and other health workers as the principal source of communication and mobilization. On a national level, 49.3% of those surveyed confirmed that they were informed by FCHVs, and 17.4% stated that they were informed by other health workers. While radio was reported as the source of information by 10% of those surveyed nationally, it was a more important source for those living in hill and mountain areas, where 14.2 reported that radio was the primary information source. Nationally, only 1.1% said that a local leader who informed them of the NID. The largest source of information identified by the balance of respondents was "Other," cited by 22%. The small percentage of respondents who were either only partially immunized or not immunized during the NIDs cited as main reasons "the child may get sick" (15.7%) and "the post was too far" (14.8%).

Although the national data reported by the CHD show that the FCHVs and health workers were the primary source of motivation, an in-depth WHO study in the Sunsari district found that nearly half of the respondents cited radio, while only 27% reported that health workers were the primary source. In large-scale national mobilization efforts, there appears to be value in using all possible

channels to achieve high levels of response. The NIDS mobilization process is an extremely expensive and labor-intensive initiative, supported by large staff resources.

The Vitamin A program has used community mobilization as a key component of its strategy. Like the NIDS and Sanitation Week events, the mobilizing activities for Vitamin A are often conducted in a campaign fashion, and are tied to actions to be taken on a given day. Large-scale events of this type appear to be most effective when there is a specific action to be taken at a given time to give focus to the campaign. The mobilization effort relies on both a broad-based media/IEC initiative and the FCHVs, who implement much of the strategy. Particularly in the Terai region, there has been overwhelming community participation in Vitamin A events, with schools, police, and local businesses all mobilized.

The strategy involves extensive use of media, both national and local, for which NTAG develops messages and materials that are broadcast and/or distributed intensively prior to each round of capsule distribution. NTAG has been especially effective in designing innovative promotional and motivational approaches and creating a high level of community ownership of the Vitamin A program. The program has been effective in eliciting the collaboration of district-level health offices and local NGOs to support local activities that are enriched with entertaining features such as magic shows, local theater productions, and parades.

Unlike the extremely expensive NIDs events, the Vitamin A program has sought from the outset to find a sustainable, affordable model for its community mobilization work, drawing on local resources and encouraging local areas to develop their own ways to manage and monitor the community mobilization process. NTAG leadership has been careful to assure that the communities themselves retain ownership of the program. Although NTAG staff have actively guided initial training and program launch in the districts, they have withdrawn backstopping services as early as possible to avoid creating dependence on central management for ongoing program support.

Complementing the successful, high-profile national-scale community mobilization efforts are a range of community mobilization programs that work at the district and local levels to effect health practice change in smaller populations. Many of these have been led and/or stimulated by INGOs, PVOs, and NGOs that work on complex initiatives that employ community mobilization principles. There are a number of these exceptional smaller-scale programs that require high levels of skill and dedication, and provide important lessons.

An illustration of a child health program using community mobilization at the district level is the CARE/Nepal Child Survival Project in the Kanchanpur District in the Far Western Terai. The project has a target population of 53,306 children under five and 66,630 women of reproductive age, many from disadvantaged groups. This USAID/Nepal-funded initiative is supported by CARE/Nepal in collaboration with JSI, and focuses on objectives to increase caregivers' practice of healthy behaviors as well as care-seeking from trained sources when needed. An institutional objective is to develop and strengthen local and community-based institutions and NGOs to support child survival activities on a sustainable basis.

The role of FCHVs is a key element of the strategy, and community support for them has been high as evidenced by a written commitment from the DDC to continue support for the FCHVs beyond the project period. Among the innovative approaches to strengthening FCHV capability has been raising the profile and building solidarity among FCHVs through publishing a directory of all FCHVs, including their addresses. This led to the formation of an association of FCHVs, and was a precursor to a program in which each FCHV was asked to write a letter to one other

FCHV, sharing thoughts and experiences about working with community members and groups. These letters became not only a way of exchanging local experience and building common approaches, but of encouraging many non-literate FCHVs to pursue literacy classes.

The project also conducted extensive social mapping, which allowed FCHVs to identify most of the pregnant women in their areas and to ascertain their antenatal status. Applying an idea from a field visit to a CARE/India program, the project distributed bangles to pregnant women who had antenatal checkups and TT shots. Together FCHVs and project staff solicited the participation of the major local political parties, CBOs, and NGOs, along with Mothers' Groups and youth groups to support the program.

The project elicited active support from many VDCs, some of whom, according to the mid-term evaluation, began to supply drugs, fund FCHV endowments, and sell the blue plastic cups used as aids to correct mixing of ORS. With VDC encouragement, orientation sessions were given to mothers-in-law and husbands, which led to noticeable increases in attendance at ANC/PNC clinics.

Many of the PVOs and INGOs use similar processes of community mobilization applied to the broader goal of stimulating communities to take ownership for the design, implementation, and evaluation of local health plans that match their perceived needs. In the past six years, a GON decentralization policy has apportioned some budgetary resources to VDCs for community health programs. ADRA reported that VDCs in their service area requested advice on how best to use those resources. ADRA's response was to develop a five-day training program in local planning, including social mapping and research and analysis techniques as part of a community planning process that led to detailed plans for addressing problems. Other agencies, such as the British Nepal Medical Trust, also developed what they describe as a "Participatory Health Analysis and Planning Process," using micro-level assessments. These involve problem identification and priority setting in cooperation with communities, and leading to specific plans. Planning is followed by establishing baselines and timelines, which are then reviewed at the midpoint as a basis for replanning. PVOs report that such processes have led to many successful initiatives for which communities feel ownership, and for which they hold themselves and the health services accountable.

Although the skills required to conduct such exercises are not always available without the support of an outside agency, models like this are growing at the local level and hold considerable promise for fulfilling the promise of community mobilization. Perhaps the most remarkable outcome of these efforts—apart from the results generated—has been the decision by GON to incorporate this type of local mobilization and planning as a component of the 10th Five-Year Plan.

D. Information Systems

D.1 Program Evolution

Nepal's child health programs utilize information from several routine systems, as well as active field-level monitoring, surveys and other studies. Although collectively these sources provide extensive data, they are not integrated and are, for the most part, poorly linked. Historically, from the country's early days of development in the 1950s until roughly 1990, the impetus for gathering and using information came from individual vertical projects such as the National Malaria Eradication Organization (NMEO), the Expanded Program on Immunization (EPI), and a series of family planning projects. Since staffing and infrastructure for health services were limited, both in capacity and geographical coverage, routine reporting of management or clinical data on a national scale would not have been feasible for most of that 40-year period. Instead, systems were developed for highly specific purposes, in externally funded projects that were often time-bound and restricted in scope.

Although some of these projects invested considerable resources and effort in their information systems and utilized data produced for their own purposes, there were barriers to sharing that data. Practical barriers existed, of course, given the limitations of technology: carbon paper and mimeograph machines were state-of-the-art for reproduction and, even in the 1980s, data was typically compiled in large, bound ledgers. Before the recent advent of personal computers with spreadsheet and database software, the Internet, photocopiers, inexpensive printing, and storage media other than paper, any attempt to manage or disseminate information was an ordeal.

Territorial barriers to cooperation and information sharing have also been an important factor. The value of knowledge in gaining and maintaining power is well recognized in Nepal, as in other parts of the world. Withholding information from people outside one's immediate sphere also has its value, or at least did in the past—this was the case for individuals, and for institutions as well. The staff of vertical projects often worked hard to achieve project goals, but they also worked to preserve their jobs as long as possible. The information they shared might be used against them, either to question their performance or to reduce dependency on their expertise. Donors, each with their own agendas and funding realities, also tended to maintain separateness of projects and initiatives and, with some exceptions, did not go out of their way to collaborate or promote a free flow of information. In short, until the 1990s, the incentives for sharing information were often outweighed by disincentives.

Since development of systems using routinely reported data made slow progress, GON and other partners depended primarily on surveys and other one-time studies to gain the information they needed. These efforts, although often costly and time-consuming, provided data of acceptable quality and of specific relevance to program managers. For a given point or period of time, surveys could represent the situation nationally and within households. Since no system was in place that could offer as much, the incentive to conduct one more survey was always strong. With all they had invested in this approach, donors were not eager to commit additional funds to build systems that would take years to become viable and might then fail, even to provide dependable data of the most desirable kind.

Around 1990, several trends began to converge and the pace of change accelerated, greatly affecting the management, use, and dissemination of information. Among these trends, the most significant included:

- ***Democracy***: The new Constitution introduced multi-party democracy, and Nepal's first popularly elected government brought reform and restructuring, affecting health services at all levels, as well as local governance. The creation of Village Development Committees (VDCs) and District Development Committees (DDCs) throughout Nepal added to the growing demand for information, and helped foster its use for decision-making by people directly affected, or at least their representatives. Greater emphasis on human rights, women's empowerment, and the role of NGOs also helped create a new climate in which information was increasingly perceived as a common resource that gained value from dissemination.

- ***Integration:*** Reorganization within the MOH, with establishment of the DoHS and dismantling of formerly vertical programs, led to an increased sense of common interest and willingness to share information, especially for developing newly-introduced annual workplans for national programs, as well as for the five-year multi-sectoral development plans.

- ***Decentralization***: The present National Health Policy, adopted in 1991, provided a stronger mandate for both decentralization and integration. Health services were to be administered through Regional Directorates in each of the five development regions, and through District Health Officers and their respective offices in all 75 districts. These changes helped provide the structure, and increased the need, for routine reporting of service delivery data and other health information.

- ***Donor Coordination:*** Mechanisms for coordination and communication among donors have improved, although the process has been gradual. Reforms and reorganization that began in the early 1990s, along with the new funding requests they generated, gave donors greater incentive to seek information across the health sector. Information systems now in place (and described below) were established in part because of donors' increasingly felt need to know. Being asked to take more active leadership in donor coordination gave GON a similar need. All parties, GON and donors alike, have insisted on greater transparency in the utilization of resources and results achieved. Further investment in information systems has been one favorable outcome of this trend.

- ***Information Technology:*** The means of transmitting, compiling, storing, and analyzing data, and of disseminating the information generated, have dramatically improved, beginning from the 1980s and accelerating in the past decade. In particular, the availability and reduced cost of photocopying and printing; personal computers, with capacity for electronic storage as well as management and analysis of data; and more efficient communications, including phone, fax and (more recently) the Internet have driven the pace of information sharing and systems development.

Although these trends helped create an enabling environment for change, including the development of information systems, the territorial legacy still prevailed. Separate initiatives led to the creation of several distinctly different systems. These include:

- ***Health Management Information System (HMIS):*** The HMIS provides for routine monthly reporting of service delivery data from sub-health posts to health posts, and from the health posts and other facilities to the district level, in all 75 districts. District Health Officers and their staff consolidate reports from all health facilities and submit their summaries to an HMIS section within the Planning and Foreign Aid Division (PFAD), DoHS, sending copies to their respective Regional Health Directorates. HMIS data is further summarized in Annual

Reports, published by the DoHS toward the end of each fiscal year (July), that report on the previous year, a full 12-month lag. The system also includes an annual review process, with meetings held at facility, district, and regional levels (from August 1 onward) and culminating in a national-level review meeting in late September or early October.

The HMIS was established, and has been maintained, with financial and technical assistance primarily from UNFPA. GTZ, DFID, WHO, and USAID have provided some support as well. An initial workshop in December 1993 led to design of the system and development of related tools and training materials, which were then field-tested between February and June 1995. Implementation began in November of that year with the printing and distribution of forms, training of some 3,000 managers and 12,000 service providers, and orientation for 60,000 volunteers. HMIS tools include 30 registers (numbered 1–30); four reporting forms (31–34) for use by sub-health posts, health posts and primary health centers; and three reporting forms for hospitals (35–37). The system has been drastically streamlined from earlier days when vertical projects were at their peak. Prior to 1993, a total of 113 recording and reporting forms were being completed each month, contributing to an excessive paperwork burden for staff at health facility and district levels.[32]

Strengths of the system include (a) its national scale, with monthly reporting from government health facilities at all levels throughout the country; (b) its introduction of a comprehensive set of standard service delivery indicators for measuring performance; (c) its progressive annual review process, beginning at facility level and continuing at district, regional and national levels; and (d) its role in enhancing the capacity of DoHS staff at each level, helping them develop the skills and most of all the *mindset* for performance monitoring. This kind of comprehensive, phased review process has been institutionalized, however, only within the Ministry of Health—no other GON ministry or agency has attempted to assess performance on an annual basis, or with such wide participation of staff.[33]

Despite these positive features, several crucial weaknesses have thus far kept the HMIS from realizing its full potential. These include (a) the prolonged time lag between reporting of data from health facilities and its availability for decision-making at any level; (b) inadequacy of feedback to, and first-hand supervision of, staff at district and facility level, contributing to poor quality of reported data—perceived by managers as unreliable, incomplete and late to arrive; as well as (c) widespread failure to utilize HMIS data for program management at any level of the health system, despite the progress mentioned above and due, in part, to limitations noted here.[34]

- ***Logistics Management Information System (LMIS):*** As noted in the Logistics Management section of this report, the LMIS provides data on stocks of essential commodities at each level of the health system, based on quarterly reports from individual health facilities, and from district, regional and central stores. These reports provide managers with updates of stock on hand, losses and adjustments, and quantities dispensed to clients. An LMIS Unit at national level, located within LMD, is responsible for tabulating data from the reports and creating summaries for program managers. An assessment conducted in 2000 found the

[32] Centre for Development and Management Studies (CDMS): *Review and Improvement of Health Management Information System (HMIS),* September 2001, p.6.
[33] Ibid., p. 7.
[34] Centre for Development and Management Studies (CDMS): *Review and Improvement of Health Management Information System (HMIS),* September 2001, p. 7-10.

LMIS to be "functional, with sound reporting and record systems countrywide."[35] The proportion of health facilities submitting LMIS forms to district level each month has been maintained above 80% for the past three years, up from a baseline of 36% in 1994.[36] At the same time, shortcomings are evident. The assessment team noted that "within…record systems inaccuracies and errors were common, and…reports were not being used for decision-making."[37] Although calls for the integration of LMIS with HMIS have regularly been heard, the idea seems unrealistic, since the systems are quite different in purpose and design. Closer linkage might be feasible, and has been a stated intention of DoHS in recent years, but attempting to combine them could jeopardize the already-demonstrated usefulness of LMIS, and exacerbate delays in HMIS reporting, as well.

- ***Human Resource Development Information System (HuRDIS):*** The HuRDIS database is managed by the Health Institution and Manpower Development Division (HIMD), DoHS. First introduced in 1997 with the support of GTZ and other donors, HuRDIS was designed to compile and maintain records on the identity, qualifications, performance, and current status of DoHS staff in all sanctioned posts of the health service delivery system. This information, if it were accurate and accessible to managers for purposes of planning and other decision-making, could be valuable. However, because of delays in reporting and updating the database, exacerbated by chronic problems of frequent transfer of staff and extended absences from post, the dependability of HuRDIS data has been limited and its utilization poor.[38] Improved linkage of HuRDIS with HMIS data has also been sought, but these links remain tenuous to date.[39]

- ***Finance:*** The finance section of DoHS maintains a system for tracking detailed "regular" and "development" budgets for all divisions, sections, and programs. Budget allocation, distribution, release, and expenditure is monitored and reported on an annual basis, as well as the financial status of development programs at central and district levels, with updates to donor agencies on the proportion of funds expended.[40]

- ***Early Warning and Reporting System (EWARS):*** EWARS is a 24-site hospital-based sentinel surveillance system, developed under the Epidemiology and Disease Control Division (EDCD), DoHS, with support from the USAID-funded Environmental Health Project (EHP). Designed to complement the HMIS, providing more timely reporting and prompt detection of potential outbreaks, EWARS tracks the occurrence of three priority vector-borne diseases (malaria, Japanese encephalitis, and kala-azar) as well as neonatal tetanus, measles, and acute flaccid paralysis (AFP) to detect wild poliovirus cases in the quest for eradication.

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[35] Family Planning and Logistics Management (FPLM) Project: *Nepal: Contraceptive and Drugs Logistics System – Review of Accomplishments and Lessons Learned (1993-2000)*, February 2000, p. 9.
[36] John Snow, Inc.: *Project Completion Report – Nepal Logistics and Child Health Services Support Project*, July 2002, p. 3.
[37] John Snow, Inc.: *Nepal Integrated Health Logistics, 2001 Annual Report, Logistics & Child Health Services Support Project*, March 2002, p. 22; Ibid, p. 18.
[38] DoHS, GON/MOH: *Annual Report–Department of Health Services, 2057/58 (2000/2001)*, pp. 174, 183.
[39] Ibid., pp. 242-244.
[40] DoHS, GON/MOH: *Annual Report–Department of Health Services, 2057/58 (2000/2001)*, pp. 233-35.

First established in 1995 with eight sites, the system was expanded in 1998 to include 24 district and zonal hospitals in Terai districts across all five regions of Nepal. Cases are reported by fax, on a weekly basis, to the Vector-Borne Disease Research and Training Center (VBDRTC) in Hetauda. The data is compiled and sent to EDCD and a weekly bulletin is issued from there, with a summary of all cases reported and indicators that show completeness and timeliness of reporting. EWARS provides for immediate reporting of Japanese encephalitis and AFP, as well. Further involvement and strengthening of diagnostic laboratories, and the organization of Rapid Response Teams (RRTs) for the control of outbreaks in each of the districts with reporting sites, have also been promoted through development of EWARS.

An assessment of EWARS, carried out in April 2001, found the weekly reporting process to be timely, with reasonable accuracy and completeness of data, although malaria was considered to be under-reported due to poor sensitivity of laboratory diagnosis and the inherent limitations of a sentinel system that excludes cases unless they are detected in one of the participating hospitals. Recommendations for enhancing the effectiveness of EWARS included (a) improving the flow of information through the system; (b) taking steps to strengthen ownership and coordination of the system at both national and district levels; and (c) taking consistent follow-up action on the information collected, requiring greater involvement of District Public Health Officers and other members of the Rapid Response Teams.[41]

- ***Acute Flaccid Paralysis (AFP) Surveillance:*** The eradication of polio requires a high level of sensitivity in detecting cases of AFP and wild poliovirus wherever and whenever they occur. In 1998, recognizing that neither HMIS nor EWARS data would be adequate for this purpose, the WHO polio eradication unit, in collaboration with DoHS, began developing an extensive system for AFP surveillance, with a total of 260 sites in all districts of the country actively reporting on a weekly basis. The system depends on proactive technical and operational support provided by 15 Regional Surveillance Officers (RSOs), visiting all districts regularly but now focused mainly on districts of the Terai region, located adjacent to the Indian border and at highest risk for continued transmission of wild poliovirus. Financial and technical support for developing and maintaining the system has come from a wide partnership that has included USAID, CDC, NORAD, DFID, the Netherlands, UN Foundation and Rotary International, as well as WHO.

  With sufficient resources and intensive effort, international performance standards for AFP surveillance were achieved in the first year of operation, and have been maintained since that time. The Joint International & National Review of the polio eradication initiative in Nepal, conducted in April 2001, observed that the non-polio AFP rate had consistently exceeded the benchmark of 1 case per 100,000 children < 15 years of age, reaching 1.93 in 2000. Over the same time period, the collection rate for adequate stool specimens had risen from 40% to nearly 80%. RSOs had investigated and completed 60-day follow up on 95% of the 211 AFP cases reported.[42] By June 2002, a total of six wild poliovirus cases had been virologically confirmed, two in 1999 (Type 1) and four in 2000 (Type 3).[43]

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[41] Mark Weeks/Environmental Health Project: *Improving Vector-Borne Disease Surveillance, Nepal: Early Warning and Reporting System (EWARS), April 15-May 20, 2001, pp.7, 25-27.*

[42, 13] WHO/South East Asian Regional Office (SEARO): *Joint International & National Review of the Polio Eradication Initiative in Nepal, 16-27 April 2001*, pp.5-8.

[43] WHO/SEARO: *Polio Surveillance Update – June 2000.*

Along with these achievements, the review team also found some deficiencies. These included inadequate understanding of AFP and the need for prompt reporting of cases at some sites, partly due to transfer of staff previously trained, as well as a lack of clarity with regard to roles and procedures that also led to delays and omissions. They noted that AFP was seldom included in monthly HMIS reporting, and although EWARS sentinel sites did include AFP in their routine weekly reports, these reports were not consistently sent to the RSOs. Although national targets for surveillance were being met, performance among the five regions was variable, and several districts had yet to report any AFP cases. Data was not always being used to improve reporting, or to guide immunization activities in the areas of highest risk for wild virus transmission, and linkages to routine immunization were also found to be weak. Acting on recommendations of the review team, WHO and DoHS have since taken steps to correct these problems.

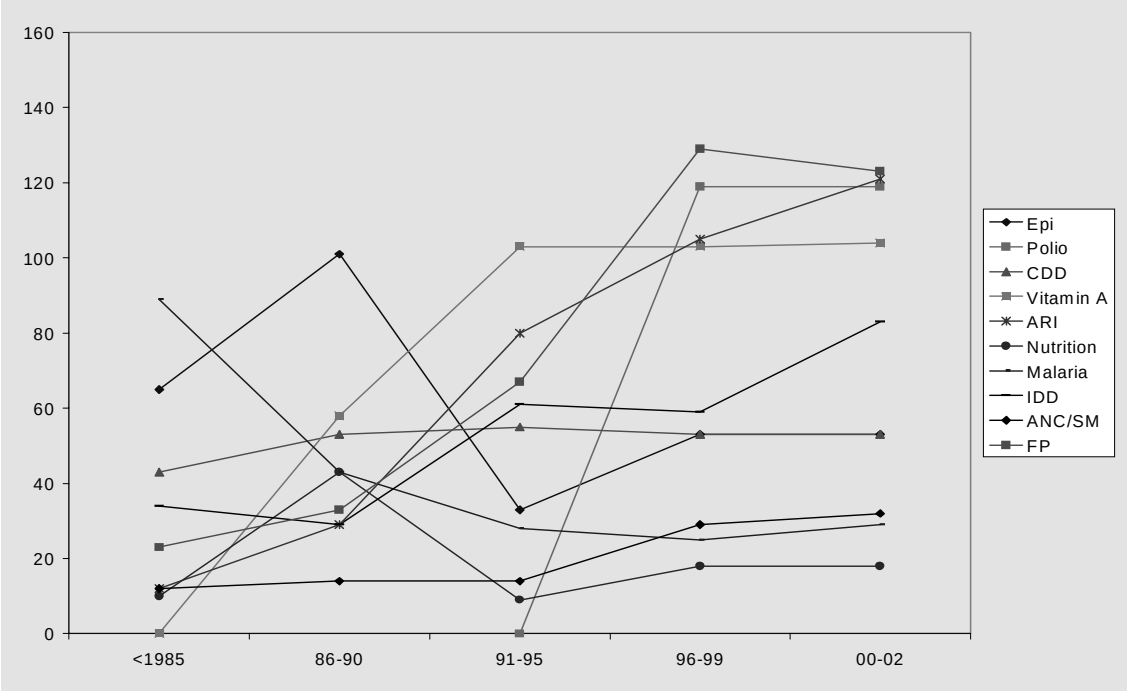
Potential Impact: Although the systems described above are national in scope, each having contributed in some ways to better management of child health programs, their full potential is not yet realized. The greatest direct benefit—and potential for impact—–must be attributed to the LMIS, which stands out as a crucial component of improved logistics management, leading to greater availability of essential commodities, which has been a key factor in the results each of these programs has achieved. The importance of routine *monitoring*, described elsewhere in this report, must also be emphasized here. Regular contact with the staff of health facilities at each level, with volunteers and other members of the community, provides management information that, given the limitations of systems discussed above, can be obtained no other way. The value of these monitoring approaches must be recognized and preserved. At the same time, uniformly higher standards and closer linkage among the various systems and sources of data must also be sought.

IV. Systems Analysis

Overall Program Systems and Changes over Time

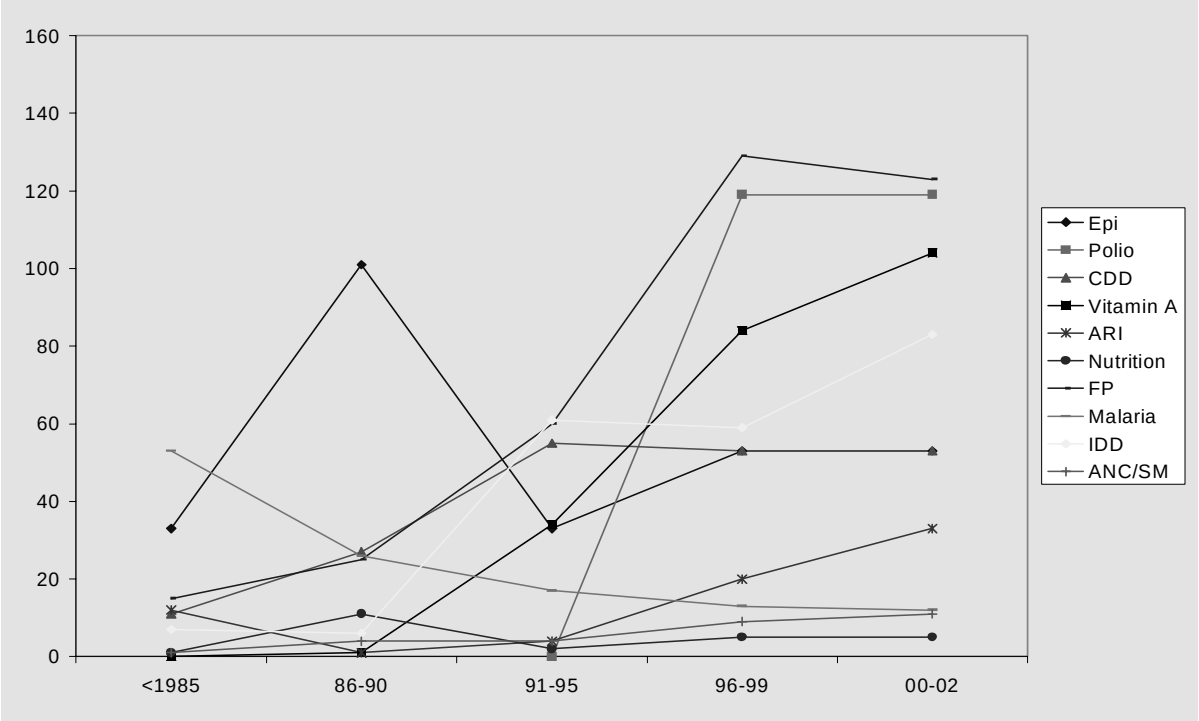
The graphs below display the overall scores (weighted and unweighted) for all six subsystems taken together for each health program across time periods. Subsystems include: Planning/Budgeting, Training, Supervision, Routine Data Management, Specialized Data Monitoring, and Logistics.

Figure 41. Unweighted System Scores



Source: Nepal Child Survival Case Study Team, 2002–2003

Figure 42. Weighted System Scores



Source: Nepal Child Survival Case Study Team, 2002–2003

Malaria: The malaria program had relatively strong systems overall early on in the history of Nepal's health programs, but then experienced a rapid decline from which it has never recovered This reflects the early push for eradication based on vertical programming, vector control, and case-finding in endemic areas, followed by withdrawal of global support and shift of national priorities to FP and other child health interventions. The shift in priorities was in part due to the success in reduction in malaria prevalence, even in the absence of eradication. Weighted scores follow virtually the same pattern because malaria was implemented for all endemic areas in Nepal from the outset.

EPI: Before 1985, the EPI program started out with systems that were less strong than malaria but stronger than FP, the other big vertical program. Systems strengthened rapidly and by 1990 were stronger relative to all other programs. This was followed by a precipitous drop in strength in the next five years, followed by slow regrowth. The pattern in the weighted curve is similar because EPI was phased in relatively rapidly to national scale in the 1986-1990 time period. The rapid growth of systems was vertical, and attributed to the drive for UCI accompanied by many resources. Major new systems of cold chain, vaccine distribution, associated supplies, training, and supervision were instituted and expanded to reach very remote areas—on occasion, extraordinary means such as helicopters were used. The shift of systems strength post-1990 was recognized in international reviews and was attributed to a dramatic reduction in experienced staff due to civil service rules, declining commitment to immunization once UCI had been reached, and the restructuring of EPI as part of integration into the PHD. While systems have improved in the latter two time periods, they have not returned to levels observed in 1990. Major systems deficiencies, such as in cold chain and supervision, are still being documented.

CDD: The strength of CDD program systems have remained virtually the same from the initiation of the program to today, regardless of level of coverage. The interventions for CDD (recognition and treatment of dehydration with home fluids and ORS; continued feeding) have not changed over the intervening years. Although CDD has been integrated first into the PHD, then into the CHD, and finally with IMCI and CB-IMCI, this has not seemed to change system attributes. This may be in part due to an inherent limit to caregiver use of ORS for the common episodes of diarrhea children experience in Nepal.

IDD: The IDD program systems started out somewhat weak but improved over the five time periods. When system scores were weighted, this improvement is relatively larger. In part this reflects the successful move from targeted injections/capsule distribution to salt iodization at national scale, and possibly the fact that systems requirements are simpler when an intervention is "piggybacked" on a successful business (as compared to earlier efforts fully within the health system to provide injections or pills under EPI-related strategies).

FP: The Family Planning program systems were less strong than other core child health programs in the early time periods. However, they have been steadily strengthened and expanded to national coverage and are now of similar strength to the strongest child health programs. This may reflect relatively strong and continuous donor support.

ARI/IMCI: ARI/IMCI systems were relatively weak at the outset, but have strengthened in each time period. This becomes more evident after the time period in which the current community-based intervention was demonstrated by local research (1986–1990). When the coverage-weighting factor is applied, ARI is not as strong as other national programs because it has been extended to less than half the districts in Nepal. What is of interest is the steady growth in systems strength, which happened without strong global advocacy.

Vitamin A: Prior to 1990, the high dose supplementation of vitamin A intervention was experimental, so a program had not yet been defined and implemented. In the early 1990s, the national program was begun and systems scores moved rapidly to high levels, faster than all other interventions except Polio Eradication. The weighted scores show a less rapid strengthening because the program was slowly phased in deliberately, often in contrast to donor preferences.

Polio Eradication: PE was initiated in 1993, and achieved strong system scores almost immediately. Since it has been a nationwide program from the beginning, these scores are the highest for all programs, whether weighted or unweighted. The strength of these systems may be related to an unequivocal goal, a globally well-tested approach that dictates system design, and the high level of inputs provided to ensure system quality and to support NIDs.

Nutrition: In general, nutrition programs have never had strong systems in Nepal. In 1986–1990 when the JNSP was implemented, some systems improved, but none of them lasted.

Maternal Health/SM: In early time periods, care for pregnant women, delivery, and post partum was not widely available, and was considered part of "care as usual" through the health system. Specific systems were not really developed, and as a consequence the lack of strength reflects general health system problems. This was followed by a TBA training program that reached more people over time, but without a complete systems framework. After the introduction of the SM approach, systems were deliberately implemented and the scores reflect improvement. However, weighted scores are lower because of the relatively low coverage of districts.

Overall Observations

The period before 1991 was characterized by the early development of systems. Most programs increased strength steadily, but slowly. Two exceptions were the EPI and Malaria Eradication programs, both of which were driven by high levels of donor interest and resources in short periods of time. In Nepal, both were vertical programs that had strong leadership and cadres of well-trained and committed (but extra-budgetary) staff. Subsystems were also vertical and were developed rapidly to serve the specific needs of the program. For example, EPI implemented a system of steam sterilization of reusable plastic syringes that could be used for immunization but not for any injection need in HPs. In both programs, vehicles were to be used for project business only and training was provided in packaged courses with no other topics. Perhaps most importantly, the programs were responsible for achieving very clear, globally established goals, and there were no incentives to respond to the broader primary health care needs of the population.

Both the Malaria Program and EPI achieved remarkable results in a relatively short period of time. Vector control efforts and aggressive case detection for malaria opened up a large part of arable Nepal to human habitation, and 80% of children under one year were reached with DPT3—all with limited physical infrastructure such as roads and electricity. However, once goals were reached (UCI) or were designated unreachable (eradication), external resources declined rapidly and vertical subsystems collapsed. Perhaps the most damaging blow was the loss of trained manpower (human capacity), which in the case of EPI, left the system entirely.

The Malaria Program was "integrated" or moved into ICHSDP, while EPI was "integrated" or moved into the PHD. Although this time period was characterized globally by a trend toward integration of services, the immediate impetus to integration appears to have been the decline in external interest and financing. The subsystems of these programs have never recovered the same strength that they once enjoyed, and seem to bear out the observation that when rapidly built by large amounts of resources, parallel and vertical subsystems are not sustainable. The question now is whether Polio Eradication, which is being implemented with an approach very similar to EPI/UCI, will follow the same long-term pattern. While PE proponents have said that once eradication is achieved the program won't be required, many of the subsystems such as disease surveillance are intended to continue.

After 1991, most program systems appear to have stabilized. There are no new major declines, and some programs such as Vitamin A strengthen more rapidly. The programs that have the strongest combination of subsystems tend to be less behaviorally complex. Vitamin A and Polio Eradication require intermittent, limited contacts with children in communities, while IDD is delivered through a regularly acquired product (salt) and has little need to use the health services delivery system. The one exception is the Family Planning program, for which systems have improved since 1991 more rapidly than other behaviorally complex child health interventions. The difference for Family Planning may reflect the longevity of the program, continued investment in its development, and an earlier transition to an integrated DoHS.

In 1991, democracy was established and the implementation of the new MOH policy and structure was initiated; it was completed by 1993. Since then, the one structural change at operational levels was to separate the FHD and CHD (1994). Otherwise, the DoHS has moved forward with largely integrated systems to support the delivery of primary health care services. While NVAP has some elements of verticality (supplementation days; capsule distribution), deliberate efforts to use NVAP subsystems for other child health programs have nevertheless

been made. In addition, NVAP is integrated into the service delivery of the FCHV, and in fact appears to have empowered this cadre of workers to take on new responsibilities.

The one remaining vertical program is Polio Eradication and, as noted earlier, the long-term health of its subsystems is not yet known. One explanation for stabilization is that the DoHS infrastructure has also stabilized, and that subsystems have progressed through a threshold point of integration and maturity that allows fluctuations in inputs to be weathered and improvement to march steadily forward. It is also possible that connections between subsystems and shared subsystems provide a safety net for all programs. It is interesting to note that stabilization has occurred approximately 20 years after the promulgation of the Basic Minimum Needs policy that first identified a core package of priority family and child health programs.

A. Planning and Budgeting

As noted earlier, planning and budgeting are done at several levels within the MOH. This section describes the strength of planning and budgeting systems at program or operational levels. Government operational plans are ultimately guided or bounded by policies that have changed over the past two decades. The most influential of these policies have been Basic Minimum Needs and Health Sector Reform. Plans are also strongly influenced by official agreements between bilateral and multilateral organizations and the government, primarily because of the high proportion of external financing in the health sector. Many of the documents that govern plans and investments in Nepal cover different time periods, and in the case of external financing have usually been for five years or less. Even then, externally financed work plans at the program level were negotiated and could change year by year.

Government long-term and strategic health plans (LTHPs) were prepared prospectively for 20-year time periods. A series of five-year health plans were then developed by the MOH and the NPC on the basis of the 20-year plans, and more recently have been submitted for approval to the National Development Council. In the 1980s and early 1990s, plans were made on the basis of numerical targets set at the central level by the National Planning Commission for each program and disaggregated by district. The targets were applied zealously, regardless of the availability or timing of inputs, or the accuracy of population estimates on which they were calculated. This caused difficulties with the quality of data and reporting (such as for EPI coverage), and provided disincentives for reporting and solving problems. In some programs such as family planning, incentive payments further distorted performance. While decentralization has been a stated policy for some years, planning and budgeting remain centralized. Programs are usually planned in formulaic ways and are expected to be implemented the same way everywhere, despite wide ecological and cultural variation.

The current process for annual planning begins in November of each year when the NPC circulates guidelines and budget ceilings to each sector. The MOH translates these guidelines into policies or issues to be addressed and the DoHS sets specific targets for program and district performance. In December, the DoHS requests the regions to ask DDCs for their plans. By the end of January the DDCs and DHOs submit plans to the RHD, which submits them to the MOH. The MOH reviews and revises plans in February-March, and negotiates budgets with the MOF for submissions in April. The NPC reviews and finalizes the plans so that the MOF can present all sectors to the Parliament in June. Annual plans are implemented starting in July.

The level of consultation with technical assistance and donors for plan and budget preparation varies by program. Sometimes plans are done in the context of longer-term plans (as with Safe Motherhood), and sometimes they involve coordination with multiple donors (CB-IMCI;

FCHVs). Plans are put forward with budget estimates to the MOH, the National Planning Commission, and the MOF. These budgets eventually become part of the Red Book or GON budget, which is a relatively inflexible document that specifies line items, amounts, and central and district allocations.

The decisions made for final Red Book allocations are usually not made by people with the experience of the DoHS, and programs have sometimes suffered from inadequate or misplaced allocations. Finally, rarely do programs and districts actually receive full Red Book allocations—recently expenditures have averaged 70% of budgeted amounts. This situation is exacerbated by perennial system difficulties with the release of funds. Currently, at the beginning of the fiscal year (July), one-sixth of an amount equal to the previous year's expenditures is released to the districts. Later releases depend on the processing of accounts from districts to the center, usually subject to long delays. As a consequence, program planners rarely plan trainings for earlier than January-February, even though this tends to push activities into busy planting seasons, because they cannot depend on receiving training allowances in time. The release, spending, and reimbursement problems continue on to the central level and the donors, such that funds have had to be returned or were lost to the country. Ineffective and inefficient financial systems strongly influence absorptive capacity and the subsequent choices that are made for programs.

Given the constraints of MOH implementation and GON finance systems, donors have taken different approaches to funding programs through the Red Book or outside the Red Book. During the era of projects, and until civil service reform in the early 1990s, there were two categories of staff that could be funded through the Red Book. One cadre was permanent government workers; another was classified temporary development workers. The FP/MCH Project and the EPI Project were largely staffed by development workers paid for by donor funds. The scope and scale of implementation for projects was greatly increased by the ability to add staff. Since reform and the release of all development workers, other mechanisms have been used to "add staff," including NGO partnerships such as with NTAG and NVAP; WHO support of separate surveillance officers for PE; and donor hire of Nepali technical staff who sit within the DoHS and work as partners to develop plans and implement programs, such as with UNFPA or NFHP.

The channeling of support to government programs, either directly through the Red Book or otherwise, is governed by donor mandate and approach. As a matter of principle, some donors such as NORAD, provide resources directly to the government and the Red Book to establish local ownership and decision-making. Other donors, such as USAID, provide some funds through the Red Book but then engage in supplementary planning and budgeting, where funds are handled through third parties. For some years, depending on the strength of technical staff within each health program, these work plans were written by long-term technical assistants. In other years, operational staff took more ownership and developed the plans. In practice, as programs waxed and waned in priority, ownership and activity level waxed and waned with it. This depended heavily on the interests and commitment of DoHS leadership.

While there is some level of coordination between the various plans and budgets for each program, the levels and mechanisms vary. In some programs separate plans and budgets are held for various investors, including the government, but they are coordinated through committees or working groups. Some groups are able to effectively balance needs with donor mandates and resource levels (Contraceptive Security Group; Safe Motherhood; CB-IMCI). The other successful planning mechanism that has worked without the benefit of a group is NVAP. UNICEF (capsules), USAID (training; supervision; BCC), and AusAID (training; supervision) have effectively coordinated funding for critical resource inputs. This success appears to be driven by the stability and success of the intervention, as well as NVAP leadership that actively

targets stakeholders in a more informal communication process. In other programs where there are differences in desired approach, plans are developed more separately and budget negotiations appear more difficult (FCHVs). Here, donors may go their own way and use the operational planning and budgeting process to modify MOH decisions. In the case of FCHVs, the aim is to increase "sustainability," which often means increased government support and less donor support.

Before 1991 and the shift from projects to divisions within the DoHS, planning was project-specific and usually driven by the requirements of the lead donor. For example, from 1986–1990, EPI was funded primarily by UNICEF, and plans were written in consultation with those advisors, while before 1985, the FP/MCH Project was largely funded and planned under USAID requirements. The content and funding of plans were the subject of negotiation between government and donors, and the technical strength, commitment, and beliefs of leadership on both sides could result in varying objectives and strategies—although global initiatives often took precedence. The rules and regulations of donors were different and affected the plans and preferences of partners. For example, the World Bank had been one of the few donors to provide credits that could be used for construction, and UNICEF had well-established, low-price systems for procurement of vaccine. In some cases, however, project chiefs preferred to obtain funding from multilateral sources rather than USAID, because of reimbursable financing that caused lag time in resource availability at local levels.

After 1991, planning and budgeting were still done by program area but in a more integrated way. CDD and ARI/IMCI are both within the CHD, and while separate plans may exist, it the same divisional staff is involved. The FHD has both Family Planning and Safe Motherhood programs, and while each has their own core leader, there is more interaction than when FP/MCH, CDD, and EPI were projects. A recent development that has changed the approach taken to EPI involves the demands required for GAVI/The Global Fund resources for immunization systems' strengthening and introduction of new vaccines. The Global Fund conditions for funding include the production of and signature on a one multi-year action plan by all interested parties, as well as a financial sustainability strategy for immunization for Nepal as a whole. The process for developing this plan through the ICC forced a level of coordination that had not been achieved for EPI since UCI. The long-term effects on MOH ownership and effective programming remain to be seen, and do not appear to be reflected yet in planning and budgeting scores.

Using the systems scoring matrix to assess the strength of planning and budgeting by intervention or program area, there appears to be a relationship with the maturity of the program. The criteria applied to planning and budgeting included participation at all levels; plan quality (SMART objectives, reflects needs); and the feasibility of plan strategies, given prevailing conditions. When looked at by time period, in the late 1980s EPI, Malaria, Family Planning, and CDD had the strongest planning and budgeting systems. EPI and malaria drop out of the strongest group and continue low into the present. In the next time period, CDD drops out and remains low. The strong programs were joined by IDD and Vitamin A in the early 1990s; and then by Polio Eradication. It appears that planning and budgeting have been strong systems early in the life of programs when investment is high, activities are beginning, and when accompanied by higher donor interest. This may reflect the requirements of high initial investments, and may also be linked to the drive to achieve specific objectives and results. This is supported by the fact that the differences in scores are mainly accounted for by the second two criteria and not the first.

Participation in planning at district and local levels has been weak in Nepal, and only Family Planning, Vitamin A, IDD, and—on a small scale—ARI/IMCI have at times had higher scores. By contrast, the existence of SMART objectives tied to needs and doability fluctuate with the

evolution and perhaps the preeminence of the program. The one program that has behaved more consistently for planning and budgeting is Family Planning, which remains strong throughout all time periods. This may be because it has been in existence longer, because it has been more heavily target and objective driven, or because the nature of early programs in VSC demanded higher planning capability, which is now more ingrained for all approaches.

The process of planning provides the opportunity to set and communicate common objectives and put forth strategies for achieving those objectives. In practice, the MOH and other government bodies have invested heavily in longer-term health plans that have evolved according to burden-of-disease priorities and public expenditure frameworks. Just after interviews done for this study, the MOH embarked on a new process of strategic planning at a level intermediate to the five-year plans and work plans. This is intended to provide the framework for coordinating and integrating operational plans. While the change may build ownership and leadership of program development within the government, it is not clear yet how it will address the issue of varying donor priorities and coordination. Nor is it clear that it will change the current fragmented system tied to funding.

Budgeting is a thornier problem, given the intractable problems with government financial systems. It seems clear that programs in Nepal have succeeded with a number of parallel and extra-Red Book systems, usually supported by donors. What is not clear from this review is the long-term stability of program financing and whether budgeting is a stable and rational process tied to plans.

B. Logistics Management

B.1 Program Evolution

Efficient procurement, appropriate storage, and timely distribution of essential commodities are critical functions for health and family planning programs. Summarized as "logistics management," these functions must be operational and well integrated to ensure that equipment and supplies are available for use at health facilities, to be ready as needed for delivery of services. Logistics management depends, above all, on the ability to track commodities as they pass through storage and distribution systems to reach service delivery points. For this purpose, a well-designed logistics management information system (LMIS) is a critical component.

In Nepal, over decades and for understandable reasons, logistics management was among the weakest links of the health service delivery chain. Despite its relatively small area, Nepal has always presented extreme logistics challenges. Rugged mountain terrain; floods and landslides during the monsoon season; inadequate transport infrastructure, with a number of districts still roadless; and impaired communication have all contributed to the isolation and supply difficulties of Nepal's hinterland.

These constraints, in combination with bureaucratic inefficiency, limited motivation, and lack of management capacity, contributed to the chronic failure of MOH to supply adequate quantities of essential commodities when and where needed. Health posts and other peripheral facilities often received their annual allocation of medicine and supplies months late, which meant running out of essential items such as antibiotics within three months and facing empty shelves the rest of the year. Failure to maintain or repair equipment or to store supplies appropriately, often led to pre-mature deterioration. Stores at central, regional, and district levels were burdened with an accumulation of obsolete equipment, outdated medicines, and other damaged or useless commodities.

Vertical programs such as the NMEO, EPI, and a succession of projects providing family planning services with some maternal and child health care, succeeded in overcoming many of the constraints and did produce positive results. The existence and, for some years, dominance of these programs was partly justified by logistic needs—with dedicated staff, focused effort, and intensive use of resources, obstacles could be overcome, enabling priority services to be delivered on a wide scale. Vertical programs reached a crescendo of activity in the late 1980s. By the early 1990s, they were being integrated as prescribed by the new National Health Policy (1991). And although vertical programs were clearly not sustainable and reform was overdue, the process of integration proved costly in its own way: Information and logistics systems that performed quite well for specific purposes were dismantled or abandoned. Qualified staff were reassigned or dismissed, and their hard-won experience was, in many cases, forgotten or lost.

In 1993, however, the Ministry of Health began to take decisive steps to strengthen and rationalize logistics management: The Logistics Management Division (LMD) was established to take responsibility for selection, procurement, distribution, and monitoring of commodities used by health facilities throughout Nepal. LMD, with technical assistance from JSI and other partners, prepared a Logistics System Improvement Plan (LSIP) in order to "institutionalize a sustainable, effective and efficient health logistics system."[44] This called for steadily phased implementation, with design and field-testing of new policies and procedures followed by preparation of training materials and reference manuals, training of trainers, and intensive training in basic logistics and Inventory Control Procedures (ICP), conducted region by region. The initial training covered all health and family planning commodities, introducing an indent or "pull" system for essential program commodities, augmenting annual allotments from an existing "push" system when shortfalls were identified. Vaccines, syringes, and other immunization supplies were still being procured and distributed separately, however. Completing the process of integration, with assistance from UNICEF and JSI, LMD organized further rounds of training in cold chain management and vaccine logistics. In all, from mid-1994 to mid-2000, more than 15,000 storekeepers and other health staff had been trained.[45] The National Health Training Center (NHTC) and its five regional training centers were also involved in these activities, and their staff has been able to carry out further logistics training as needed over time.

In 1994, LMD and JSI also began development of a LMIS that was to provide data on stocks of essential commodities at each level of the system, based on quarterly reports from individual health facilities or service delivery points (SDPs), and from district, regional, and central stores. These reports provide managers with updates of stock on hand, losses and adjustments, and quantities dispensed to clients. An LMIS Unit at national level, located within LMD but supported entirely with donor funds, is responsible for tabulating data from the reports and creating summaries for program managers. An assessment conducted in 2000 found the LMIS to be "functional, with sound reporting and record systems countrywide."[46] The proportion of health facilities submitting LMIS forms to district level each month has been maintained above 80% for the past three years, up from a baseline of 36% in 1994.[47] At the same time, shortcomings are

[44] Family Planning and Logistics Management (FPLM) Project: *Nepal: Contraceptive and Drugs Logistics System – Review of Accomplishments and Lessons Learned (1993-2000)*, February 2000, p. 3.
[45] John Snow, Inc.: *Project Completion Report – Nepal Logistics and Child Health Services Support Project*, July 2002, p. 3.
[46] Family Planning and Logistics Management (FPLM) Project: *Nepal: Contraceptive and Drugs Logistics System – Review of Accomplishments and Lessons Learned (1993-2000)*, February 2000, p. 9.
[47] John Snow, Inc.: *Project Completion Report – Nepal Logistics and Child Health Services Support Project*, July 2002, p. 3.

evident. The assessment team noted that "within…record systems inaccuracies and errors were common, and…reports were not being used for decision-making."[48]

Other activities contributing to improved logistics management during this period have included: collaboration among MOH and donors in consensus forecasting for contraceptives, utilizing data from HMIS and LMIS to project future needs, and ensuring the availability of a sufficient supply for each year; construction of 36 new district store facilities, based on a standard, appropriate design, with funding from DFID and German development bank KfW, with oversight by LMD and JSI; as well as cleanup of central, regional, and district stores, with the disposal of broken-down vehicles, obsolete equipment and outdated medicines and damaged supplies. The latter initiative has led to a recovery of nearly 165 million rupees through public auction of vehicles and equipment, while freeing up more than 100,000 square feet of floor space in storage facilities.[6]

This 10-year effort has been characterized by determined advocacy on the part of USAID and JSI, convincing HMG as well as other donors of a simple truth: "No commodities, no program."

Strengths & Weaknesses: Factors that have *contributed* to strengthening logistics management in Nepal include:

- Political will and decisive action within the DoHS and, following its creation, the LMD of MOH, to initiate and then carry forward the process of reform.
- Vision, determination, and a sustained commitment of funding from USAID, motivated above all by a long-term commitment to family planning, with a desire to protect its investment and enhance the results of ongoing programs (family planning, CDD, ARI, vitamin A, and malaria control).
- Vision, determination, and high-quality technical assistance from JSI through USAID-funded bilateral projects, in collaboration with the Family Planning Logistics Management (FPLM) project and its successor, DELIVER.
- Responsiveness of other donors (particularly UNICEF, KfW, and DFID) in recognizing the benefits of improved logistics management and making substantial funding commitments of their own to support aspects of the process. These are fairly recent developments.
- The Logistics System Improvement Plan, which provided a clear statement of intent and, to some degree, a route map for reform and further development of logistics systems in Nepal.
- The Logistics Management Information System, which has been providing valuable data to program managers and other stakeholders, as well as a vital means of monitoring the progress of logistics improvement throughout the country.
- The successful institutionalization of competency-based logistics management training through the National Health Training Center and regional training centers—one of the most promising signs of sustainability for this program to date.

Factors that have *impeded* the strengthening of logistics management include:

- Inadequacy of supervision, both in quality and quantity, at all levels of Nepal's health service delivery system. For logistics management, this problem is most notably manifest in the lack of follow-up for district storekeepers and other health staff who received training in Inventory Control Procedures and vaccine logistics. They bear primary responsibility for managing the

[48, 6] John Snow, Inc. (JSI): *Nepal Integrated Health Logistics, 2001 Annual Report, Logistics & Child Health Services Support Project*, March 2002, p. 22; Ibid, p. 18.

commodities stored in, and distributed or dispensed from, their facilities. Their motivation is crucial to the reduction of stockbook errors and inaccuracies, and the submission of monthly LMIS reports that reflect the true status of commodities in their charge. To maintain strong levels of motivation and reinforce the standards of practice introduced through training, fresh approaches to supervision must be found, with more courageous leadership from the DoHS. Limited prospects for sustainability of the LMIS, given unrelenting dependency of LMD on donor funding for support of LMIS Unit staff, as well as other recurring costs. All stakeholders appear to recognize the critical function of LMIS, and this recognition has prompted USAID to extend its funding year after year beyond previously agreed-upon hand-over dates. Further negotiation, and ultimately more distinct evidence of ownership on the part of DoHS and LMD, will be necessary to ensure the long-term viability of this component, along with the rest of the logistics system it helps to support.

- Still-limited use of LMIS data for management decision-making. Despite some progress in promoting the utilization of this data, routine review of LMIS reports has not been fully institutionalized, and only a few managers at each level give any thoughtful analysis to the data. Although further training may have a role to play, and sweeping reform of DoHS supervision policies would certainly help, there are fundamental issues of behavior change involved. A comprehensive data-for-decision-making approach would require significant further investment on the part of donors, but might be justified by the outcomes achieved.

Potential Impact: As a systems component of child health intervention programs, logistics management has important if frequently indirect effects on infant and child mortality. When logistics systems are functioning effectively, essential commodities such as vaccine, syringes, ORS packets, cotrimoxazole, and vitamin A will be available in each health facility at the time they are needed. The availability of these commodities routinely saves lives, whether their value is recognized or not. Conversely, when such commodities are *not* available, children may die. When that occurs, it is too late to reform the system, the families' grief and protests from local communities notwithstanding. However, it must also be acknowledged that the availability of these commodities, while necessary, is not *sufficient* to ensure effective delivery of preventive or life-saving care. They must be in the hands of qualified health staff or volunteers, close enough to the community to permit access to their services.

Given these considerations, the LMIS tracks the proportion of health facilities that experience "stockouts" (zero stock balance for a given commodity) over a period of time. As one indicator, this provides a useful measure of a logistics system's ability to maintain the availability of key commodities. LMD guidelines prescribe both minimum and maximum stock levels for essential drugs and contraceptives at each level of health facility and store, based on the average amounts dispensed or distributed at that level in previous years. Orders submitted each quarter, or more often if necessary, should trigger prompt replenishment of stocks up to the specified maximum amount for each item. Another indicator tracked by LMIS, at times useful as a proxy but often difficult to interpret, is the amount of each essential commodity dispensed or distributed from facilities at each level. Since this cannot be easily correlated with the size of population served, or the local rates of incidence for a particular disease, it might be assumed that greater amounts of product dispensed would correlate with good logistics and improved health, or other desired outcomes. The reality is more complex, but looking at trends over time and in relation to other indicators, some inferences may be drawn.

For the seven commodities routinely monitored by LMIS and essential for family planning and MCH programs, the trend in stockouts has been encouraging: Pills, condoms, Depo-Provera, ORS packets, and iron-folate tablets have been available in most facilities most of the time, with

stockouts maintained at levels lower than 20%, and as low as 10%, over a period of years. Cotrimoxazole and vitamin A have been subject to more stockouts, with increases in the past year or two, but these recent problems occurred in part because of rapidly expanding program coverage, consistent with increasing amounts of commodity dispensed. DoHS and LMD have demonstrated their commitment to correcting problems with these commodities, and progress has been made. While the impact of logistics cannot be measured separately from that of the interventions it supports, its outstanding contribution to Nepal's family planning and child health programs over the past 10 years is readily apparent.

C. Training

C.1 Background

Early stages of health manpower development

In the late 1970s and early 1980s, USAID/Nepal made a significant investment in human resources in the health sector, sending 68 Nepalis, primarily from the vertical FP/MCH project, abroad for MPH studies. The USAID-funded Berkeley advisory team managed these foreign placements, and assisted in reinsertion of returning graduates (all of whom, without any formal bonding, took up posts in the MOH). As stated in the book *A Half-Century of Development* (page 204):

> Perhaps most significant in the long run, USAID-supported manpower training made the FP/MCH project the best-trained section within the MOH. By 1984, 68 FP/MCH staff members had received long-term participant training and were making substantial contributions to professionalism and managerial capability, as well as family planning and health programs.

Much of the leadership in the MOH in the past 20 years has come from the ranks of that generation of internationally trained health professionals. Approximately two-thirds of the members of this generation are still in key management positions—divided nearly equally between GON and the local (and regional) community of EDPs, INGOs, and NGOs. Some, however, are retiring, with the result that there is a much-lower level of internationally trained public health manpower today was available two decades ago.

During the same period, USAID advisory teams helped build the foundation for modern training approaches, using experiential and adult-learning principles to train a cadre of trainers in a style that was a complete break with the tradition of didactic, hierarchical training that continues to resurface today. In 1976, a USAID Training Advisor led a group of Nepali trainers to a Middle Hills retreat for a six-month intensive course in modern training approaches. These were to become the trainers at the original regional training centers (one of these currently directs the NHTC).

An interesting historical fact is that at that same period the only other Nepalis exposed to the culturally radical "experiential" model were trained by the Peace Corps to prepare volunteers for service. Of that group, at least four have played leadership roles in development: one leads NTAG, a second was an IEC division head in the Ministry, a third directs a leading health and education NGO, and a fourth is a senior local UNICEF staff member.

Over the past 25 years, the field of training in Nepal, like IEC/BCC, has gone through relatively long cycles of development and decline, then resurgence, often in new institutional frameworks.

For training, the long journey toward integration that led to the creation of the NHTC appears (according to the DoHS' own annual reports of the past eight years) to have had as a byproduct the dilution of quality. This has been a result of several factors: high transfer and attrition rates for trainers; stubborn bureaucratic problems of late release of budgets; inappropriate selection of trainees; physical deterioration of facilities; and lack of suitable training materials. Despite these circumstances, successes in training personnel have been achieved, and many indicators point to improvements in health programs and outcomes enabled by training.

These improvements have, however, occurred unevenly, as the primary responsibility for the training of staff (including the control of training budgets) has remained with the various divisions, centers, or NGOs concerned with a given set of outcomes. In the case of Vitamin A, for example, one can contrast the basic training of FCHVs given through the NHTC with the specialized training given by NTAG. One critic of the government's basic training wrote:

> "Volunteers reported that it [training] had become repetitive and ritualistic, with rote teaching methods most often used by local health workers who serve as the trainers/instructors."

Training events for the same volunteers in the Vitamin A program (conducted by NTAG) are described as inspirational events—fully participatory, and enriched with games, role-plays, prizes, surprises, laughter, colorful audio visual aids, and more.

This stark difference is also reflected in the team's analysis of the relative strength of systems across all the program areas. The Vitamin A program's training was considered the strongest for all time periods. Training quality from the start was rated at the highest level compared to other programs, and remained high across all time periods. This quality was tied to a participatory approach, and a general use of best training practices.

Following Vitamin A in the teams' analysis was the Polio Eradication project's training. Although less original and participatory than the Vitamin A training, the quality was thorough and professional, featuring well designed curriculum supported by excellent materials, and delivered by well-prepared trainers. In contrast to Vitamin A, the PE program had access to an extremely high level of resources and could afford to attract the best trainers and provide them with materials. As with Vitamin A, Polio Eradication program staff conducted both training programs directly, rather than through the routine NHTC trainers with their manpower and materials constraints.

At the other extreme, training for nutrition programs was viewed as quite weak. Lacking the kind of donor champion, dedicated personnel, semi-autonomous institutional status, and clear messages that have characterized the other programs, training for nutrition fell victim to the constraints and problems that plagued the NHTC.

The family planning program, beneficiary of so much investment and donor input to its training process over time, compares well with all other program areas over all periods of time reviewed. Although training fieldworkers and supervisors in counseling and interpersonal communication still needs considerable work, programs such as the JHU/PCS Radio Communication Project have been taking important steps to addressing those needs.

Evidence indicates that where donor and INGO/NGO material and human resources are closely involved in implementing a training program, the quality of training appears to be high, and program indicators reflect that: There is closer attention to curriculum and materials development,

to training process and evaluation. However, the government's stated policy is to move all training to the NHTC, where quality is demonstrably lower, and which suffers from chronic shortages of staff, materials, and budget. This dilemma must be resolved. Either GON has to provide resources to the NHTC to permit it to recruit, train, support, and retain staff, or program performance that appears linked to training quality will deteriorate.

D. Supervision

Evidence from extensive operations research and decades of experience has shown that effective supervision is necessary to achieve high coverage and quality of services in child health programs. However, supervision remains one of the weakest aspects of child health programs in many developing countries. Although approaches to supervision vary, the most successful have certain elements in common: these include promoting regular interaction between supervisory staff and health workers, and the use of checklists or other standardized methods to ensure that key aspects of performance are assessed at each contact. Active, supportive supervision gives particular attention to reinforcement of essential skills previously introduced through training, along with help in solving problems that interfere with optimal performance, affecting service quality and coverage. [49, 50]

In Nepal, the historical norm has been *weakness* of supervision. Various factors have contributed to this tendency: (1) mountainous terrain, combined with severely limited transport and communications infrastructure; (2) inadequate provision of allowances for field travel, acting as a disincentive to on-site visits and regular interpersonal contact; (3) emphasis on the administrative aspects of supervision, oriented toward punitive measures for noncompliance, with little attention given to behavioral aspects of performance or constructive feedback as a source of motivation; (4) insufficient training in supervision and monitoring for managers at all levels; and (5) lack of detailed job descriptions and tools such as checklists to provide an objective structure for assessment. [51, 52]

However, significant progress has been made in correcting deficiencies and overcoming the influence of these factors, especially since 1990. Examples of highly effective supervision have been identified in Nepal, and a few have received international recognition. Some of these will be discussed below in the context of specific programs. The team ranked each child health program for quality of supervision on the basis of three criteria:

(a) **Supportiveness**, or the extent to which positive reinforcement has been applied to strengthen important skills and maintain good performance
(b) **Contact time** with health workers *in the field*
(c) **Problem-solving**. orientation, and commitment of supervisors to help overcome constraints

[49] BASICS II website: "Supervision and Quality Assurance", www.basics.org/publications/pubs/pathways/reform4.htm.
[50] World Health Organization: "Follow-up after training: Reinforcing the IMCI skills of first-level health workers", Department of Child and Adolescent Health and Development, WHO/CHS/CAH/PB.1F, Revision 1, 1999.
[51] Justice, Judith: "Delivering Services to Rural Villages" in *Policies, Plans & People – Foreign Aid and Health Development*, University of California Press, Berkeley and Los Angeles, 1986, pp 83-110.
[52] Aitken, Jean-Marion: "Voices from the Inside: Managing District Health Services in Nepal", in *International Journal of Health Planning and Management*, Vol. 9, 1994, pp. 309-340.

CDD

Starting in the mid-1980s, oral rehydration therapy and other interventions to reduce diarrhea morbidity and mortality were introduced at a rapid pace, and coverage was extended to all districts of Nepal. Attention was given to improving home care and recognition of danger signs by caretakers through various means of health communication, and to training of health workers in standard diarrhea case management. These interventions were integrated into routine health services from the beginning, but commitment to maintaining their effectiveness has been sporadic and capacity for follow-up has, on the whole, been limited.

Training and IEC although arguably necessary, were not at all sufficient for achieving results. Integrated supervision failed to provide the specific support and motivation necessary to reinforce case-management skills or maintain ORT corners in health facilities. The CDD Reactivation program (1994–1997) and the subsequent combination of CDD with ARI, and then integration within IMCI, did improve the situation, mainly due to the involvement of an external cadre of field staff, employed by JSI and NGOs. Their activity has been more intensive in some districts than in others, with correspondingly mixed results.

With regard to the criteria above, supervision was generally (a) *not* supportive although, under CDD reactivation, more systematic assessment and reinforcement of case-management skills were incorporated into the program, and more emphasis was given to behavior change, particularly in teaching mothers to mix ORS correctly; (b) *limited* in the number and frequency of contacts between supervisors and health staff, and in the quality of interaction when contact did occur; and (c) *not oriented* toward problem-solving, although the need for a standard measuring container for water was recognized at an early stage and viable alternatives were actively sought, eventually resulting in wide promotion of the "blue plastic cup." One other example of problem-solving on a national scale should be noted: in recent years, improving the supply of ORS packets, as well as other essential commodities, to all levels has become a health service priority and a particular focus of supervisory visits when they have taken place.

Vitamin A

Supervision has been included, along with training and community mobilization, in the intensive package of support provided to districts during their initial vitamin A supplementation rounds, as they have been phased into the program year by year. As noted elsewhere, this combined support, provided by NTAG, has been remarkably successful in attaining high levels of coverage, as noted elsewhere. The ability of those districts to maintain high levels of coverage during subsequent rounds, with very little external support and more indirect means of supervision, is also quite remarkable.

This can be attributed to the effectiveness of NTAG staff in sustaining the motivation of district officials, health staff, FCHVs and other community leaders with only limited contact; to the dedication of FCHVs, who do most of the work involved without much supervision; and to the simplicity and potency of vitamin A as an intervention. Simplicity permits appropriate delivery by volunteers with limited training, and with even less on-site supervision. The straightforward logistics of getting a sufficient number of capsules into the hands of FCHVs twice a year also requires little supervision. The immediate effect of vitamin A, eliminating night-blindness in children where the condition had been prevalent, becomes apparent to everyone, wherever it is introduced. This enhances local demand and further reduces the need for direct supervision.

The National Vitamin A Program has received international recognition, and stands out among child health interventions in Nepal, partly because of its unique approach to supervision.

Supportiveness: Initial training, orientation, and mobilization activities in each district have focused on empowerment and enhanced community recognition of FCHVs. Members of NTAG's field staff demonstrate supportiveness in their interaction with FCHVs and have been quite successful in transferring that quality to district officials, health facilities staff, and community leaders who are expected to assist them during vitamin A supplementation rounds. Since FCHVs are volunteers, they do not expect to be supervised in the traditional sense of being told what to do, and penalized if they fail to comply. By creating a supportive climate, NTAG has been successful in sustaining the motivation of FCHVs and others involved, at least for the purpose of vitamin A supplementation. In most places, this has led to higher levels of morale and commitment among FCHVs, as well as benefits for other maternal and child health interventions.

Contact time: Individual contact between FCHVs and NTAG trainers or local health staff is relatively limited, even during the intensive run-up to supplementation activities. Contacts tend to be of high quality, however, with interaction focused on empowerment and development of self-confidence in the FCHVs, within local groups and as individuals. FCHVs also spend considerable time together, both during initial training and subsequently in refresher/review meetings, provided these are held twice a year as planned. When they are together, FCHVs motivate each other and reinforce knowledge and skills in the process. In places where mobilization of district officials, health staff, and community leaders has been most effective, contact time has been increased and enhanced in quality (through again, supportiveness). The best examples of this process tend to be in districts where INGOs or other partners such as UNICEF or NFHP have an active presence and have been able to reinforce and promote the same values that NTAG has introduced.

Problem-solving: For the vitamin A program, FCHV refresher/review meetings represent the best routine opportunity for problem-solving. When these meetings are held on schedule (prior to the October and April supplementation rounds), they bring FCHVs and their AHW and MCHW supervisors together. Any problems encountered during the previous round are discussed, and plans for the upcoming round are adjusted as necessary to correct the problem. These meetings also provide an easy means of distributing vitamin A capsules to FCHVs for the upcoming round. Everything else tends to fall into place, as long as FCHVs receive their allocation of capsules on time. Unfortunately, the single biggest problem encountered by the FCHVs and the program is the failure of districts to hold these refresher/review meetings on schedule. This is especially true of the fall meeting, which is often delayed because of late release of funds from national level for each new fiscal year, beginning mid-July. If this problem were addressed, the vitamin A program would encounter fewer problems at local level, and these would be more easily addressed in their intended forum, the refresher/review meetings.

As another component of supervision, the mobilization of officials from national and district levels, as well as staff from donor and implementing agencies and NGOs, to observe supplementation activities during the spring and fall rounds plays an important role. These observers are equipped with a checklist that helps them recognize and take note of any problem they encounter. Recognition has often prompted action to correct a problem immediately (e.g., sending a vehicle back to the nearest health facility to bring more capsules, when the initial supply was inadequate). The forms are subsequently collected and observations compiled by NTAG staff. Problems identified from the aggregated data are followed up and, if possible, corrected before the next round.

ARI/IMCI

Community-based ARI case-management requires intensive supervision to reinforce skills and ensure that quality is maintained at an appropriately high standard. With the introduction of an even more complex set of skills, community-based IMCI adds to the supervisory challenge. In the past, and in the 53 districts where these interventions have not yet been introduced, the diagnosis and treatment of pneumonia has been carried out in health facilities. Supervision has been ad hoc, with the same limitations common to other clinical services.

The advent of standard case-management, based on WHO algorithms, has provided a basis for structured supervision, along with greater need. The program developed a supervisory checklist, assessing key aspects of health workers' performance. This checklist serves primarily as a monitoring tool, used by field staff of NFHP and NGO partners, who continue to bear much of the responsibility for training of community-based health workers (AHWs, MCHWs, and FCHVs), as well as their subsequent follow-up. This follow-up does provide opportunities for supervisory contact, and these tend to be highly supportive and beneficial when they occur. However, as the program expands to new districts, a smaller proportion of trained workers can be reached in this way. Efforts are consistently made to involve DPHO staff with these visits and, in some districts, this has been successful. However, district-level staff has only limited time available for these visits and are not likely to maintain the intensity or quality of supervision demonstrated by NFHP and NGO staff.

Fortunately, an approach to routine supervision has been introduced, which has greater potential for being replicable and sustainable in all districts as the program expands. This approach is based on a reporting form completed by community-based workers for each case of ARI they see. The green forms are pictorial, so they can be completed by non-literate FCHVs as well. For each case, a green copy is collected once a month by the VHW, who is responsible for supervision, while another copy remains with the FCHV, in her cumulative case register. The HMIS reports the number of pneumonia cases treated in health facilities, and in the community on the basis of these reporting forms. The VHWs are obligated to collect the forms once a month in order for the local health facility to complete its HMIS report. In this way, the likelihood of routine monthly contact is enhanced and, since the VHWs are accountable for the legibility and completeness of case data on the forms, they are more likely to interact with the FCHVs, listening and responding to any issues (e.g., insufficient supply of cotrimoxazole) they may raise.

The external supervision provided by NFHP and NGO partners thus offers excellent examples of supportiveness and orientation to problem-solving, and has been essential for achieving and maintaining high standards of performance among community-based health staff as the program has rapidly expanded. For the longer term and as the program's geographic coverage increases, the role of VHWs in routine supervision will become increasingly important. Strengthening their skills and motivation, and improving the quality of their supervisory contacts with FCHVs, will be one key to the sustainability of this program.

Immunization

In its heyday, with a relative abundance of staff and financial resources, the EPI program achieved high levels of immunization coverage. Effective planning, coordination, and supervision were among the keys to success. These functions were primarily the responsibility of Kathmandu-based staff, along with EPI Supervisors in each district. With decentralization and integration of health services, a larger share of the responsibility was shifted to district level. Under authority of the District Public Health Officer, EPI Supervisors were expected to oversee immunization

activities in health facilities, as well as the work of VHWs in outreach clinics. The quality of supervision at those levels, which was not particularly strong to begin with, suffered further in this transition.

In the early days of the EPI program, building on the legacy of smallpox eradication, supervision was almost military in nature, with centralized authority for training and mobilizing cadres of VHWs specifically to carry out well-defined immunization activities. Since that time, the approach to supervision has tended to be more administrative, with sanctions for poor performance, rather than a supportive approach. Contact time is necessarily limited, given the ratio of EPI supervisors to VHWs and other staff of health facilities who provide immunization. With integrated services, the health post or sub-health post in charge should be directly responsible for supervision at those levels, and for VHWs' work in outreach clinics. In reality, though, in many districts immunization activities are left to the VHW, with little attention given to monitoring the quality of preventive services, or any other services provided in the community.

Given the challenges of establishing and maintaining an effective cold chain, along with the planning and coordination necessary to ensure a regular supply of vaccines and uninterrupted immunization services, problem-solving has been a crucial component of supervision. Checklists were developed long ago and have been used, at least some of the time, to identify and help in solving problems. This has been among the stronger aspects of overall EPI program supervision. Nevertheless, problems have often gone unaddressed. The lack of kerosene, or funds to buy kerosene, has been known to disable an otherwise functioning refrigerator for months, with immunization services in surrounding VDCs completely disrupted as a result. Along with numerous other examples, this suggests that problem-solving as a component of supervision has been sub-optimal in the EPI program.

Polio Eradication

Although the polio eradication program is seen by many as vertical in nature, and certainly has some of the distinguishing features of a vertical program, it depends on the commitment of health staff at district and health facility levels, as well as large numbers of community volunteers, to achieve high OPV coverage and block the transmission of wild poliovirus. To gain and maintain the commitment of so many people, effective supervision has been required. Much of the responsibility for supervision has fallen to Regional Surveillance Officers (RSOs). The original six RSOs, with another nine added more recently, were to focus their efforts on improving AFP surveillance, with some 260 sites reporting weekly from all 75 districts of the country. By default, however, they have also been expected to support planning and monitoring for National Immunization Days, mopping-up rounds and other immunization activities. Since they were hired by WHO and have only quasi-MOH status, their supervisory role has been informal. Their influence on DPHO and health facility staff is based on the authority of national policies and the cooperative relationships they have been able to develop with others over time.

Despite these limitations—or perhaps, in part, because of them—the RSOs have been successful as supervisors. Most or all were trained as physicians, and were selected for their initiative and interpersonal skills, as well as their technical qualifications. Since they have no direct authority over people at district level or in health facilities, they have been forced to depend on persuasion and encouragement to achieve desired results, in terms of high OPV coverage or timely and accurate AFP reporting. Along with high marks for supportiveness, the RSOs are recognized for their regular contact with DPHOs and other staff in each district for which they are responsible, as well as their readiness to help in finding solutions when problems arise. Much of their work

has entailed problem-solving, and much of the program's success can be attributed to their efforts in this regard.

This intensive, focused support has, however, been expensive. Without a steady flow of donor resources, the cadre of highly qualified and motivated RSOs providing this support could not have been hired at all. Now, with the goal of polio eradication coming gradually closer to fulfillment, the future of RSOs and the surveillance infrastructure they have developed will be in question. They could contribute much to the improvement of routine immunization and control of other vaccine-preventable diseases such as neonatal tetanus and measles, and steps have recently been taken to re-direct some of their effort toward these ends. The cost of their ongoing involvement will be significant, but may be justified by the value they will add and the limited prospects for maintaining adequate supervision and achieving desired results without their help.

Family Planning

The program evolved from a more vertical structure, with emphasis on sterilization provided through camps held in many parts of the country as well as a relatively small number of fixed sites, to the provision of integrated FP and MCH services on a year-round basis. This has been accompanied by the increased promotion of temporary methods at a growing number of health facilities. Several international partners (notably EngenderHealth, JPHIEGO, and JHU/PCS, with USAID funding) have assisted in this transition, focusing on 21 districts with rapid population growth and corresponding unmet need, which MOH identified as having priority for institutionalization of family planning. Improved supervision of service providers has been one component of that effort. The Quality of Care Management Center (QoCMC), supported by EngenderHealth, has been particularly instrumental in that process.

As family planning has been integrated into routine health services at district level and in hospitals, and at health posts and sub-health posts, a tendency toward dilution of supervisory responsibility has been observed, similar to that with other formerly vertical interventions. To counteract that tendency, QoCMC has helped to introduce checklists and other tools designed to monitor the quality of counselling and provision of clinical services, including procedures such as insertion of IUDs and Norplant, as well as sterilization. Training of managers and clinical staff has emphasized the importance of good supervision, in which the values of teamwork, supportiveness, and problem-solving are stressed.

These efforts have undoubtedly contributed to improved supervision and clinical performance among health staff in the 21 priority districts. The process of service integration, along with the set of reform measures referred to as institutionalization, is gradually being extended to other districts as well. To the extent that external support is provided, supervision can also be improved in those districts. This will be more costly per capita, however, given the lower population density, remoteness, and other barriers that limit access to services in most of the as-yet non-institutionalized districts. Camps held in cooperation with the staff of local health facilities may be the only way to provide access to a range of family planning services, and ensure adequate supervision and quality of care in many of the hill and mountain districts for years to come.

Infant and Child Feeding

Apart from relatively limited technical assistance provided through the Joint Nutrition Support Project, UNICEF, and the USAID-funded LINKAGES Project for infant and child feeding, infant and child feeding interventions (consisting mainly of IEC messages) have been given low priority, corresponding to the limited resources available from donors to address malnutrition

beyond specific micronutrients. Nutrition education and growth promotion have been integrated with other maternal and child health services as one more responsibility to be borne by health facilities staff and volunteers, or delivered by NGO field staff within their usually limited geographic spheres.

Current staffing in the Nutrition Unit of Child Health Division, which includes the Chief and at times one assistant, reflects the low priority accorded to infant and child feeding, and apparently to the problems of micronutrient malnutrition (including vitamin A, iodine, and iron deficiencies), which are also under the purview of that unit. Further evidence of the low priority accorded to nutrition interventions is the lack of any focal person at district level designated to monitor nutrition status and progress of interventions, or to give specific supervisory attention to health staff and volunteers in these areas.

In these circumstances, supervision of nutrition IEC activities has received little attention on its own, and cannot be discussed in any depth for the purposes of this analysis. However, supervision of activities that include nutrition IEC as a component does occur, and deserves consideration here. These activities are already contributing to impact, and have even greater potential for the future. These include messages being provided to mothers by health facilities staff and FCHVs in the context of community-based IMCI; messages provided by FCHVs during monthly Mothers' Group meetings, where these occur; during the October and April vitamin A supplementation rounds in all districts; and messages provided by NGO field staff and volunteers in areas where they are active.

In each of these contexts, the value of supportive supervision in nutrition-related behavior change communications has been well demonstrated. The wider adoption of positive nutrition behaviors will have to wait for further expansion and consolidation of these initiatives. If MOH were to give these nutrition interventions a higher priority—which might be appropriate given Nepal's persistently high prevalence of stunting (greater than 50% in children under five)—more decisive leadership and a more conscious approach to supervision will be required at national level, and in all 75 districts.

Malaria Control

Over the decades in which malaria eradication (and then control) activities were being carried out under large vertical programs, the primary intervention was indoor residual spraying. Activities were seasonal and organized by region. Each region had supervisors overseeing the work of multiple teams. Priority districts for malaria control were those of the Terai and Inner Terai, where malaria was endemic. Limitations of transport and communication infrastructure represented severe constraints to supervision and other aspects of program management. Sufficient staffing and financial resources did allow remarkable progress and malaria was brought under control, with a steady reduction in reported cases between 1950 and 1970.

Details on the quality of supervision during early years of the program are scant, but a few inferences can be drawn. Supportiveness was not emphasized then as it is now, and eradication efforts had some characteristics of a military campaign. At the same time, the field staff was dedicated to a worthwhile cause, and seem to have carried out their duties with zeal. Program managers also believed they could be successful, and provided the active leadership necessary to get the job done. An adequate number of staff and the seasonality of spraying activity allowed for regular supervisory contacts and, despite constraints, the range of problems to be solved was limited: transport of teams and supply logistics, over and over again.

However, with a reduction in external funding and the related down-sizing of the malaria control program in the early 1970s, every aspect of operations was disrupted and a resurgence of malaria quickly followed. A drastic reduction-in-force reduced the program's coverage, but also its supervisory burden. One indirect contribution of the malaria program has been that trained and experienced staff have been transferred to other programs over the years. Given the limited number of qualified managers and supervisors at the time the malaria program began, this capacity-building legacy is worth noting here.

E. Data Management

Systems and components analysis was applied to the key program areas addressed in Section II, with time periods for review selected to be of approximately the same length. Turning points, based on major changes in policy, organizational structure, or events are noted below for each time period.

Table 35. Turning points based on major changes in policy, organizational structure or events

Program Areas	Before 1985	1986–1990	1991–1995	1996–1999	2000–present
EPI Polio Eradication CDD Vitamin A ARI/IMCI Nutrition Family Planning Malaria IDD ANC/SM	Some programs were initiated in the 1970s; however, significant primary health care activities began post-Alma Ata in 1978. This study reviewed from 1980 on in depth.	In 1986/87, services at the district level were integrated from a vertical approach under the authority of a district public health office, marking a major change in service delivery.	In 1991, the constitutional monarchy was instituted. A major MOH restructuring was begun in 1991; SHPs established by 1993.	The Second Long-Term Health Plan was begun in 1997, and the Health Act was enforced. Priority 1 programs were identified.	The local Self-Government Act passed in 1999, which delegated authority and ownership of public-sector health facilities to communities; the SLTHP operationaliz-ation strategy was instituted.

Since the geographic coverage of programs can be expected to make different demands on types and strength of systems, and since coverage varied considerably by time period and program, a weighting factor was also applied. Coverage was calculated by percent of districts in which a program was operating in the designated time period, and the scores were multiplied by that proportion. While this does not directly reflect population covered, since populations vary markedly by ecological zone, it was the most accurate factor available.

Table 36. Systems Criteria

Individual Systems	Criteria
Planning and Budgeting	Participatory at all levels Quality (SMART objectives, reflects needs) Doable (in current situation)
Training	Practicality (skills are needed) Participatory (based on adult learning principles) Adequacy for needed coverage

Supervision	Supportive Contact time in field with workers Problem-solving/improvement approach
Routine Data Management	Quality (accurate, completeness) Used for improvement
Specialized Monitoring: Data	Quality (accurate, complete) Used for improvement Cost efficiency
Logistics	Degree of availability at HF level Degree of availability at community level Low additional outside inputs

CDD

HMIS collects data from hospitals and primary health care facilities on case management. The district-level data are then compiled and incorporated in the annual report produced by MOH. Service statistics are analyzed and tables and graphs produced. The data are compared with annual targets. The following statistics are produced:

Total diarrheal visits
Total diarrheal deaths
Incidence of diarrhea
Case Fatality Rate
Cases of dehydration
-no, some, severe
Treatment of diarrheal cases
-treated with ORS
-treated with IV fluid
Monthly trend of diarrheal visits
Purchase of JJ
Distribution of JJ to districts
ORT set purchase

The HMIS annual report also produces graphs on incidence of diarrhea by district and proportion of severe dehydration among total new cases by district. The HMIS data quality is, however, regarded as poor and incomplete, with underestimation of incidence, severe dehydration cases, and case fatality. After the 1985 survey, there is no reliable data on diarrhea-specific mortality.

Vitamin A

The critical indicator of NVAP success is capsule coverage. Indicators of dietary awareness are also important, although it has been difficult in Nepal as well as other countries to change dietary behavior, even with improved awareness. Indicators of quality of services and of logistic supply are also important, particularly if coverage is not optimal. These indicators have been monitored using a variety of methods.

Routine data collection for the HMIS initially did not include any indicators for vitamin A, nor did the HMIS include reporting of services provided by FCHVs. Thus, there were no data available from routine reporting relating to the Vitamin A program. In 1996, vitamin A

distribution from health facilities was reported, but this reflected mostly clinical case treatment and some, but incomplete, outflow of capsules to sub-health posts for distribution. For this reason a separate monitoring system was designed to provide coverage information, and trend information for a selection of other indicators.

From the beginning of the program, population-based district mini-surveys were developed to ascertain coverage, and these have continued. The surveys use an EPI cluster methodology and a well-tested household algorithm to determine the proportion of children who have received a capsule during the last distribution. All districts new to the program were surveyed following their first distribution, with a random selection of other districts completed after each distribution. The program has been able to survey an average of 15–20 districts each year.

In 2000, an aggregate dataset was created combining all mini-surveys. This dataset allows review of each indicator over time to monitor trends. Although the mini-surveys have evolved over the years, most indicators have been preserved, including indicators of awareness of vitamin A-rich foods and awareness of the consequences of vitamin A deficiency, among other variables.

There has been some controversy about the validity of this means of coverage assessment; since it is completed by those responsible for the program, there is a question of potential bias. From the beginning, however, the training of the enumeration teams completing the mini-surveys has stressed accuracy and data quality. Nevertheless, to address these concerns, a number of independent assessments of coverage have been completed, including assessment in Karnali zone in 1997, the Nepal Micronutrient Status Survey in 1998, the UNICEF BCHIMES survey in 2000, and the recent DHS in 2001. These have all confirmed the basic coverage estimates by the program.

The mini-surveys have provided information beyond coverage, and have been used by a number of other programs. For example, additional modules have been added to provide data for the CDD/ARI program, for the IDD program, for de-worming and anemia, and for some NGO-specific program needs. In addition, the mini-surveys have involved district staff and ward members sharing not only results but also the process of data collection. This has led to greater understanding of the program, and a stronger sense of ownership at the district level.

ARI/IMCI

The routine HMIS included morbidity and mortality data on ARI by classification (no pneumonia, pneumonia, severe disease). The routine LMIS includes information at the health facility-level on stockout for cotrimoxazole. These two routine mechanisms thus provide some basic trend information for the health facility-based program. In addition, however, the cases presenting to the health facility also provide insight about what is happening in the community-based program. Specifically, the proportion of severe cases presenting to health facilities appears to decline with the introduction of the community-based program, probably due to that component's contribution to early treatment of pneumonia.

The community-based program depends more on a more vertical monitoring system, based on supervisory visit reports. Initially this monitoring system was specific for ARI, where several indicators have been important over the years. First, the number of cases treated can be used, in conjunction with an estimate of the expected number of pneumonia cases for the district, to compute the proportion of expected cases receiving treatment. This proportion increases dramatically from about 20% without community-based treatment to nearly 70% with the program established. This improvement probably reflects both the realities of the disease and the

habitual use pattern for health facilities. Pneumonia is difficult to distinguish from ARI (particularly in younger children), and this may delay treatment by caregivers. In addition, progression from ARI to pneumonia can be rapid, making it more difficult for caregivers to make a judgment call about when to seek care at a health facility. In addition, past experience with frequent drug unavailability may have reduced trust in health facilities. These factors are addressed by community-based treatment.

The supervision system also addresses quality of care as an area of potential concern. FCHV registers are reviewed, and the proportion with correct dose for age recorded. The proportion completing a third-day follow-up visit is included, and when possible, the FCHV is observed (or questioned) to assess diagnostic skills. To date, these indicators have remained high once the program is established. However, it is not clear how dependent these are on the support provided by regular supervisory visits.

With the inclusion first of diarrhea management during CBAC, and later to a constellation of childhood diseases with CB-IMCI, the monitoring system has been expanded to include additional indicators—and using the same supervisory visit system for data collection.

Immunization

Routine Monitoring

The HMIS routinely reports EPI coverage data by antigen and dose for children under one year, and for pregnant mothers. At the lowest level, the VHW produces a report from the EPI register each month and submits it to the SHP. The AHW at the SHP aggregates VHW information and sends the report to the concerned PHCC or HP. They compile all data from the SHPs and the PHCC or HP and send it to DHO. The DHO then compiles all PHC/HP data, including data from the district hospital, and sends it to the Department of Health Services at the national level. The DoHS then compiles data for national-level coverage and a report is produced. The quality of the data is, however, questionable; there is a generalized tendency of overestimation of immunization coverage, from SHP to the national level, making the data difficult to use for planning, monitoring, and evaluation.

Coverage surveys

At the beginning of the program, coverage surveys were conducted periodically to monitor the program, using WHO 30-cluster survey methodology to assess coverage. Between 1980 and 1990, 44 coverage surveys were conducted in various districts by a special team within the EPI program. These data were analyzed using COSAS. After 1990, however, the EPI program did not routinely conduct such surveys, although they were used in some districts by NGO programs working in child survival.

Special surveys

During the last decade five surveys were carried out by different agencies in collaboration with MOH. All the surveys showed a gradual improvement in immunization coverage during the last 10 years, with the exception of measles.

Table 37. Coverage data for BCG, DPT3, OPV3, Measles and TT2

Year	Source	BCG	DPT3	OPV3	Measles	TT2
1990	NFFHS	73	42	42	57	
1995	NFHS	73	51	48	45	33
1997	NMOH	86	76	70	73	-
1999	BCHIMES	87	65	74	82	36
2000	NDHS	83	71	90	64	45

Polio Eradication

OPV coverage is calculated at the end of each round and has been reported since 1996. In 1998, an MOH survey included OPV coverage.

The AFP surveillance system is supported by the Regional Surveillance Officers of Polio Eradication, Nepal (PEN). WHO provides managerial and technical support to PEN and to the AFP surveillance system. Over 300 sentinel sites are now reporting AFP cases on a weekly basis. The report is compiled and distributed by the PEN. The CORE group, supported by four international NGOs, is also part of the PEN and provides support through its network.

Family Planning

Until 1990, each donor-funded project reported directly to the National Commission on Population, although often only on new acceptors. The available data over-stated the success of the program and duplicated efforts. In 1989, a new Management Information System (MIS) was tested in four districts, and was expanded to the rest of the country from 1990 onwards. This MIS collected information on new and continuing users, enabling the MOH to track continuation and drop-out rates. CPR was the stated measure of evaluation for each district, based on annual targets calculated with routine data from the MIS, and confirmed by survey data approximately every five years.

Creation and later strengthening of the family planning vertical Management Information System received both technical and financial assistance from USAID and UNFPA, from inception until its inclusion in the integrated system, the HMIS, in 1992-1993. Under the MIS, a large amount of information was collected, including specific data on each client, that was not replicated in the new HMIS. UNFPA funded much of the new integrated system, but did not drop large amounts of collected data for family planning during the transition.

Monitoring and evaluation benefited greatly from the existence of a functioning national system. Overall, both MOH and outside partners seem satisfied with the quality and quantity of data available. For example, CPR data are available by district per year, calculated on the basis of current users. As a proxy for survey data, it compares relatively favourably to DHS data from both 1996 and 2001.

A significant amount of available data is used at the national level for preparing data and formulating plans, including long-term plans. HMIS data is also used for district-level planning and program monitoring. Data and analysis are also shared on a monthly basis with the National Planning Commission for national monitoring of family planning and safe-motherhood trends.

Similar to other MOH systems, data collection and management are done more consistently at the central level, where trained personnel and equipment are more readily available. In addition, requests for the information arrive regularly at this level.

Numerous data management issues are still to be addressed in Nepal. For example, although there has been a "zigzag pattern" of CPR in some districts, retro-feedback or supervision of concerned districts has not taken place. In addition, the data is essentially incomplete, since no private-practice data is included. And for those private partners who wish to provide information, there may be compatibility issues. For example, the FPAN system does not comply with MOH system requirements.

Major changes in what data is collected and how it is used have taken place in the past decade. Targets play a lesser role in monitoring and evaluating the program than in earlier periods, and the contraceptive prevalence rate is important, as it has been over time. In comparative terms, while Nepal's HMIS is a solid system that functions far above average HMIS, it could nevertheless be further improved and exploited to better serve programmatic needs.

Infant & Child Feeding

Although HMIS does include growth monitoring, the data has quality deficits and coverage remains poor. On average, an infant is weighed only 1.5 times in the first year of life, mostly during immunization contacts.

Malaria Control

When the malaria program began there was no integrated data management system. Each vertical program managed its own monitoring system, and this was especially true for the malaria program, which maintained specific indicators over time to track progress. These included amount of insecticide used, number of households (and total population) protected for the spraying effort, and a number of surveillance indicators related to active and passive case detection. Management of these data was through the extensive vertical staffing pattern, with some input from WHO related to the global effort. Through at least 1978 the organogram reflects a statistics section under the malaria program.

As the program changed, the key indicators remained and were ultimately incorporated into the integrated HMIS. The current HMIS includes ABER, slide positivity rate (SPR), parasite indices, and slide falciparum rates (SFR), as well as other indicators. Some program-specific reporting also remain, mostly related to spraying activities. (In 1996, for example, the program reported 19,418 households sprayed, covering an estimated 134,379 people.) Case reporting is done through the HMIS, but since many cases do not receive care at health facilities, the reported data are not complete.

ANC/Safe Motherhood

Benchmark Indicators

Table 27 (Section II, H.3) illustrates the high perinatal and maternal mortality experienced in Nepal. However, it is difficult to assess trends because of varying methods of data collection and changes in definitions. In 1998, the FHD conducted a Maternal Mortality and Morbidity study to better document maternal health problems. While this study did not calculate MMRs, it analyzed 132 deaths of women of reproductive age that had been recorded in three districts. Nearly half of

the recorded direct obstetric deaths were due to postpartum hemorrhage. Another 16% percent of the deaths were due to obstructed labor, 14% were due to hypertensive disorders, and 12% were due to sepsis. The great majority—70%—of these women died at home. Less than one third had antenatal care, and only 11% were attended by a trained traditional birth attendant.

Service Utilization Indicators

Second-tier indicators from surveys include those that assess utilization of ANC, TT coverage of pregnancy, place of birth, skilled attendance at birth, and utilization of PNC. Although utilization of ANC appears to have increased nearly twofold over the last decade, it still only reaches a small proportion of all pregnant women (28%). Coverage with tetanus toxoid has increased to nearly 50% of women for their previous pregnancy; more recent data may be higher because the survey figures do not reflect recent MNT campaign activities. As noted earlier, utilization of skilled care at delivery is low (13%) and has not increased dramatically, despite investments in training and services. And PNC is almost non-existent, with 17% of postpartum mothers visited within two days. There is, however, little reported demand for such a service. (See Table 28 (Section II, H.3)).

IDD Control

Program systems have also changed. In many respects, the shift has reflected the change from vertical programming, with separate planning, budget and training, to a different kind of vertical program with more systems integrated. With the early GCEP, vertical teams maintained their own supervision and data collection, using targets and injections/capsules given to measure progress. Since the injections prevented deficiency for up to five years, planning focused on covering the endemic population. By 1987, over 2.5 million injections had been given, but since this represented a small proportion of the endemic areas, a second round was planned and begun.

The increased emphasis on salt iodization coincided with the trend toward integration in Nepal, and this contributed to the de-emphasis of the injection/capsule program and an increased focus on the use of iodized salt. While the subsidy for transport of iodized salt to endemic areas has continued, greater emphasis has been placed on moving toward universal iodization and improving the quality and availability of adequately iodized salt. This has required close review of cultural practices around preferred types of salt, retail storage practices (which can increase iodine losses), and of 'leakage' of non-iodized salt across the Indian and Tibetan borders. (See Table 32, Figure 35 and Figure 36 (Section II, I.1)).

Water & Sanitation

All of this has contributed to progress evident in four national surveys conducted over the past decade. Most recently, in the 2001 NDHS, 75% of rural and 97% of urban households reported having access to safe drinking water, for a total of 77% nationally. Households with latrines or appropriate alternatives increased to 25% in rural, and 80% in urban, areas—a national total of 30%. While Figures 37, 38, and 39 (Section II, I.2)) clearly show the need for further improvement, they represent encouraging recent progress in a sub-sector of Nepal's development that has been highly resistant to change.

V. Component Analysis

A. Policy Evolution

The evolution of health policy in Nepal is illustrated in the timeline below. Policies can be traced over the past 35 years at several different levels including:

- The national governance level that at different times included the Royal Palace, the Panchayat system, the shift to a constitutional monarchy, and Parliamentary actions;
- The National Planning Commission that provides the umbrella for all sectors;
- The Ministry of Health level that guides health programs from a policy perspective;
- The Department of Health Services/Director General level that advocates for implementation policies and plans, and authorizes guidelines;
- The Division, Section, or program level in Kathmandu that develops policy guidelines specific to their own technical areas;
- The Regional Health Directorate level that is intended to manage district application of policies;
- The Local level which includes the District and VDCs, that must follow central policies and guidelines but are intended to develop and authorize local plans.

Program-specific policies and guidelines have been described earlier, along with assessments of which were individually important to implementation and success. The first part of this section describes the key themes of policy development at the NPC and MOH levels that provide the context for health programs. The second part describes the effects of policy changes at local levels (district and VDCs).

National Programs and Manpower

The "Evolution of National Programs Net" illustrates the ebb and flow of child health and family planning programs in Nepal over 20 to 30 years. In the 1970s and early 1980s programs were limited and distinct from one another. The early 1980s saw the rise of Family Planning and a rapid bulging of EPI which peaked in 1990. CDD moved steadily through the 1980s in a smaller way then experienced a bulge as it was "reactivated" and integrated with ARI in the early 1990s. ARI and IDD were smaller scale activities in the 1980s. IDD moved through EPI for about ten years while injections and capsule distribution were given before salt iodization was widely carried out.

Around 1987, there is a shrinking of Family Planning that coincides with an increase and broadening of scope of Child Survival programs. ARI expands and is increasingly integrated with CDD and EPI. Vitamin A is initiated, expands rapidly and separately but then joins the stream of integration rather more rapidly than EPI or Family Planning did in earlier years. In the mid 1990s, the Safe Motherhood program begins and remains relatively separate but strong as a theme that crosses Family Planning and other child health programs. Polio eradication starts in the mid 1990s and is large but remains on a parallel track with other programs.

Evolution of Health Policy in Nepal (1955–2002)

Year	National Policy or Plan Event	Global Policy Initiatives
1955-70s		Malaria Eradication
1965	Third Five Year Plan, National Family Planning Policy adopted	
1968	First FP/MCH Project	
1970	Fourth Five Year Plan	
1964-70s		Smallpox Eradication
1972	Death of King Mahendra	
1974		WHO launches EPI
1975	Coronation of King Birendra First Long term Health Plan Fifth Five Year Plan	
1977	SSNCC set up, EIP launched	
1978		Alma Ata "Primary Health Care For All"
1980	Referendum maintains Panchayat system Sixth Five Year Plan: Integration Expand community participation with volunteers ICHSDP begins	Twin Engines for USAID: CDD and EPI
1981	National Panchayat Elections	
1982	Decentralization Act CDD Program established: Facility-based policies National Population Commission (active for two years)	Rights of the Client (FP) UNICEF declares the Child Survival and Development Revolution
1983	National Population Policy and Strategy	Task Force for Child Survival
1984	Decentralization Act promulgated Decentralization bylaws	Universal Child Immunization launched
1985	Seventh Five Year Plan: Meeting Basic Minimum Needs (King Birendra)	USAID Child Survival Program
1986	National Panchayat Elections	
1987	World Bank/IMF Structural Adjustment Program adopted, ICHSDP closes down DoHS abolished, RHDs established, District PHC services integrated under one office	
1988	FCHVs initiated	WHO ARI Policy Guidelines Safe Motherhood Initiative launched
1989		WHA endorses Polio Eradication
1990	Multi party system initiated, new constitutional monarchy Eighth Five Year Plan suspended	Convention on the Rights of the Child World Summit For Children UCI achieved Bamako Initiative
1991	Multi party elections New Health Policy, Sub Health Posts initiated, Public	Baby Friendly hospital initiative??

Year	National Policy or Plan Event	Global Policy Initiatives
	Health Division created SSNCC shifts to SWC	
1992	Multi party elections District Development Committee Act (Health and Social Committee) Municipality Development Act Village Development Committee Act Eighth Five Year Plan Guidelines for Implementation of the National Vitamin A Program Breast Milk Substitute Act	Bellagio Vitamin A guidelines
1993	National ARI Policy adopted by MOH, Restructuring to re establish the DoHS split DHO and DPHOs Establishment of Inspection and Quality Control section Baby Friendly Hospital Initiative	Polio Eradication starts Burden of Disease/DALYs WDR (Health Sector Reform)
1994	Dissolution of parliament, multi party elections Technical guidelines on control of ARI issued by MOH National Safe Motherhood Policy approved	ICPD, Cairo
1995	Collapse of government, formation of coalition government Polio Eradication program initiated IMCI introduced by MOH, Requirement begins that 5% of 500,000 VDC funds to be spent on health	Women's Rights, Beijing Conference
1996	Start of Maoist insurgency, - finished introduction of sub health posts; not enough staff so start to recruit back AHWs and MCHWs for health posts and subhealth posts Policy- no temporary staff Identification of ECHS in National Workshop	WHO IMCI Policy Guidelines UNICEF Rights of the Child
1997	Local elections Collapse of coalition government and three successor coalition governments Health Act Ninth Five Year Plan: Poverty Alleviation	
1998	Collapse of coalition government, new coalition formed Safe Motherhood Policy finalized	
1999	General elections, NC government formed Local Self Government Act ECHP approved by Cabinet when SLTHP approved	WHO Evidence Based Policies and Programs
2000	Prime Minister replaced Maoist insurgency spreads to 50 districts Public Expenditure Review on Health Priority Program Identification Adolescent Reproductive Health Strategy Draft of Antibiotic Policy	Millenium Development Goals, GAVI is launched
2001	Royal family murdered Prime minister replaced 11th Amendment, Women's Empowerment State of Emergency declared in response to Maoist	

Year	National Policy or Plan Event	Global Policy Initiatives
	insurgency	
2002	Nepal receives GAVI funding Tenth Five Year Plan to be finalized, SHP decentralization Draft Neonatal Health Strategy Abortion is legalized	Report on Macroeconomics and Health, GFTAM established

On this national program net, the key policy changes and events of the NPC/MOH level have been superimposed. Following from left to right, the first policies for Family Planning were developed at the MOH level and were followed by the FP/MCH Project. The first decision to integrate services was made on paper in 1972–73 but never really moved forward until 1980 when the ICHSDP was established as a separate vertical project. With little true MOH commitment, ICHSDP was eventually disbanded in 1987 when external funding was reprogrammed elsewhere. In this era somewhat circumscribed policies were developed but provided limited guidance to projects. Projects appear to have been subject either to vertical global initiatives (eradication) or to the presence of leaders or actors who took them in particular directions. These leaders were both internal and external to the government. In 1985, King Birendra promulgated the Basic Minimum Needs Package which emphasized family planning and child survival for all Nepalese for the first time. This came after several years of trying to extend services to the rural poor and just preceded the growth of selected child survival interventions.

The year 1987 was a major policy and program turning point. A strong Secretary of Health made the decision to integrate all family planning and child health services under one office at the district level (the DPHO), in all districts at once. Health posts were also integrated, staffing increased and vertical community level workers were given cross over training to become multipurpose VHWs. At the central level, acceptance of this policy change took over a year, primarily because of vested interests in large cadres of vertical staff. One respondent noted:

It caused a big mess but I'm in favor of a mess because then you build something new.

These changes were accompanied by the establishment of Regional Health Directorates, an intermediate administrative level that was intended to form the bridge between districts and the center. In the beginning, the RHDs were lead by experienced MOH officers trained in public health. Regional plans were made, personnel were managed, and interventions were extended. However, central authority was never truly devolved especially for monitoring and evaluation, and districts began to bypass them and/or carry out double reporting.

In 1988, another major policy shift was the creation of the FCHV program both for improved access to health services and information, and for social change. As with the integration of 1987, decisions for the program and for its guidelines were made in a short time by a few strong leaders. All FCHVs had to be women and a completely new program was designed and launched. Fifteen years later, these FCHVs have become the backbone to some of the most effective child survival interventions.

The Nepal government changed radically in 1990–1991 when agitation resulted in a constitutional monarchy and democratic elections were held for the first time. The change in government had many effects but three of the most important for health were the change in expectations of people for quality government services, a change in power relationships or the source-force that had been an important part of getting things done behind the scenes, and the explosion of new NGOs which had been tightly regulated in earlier times.

In this context, one respondent noted:

> ***The new government wanted to do something new and dynamic***.

There was a public administration review chaired by the Prime Minister and in 1991, a new health policy was instituted. The MOH was reorganized and has remained relatively similar since full implementation of the policy in 1993. The basic purpose of the 1991 policy was to truly integrate programs and its goal was:

> ***To upgrade the health standards of the majority of the rural population by strengthening the PHC system, making health services readily available at the local level.*** [53]

The 1991 policy established the Public Health Division and integrated all vertical programs within it. It also created a new level in the health system—that of the sub Health Post which was more accessible to the underserved rural population and which provided FCHVs with a closer support network. SHPs were to be part of the community and over 4000 were completed by 1996.

By 1992, the Municipality, DDC, and VDC Acts were passed with the aim of transferring certain authority to each level. Plans for all district level health development activities were reviewed by the DDC and submitted to the assembly for approval. Similarly, VDCs had begun to establish health committees which were to oversee and manage SHP and other local activities. Fifteen years after Alma Ata, the principles of community participation and decentralized planning were being acted on at local levels.

Meanwhile the reorganization of the MOH was being affected by civil service reform and the drive to reduce the costs of human resources that were deemed to have outgrown the need for them. In 1993, the government insisted that permanent health staff be cut by 35% in two years (24% the first year, 11% the second year). In reality, the government diminished health staff by 50–60% because temporary workers paid for by development budgets were not counted as staff. Almost overnight, all temporary workers were let go, and permanent workers were retired or fired based on available posts. Some programs, such as EPI and FP, suffered disproportionately because they had been staffed largely by donor funded, temporary workers. The EPI program went from 100 to 5 or 6 central staff.

> ***These were the experienced and useful people.***

The other cadre of staff that were lost to government service were experienced DPHOs. In 1993, the DHO post was reinstituted and authority and responsibility transferred back to largely clinical, younger physicians without public health training. The DoHS was also brought back to oversee the various divisions.

The turmoil caused by the rapid shifts in availability of experienced manpower and integration at the central level might have disrupted program performance more than it did. However, as government jobs were lost, opportunities in NGO and development partner organizations increased. Manpower left the public sector but ended up working together on the same programs as technical assistance with more flexibility. Many of these staff and organizations bolstered

[53] Second Long Term Health Plan, p.5

government systems that depend on movement and quality such as logistics, supervision and data monitoring.

In this same time period, two major child health programs progressed from globally recognized but locally conducted research, through the development of key policies to successful programs. The reduction in child mortality from vitamin A supplementation had been demonstrated in Sarlahi, and after a series of local and international meetings, Nepal established Vitamin A guidelines in 1992, and authorized FCHVs to distribute capsules in 1993. Program implementation expanded to cover the whole country over the next ten years. In 1991, the reduction of mortality from pneumonia case management was demonstrated in Jumla and in 1993–94, the National ARI policy and technical guidelines were established with the possibility of FCHV treatment. FCHV capability was further demonstrated in a comparative system study in 1995–97 and the CB-IMCI program is now based on this platform in 20% of Nepal's districts.

Policy attention shifted toward quality of services and client focus in 1995. Clinical guidelines for reproductive health, family planning, and maternity care were developed and communicated. A Quality of Care center was established as a semi autonomous group that provided support to district services. Polio eradication with its emphasis on high coverage and complete, accurate AFP surveillance was instituted. Externally funded staffing was greatly increased to manage the resulting workload.

The second half of the 1990s to the present has been characterized by rapid turnover in elected governments and more recently in a state of emergency where the monarchy took more power and local government was dissolved. No one coalition or party has been able to lead the country forward, and inequities, poverty, and corruption, have contributed to a conflict situation. The Maoist insurgency began in 1996, now involves a large number of rural districts, and has effected the availability of primary health care services.[54]

In this environment, the expectation for detailed policies, long term plans, and meeting obligations seems to have become more prominent. Safe Motherhood policies and plans were established at the central level using a lengthy process that involved partners and detailed documents. Phase 1 of the NSMP was implemented concurrently. The Health Act was passed in 1997 to reward doctors who served in rural areas for three years with specialty training, and court cases have resulted in ensuring the benefits are actually provided. Policies that were developed earlier such as allowing FCHVs to treat pneumonia have been called into question when they do not conform to established laws. The local self government act which establishes the roles and authority of VDCs and DDCs was passed in 1999, and as a result SHPs have begun to be officially (and ceremoniously) handed over to Village Health Committees.

Late in the decade, Health Systems Reform was initiated. There is a central committee with 9 subgroups working on different aspects of reform but with a focus on decentralization, public-private mix of services, and health services improvement (private and government). In 2000, Nepal published a burden of disease and public expenditure review[55] which showed that public sector allocations to cost-effective primary health care had dropped from 77 to 57% of total health care spending from 1991 to 1996. While this allocation has been raised to 78% by the government more recently, this reflects in part the reallocation of salt iodization subsidies to MOH from another ministry.

[54] Esperanza, Conflict paper
[55] Public Expenditure Review: Social Sectors

The public expenditure review noted that:

> ***Many problems are not associated with money but with weaknesses in institutions, governance and the political will to undertake serious reform….***[56]

One person interviewed said that health sector reform had been going on for 20 to 30 years, but very slowly. It continues to progress slowly at this time, although the conflict situation may be distracting attention from more long-term development problems. However, one of the major recommendations of the study, and also of those interviewed is that political commitment and will be increased if reform is to succeed.

In 2001, the higher level of the MOH was reorganized again. It was felt that the limited number of divisions were not paying enough attention to all interests, so both staff and divisions were added (curative, pharmacy, ayurved, etc.). Some divisions were dissolved such as the HIMGD, and the Planning Division was changed to Management and now includes the HMIS. Regional directorates, district and zonal hospitals were brought directly under the MOH. This was a major decision because it brought a lot of executive functions into the MOH.

As this study was being conducted, the MOH had undergone further reorganization and shuffling of staff. To what had been a relatively few senior staff, as many as nine offices may now exist. It was not clear how this would effect decisions or programs within the DoHS.

The View from the District

The evolution of programs at the local level looks somewhat different than the view from the national level. At local levels, the relative size, ebb and flow reflects the changes in roles for workers and volunteers, the extent to which services reached beyond the district center out into communities, and the very great local effect of program research conducted in villages. What was visible to villagers in the decade of the 1970s was the HP infrastructure, even though staffing and supplies were low and services sometimes nonexistent. In those districts where Malaria was a health problem, the program loomed large but then disappeared into the broader set of interventions by the 1980s. Family Planning was prominent early on also, although this was primarily VSC services that were provided on a camp basis during the cold season.

In the 1980s, several research studies appear as small scale, but important "blips" from the district perspective. ARI trials in Pharphing and Jumla were carried out first, the latter constituting for local people, the first widely used modern service that greatly reduced local child mortality. Vitamin A studies in Jumla and Sarlahi replicated major child mortality reductions, and in Sarlahi research continues to be a main driver of child health services. The relative scaling up of both interventions can be seen throughout the 1990s. The other theme beginning in the late 1980s is the integration of VHWs, vaccinators, PBHWs, and malaria workers into one cadre centered first in HPs, then in sub Health Posts. In the most recent times with the exception of Polio Eradication which stands out as separate but superimposed on the system, programs come together into one health services stream where individual interventions are recognizable but are accessed through the same workers.

District effects from the 1987 policy change to integration of the DPHO were reported to be very positive. This period was referred to as the "Golden Years," when everything worked well at the community level. Management was easier with less frequent staff transfers, VHWs did home

[56] PER, conclusion

visits because many were development workers and could be held accountable, there was some good data that was used for monitoring even though the HMIS had not yet been introduced, and there was good cooperation from the national level. Even though the shift was to functionally integrate services, the quality and commitment to vertical program interventions by the different workers carried over into their new roles. HP and VDC performance were measured and actions could be taken to solve problems. This time period had fewer resources but greater vision and drive to do something with them.

Then after the shift to democracy and the new health policy in 1991, the district system started falling apart. The numbers and types of staff increased but performance fell. Community mobilization and ownership was greater after 1991, but the political impact was to encourage a situation where people felt no responsibility toward their work. The politics of situations take precedence, especially those that involve the posting and supervision of staff. Staff turnover is now extremely high. In 1997, nearly a third of sanctioned posts for VHWs, HAs, and ANMs were unfilled. Further a 1998 study documented that only 40% of those at post are where they are supposed to be and 50% of them were not at post at all.

Even the peon knows the Prime Minister and you can't make him stay at post.

This is also when control of PHC and public health programs was given back to DHOs because they are medical doctors. Relationships between DHOs and DPHOs were and are strained, and there have been mixed messages about who is in charge of what from the center. DHOs are usually practicing clinicians also in charge of hospital based services. They cannot or will not leave the hospitals and rarely supervise the PHCCs and the HPs, yet do not always delegate authority to those who can. The most successful aspect of current district programs are FCHVs, volunteers with an increasing role and workload but with little political power.

With the local self-government act in 1999 and the shift of control of SHPs to VDCs, there have been positive changes in community support of the health system. This was helped by a stronger orientation program that is now provided to both DDCs and VDCs. VDCs have provided space, oversight of service delivery such as EPI, participation in monitoring such as for NVAP, and tangible support to FCHVs. This is believed to have resulted in increased utilization of several important child and family health services.

The Community Drug Program (CDP), which was initiated in 1996, has been another visible, though geographically limited improvement in community participation. The CDP has a functioning management committee and two to three months of government supplied drugs can now be topped up for twelve months. In some communities, shortages have decreased significantly especially for cotrimoxazole and Jeevan Jal, increasing local belief and trust in HPs and SHPs. However, the CDP is not without problems. It has been difficult to ensure the purchase and use of complete courses of antibiotics, and mechanisms to address equity problems by subsidizing drugs for the extremely poor have not functioned.

Beyond the progressive move toward local control of local health services, more recent policy efforts that have involved health sector reform have not been felt at district level. In part this may be due to the increasing problems and sequelae with the conflict situation which restricts health staff movement or mitigates against their presence at post. Districts are concerned with safety and immediate maintenance of services rather than with longer-term systems strengthening.

In the meantime, central level policy discussions continue without community input and with little district leadership input. The policy that grants FCHVs permission to treat child pneumonia

with special training is being reconsidered, despite the fact that communities strongly support it. Little has been done to address the problems of staff turnover and accountability, and practical solutions to DHO-DPHO working relationships are not being facilitated. Lists of policies and policy directions in reform documents are long, but strategic analyses have not developed the central level ownership and commitment necessary to influence district health system development at this time.

The PER report summed up the current situation as:

> ***Nepal's institutional capacity for strategic planning, policy development, resource mobilization, and coordination of external donors is extremely limited.***[57]

The Influence of Global Initiatives

After placing key national policy changes on the National Program Net, the dates of global initiatives and resolutions were also superimposed. As expected, global initiatives such as malaria eradication, UCI and polio eradication preceded and were strongly associated with the development of very visible vertical programs in Nepal. This may reflect external donor mandates and resources made available to the MOH in those times.

Technical guidelines for specific interventions were usually developed and disseminated from WHO prior to the launch of Nepal's programs. The two exceptions were those programs for which internationally recognized research was conducted: Vitamin A and ARI. While some guidelines were available from WHO (ARI algorithm) or other technical groups such as IVACG (supplementation guidelines for vitamin A), Nepal's implementation programs broke new ground. The ARI program was the first to demonstrate the feasibility of community wide case management with community health workers and vitamin A demonstrated the rapid reduction of mortality with a relatively low cost and doable intermittent distribution system.

Global initiatives that were less intervention-specific and more systems-oriented such as ensuring community participation and the use of community volunteers, or prioritizing programs on the basis of the burden of disease have introduced ideas into Nepal, but the effects have been much slower to appear. FCHVs followed Alma Ata by a decade, and it is not yet clear if reform efforts will improve both investment decisions and efficiencies.

One major question for the evolution of policies in Nepal has been the role of external donors. With 13% of expenditures on health coming from donors (compared with 11% by the government), it is likely that their mandates and inputs have had considerable influence. The health sector has many important development partners, and to assess all influences would be a separate study in itself as they are likely to involve both mandates and individual leadership. However, changes in assistance approaches are noted as an overlay for a few major child health and family planning donors. Several of these have been identified as important influences on program success and are described more fully in the Partnerships and Coordination section.

[57] PER, p 5

Summary

Several observations arise from program and policy evolution taken together.

- There is a consistent progression from global agendas to demonstration or pilot programs in Nepal, usually implemented with permissions that test operational strategies. For successful programs, official and specific national policies and standards or guidelines are developed during the scaling up process or approximately two to five years later. This would suggest that programs drive policy change and not the other way around.

- There are defined periods of expansion and retraction of individual programs with key turning points in the late 1970s, and 1987, 1993. These may reflect the growth and decline of global and external donor interests and resources, particularly for child survival. However, they also occurred during periods of rapid implementation of major policy changes and MOH organizational structures, with integration the major theme.

- Most individual programs point to one or two specific policies that were essential for them to grow. With the exception of family planning, these have had to do with authorization of health worker roles and tasks, especially for FCHVs, VHWs, and more recently MCHWs.

- The speed and scale of expansion of programs appears to have had little to do with policy, and more to do with deliberate programming decisions and the availability of resources. For two of the more successful programs (vitamin A and ARI), the pace of scaling up was slow in order to build confidence and support, and as a result both programs are perceived to be more sustainable. By contrast, EPI and polio were rapidly scaled up with the infusion of large amounts of external resources, which have led to questions about long term sustainability. It is likely that intervention complexity has also played a role in scale up patterns. The behavioral changes required for the success of programs vary greatly.

- External development partners have been an important influence on policy development, either through priority and funding decisions with limited negotiations, or through persistence and facilitation of DoHS level discussions and decision making.

- Changes in manpower policies without regard to the work that needed to be done or the feasibility of doing it have been a negative influence on both program development and success. Chronic understaffing of both central technical offices and community health service facilities continues to plague performance. Conversely, failure to enforce policies for maintaining staff presence and accountability because of political pressures has contributed to a worsening service delivery situation.

- Decentralization has existed as a policy for more than a decade but does not appear to have played a significant role in program success. The decentralization of health system functions has occurred at widely varying times, piecemeal and with mixed success. Planning, finance, training, and human resource management remain highly centralized at least in terms of decision making, while local level facility management, FCHV support, and some cost recovery are decentralized. External development partners have sometimes bypassed centralized functions by providing inputs such as training, resources, and technical support directly to districts.

B. Stakeholders, Actors, and Leadership

There are many actors and stakeholders at community, district, regional and national levels in child and family health programs in Nepal. These groups include:

Table 38. Actors and stakeholders at community, district, regional and national levels

National	Region	District	Community
National Planning Commission	RHDs	DDCs	CBOs/local NGOs
MOF	RTCs	DHO/DPHO	
MOH		NGOs/INGOs	PHCCs
DoHS: DG, Divisions, Centers		Technical Assistance	HPs
External Development Partners:		Multilateral/Bilateral Donors	SHPs
Donors (bilateral, multilateral),			
INGOs, Technical Assistance			VDCs
National NGOs: NRCS, FPAN, etc.			VHMCs
Private Sector Providers			
Networks: SM, NGOCC			FCHVs
Consulting Groups			

As noted earlier, the public sector provides a large proportion of health services, particularly in rural areas where most of the population resides, so many of the leaders and implementers of health program development have worked for the government in the MOH. The National Manpower Net illustrates the relative proportion of manpower by program areas over time. There are decreasing shifts in manpower in the big vertical programs such as Malaria, EPI, and CDD, corresponding to the time periods which immediately followed when they were global goals and had high levels of resources. By contrast, Vitamin A and ARI/IMCI started small and increased, though not as rapidly or as big as the big vertical programs had. ARI/IMCI is still in a growth stage. IDD has remained relatively constant over the years, while Family Planning has always been large with some constriction during the years following civil service reform. Polio Eradication stands out in a pattern similar to the patterns of EPI and Malaria in the past, and it is not yet clear what will follow.

The Local Manpower situation shows the shift from unipurpose, vertical project workers to multi-purpose community health workers. This integration of function began in 1987 and was rapidly accomplished. What is remarkable about the local situation is the change in scale of different types of community based manpower. FCHVs rapidly grew to become the biggest group of health and information providers, and now outnumber VHWs and MCHWs by more than 10 to 1. Most villagers have the greatest access to FCHVs by an order of magnitude.

Top leadership at the MOH rather than DoHS level has turned over rapidly over the years. The Minister of Health is a political position and with the many changes in Nepal government, it is rare for one person to be in the position for any length of time. Sometimes Ministers have had health background and other times they have not. Some interview respondents noted that while policy frameworks and long term plans existed, that Ministers usually came into the role with their own ideas, agendas, and interests which had to be addressed.

Over the years the Secretary and Additional Secretaries of health have been quite powerful. Some have taken and enforced breakthrough decisions, others championed particular programs or technical areas, and still others changed the balance of negotiations with donors. Equally, there

have been weak Secretaries who were not active and this seems to have been dependent on individual characteristics rather than structural constraints.

Other top leadership have rotated over the years through key and parallel positions such as chief of Planning and Foreign Aid, and Director General of Health. Some were reported to be stronger and more effective than others in terms of determining strategic directions and obtaining resources. Occasionally, these leaders might fall out of favor and were exiled to regions and districts, or to less important offices within the DoHS. Their effectiveness as leaders was determined by access to resources, especially donor resources, individual style and willingness to stand out, potential for recognition of achievement as with globally recognized objectives, level of source-force, and opportunity or being in the right place at the right time. Donors could influence their leadership effectiveness either negatively or positively by being proponents or detractors. With the reduction in health staff in 1993, many key leaders at both top and middle tier positions left government service. The top leadership usually shifted to UN agencies, either in South Asia or in Nepal, while the middle tier shifted to opportunities in the donor, technical assistance, NGO, or consulting sectors. In some cases they continued to exert leadership but from a different vantage point.

The group of leaders that were prominent in the late 1980s and early 1990s, included both women and men, and at some point had trained outside the country. They are still identified with the programs that they championed along with the goals they achieved, and their contributions are noted in program descriptions. Family Planning, EPI, Vitamin A, FCHVs, and Safe Motherhood have had champions over the years. Some of them describe the earlier days as being more conducive to change than in the new millennium.

> ***We used to work as a team. I could go directly to the Minister or the Secretary to get something done, even remove a person who wasn't working. Now you can't do it.***

Leaders would often mentor staff over time, bringing them together through transfers as they were shifted between divisions. There was a sense of obligation to teach and to reward staff that were committed. In the last several years, the working environment has changed and is now characterized by lack of accountability and blame. However, the current situation is not without bright spots; the commitment, professionalism and staff support of the current Director General's office is viewed as proof that a good working situation can be reestablished.

External Development Partners were also reported to have been influential, and much like their MOH counterparts are recognized for championing particular programs. This has occurred in nearly every time period, starting with the influence of UNICEF's James Grant during the years of UCI and for IDD, continuing through USAID's role with NVAP, and more recently with WHO's role in Polio Eradiation and DFID's role in Safe Motherhood. The type and level of influence provided by EDPs often depended on conditions within their own organizations. USAID's ability to act in NVAP and FP were the result of internal lobbying for special designation and additional resources. Program design was enabled by establishing omnibus projects that drew resources together and to flexibly address changing problems as was done with FP and CS in the late 1980s. UNICEF's strong role in UCI resulted from unequivocal direction and resources from its headquarters. Similarly, WHO is structured to follow through on regional and global resolutions from the World Health Assembly.

Influence has also depended on individuals and personal relationships between EDP and MOH personnel. An unusually large number of expatriate individuals have had long experience in Nepal and relationships established in one decade would serve to move things forward in another

decade. As MOH leaders have moved into multilateral and bilateral agencies this has broadened these bridges. Despite MOH staff turnover, institutional memory is a strength in Nepal's programs.

Influence could be negative as well as positive both on the side of the MOH and EDPs. Obstructionist, uninformed, or weak leaders in operational positions in the DoHS, or the DHO/DPHO level could strongly influence whether activities were implemented or not. For example, accounting rules could be used to divert transportation funds intended for supervision into legally acceptable alternatives. Weak leadership could result in poor presentation of plans and budgets to the MOF, undermining programs at an early stage. Several operational EDP leaders and advisors were also identified as obstructionist, using control of donor funds to dictate project terms. Others made decisions that diluted investments and achievements, based on a poor understanding of organizational and technical programs. The application of varying definitions of sustainability of programs to determine whether they should "live" or "die" was particularly individual.

Relationships between EDPs and the MOH can be problematic in any country because of competing interests, mandates, and beliefs. In Nepal, EDPs have been able to operate apart as well as together, and this has sometimes introduced inconsistent and parallel programs. In reaction to unresponsive leadership at the central level and because of the drive for results, EDPs have sometimes gone directly to districts and sub districts to implement programs. In almost all time periods, donors "balkanized" Nepal and divided up activities by region to make programs more feasible.

Part of the EDP district-oriented approach flows with decentralization and holistic programs that address all major areas of local development. (UNICEF's CPDP, DACAW) UNICEF now works through the MLD to focus these efforts on a few districts while building national capacity. GTZ and DFID have also been engaged in decentralization demonstration projects, while USAID's approach has been to focus on 17 districts in the NFHP. DFID will be phasing out its district work in favor of the health sector reform agenda. This limitation in districts has been identified as a problem in the PER study of 2000, because long term institutionalization and sustainability of benefits is compromised.

> ***External aid lacks transparency and clear linkages to national strategies. Efforts by some donors to expedite implementation of projects by direct links to the execution level have proved unsustainable and ineffective.***[58]

However, while sustainability and scale questions may remain, performance data in several programs (ARI/IMCI, CDD) have demonstrated effectiveness with this focused approach.

NGOs and INGOs are important stakeholders in Nepal's health programs. While they are concentrated in urban and easier to reach areas where services may be duplicated, they have been important partners in some health programs. In the case of Vitamin A and the Blindness Prevention Project, these were programs originally pushed by external donors but successfully transferred over to local NGOs (NTAG and NNJS). In ARI/IMCI and in EPI, NGOs have been able to provide the additional supervision and resources to test new approaches, while in Polio Eradication they have extended the reach of providers during NIDs. Some NGOs specialize in reaching vulnerable and marginalized subpopulations and can do so more effectively than the more standardized government systems. In Family Planning, NGOs have been both providers

[58] PER, p5

extending access to broader populations and technical support to strapped government systems as they have with the provision of training sites.

Opinions differ as to whether NGOs have had an impact on population health results. It is clear to most that well implemented, high resourced interventions have worked more effectively, but often in areas limited by geographic scope or target populations. Others think the contribution has been more indirect but nonetheless significant. NGO partnerships with government infrastructure such as with NTAG have produced national programs, and successful tests of experimental approaches by NGOs has led to new policies and programs as with ARI. It is likely that the sum total of all NGO contributions has had a significant impact, particularly in achieving wide spread coverage and more recently quality improvement.

The private sector has actors that fall into five groups of interest to child and family health. The first is that there are hospitals, nursing homes, and private practices that serve the middle and upper classes primarily in urban areas. Private practices also play a role in the provision of Family Planning services and for tasks such as clinical training that are outsourced from the MOH. There is a large cadre of traditional healers of several different types who provide parallel and overlapping services to communities as they have for many years. The Contraceptive Retails Sales Company provides social marketing services for contraceptives and ORS, and has a significant market that contributes to CYP and CPR. As in most other developing countries, drug stores provide services and medicines throughout the country often without the benefit of prescriptions. The private sector is poorly regulated in Nepal and there are few formal linkages, with the exception of CRS which is minimally privatized, and FP service contracts.

More recently at the national level, some networks have become significant actors in health. In particular the Safe Motherhood Network, a consortium of over 70 NGOs successfully lobbied for approval of maternity care guidelines and national events that support decision making for safe motherhood services. Other networks such as the NGOCC have been less influential as advocacy to technical support groups.

The regional level has an assigned role as part of MOH systems, but has not been a strong force in influencing programs or results. There have been good Regional Directors in certain time periods especially when they were first established, but in general their space for action is limited.

As noted earlier, the district level is key to the health system and with decentralization of authority to DDCs, the stakeholder environment has grown. The DDC and its subcommittees provides the venue for district level actors from all sectors (voluntary, political, government) to work together to craft, support, and improve health services and benefits. This is a more recent phenomenon and anecdotal stories of effective and ineffective DDCs are starting to be documented. Respondents reported that DDCs are demonstrating greater ownership and voice, but it is unclear what effect this has had on programs, especially given continuation of centralized target setting and planning.

At the district level there are also NGOs who operate in partnership with the DHO and the DPHO. Many NGOs support or facilitate government services, but they also support local NGOs or CBOs who may provide their own services. NGOs often have aims that are broader than government health service objectives, such as the empowerment of disadvantaged classes or the building of local decision making skills. Thus more vertical or circumscribed services that tend to be narrowly target driven such as family planning acceptors or ORS use, may be of less interest to NGOs than community development achievements. While this may cause some competition or friction between NGOs and health programs, it can also be supportive in areas that require longer-

term behavior changes such as utilization and support of FCHVs or development of EOC interventions to reduce delays.

Just as the district level has become more important as stakeholders, devolution to the VDC/ SHP/FCHV or community level has become more important. VDCs and their associated health committees are now important actors in the management of SHPs, FCHV endowment funds, and individual programs such as Vitamin A. Most community-based programs invest in and address orientation and engagement of VDCs in relevant activities. Similarly, FCHVs have become the largest "work force" for health (insofar as volunteers can be considered a workforce) with roots in communities and access to the most vulnerable groups. The influence of these groups on the effectiveness of programs at the local level is high but more recent. It is not yet clear what effects this movement as a whole will have on program results as more and more VDCs and FCHVs are activated.

Summary

With its unique geography and culture, its small health system bureaucracy, and its relatively recent engagement with the outside world, leaders and important actors in child and family health in Nepal have been well known and accessible to each other. These actors primarily include the government, EDPs (donors and technical assistance organizations), the voluntary sector (INGOs, NGOs, faith based organizations), and traditional healers and leaders. With the possible exception of small drug store owners, the modern private sector has played a more recent and less visible role in health services evolution.

- The development of child and family health programs has often been driven by EDPs, particularly donors, and sometimes by MOH or DoHS leaders with a specific agenda. Almost all effective government leaders have focused on one or a few areas of interest, while effective donors have persisted in a few areas and applied available resources accordingly. NGOs have made important contributions but these have tended to be viewed as organizational rather than individual, and to have contributed to operational improvements.

- The Safe Motherhood Network is a unique example of a consortium of NGOs acting together for the purposes of advocacy. While effective, it has been a more recent phenomenon, which grew in the favorable environment of post-democracy Nepal.

- There have been (and still are) charismatic Nepali leaders running highly successful health programs both at national and at district levels. Before 1990, most of these were in government service. Since 1990, they have been working from a wider range of platforms, especially with EDPs and NGOs.

- The government service experiences high turnover of leadership positions both political and bureaucratic. This has disrupted specific program development from time to time, but continuity is sometimes retained by the common practice of shifting leaders into different but related positions.

- The development of FCHVs as a large, grassroots labor force was initially led by the MOH, but was operationally capitalized on by EDPs. FCHVs in their own right, provide a large proportion of direct service delivery to mothers and children, and are recognized by communities as health leaders. As the program has grown, the appropriateness of this

leadership and their sphere of activity has begun to be questioned by central authorities. They are currently seen as an expensive resource.

- The instability of political leadership in government after 1991 has created a difficult working atmosphere within government service where accountability and commitment to service are lacking. It has eroded leadership authority and flexibility, and changed the "rules of the game" for resolving problems and making changes. This situation is made more difficult by the current state of conflict with the Maoists. It is not yet clear what effect both situations will have on program results, but it has effected program implementation.

C. Partnerships and Coordination

The role of coordination between and among programs and organizations, and the history of partnerships between organizational actors were reviewed from the perspective of interventions and effects on health outcomes. "Coordination" was taken to mean any type of actions, agreements, or processes that were used to provide common support to interventions or programs. This support might have involved inputs, planning, implementation, or evaluation functions in programs. "Partnerships" were defined as interactions between organizations in which the partners worked together with the intent of achieving mutual, strategic benefits that no organization could obtain alone.

Formal committees or networks rather than informal partnerships or groups were the focus for this review, while coordination was considered more broadly. For example, coordination has been achieved sometimes by the facilitating actions of individuals who worked together without the benefit of groups or written agreements. At other times, structures have been established to control and coordinate efforts but more as authorizing bodies than as collaborative groups. (NHTC, NHIECC). There have also been common, integrated systems developed such as the HMIS and LMIS which result in drawing organizational efforts together.

As with policy and stakeholders, there are partnerships and coordination issues and effects at different levels, involving different groups. The most important partnerships for health are at the national level, although very recently there has been growth and strengthening of both district and community level partnerships as part of decentralization. Many of these have been government sponsored and although traditional forms of community partnerships exist, they do not appear to have been a significant factor. After 1990, partnerships between NGOs and between NGOs and the government became more important at the district and community levels. The aim of NGO with government partnerships was usually to complement and activate the government health system to provide standard services and education. Sometimes NGOs partnered with the government to implement innovative, experimental, or extended programs. The aim of partnerships between NGOs was usually to build the capacity of local NGOs or CBOs as implementers or supporters of health programs to make them more effective and sustainable.

Table 39. Partnerships and coordination at national, district and community levels

National	District	Community
Ministry of Health	DDC	VDC
External Development Partners	District Health Committee	Village Health Committee
	RHCC	
DoHS	SMSC	Mother's Groups
Reproductive Health Coordinating Committee	IEC Committee	
Safe Motherhood Subcommittee		INGO-NGO-CBO
CB-IMCI Working Group	INGO-NGO-CBO	
TB Committee		
Contraceptive Security Committee		
Interagency Coordinating Committee (Immun)		
Polio Eradication Committee		
Nutrition Committee/Vitamin A Committee		
NGOCC		
SSNCC/SWC		

National Level: Government and Donors

For the health sector at the national level there are two distinct types of partnerships with different functions. The highest level involves the MOH and external development partners who interact on policy and overall resource issues for all of health. As noted earlier, in the health sector, external development partners have followed their own mandates and officially determined relationships, and have generally not engaged in coordinated macro level planning or funding. In fact, sometimes EDP relationships were conflictual and competitive; in the late 1980s when the World Bank moved into the health arena they were not welcomed by the other donors who thought that they would exert undue influence. In various time periods, USAID, UNFPA and UNICEF were all reported to have gone off in their "own directions."

Mandates and interests have changed over the past twenty years, and have been subject to global initiatives and individual leadership decisions that in retrospect helped and hindered programs at various times. A formal EDP that works with the MOH was put together more recently but it is still a loosely organized group that has not been willing to engage in difficult policy debates or speak with a common voice. This situation is compounded by difficulties on the MOH side where they, the MOF, and the NPC are not always well coordinated. It is not clear yet whether new efforts at health sector reform at the MOH level will really govern health programs, but if they do then the strength of partnerships at this level may become more important to achieving results.

One of the main mechanisms that currently underlies some partnerships and has contributed to the coordination of donors and the government with respect to health programs is the annual supplemental work planning process. Plans may be authored by government staff or by technical assistance groups but the process of negotiation of the budget pages has resulted in complementary resource commitments to programs. This has worked most effectively with the vitamin A program, family planning, and CDD, and less effectively with FCHVs. The development of long term plans such as for Safe Motherhood and Immunization has also enabled coordination, although with less close connections to annual financial commitments.

Effects of the lack of EDP coordination at the program rather than the policy level have been important because of the high proportion of external financing of health, but they have also been mixed. In cases where large amounts of resources were available from one donor with a particular approach (as for UCI or for VSC), results were still achieved. However, they were not sustainable or flexible in terms of finding alternative funding when resources declined. In other cases such as for polio eradication which has high levels of resources, results have been achieved but reportedly with costs to other program's results. A program such as Vitamin A, which draws upon organizational strengths or financing potential of donors in a complementary or coordinated way, also achieved results but is believed to be more stable and sustainable. Interestingly, this coordination may be more a result of facilitation by local technical expertise than of donor groups.

The perils of lack of coordination may be more visible at a systems or operational level than at a program level. One of the most striking areas of lack of coordination is in the area of training. During the past year, some districts received over 18 different major training courses, each sponsored by a different agency and each providing substantial allowances. Training was not coordinated from the central level nor controlled by district leadership resulting in large amounts of time away for staff from service delivery activities. The effects on health results cannot be directly assessed but certainly diminish the potential to reach target populations.

Coordination of NGOs and the public sector has been attempted at higher policy levels, and at program levels. In the 1980s, NGOs were registered under the SSNCC—a body chaired by Her Majesty the Queen. The SSNCC controlled where NGOs worked and had to approve program plans and budgets, although health related proposals were also passed through the MOH for review. The SSNCC was intended to coordinate and evaluate NGO inputs, but did not really influence health program efforts or results. In the 1990s, as NGOs rapidly expanded, the SSNCC was transformed into the SWC, which has a similar but less politically controlled role. At this point, NGOs have agreements with the SWC, but formal and informal arrangements with the MOH were reported to be more relevant to coordination of interventions or programs. This lack of a clear policy framework that guides and coordinates NGO work undermines their potential effectiveness in the context of the bigger health system.

Strength of Program-Specific Partnerships

The second level of national partnership usually lies within the oversight of the DoHS or in earlier times with the vertical health programs. These partnerships have clearly involved coordinated planning and decision-making, funding, implementation and evaluation, although they been more effective for some programs than for others. Each of the individual intervention programs was assessed for the strength of partnerships and coordination. The criteria for determining strength were high leveraging of resources, influence, and actions, the value added to impact, and low transactional costs. What is interesting is that partnerships could add considerably to impact both with low and high transactional costs.

In the mid to late 1980s, EPI, CDD, Malaria and Family Planning were all considered to have strong partnerships compared to the other programs. The malaria program was coordinated in its heyday but as with other components these strengths were all lost when the program constricted after 1986. When malaria drops out, it is replaced by the IDD program at the time when movement into salt iodization accelerates along with impact on health. At this point in time, the commercial and public health sector had to move into formal partnerships, which may have succeeded in part because of the low transactional costs involved.

With the UCI initiative, the EPI program deliberately moved into social mobilization and the use of cross sector partnerships to support campaigns and increased coverage. The campaign mode of implementation combined with a deadline driven goal, demanded and got a greater level of coordination than what was generally in play for routine services. In the case of EPI, both the partnerships and coordination were effective but were supported by considerable additional funds. When those funds decreased and with the personnel crisis after 1991, partnerships dissolved along with their effects. Of interest is to note that while the ICC has been reactivated more recently in conjunction with GAVI funding, it is perceived as a more formal and less operational mechanism for coordination.

By contrast, partnerships and coordination for the polio eradication initiative that operates as a vertical activity, are very strong. As with UCI, social mobilization-type partnerships are used extensively for NIDs and coordination for IEC, service delivery, and AFP surveillance is emphasized. The costs of these activities for the PEI are extremely high and raise the question whether they will dissolve when external funding is no longer provided. It is also not clear if these partnerships will have any spinoff effects. For example, are they or will they contribute toward the growth of the ICC?

The family planning program was probably the first program in Nepal to use public-voluntary sector and public-private sector partnerships. The strength of partnerships grows over time and extends to a greater number and type of organizations as the number of NGOs and the range of private sector providers expands. Partnerships have existed and continue to exist at both policy and service provision levels, and they were truly leveraged to extend the range and scope of these services. In addition the Family Planning program has probably made use of a greater number of working relationship arrangements from memoranda of understanding to outsourcing of services and tasks when the government could not provide them. Family planning has effectively used partnerships to leverage both outputs and outcomes. The transactional costs of partnerships has not been low, but neither has it been as high as for EPI or PEI.

Partnerships and coordination of CDD have been in place from the beginning based on external funding agencies and technical assistance. While they are stable over time, this is due mainly to their value in leveraging resources. Value added to impact does not change much over 20 years, although respondents reported that community level partnerships (the blue plastic cup) did add value in those areas where it was implemented. Transactional costs for CDD partnerships have been fairly high; in particular the late 1980s were characterized by differences in opinions on technical approach. This situation has remained stable despite integration of CDD services into IMCI.

ARI/IMCI appears to be following a similar pattern to CDD in this early stage of implementation, although there may not have been enough time to see if value is added to impact when greater scale of implementation is achieved. In contrast to partnership strength as measured by weighted scores, in interviews the ARI/IMCI program is reported to have made extensive use of partnerships at the district and community level. Typically NGOs (such as CARE, SCF, and Plan) and district health teams are paired to strengthen the quality and follow up of programs and EDPs such as UNICEF and the NFHP provide complementary support for introductory activities.

In 2000, the vitamin A program moves into those with stronger partnership components at an operational level. This reflects in part the deliberately slow expansion strategy for reaching the whole country, and the fact that they are not leveraging additional resources or actions specifically for vitamin A. The vitamin A program has been successful by both output and outcome measures, yet extensive partnerships do not seem to be an important element of that success beyond the unique relationship between NTAG and the DoHS, and perhaps funding and supply agreements at the donor level. This may be related to the nature of supplementation programs and/or to the fact that now that it is well instituted in communities, the vitamin A program has become a better foundation for other programs. (Therefore partnership value added to impact would be in the other programs.)

Partnership Groups and Coordinating Mechanisms at the National Level

There were several examples of coordinating mechanisms or groups at the program level that were reported to be effective by those interviewed. Most of these are formal constituted committees and are of more recent origin (post 1993). The mechanisms of coordination in the 1980s and early 1990s were more informal or event based. For example, interagency evaluations of CDD were conducted every five years to assess progress and determine longer term agendas, conferences and workshops such as for Vitamin A were held to build technical consensus, and working groups such as for development of FCHV training curricula and manuals were set up. Most of these supported program development but did not provide ongoing fora for coordination.

The more recent success stories included the Contraceptive Security Committee, the RHCC, the SMSC, and the CB-IMCI Working Group.

The Contraceptive Security Committee involves several organizations including one that forecasts need and supports logistics (JSI/NFHP), one that procures commodities (UNFPA), others that fund (USAID/KFW/DFID), and the DoHS. This partnership works well because there are clear outcome indicators which can be used to document results (CPR), a focused technical policy on which most parties agree (RH policy), well designed technical assistance, strong DoHS leadership, and a working mechanism for annual review. The quality of coordination is good partly because it involves commodities that are concrete items that focus debate. The contribution to results in family planning are clear and in contrast to shortages and stockouts of earlier years.

The Reproductive Health Coordinating Committee (RHCC) was also recognized as a strong force for coordinating most actors under the auspices of the DoHS. It was started by the current DG, and provides a forum for technical leadership, common planning, sharing of experience, and consensus building. Similarly, the Safe Motherhood Subcommittee (SMSC) of the RHCC brings together those organizational actors to provide guidance, plan, review, and act on extension and improvement for Safe Motherhood. The reasons both of these committees have succeeded have to do with leadership and ongoing commitment provided by the division heads and the DG, and the added support for dedicated coordinators that sit in the FHD. A coordinator provides logistical support and facilitates meetings, minutes, and follow up actions. The success of these two committees was reported to be in increased technical quality, stability, and efficiency of implementation. It is not clear how this has or will translate into improved outcomes.

The CB-IMCI Working Group is another effective committee that brings together actors in community based child health and IMCI. As with the other groups, they provide technical review and guidance, share experiences and results, plan and coordinate for the expansion of CB-IMCI programs at district level. This working group has been supported and encouraged by a local technical assistance agency which maintains close working relationships with CHD leadership. In addition, there have been several key actors with longevity in this program who have been able to maintain development over time. The result thus far has been to expand the FCHV-based CB-IMCI model to additional districts by leveraging support through local partnerships.

District Level Partnerships and Coordination

In the 1980s, many health programs were vertical, with separate workers and little coordination at the district level. With centralized planning, budgeting, and evaluation, there was little scope to manage resources locally within the public health sector. When events such as EPI campaigns or mobile VSC camps were organized, government health staff might work cooperatively, but in general there few incentives and some disincentives to coordinate actively.

Before effective decentralization at the end of the 1990s, coordination at the district level between the government and voluntary sectors was done by formal and informal meetings or exchange of information for planning and reporting. The quality and effects of coordination were district or region and organization-specific. Some such as partnerships between BNMT and the government to provide TB or essential drug services in the East, between SCF and Gorkha District to support child immunization, between UMN and local hospitals, or between SCF/UK and four district health centers were welcomed and effectively contributed to outcomes. Other relationships were more separate or parallel in nature, benefiting small populations rather than local systems.

With the advent of DPHOs in 1987, the mechanisms for district level coordination increased in importance and NGOs were brought together to plan. This arrangement first provided support to the delivery of some services, particularly mobile vasectomy camps and EPI. By the late 1990s, DDCs and district health committees had increased in authority and capacity. All organizations working in health regardless of affiliation were and are expected to work together under the auspices of the district health committee. Almost one third of districts were reported to have energetic, active guiding groups. The most active institutions are usually facilitated by NGOs who may provide training in planning and monitoring, as well as technical support for FP, CDD and ARI/IMCI.

With the success of the RHCC and SMSC at the national level, similar coordinating committees have been started at the district level. In addition some districts have local IEC committees that are charged with developing materials that are locally relevant. All of these committees serve to bring implementing and political partners together, and to enable national programs to work in local contexts. These structures are believed to contribute toward increasing access to SM and reproductive health services.

Coordination at the VDC level is intended to be managed by village health committees as they gain ownership of sub health posts. At the community level, there are mother's groups through whom community level activities might be coordinated. In practice, there have been few resources or groups to coordinate beyond FCHVs, vitamin A distribution, and NIDs. While much of the coordination for the two rounds of vitamin A distribution or NIDs are handled by national and district level staff, there are tasks and activities that are organized and lead at the community level. These might involve collecting children for dosing, coverage monitoring, or follow up of missed cases.

Summary

Partnerships and coordination have come to play a more prominent role in Nepal's health system in the past several years. In part, this may be a result of the expansion of the voluntary and private sectors and the development of more effective decentralization. In part, it is a reflection of increasing government leadership in instituting and supporting more effective mechanisms for coordination at both the national and district levels.

- EDP and government partnerships and coordination at MOH policy levels have been weak. This has appeared to affect health sector reform but not program-specific progress, especially when high levels of resources have been available. However, this may have affected the development of MOH commitment and ownership and has affected the sustainability of program results especially in immunization.

- Partnerships with NGOs have become more accepted at the program level. NGOs participate in technical/operational level coordination and are increasingly visible at the district level. This has been important to the success of programs such as ARI/IMCI although the scale of effects is limited.

- The family planning program has the greatest variety of partnerships and working relationships which have evolved over the years to extend coverage and improve quality. Cross sector partnerships have been used effectively by the EPI program during UCI campaigns, and by the PEI for NIDs. However, these have depended upon outside resources and have had time limited impact.

- Several coordinating committees have been established recently under DoHS auspices, including the Contraceptive Security Committee, RHCC, SMSC, and the CB-IMCI Working Group. All provide fora for technical exchange, planning, assessment, sharing of experiences and policy formulation. Some have produced visible results such as stable supplies of contraceptives and increases in CPR, and extension of high quality ARI/IMCI services. The success of these committees depends on leadership attention and dedicated coordinator support which encourages active participation of a broad group of stakeholders.

D. Integration

The integration of health services and programs has been a global theme and a global debate over the past twenty years. In general, the trend has been to structurally and functionally integrate primary health care programs to improve efficiency and effectiveness, to better meet the needs of patients and communities, and ultimately to achieve greater scale and sustainability of benefits. While integration has been increasingly emphasized, it has gone hand in hand with several other important trends, especially decentralization, cost sharing, and more recently prioritization based on evidence. This makes it difficult and sometimes misleading to analyze separately, and so it should be taken together with all components discussed earlier.

"Integration" can be viewed on different levels (community, district, nation), and from structural or functional perspectives. It can be mandated by policy or it can occur as a consequence of systems and human resources changes. Components and systems in the Nepal health system both contribute to and detract from integration and therefore affect the achievement of intended benefits. Today, Nepal has achieved a fairly high level of integration of services, systems, and human resources at local levels, but has been less successful at the central level particularly in terms of health reform. The public expenditure review states that programs are inadequately integrated, which results in duplication of effort and inefficient implementation. However, it is not clear how this links with successful health outcomes, particularly for child health.

Overall Trends

Since 1980, there has been increasing integration of both technical interventions and systems within the health sector. The decade of the 1980s in Nepal reflected vertical global approaches to malaria, family planning, immunization, and CDD, with ineffective attempts at more integrated primary health care through projects such as ICHSDP. Programs were not only structurally separated and funded individually, but for the most part maintained separate operational systems. These systems included planning, information, logistics, training, supervision, and evaluation. Separation was reinforced by the government through target setting for programs at district and national levels, by red book budgeting and accounting procedures, and by leadership directives. It was reinforced by donors through funding mandates and conditionalities as well as expectations and recognition for results.

In the late 1980s, the MOH began to shift structures and levels to integrate management of the lower levels of the health system. Regional directorates and the Public Health Division were established, and multipurpose health worker cadres such as VHWs and FCHVs were initiated. The positive effects of integration at this time were limited; the one major reported success from a management perspective was the 1987 district level creation of the DPHO.

Some vertical programs achieved impressive results in this time period, especially in light of the reach of health care services and the challenges of Nepal's geography and limited infrastructure. Family planning services, particularly VSC, were extended through mobile clinics to underserved areas and immunization was offered in all 75 districts through massive outreach efforts. These vertical projects mobilized human and material resources, and through a combination of leadership, new strategies and staff commitment maintained a high level of service delivery. Other vertical projects such as CDD and ARI did not fare as well, perhaps because they received less donor attention and resources and perhaps because they did not lend themselves as well to campaign-type service delivery.

By contrast, a major theme of the decade of the 1990s was integration of health programs, systems, and the MOH. Restructuring was extensive and with the advent of democracy in 1991, the beginning of more visible efforts to decentralize to districts and VDCs reinforced the need for integrated services. The National and District Program nets illustrate the overall shift from vertical to integrated programming from 1980 until now, while the systems analysis illustrates some of the operational effects.

Programs and Interventions

For immunization after 1991, integration at the national level with its extensive personnel cuts lead to a significant decline in cold chain quality, supervision, training, micro-planning, and ultimately service delivery. Coverage rates dropped nationally indicating decreasing scale of activity and only began to recover towards the middle of the decade. Family planning services suffered a similar but less extreme fate in terms of declines in quality, logistics, IEC, and supervision. There was a marked loss of institutional culture in the late 1980s, followed by a period of confusion. However, this was resolved in the 1990s, and more recently there have been significantly improved logistics, data management, and quality assurance.

Integration was a positive force for CDD and ARI programs, and in part reflects the decade long shift from CDD/ARI to IMCI and CB-IMCI. In the late 1990s, both CDD and ARI have experienced improved logistics and supplies, training, supervision, and use of community based workers. They remain core components of a broader package of services and and intermediate outcomes appear to improve at community and district levels. However, integration at other levels, especially for health facility-based services and national program leadership have proceeded more slowly and it is not yet clear what will happen to CDD/ARI/IMCI services vis a vis expanded emphasis on higher levels of care. It is possible that integrating services could dilute efforts as challenges to reproductive, maternal, and newborn health become relatively more important. This would be especially true if limitations are placed on FCHV service provision.

The Vitamin A program was initiated during the height of integrating child health interventions and throughout its implementation has made explicit efforts to interact with, if not integrate with related programs. This deliberate approach to implementation was in part a response to observations that service delivery would approximate a “campaign” approach of twice yearly supplementation, and in part reflected plans to build sustainability at the outset. The NVAP used vitamin A distribution as the entry point, working with FCHVs, communities, and districts to reach a clear and simple result (coverage), and to build local knowledge, ownership and participation in activities to get to that result. Self reliance and minimum outside investments in activities were program principles. At the beginning Vitamin A was integrated into district and community machinery but still appeared as a vertical health intervention.

Once NVAP was established and successful, deliberate efforts to extend core systems, approaches, and commitment to a broader spectrum of programs was undertaken. At the community level, the NVAP has worked with FCHVs as multipurpose workers, with the broad aims of empowering them as providers and establishing them as legitimate community level resources for health. NVAP systems for training, monitoring and supervision (surveys and meetings), and BCC have been applied in other programs such as ARI/CB-IMCI and CDD. The NVAP has achieved extraordinary results both in terms of coverage and effects on child mortality, but it may also have provided a foundation from which other program results have begun to be amplified.

Structures and Systems

The most fundamental shifts toward integration occurred after 1993 with the implementation of the new National Health Policy, and with coordinated donor investment in a few key integrating systems, especially information and logistics.

Prior to 1993, the MOH provided the structural home for the Public Health Division. The PHD was comprised of seven focal points or divisions including EPI, CDD, TB/Leprosy, FP/MCH, Nursing, and on a lesser scale, Nutrition. Each division or focal point had its own information and logistics systems, and work plans. Vertical workers were disappearing at district levels in favor of multipurpose workers, but divisions still controlled resources, training, targets, and reporting. After 1993, the MOH was restructured into departments. For the purposes of this analysis, the DoHS is the most important. The former health program divisions were then integrated and after several adjustments resulted in the Family Health Division, the Child Health Division, the Management Division, the Logistics Management Division, and several centers, the most important of which is the National Health Training Center.

The effects of these structural changes have been increased communication between related program areas and some consolidation of longer term plans. The DG for health has theoretically greater scope for aligning different programs, coordinating activities, and locating and supporting synergies. This is seen most clearly in the more effective coordinating committees (RHCC, SMSC, etc.), but is not really seen in annual plans and red book financing. Divisions and centers still retain boundaries in the DoHS, largely through access to resources and leaders, and less effectively through mandate. For example, the FHD and CHD have separate and substantial external and government funding, and while they participate in various coordinating groups, are essentially implementing their own programs. The problem of where to "locate the newborn" whose health depends equally on both FHD and CHD core programs illustrates the gap. The NHTC has an integrated role by mandate; all in-service training of primary health care workers should be approved, coordinated, and scheduled through the center. However, few resources have been made available to the NHTC and donors or development partners routinely go around the system which does not have the capacity to implement the targeted training needed.

The strengthening of logistics systems through the LMD and the growth of the HMIS for monitoring and planning, have both served important integrating functions within the DoHS. Both systems were mandated but received significant technical assistance and investment for development. Key individuals and divisions were involved in their evolution, and because they provide concrete supplies or information that are used and increasingly expected, they are important bridges across divisions. The LMD and the HMIS are more effective systems in that the former has achieved relatively consistent and improving supply of key items, and the HMIS provides a minimal set of uniform data for all programs. The LMD in particular, has contributed to outcomes in that consistent supply and distribution mechanisms are essential components of programs. The HMIS continues to have some quality problems but there is now an annual review system involving districts and regions which at least forms the basis for data based improvement. The question now is whether either system is more efficient than the vertical and limited systems that they replaced.

At the district and community level, integration reflects the activation of civil society mechanisms to participate and manage local health services. In 1991–1993 when restructuring was started, integration was less successful as compared to after 1993, when VDCs and the health system infrastructure were brought together in more effective ways.

From 1991–1993, the three major spheres of influence were the DPHO, DMO/District Hospital, and the community. VDCs existed and were involved in SHP development discussions, but were not meaningfully involved in either their management or the management of HPs. FCHVs straddled communities and the DPHO. They were often viewed as instruments of government service, but were clearly of the community without the benefits of other civil servants. The development of SHPs was intended to increase accessibility to integrated government services, but in the beginning they were seen as poorly staffed extensions of HPs, many of which were not utilized. In this time period, the DMO/District Hospital and the DPHO were separate, although referral systems linked them. The relationship between the DMO and DPHO was characterized by friction, and there was little connection between hospitals and the communities they served. It was the integration or lack thereof of programs that structured the services that communities received.

After 1993, and reinforced by the growing attention to decentralization, service delivery structures and local management came together more effectively. SHPs are increasingly owned by communities and managed by VDC health committees. DDC and VDC participation in health program planning and monitoring is more apparent and more important. Finally, the DPHO and DMO have been merged into one entity which works with communities and DDCs, and in theory should allow stronger linkages between primary and secondary care services. In practice, the DMO role as both clinical provider and public health system manager has not been well worked out.

There are anecdotal reports that integration of local participation and management with the health system have helped solved problems such as lack of supplies or health worker motivation which contributes to increased utilization. The evidence is stronger in the case of FCHVs who have been targeted in programs such as Vitamin A and ARI/CB-IMCI. The current situation may require more time to assess contribution to effectiveness, although the impact may also be lessened by the effects of the current conflict situation.

Human Resources

The most notable change that was made in the Nepal health system as programs were integrated, was the growth of multipurpose primary health care workers at district, community and health post levels. The local health manpower net illustrates the development of FCHVs and VHWs. Similarly, MCHWs and AHWs increased in number and reach. These individuals offer integrated services at health center, health post, SHP and outreach levels. While some services are not offered daily (immunization at SHP/outreach sites, vitamin A supplementation), a core package of basic services is now largely available. The coverage for these services in this time period seems to have become more stable, and in some cases increased.

Summary

- In line with global trends, health services and systems have been increasingly integrated in Nepal. At the district level, integration effectively began in 1987 while at the national level, integration was more effectively implemented in 1993.

- In the 1980s, vertical programs such as malaria, immunization and family planning effectively achieved results in the face of infrastructure challenges. When integration of programs was mandated and resource bases were changed accordingly, first systems of implementation, then results suffered significantly.

- By contrast, programs that did not do as well vertically such as CDD and ARI, improved with integration. The scale of this improvement increased as district and community level participation, including FCHVs, increased.

- The Vitamin A program came into existence when integration of programs was both expected and assumed to provide a foundation for sustainability. The entry point for NVAP into districts and communities was vertical in the sense that a single, intermittent intervention was pushed. It was also integrated in the sense that FCHVs were used as the cornerstone, that full and equal use was made of VDC and DPHO/DMO participation, and that successful systems and approaches were rapidly extended to other programs such as ARI. The nature of the vitamin A intervention may have lent itself to a successful hybrid that capitalized on the strengths of both vertical and integrated programming.

- The national level of the MOH has been increasingly integrated within the DoHS, but the potential value added from this integration has not been fully realized, particularly at policy and resource levels. This situation is in part a reflection of donor driven mandates and funding priorities. It may also reflect the pressures of GON planning and financing systems, and the current unstable political situation.

- Systems within the MOH have served integrating functions such as logistics and HMIS, although the positive effects may be felt more at the district and service delivery levels.

- Local participation and management have been increasingly integrated with the health system at district and community levels. Anecdotal evidence seems to show improved problem solving, and in the case of programs such as vitamin A, higher levels of local support. It will take more time to assess effects on results.

- The greatest integrating force within the health system are primary health care workers at community and district levels. However, their ability to provide a range of services at accessible times and places also depends on centrally driven decisions and systems. Some systems and activities reinforce integration such as the HMIS and logistics. Others reinforce separation such as budgeting and accounting, training inputs from a multitude of sources, program specific targets and supplemental resources for all consuming events.

Conclusions: Program Evolution and Scale

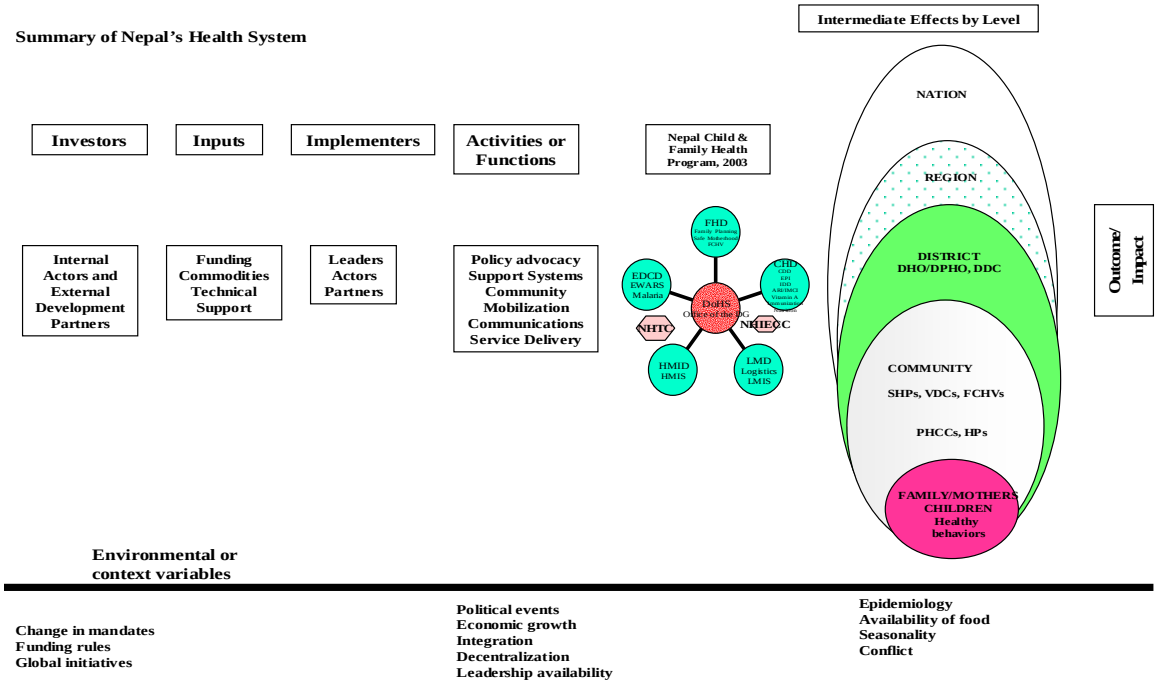
This study set out to understand the process of evolution in Nepal's child health and family planning interventions, and to identify the context, program strategies, actions, and characteristics that contributed most directly to improvements in health status. There has been considerable documentation of the positive changes in Nepal's child health and family planning programs over the previous two decades.

For example, there is quantitative evidence that directly links child mortality declines with the country's Vitamin A Supplementation Program; with maternal tetanus immunization; and with increases in birth intervals achieved through family planning programs. As with any complex system, however, the quantitative evidence masks a number of other factors, including:

- A range of decisions and actions by investors
- Fluctuations and conditionalities of inputs
- Capabilities, decisions, and actions by implementers
- Changes in child and family health interventions and structures
- Sequencing and interactions of activities in advocacy, systems development, mobilization, communication, and service delivery
- Intermediate effects at each of the interdependent levels, from individual mother and child to a nationwide context.

This report has attempted to document the evolution of these components using documents, expert interviews, and group discussions. This chapter synthesizes and distills the myriad elements into those that appear to have been most important to success in shaping Nepal's health system to meet the needs of its families and children.

Figure 43. Summary of Nepal's Health System



What have been the health improvements?

From the early 1980s to the present, infant mortality in Nepal has declined by 40% and under-five child mortality by 42%, despite political unstability and little economic growth. During the same time period, the Total Fertility Rate has declined 20%, while CPR increased almost fourfold. In contrast, however, the nutritional status of children has not improved—there has been less than a 1% reduction in stunting per year over the past 20 years, and maternal mortality remains high. While some of the improving health trends reflect secular trends, their magnitude and speed of change are also associated with health behavior changes and related interventions.

While the declines in mortality and fertility represent remarkable progress, it is important to note that they remain relatively high in comparison to other countries. The U5MR of 91 and IMR of 64 demonstrate a child death profile from preventable or treatable causes that include the top three perinatal causes, ARI, and diarrhea, followed by measles, malaria, and HIV/AIDS. In addition, malnutrition remains a strong underlying cause. The TFR of 4.1 reflects the continued prevalence of high population growth rates and short birth intervals—two of the most important of cofactors for child mortality.

In the overall context, there have also been positive changes in health services utilization and household practices some of them dramatic. For example, from its inception in 1993, the National Vitamin A Program has achieved over 80% coverage of all children 6–59 months, with declining inputs and remarkable stability year to year. The ARI/IMCI program, after shifting to a community-based focus in the mid-1990s, is now available to approximately 30% of children under five. Of the population of children with accessible services, nearly 60% of expected cases of pneumonia have been treated.

In addition, over the past decade the proportion of fully immunized children has doubled, from nearly 30% to 60% of those reaching their first birthday. Polio eradication activities have been even more successful: 96% of children under five have received polio vaccine during National Immunization Days, or NIDs. The IDD salt iodization program has also improved health dramatically, especially given the previously high underlying rates of cretinism in some mountain areas. In the last decade iodized salt has become the norm for nearly 70% of households; cretinism has disappeared and goiter prevalence has dropped dramatically. The Contraceptive Prevalence Rate, or CPR, has also increased rapidly since 1981—from a starting point of a CPR below 10% and comprised primarily of VSC methods, to a 39% CPR with more rapidly increasing uptake of spacing methods.

While the Safe Motherhood changes have been much less dramatic, there has nevertheless been some improvement. The proportion of pregnant women making antenatal care visits has almost doubled to 28%, and TT coverage of pregnancy has reached 45%. While affecting only a small group, these still may have contributed to findings of decreased infant and under-five mortality in the 2001 DHS. Also less dramatic have been CDD program achievements, which have remained relatively flat over the years. With reactivation in 1993, ORS and home fluid use rates did increase to nearly 50%, but have remained stable since then.

The remaining two programs under study, nutrition and malaria, have not achieved improvements in behavior change or in utilization. For malaria, the shifting epidemiology of the disease and vulnerable populations makes interpretation of data difficult. It is clear, however, that early diagnosis and treatment as part of a control rather than an eradication program have not been widespread in endemic areas. And as for nutrition, compared with micronutrient programs, nutrition programs have not been effectively implemented. Breastfeeding, however, has not been

a health problem in Nepal; it is a widely practiced norm—although deficiencies in exclusive breastfeeding continue to exist, with more than half the population continuing to practice it. While weaning, supplementation, and growth monitoring programs have been implemented at various times over the past 20 years, they have never achieved effective-use levels in communities. This is reflected in the limited change in stunting of children.

On balance, however, there have been significant improvements in both the health of mothers and children, as successful programs have delivered both information and services. What were the underlying factors in these programs—their systems and their interactions that shaped services and demand, and ultimately led to improved health status?

What changed from the 1950s to the new millennium?

The most important changes and their evolution over the past 50-some years are summarized in the timeline found in Annex B.

What have been the turning points or drivers of change?

Taken together, the grand time line and program evolution nets indicate turning points where changes fundamental to the development of Nepal's health system and health status results appear to have happened.

Turning Points

- *1982 and the Basic Minimum Needs Policy:* This policy clearly established and then reinforced the government's commitment to providing support and basic services, including primary health care, to all populations in Nepal. While overall financing may have continued to favor higher-level care and more privileged, urban populations, the policy nevertheless codified the principle of reaching all children and their families with globally-proven interventions. The policy was also communicated to donors.

- *1987 and the establishment of DPHOs in districts:* The shift to integration of all vertical health programs into one office at the district level run by public health-trained leaders was ordered by the Secretary of Health, and implemented immediately. This allowed rationalization of health workers and their tasks; support system strengthening and efficiencies; and actions and decisions by district-level leadership. In the early days of the shift from vertical to integrated work, the motivation, skills, and accountability of vertical workers carried over into integrated work with good results.

- *1988 and the initiation of the FCHV program:* The program enabled effective entry of adult women into the health system and established the beginning of "local expert" links with communities, households, and, more recently, governance structures. The interface between provider and client became more intimate, more frequent, and more effective, even if limited to a few intervention areas with uneven implementation. While the program was brought rapidly to scale over the objections of donors, it has nevertheless produced some of the most impressive national-level results. A second turning point in the FCHV program came in the mid-1990s, when FCHV roles were expanded to include more visible service provision tasks, especially the distribution of Vitamin A capsules and the treatment of ARI.

- *1990 and the national scale achievement of UCI by the EPI program:* The EPI program demonstrated unequivocally to communities, the MOH and central government, and to donors that a primary health care program could reach "everyone" (80% of the population) with modern services that include injections and vaccination. While enormous resources were required and dependence on mobile services was high, a large cadre of motivated and skilled health workers were deployed to difficult-to-reach areas and vulnerable populations. Technical problems such as cold chain and sterilization were viewed as challenges, with problems identified and addressed. The EPI program set the standard by which other interventions would be judged.

- *1991–1993 and the shift to democracy; the promulgation of the new national health policy; and the establishment of Sub-Health Posts:* The change in government introduced possibilities for participation and engagement of the voluntary (NGO) and private sectors on a larger scale and in a greater range of technical areas. This expanded the range and quality of services, and allowed national technical experts to function in new arenas in partnership with government colleagues. It also provided additional channels for applying resources to community-based programs. The new national health policy restructured the MOH at central and district levels; began to define relationships with local governance authorities; and extended access to services through the SHP system. The relative stability of technical programs within the DoHS has allowed greater attention to the more challenging problem of providing quality services versus providing a large quantity of services. In tandem with community engagement through FCHVs, the SHPs have created a tangible presence for primary health care services at the local level.

- *1993 and the advent of behavior change communications:* In 1993, the JHU Radio Communication Project was begun, applying a rigorous, more behaviorally oriented approach to IEC. This launched activities designed to change the behaviors of both providers and clients, and aligned methods and channels more appropriately. Subsequently, more creative and effective components were developed within intervention programs such as vitamin A, including shifting the responsibility for developing more locally appropriate materials to district levels. Now many programs have integrated communications strategies that support program objectives.

- *1993 and the establishment of the HMIS and the LMIS:* The design and development of these two information systems that cross-cut almost all programs led to their becoming useful tools, serving important integrating functions. For the HMIS, the basis for using data to identify problems and make improvements was established despite continuing data-quality issues. Central-level analysis and documentation practice has perhaps contributed to development of operational leaders. The LMIS, in conjunction with the development of the LMD, not only provides information to forecast and distribute commodities, but has led to improved availability of stock in local health facilities, which previously had the reputation of stocking out for three months in any one year.

- *Post-1998 and potential turning points:* The systems, policies, and interventions discussed above are now more identifiable in part because of the hindsight and reflection of people working within the system. There are other interventions that have been recently established that may eventually be recognized as turning points, but which cannot be adequately judged at this time. Nonetheless, they should be examined as health system development continues to unfold in Nepal.

For example, laws and policies that protect women's rights have been implemented recently. They are intended to broaden service availability, access, and, most importantly, quality. These may build on more general client and provider rights and policies.

Decentralization, which had been occurring slowly over time, received a strong push in 1999 with the passage of the Local Self-Government Act. It is possible that meaningful community and district management of resources will therefore continue to grow, and that problems of inequity will be more effectively addressed.

Coordinating mechanisms for donors and the government have increased in number and effectiveness, especially at the technical program level in the last three years. These mechanisms may consolidate what have been individual instances of effective coordination into broader efficiencies and better allocation of resources.

The prevalence of HIV/AIDS has increased significantly in recent years, although it is not yet at levels that over-tax the health system. With predictions of an exploding epidemic in India, however, it is not clear if or when high prevalence rates will occur. This could become a turning point, as has been so tragically demonstrated in Sub-Saharan Africa.

The current conflict situation has disrupted primary health care services, particularly in more remote, rural areas. Perhaps more importantly, food and agricultural production have been affected, which could lead to greater malnutrition of vulnerable populations such as women and children, and to social violence. Although the conflict has not yet been reflected in declines in health service statistics nor in health status measures, without political stability in sight, the it could become a turning point of considerable magnitude.

Program Influences

An important aspect of Nepal's health system development has been the way that different intervention programs influenced or drove progress and results in others. Considerable movement of ideas, systems, approaches, and staff has been documented. What difference have these movements made in learning, in accelerating maturity, or in reaching geographic scale? The interrelationship diagram below identifies the major influences of intervention programs on each other. (Since malaria control occurred much earlier and now receives little attention, it is not an element in the diagram.)

Family planning, vitamin A, immunization, and the FCHV programs provided important inputs to other programs. In contrast, nutrition, safe motherhood, IDD, CDD, and ARI/IMCI received many more inputs than they have provided. As one of the earliest programs to be implemented, family planning might have been expected to transfer more systems-related experience, especially in areas such as quality of care and counseling. However, while transfers were helpful, they were not remarkable—although they did provide "piggy backing" opportunities, such as the use of social marketing for ORS or distance learning for FCHVs, as well as overlaps such as encouragement of exclusive breastfeeding as a contributor to prevention of pregnancy. It may be the legacy of the vertical project and the VSC approach, or that family planning is still perceived as somewhat separate and problematic—especially when compared to child health—that prevents it from capitalizing on the interaction potential with FCHVs. Nor does it capitalize on access to women through Safe Motherhood services, or the empowerment of women in communities

through the Vitamin A Program. This raises the question: how *does* the Family Planning program view potential leveraging?

The Vitamin A Program has influenced many other programs in a number of ways. It has provided safe motherhood services, such as dosing of post partum and night-blind pregnant women, and nutrition services such as de-worming of children. It has also transferred successful approaches, including training and supervision to ARI/IMCI and CDD programs. And it has expanded the scope of its monitoring system (mini surveys) to IDD. It has sought to empower FCHVs through training, mobilization, and endowment funds in a deliberate effort to sustain coverage, and it has contributed to mobilization for ORS. The commitment of the NTAG leadership to continuous learning within NVAP has contributed to a focus on outreach, and to NTAG's success in obtaining support to influence other programs. There are several effects, including maintenance and extension of the success of NVAP itself through rapid comparative learning, and improvement and increased status through adding value to others. Interactions may also serve to place the Vitamin A Program in a health services web, much as integration served to put interventions together at community levels—which is likely to contribute to impact and sustainability, but probably less so to achievement of scale.

The immunization program has provided services that contribute to the success of other programs and to health results, as is seen with TT for Safe Motherhood, DPT and measles for ARI/IMCI, and lapiodol for IDD before salt iodization was widely implemented. These contributions are embedded in the nature of the intervention, which tends to be cost effective, and in the need for centralized systems such as cold chain and injection safety. The immunization program has been less successful utilizing or leveraging potential inputs, perhaps because of its extreme vertical nature before 1990 and its reduced success afterward. More recently, GAVI may have refocused attention on immunization as a distinct activity with distinct support needs. In any case, lack of interactions has affected sustainability and scale when external resources were not available. While polio eradication is an exception to the observations about immunization, it has focused its interactions on obtaining manpower for social mobilization.

As the front-line interface with clients, the FCHV program is pivot point for many programs. These programs efforts to train, supervise, supply, and empower FCHVs have extended access and improved results. It is possible that they have also increased learning in addressing client needs, and increased acceptance. The question of sustainability because of the scale of the program has been raised elsewhere. With the exception of the Vitamin A Program, which has maintained volunteer principles and worked with incentives and minimized system inputs, sustainability may be problematic.

As the least successful of all child health programs in Nepal, nutrition has not influenced other programs; instead, it tries to add its own services to other, more successful programs. These programs contribute to isolated nutrition results, but not particularly to systems or approaches. Both the ARI/IMCI and Safe Motherhood programs, and to a lesser extent CDD, are "receiver" programs. For Safe Motherhood, this may reflect program maturity. Safe Motherhood has maintained a double focus (on community access and provision of more complex EOC), and has only recently implemented a comprehensive approach. The target groups of pregnant, in delivery, and post partum mothers also differ from many of the other programs, and as a result activities may seem more separate. However, one could ask the question, would more interaction accelerate improvements in community access, and are these likely to be more sustainable? Scale is unlikely to be affected, given time requirements to similarly improve secondary care services.

The ARI/IMCI program has improved results by engaging FCHVs and greatly increasing rapid access to life-saving treatment. Much of the reason it receives influences may be timing. It was built on what had been learned in earlier FCHV programs, CDD, and vitamin A. As experience is gained with longer-term implementation and greater scale is achieved, it is possible that more complex care-oriented interventions will benefit.

In summary, there appear to be benefits in terms of influence on young programs, or more deliberate interactions with successful predecessors. The most dynamic and successful programs extend varied influences outward, perhaps learning from and leveraging experiences. However, the type of influence or extension of a program to another matters. Simple sharing or piggy-backing of services may expand reach, but it is the exchange of systems or approaches that both reinforces the link and may engender feedback.

What has led to Nepal's health improvements?

Context

- **Nepal is a unique country with globally recognized attributes, including Mount Everest, other spectacular physical topography, and a rich history with diverse cultures.**

Nepal has attracted the interest of explorers, adventurers, travelers, academics, and development workers. Combined with the fact that until recently it was isolated and had low levels of development and government bureaucracy, investor interest and resources have remained relatively high.

- **At the outset and even up to 1980, Nepal had some of the highest levels of mortality and fertility in the world, and low coverage of health services.**

While tragic, this situation does make it easier to measure the health status changes that have made large differences to families. Many interventions are more immediately effective when situations are extreme and positive achievements are reinforced.

Intervention Content and Results

- **Results were improved when new, clarified, or focused interventions for the community level became available. While there are simple and complex interventions in terms of adoption by providers and clients, and some are easier to "reduce" or "focus," success was made more likely by an identifiable guideline (which is what really matters).**

Easiest ⟷ **Hardest**

IDD Vit A polio FP perm EPI Malaria ARI/CDD FP temp Nutrition SM

For most of these interventions, global guidelines have become progressively clearer, simpler, and more focused as they were field tested and revised in first countries. In the 1960-70s, while the malaria eradication guidelines were clear, they were later called into question. Declines in performance followed changes in approach and unclear guidelines. This situation has not changed in Nepal; it would be instructive to review the situation in Africa. With the advent of PIT, ITNs, rapid treatment of febrile illness in children, and selective spraying of houses, it is possible that

malaria program performance can be improved. The Vitamin A intervention was new in 1993, but simple guidelines had been constructed from extensive field research and clarified through consultative meetings of country practitioners (rather than policy makers). Vitamin A is probably the most successful program in Nepal.

The EPI program, while more complex and driven by higher technology, has also had clear guidelines, with the possible early exception of TT. Standard vaccination schedules were produced but adapted to country epidemiology; cold chain standards and methods for measuring them set; and before disposable and AD syringes were available, sterilization procedures were specified. Immunization guidelines continue to be refined and widely publicized. Areas which are new and where guidelines have not been practical, such as for injection safety, continue to be program problems and hamper results. The ARI/IMCI program expanded and quality improved when the CHW algorithm became available and was accepted as standard practice by the MOH. There are many Safe Motherhood guidelines that are focused either on EOC services in facilities or on community-based care. At this point, the guidelines for community services are difficult to align and reconcile in Nepal (such as designating a "skilled" provider according to a global standard), and this may slow uptake and effective support.

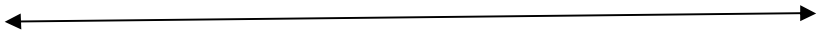
- **Those interventions that were the subject of controlled research in Nepal have enjoyed accelerated introduction and been better supported by both the government and donors.**

Globally recognized research was carried out for both the effectiveness of community-based Vitamin A supplementation and ARI programs. Based on demonstrated success in Sarlahi and Jumla Districts, Vitamin A supplementation was moved rapidly into policy, and was well supported, first by USAID and then by other donors. Target district coverage was high from the outset, and while scale-up to all districts was deliberately slow to establish a foundation for sustained delivery, coverage has remained high.

The ARI program benefited from effectiveness research carried out in Jumla, which led to rapid acceptance of WHO guidelines for health facilities. However, because the Jumla program had used community-based workers who were outside the government system, it took longer to gain acceptance of a CHW approach. Further research, including a pilot with FCHVs referring cases, and then a comparative study of FCHVs managing cases provided the basis for the ARI/IMCI program that now exists. Coverage within districts has increased compared to health facility treatment, and continues to increase with program maturity. Scaling up is a much slower process because of support system requirements and the dependence on NGO-district health office partnerships; nevertheless, one quarter of Nepal's districts are now covered.

- **Results improve and become more widespread when the country-level "how" to implement programs becomes clear and success is visible to either providers or people or both. In this case, interventions that are more complex to manage can take longer to accept, although they did overrun [right word?] natural acceptance or adaptation time when sufficient resources were available and campaign or event approaches could be taken.**

How complex is the running of the program?



IDD VitA Polio CDD ARI EPI FP/Perm Malaria FP/temp Nutrition SM

The programs that have worked out operational strategies and plans for reaching people have been more likely to succeed. When combined with the belief and commitment of either the supply or demand side that comes from visible success, coverage has reached high levels, although the former required more resources to accomplish the "push" out. When combined with the belief and commitment of community people, high coverage has been sustained.

With the exception of Safe Motherhood, nutrition, malaria, and some aspects of temporary-method family planning, operational strategies have been worked out. Intermediate results have progressively improved. At times, successful operational strategies may have faltered through inadequate adaptation to changing circumstances. For example, EPI/UCI was clear, but was disrupted when reorganization of personnel and resources occurred.

The "visible" successes for programs that showed results in various time periods are summarized below. "Visible" success or value is not usually seen as declines in mortality. Programs that have built belief in their value by communities or clients appear to have sustained services and outcomes, perhaps as a result of more effective demand. This does not hold for malaria, but much of the visible effect may have been attributed to spraying, rather than health services per se. Vitamin A and ARI are the most successful community-based programs, reflecting belief and commitment at local levels. For ARI, parents must recognize the illness and obtain care from the FCHV or health facility.

EPI, polio, and family planning have been effective at building belief among providers. All three programs have taken similar approaches, emphasizing campaigns or pulse activities supported by extraordinary resources. Coverage has increased rapidly, but in the case of EPI/UCI was not sustained. In earlier times, family planning was able to engage committed providers with incentives as well as mobilizing resources from across the MOH. Considerable coverage with VSC was achieved, but spacing has been less successful—as can be seen from birth interval data. More recently, family planning has focused on quality and meeting needs. Along with increasing reliability of inputs, providers are more engaged and coverage (CPR) has increased.

The example of the CDD program is instructive. While ORS and home fluids have been pushed for 20 years, use rates have stagnated. While the use of special blue plastic cups was effective as a mobilization strategy for some time, in general, CDD has never been able to convincingly demonstrate a valued result.

Table 40. "Visible" success for programs that showed results in various time periods

Malaria	Opened up uninhabitable land where land is crucial to life	Providers Community
FP Permanent methods	Can do high-tech medical services in remote areas, reach large numbers, meet need for families who finished childbearing	Providers Community
EPI	Reached everywhere with extraordinary means and demonstrated could be done	Providers
Vit A	For everybody; given by local person, "vitamins" are desired; kids like it	Community
Polio	NIDs, mopping up; tied to AFP surveillance	Provider
ARI	Treatment that works when none did before; sick child improves with a drug	Community
IDD	Lathi/Latho not visible anymore	Community
FP Spacing methods	Logistics improve and become reliable; training improves	Providers
CDD	Outcome not visible or valued; plateaued buy-in to ORS	Neither

Implementers

- **The rapid growth and shift of emphasis of programs to local level manpower, particularly the FCHVs and SHPs, increased results and the scale of results.**

After Alma Ata there was a shift in thinking about manpower from medical staff to village health workers and volunteers serving their own communities. This was intended to expand the availability and accessibility of simple primary health care services. The VHW cadre was formed in the early 1980s from the vertical workers of EPI, FP, and malaria, but they were always seen as a part of the health post and not necessarily of the community. Expanding access to services depended on their movement around several VDCs, usually subject to the availability of allowances and oversight. Then from 1991-1993, SHPs at VDC level were established and AHWs, MCHWs, and VHWs were posted closer to communities. In theory, services were to be continuously available within a short walking distance.

It took over a decade after Alma Ata to effectively begin the engagement of volunteers or the FCHVs. The FCHVs—and to a lesser extent, the SHP staff—greatly expanded the personal interface with largely illiterate and rural communities. This expanded the opportunity for interpersonal counseling as a key element of the behavior changes needed for most interventions. It also expanded the availability of services. FCHVs provide all vitamin A used for prevention; supply ORS; and re-supply pill clients throughout the country. ARI/IMCI case management is made far more accessible than through health facilities in one quarter of the districts; utilization and coverage statistics amply demonstrate their success. The scale of success exceeds what is possible without rapid and large changes in care-seeking and staff behaviors.

Two observations are of note. First, the success and scale of the success of these programs has occurred without resolving some of the more intractable supervision problems. This is not to say that supervision isn't required or desirable—just that implementation can be done to this level without a strong system. Second, those programs that did not choose to utilize or depend on FCHVS for more than provision of information have not enjoyed the same increases in coverage. For example, in the early years of FCHVs, the FP program viewed them as incapable of handling the complexities of providing most methods. For the Family Planning program to expand and achieve face-to-face engagement with more clients, both FCHVs and a more clear "how" to implement may be required. Similarly, the Safe Motherhood program has concentrated on the MCHW and separate community mobilizers, and is only now working on how to engage the FCHV.

This finding is in keeping with research from successful organizations. By concentrating on and optimizing the smallest, replicable unit that is focused on the interface with the customer, success is more likely.

- **Results increased more steadily with the shift to integration for public health and focus on the district in 1987, followed by some integration at the center after the new health policy of 1991. Integration may be reinforced by the more recent growth of coordination in some areas.**

While the initial shift to integration was traumatic and some systems (such as supervision) have never fully recovered, the implementation of interventions stabilized and began to steadily improve in most cases after 1993. Programs shifted from a more piecemeal, clinical and resource-dependent approach to service delivery with a more public health-needs approach. Some interventions, such as ARI/IMCI, CDD, and FP, improved after an initial adjustment period.

Others such as EPI/UCI took longer to recast themselves as a program. It is possible that continued reluctance to integrate presents a barrier to immunization improvement.

A second theme that began later and with less seriousness of purpose than integration was decentralization. However, much of the planning, budgeting, and important decision making is still made at the center in Nepal. More recent acts and the initiation of the MLD add weight and potential; however the conflict situation has also slowed implementation. It is possible that decentralization will be an important theme for Nepal, but since it has only recently become operational, it is unlikely to have produced either increases in intermediate results or outcomes.

- **The programs with the most engagement, flexibility, or adaptation to the local level were more successful. (This does not imply local ownership.)**

All programs have been oriented toward providing services or information at the local level. Some programs recognized and more effectively addressed differences between villages, districts, ecozones, cultures, and languages. Sometimes the differences were identified externally and were either handled as supply-side issues or alternative plans for engaging community actors. Others were communicated by local communities or authorities and received a response. When the EPI/UCI program rapidly increased coverage, it did so by implementing different schemes for mobile clinics and using many routes for supplying vaccine and other supplies. Problem solving was almost of a military nature, focused on the provision of vaccinations by any means possible. EPI/UCI was an example of centrally driven flexibility. This era was followed by a micro-planning approach that was intended to apply appropriate strategies locally to increase coverage. However, this became more of an exercise to be completed and less of an example of local engagement, and was therefore less successful.

In contrast, Vitamin A was implemented as a community-owned and managed program from the outset. While guidelines for supplementation were set, local plans for child health days were developed, VDC members and FCHVs participated in monitoring coverage surveys and IEC, and a system for rapid turnaround and response to problems was informally established with districts. The approach was carried across sectors to establish a broader support base. This has resulted in some of the highest levels of participation in any program over a sustained period. The FCHV endowment fund is a second-generation approach to the need for local sustainability.

After initial testing, the ARI/IMCI program was designed to be implemented through district–NGO partnerships. These partnerships provide technical support, resources, and motivation to identify and solve problems locally. Refresher-review meetings codify a process of regular review and improvement, and have contributed to resolution of cotrimoxazole supply problems and increasing recognition and self-referral of pneumonia cases, among other outcomes. The success of this approach is seen in increasing percentages of treated per expected cases of pneumonia.

Elements of local adaptation for Family Planning are seen most clearly in the activities of some NGOs. CEDPA pursued a strategy of engaging local female workers or volunteers, instigating change in their status and activity levels, which increased FP method use. Other NGOs that had received USAID child-survival grants demonstrated similar results through community organization and mobilization.

Investors and Inputs

- **Global priorities drove the introduction and scale of programs. Priorities within Nepal's health programs were linked to the leadership persistence of some donors. The most successful programs had a clear donor mandate and external resources.**

The national program net and timelines clearly show that both family planning and child health interventions came in following global initiatives. The timing and scale of introduction of these programs reflected donor mandates and resource availability. For the most part, the health problems of Nepal matched initiative intent.

The four strongest examples of globally driven programs were Family Planning, EPI/UCI, Polio Eradication and Vitamin A. Family Planning, introduced in Nepal in the late 1970s and early 1980s with strong USAID backing, was a large program, in VSC and in moving commodities. In the late 1980s, donor attention decreased, but was reinstituted in the early- to mid-1990s, when CPR began to increase rapidly. In periods of program growth, USAID provided strong leadership and obtained additional funds.

EPI/UCI was the first global program after smallpox eradication to engage all donors and governments in shared targets and rapid expansion. The UNICEF drive to enable Nepal to reach UCI was highly focused, superseding many other development programs—. both global and local leadership complied. High levels of additional funds were obtained from donor governments, and 80% coverage for DPT3 was achieved.

The polio eradication program has clearly been a global initiative with regional overtones, since the subcontinent still harbors wild polio virus. As with UCI, donor mandates are clear and time limited: funds and human resources are obtained, with a large share of MOH attention. For eradication to succeed, the program had to be implemented nationally and simultaneously across districts.

The Vitamin A program was of special interest to USAID and also to UNICEF, which has provided capsules. With earmarked funds and results-driven mandates, USAID pushed introduction of operations. While both organizations would have wished more rapid scale up to a national level, USAID leadership nevertheless persisted in moving the program forward, building legitimacy and recognition of achievements. The timing of the implementation of Vitamin A and PEI were coincidental. Interestingly, both programs have been effective at national scale, although with completely different implementation strategies—the former more bottom up and the latter more top down.

- **There needed to be commitment to and promulgation of the government's commitment to meeting the primary health care needs of all people. This was a precondition to prioritization and perhaps to integration.**

This commitment was provided by the Basic Minimum Needs policy through its dissemination among stakeholders in the country. It provided justification for strengthening PHC as well as a vision that could be commonly held.

- **Success of these programs at scale depended on national leadership and how it came together. The effectiveness of leaders was reinforced by access to resources.**

- **Significant manpower changes or weak leadership in the government negatively affected results.**

Programs have been most successful when both national and investor leadership has been strong and congruent. For EPI/UCI, effective and charismatic leadership existed at all levels, from headquarters at UNICEF and the UNICEF mission in Nepal to the Expanded Immunization Program. Leaders were able to make and articulate decisions and to direct resources, motivate staff, and rapidly solve political and bureaucratic problems. Similarly, the FP program was lead in the early 1980s by a visionary Nepali, complemented by energetic technical assistance and a committed USAID health officer. The result was that VSC acceptance rose steeply. After a subsequent period of lower interest, in the mid-1990s, the Family Planning program expanded with greater resource support. This was a time of expansion in quality of care and improved counseling, which resulted in increased acceptance of other methods. Again, the program had a strong Nepali leader (who eventually moved to a higher but supervisory level). And new USAID health officers strengthened the mission's interest and identified additional resources.

The Vitamin A program was well supported, starting with research leadership in NNIPS (NNJS and JHU), and continuing with USAID-supported expansion. The development of leadership within a Nepali NGO that provides technical support to the MOH in conducting the NVAP has been a unique, but effective, approach. This has obviated some of the problems introduced by weak and poorly supported nutrition sections in earlier years.

While the ARI/IMCI program has followed a path similar to that of vitamin A, it has not enjoyed the same national-level success or formal support. The roots of the ARI program are also research-based, involving a recognized Nepali physician and technical-assistance colleagues. Extension into government systems was facilitated by specific USAID health office staff, then nurtured by a technical assistant with close connections to the CHD. In addition, an important subset of districts has widely available case management services.

The Safe Motherhood program has moved forward under challenging circumstances with strong FHD and DoHS leadership. Technical assistance provides important support within the ministry, and funds are mobilized from DFID, UNICEF, and the PMM. This program appears to be growing in leadership commitment, but it is early for major changes in results.

- **Many mechanisms to circumvent inefficient government financial management systems have been employed as essential to program progress. Mechanisms have included supplementary work plans and budgets; directly provided activities such as training; going directly to districts; and using NGOs, partnerships, outsourcing, and fees.**

Government financial systems are plagued by release and reimbursement difficulties, and arcane rules—recently Red Book releases have averaged 70% of expected funds. In order for programs to carry out critical activities, though (whether training, supervision, mobilization, printing of materials, or meetings), resources have to be at the right place at the right time. Thus every donor and DoHS counterpart has participated at one time or another in one or more circumvention methods. These methods can be said to have contributed to the results of every program.

- **The longevity and familiarity of national and international technical support resources with Nepal have contributed to maintaining MOH interest in programs, obtaining resources, and expansion.**

Partly because Nepal is a special place, international technical support people tend to stay engaged with country programs for long periods, even if there are interruptions. This has contributed to institutional memory, development of relationships that enable deeper engagement, and continuity. For example, JSI has been in country for over 20 years, and several individuals have participated over the long term in ARI, vitamin A, LMD/LMIS, and FP programs. Similarly, UNICEF staff have worked in immunization for years, and DFID staff may have passed through on SCF UK postings. The absence of a revolving door on the input side has helped to offset MOH staff turnover. As noted earlier, while national technical support may have shifted organizational affiliation, experienced people have often remained engaged in different roles.

- **Post-democracy partnerships expanded to include both voluntary and private sectors. This added to both the quality and the quantity of results.**

The Family Planning program has made the most extensive use of partnerships, beginning in the 1980s with NGOs. Since that time the number and type of partnerships has expanded to include private provision of services, quality assurance support, and joint service delivery. The reach and quality of services have increased. The ARI/IMCI program has designated agreements between NGOs and districts to provide facilitation and technical input to supervisors. This has bolstered government system weaknesses and resulted in high-quality service provision. The Safe Motherhood network is an unusual partnership of over 70 NGOs, with the goal of raising awareness at grass roots and national levels, and strengthening advocacy to obtain adequate resources for SM programs. The SM Network was able to accelerate the approval of maternity-care guidelines for service providers, and to conduct events in support of family behavior change.

- **Effective donor coordination has contributed to the scaling up and sustainability of some interventions. Although coordination does not seem to be needed for success if sufficient resources are available from one donor, if resources diminish, success may not be sustained.**

The coordination of inputs for both the Vitamin A program and contraceptive security has built on the relative strengths of donors, resulting in more stable external financing and supply. By contrast, the lack of coordination during EPI/UCI was not essential during the years that UNICEF provided high levels of resources. However, when funding declined precipitously after 1990, resource shortfalls affected coverage. Coordination through joint work plans and the RHCC, SMSC, and CB IMCI committees has also been successful. However, this coordination is more recent, and it is not clear how closely it is linked with utilization or behavioral results.

Activities and Systems

- **Certain key permissions, rather than policies, allowed rapid, initial demonstration of programs. The programs then obtained a few simple policies in order to scale up, most of which authorized workers to carry out specified tasks.**

When vitamin A and ARI research were being implemented, key permissions were granted by the NHRC. As vitamin A moved into government operations, vitamin A guidelines were approved, based on research and international meetings. The one key policy required was for FCHVs to be authorized to distribute capsules. The ARI/IMCI program followed a similar path, with one

important difference. International guidelines and the Jumla experience guided the Nepal adaptation of the first ARI policy, which allowed controlled review of CHW case management. Permission was thus obtained to pilot the program with FCHVs in Chitwan district. Based on this step, a second level of permission was granted to carry out a comparative but operational study for FCHVs to manage cases and to refer only. After external evaluation to ensure antimicrobials were not being misused and FCHVs were reaching greater numbers of sick children, permission to expand was granted. This permission, which fits within the more general guidelines, is again being questioned, however.

- **The focus on and intensive development of logistics management and information systems have been critical to first stabilizing, and then increasing, utilization. These steps have been supported by donor and government coordination around logistics, and particularly in contraceptive security.**

The effects of improved logistics in the late 1990s have been well documented earlier. They helped to eliminate national stock outs and ensure continued support; to rationalize allocation, supply, and distribution; and are beginning to empower local levels to procure more effectively. The effect on contraceptive supply has been significant, although the effect on drug supply has been mixed. Coordination through groups such as the Contraceptive Security Committee has worked because it there are clear aims, performance measures with data, and a focus on problem solving.

Prior to the LMD and systems development, the EPI program was noted for its logistics, including vaccine distribution, cold chain, and equipment distribution. The importance of cold chain logistics was underlined by the willingness of the civil service to create permanent posts for district-level assistants. EPI logistics also involved capital purchases; the lifespan of refrigerators, freezers, and other equipment is longer than for most commodities. Therefore, despite the decline of EPI after UCI, it was still possible to provide logistics. However, as 10 years passed with no plans for equipment replacement, logistic systems deteriorated and the quality of vaccination suffered—one of the first steps in GAVI plans was to seek donor investment to remedy the situation. It may be important to note that there are differing logistics needs and time frames for each program.

- **The use of specialized data-monitoring systems to bolster knowledge of program performance and problems has contributed to improvement of programs and results, which have then been used in advocating for support.**

The extensive use of specialized monitoring systems in Nepal has provided more reliable and detailed information than is available through routine collection systems. Starting in the late 1980s, the EPI program maintained a district coverage survey team that ascertained coverage in a significant number of districts every year. As the years progressed, more elegant tools were designed and implemented for similar purposes. For example, the Vitamin A program uses mini-surveys to determine coverage; the process has recently been extended to IDD. The ARI/IMCI program maintains a simple database of a few indicators collected over time in NFHP districts. And DHS surveys have provided mortality and fertility information to understand trends. These have been analyzed in great depth to better understand correlates and associated variables. Capacity to design, apply, and use these tools and the information they provide continues to be built through experience.

- **Training is necessary and important to the development of competence and performance, and the participatory methods used more recently have produced better results. However, since much of the most effective training is provided outside the constrained government system through NGOs and development partners, it is poorly coordinated.**

Government capacity to train cannot meet current needs, especially given the speed with which interventions evolve. As with financial systems, development partners have gone around the system when it has been unable to respond to deadlines for rapid expansion. Such circumvention has begun to undermine district delivery of services, as balkanized training sessions pull providers away from post repeatedly. And, while approaches to training have become more participatory, government systems have been slow to change. One program that is heavily dependent on training large numbers, "untrained" former government staff by teaching participatory and respectful approaches.

- **Community mobilization has been effective in stimulating demand for services and changing behaviors. There have been two successful approaches: the large-scale and costly social mobilization associated with EPI/UCI and Polio Eradication, and the more geographically limited NGO programs.**

Clearly, polio and immunization coverage increased rapidly through the use of social mobilization techniques. Large numbers of volunteers and facilitators were mobilized to increase participation in events such as NIDs and monthly vaccination clinics. NGOs have pursued more of a community-development approach, often in a holistic, cross-sectoral manner. While NGO engagement with communities has been effective, it has resulted from longer-term investments in development of community structures and activities.

- **In contrast to IEC activities, more recent and improved communications approaches have contributed to large increases in Family Planning acceptance and to Vitamin A coverage.**

Communities and Individuals

- **There have been increasing community and individual expectations for health services and/or inputs. This may have contributed to growth in demand and subsequent actions.**

Over the past 20 years, local awareness of health problems, services, and behaviors has increased. It is difficult to assess changes in expectations, but when interventions were successful, communities began to ask for other interventions to address perceived problems. For example, the success of the ARI program in Jumla led to requests for management for diarrhea, and later for family planning. FCHVs who have distributed vitamin A or who have managed pneumonia want to provide treatment for other ailments. One program or service leads to the next, and so forth. This has two possible spin-offs. One is that programs phased in during later time periods benefit from the shared experience of earlier programs. (This is supported by the interrelationship exercise.) The second is that demand for more reliable and effective services increases. This is in keeping with advances in the protection of client rights, and what had been increasing participation in democratic government. With the current conflict situation, it is unclear what the progression will be, but a major contributor to increased results must be the advancement of the population.

Annex A: Introduction to Analysis Process

The original objective of this study was to identify and understand child health and family planning program strategies, actions, and characteristics that contributed to the health outcome results observed in Nepal. The challenge for the analysis process was threefold. First, the aim was to organize and structure a large volume of information drawn from many sources into a common picture. Second, there was a process of distillation of that information into observations and findings that shed light on important accomplishments, changes, interactions, and supports. The final step in the analysis was to synthesize all of the factors, decisions, approaches, tools, and surrounding context into a picture of the most important contributions to the success of Nepal's community-based programs.

At the first level of data collection, it was important to determine the nature of the intervention, the design and actual implementation of program approaches, and what was produced from implementation experience. As each program was explored, the focus of attention shifted from the broad concept of discrete "programs" to include the nature and robustness of the systems and components that made up these programs. These form the bulk of the large volume of information described in the previous two chapters.

Many of Nepal's programs and targeted results have been described individually and in detail elsewhere. An annotated listing of many of these documents are contained in a bibliography.[59] What the first level of this study has been able to add is a description of the evolution and transformation of systems, components, and ultimately programs, as well as an understanding of interactions between and among interventions. The importance and effects of changes and interactions were provided largely through the key informant interviews and group discussions. These are described more fully below.

The second level of analysis was done from the perspective of the larger global and national system in which health programs and health status evolved. The aim was to document major themes of change or events that influenced Nepal's programs and results. Some of these influences were contextual, and included changes in government, global initiatives, MOH reorganizations, and development partner mandates. Others were more functional and at a programmatic level, such as the movement of leadership or ideas from vertical program to vertical program, or the movement of experienced Nepali staff into development partner organization decision-making.

The final analysis synthesized what was learned from the previous two levels, mainly through a process of team review and discussion of products of the analysis. This was bolstered by interview responses from individuals reflecting on their long experience in health program history. Conclusions from the analysis begin to identify those factors, events, and changes that characterize the success of Nepal's child health programs.

Types of Analysis

The methods used for analysis included timelines, indicator tables and graphs, "nets", matrices, line graphs and Pareto charts, interrelationship diagrams, and Venn diagrams. The purposes for

[59] Brown, L. and K. Breese. 2003. *Nepal Case Study Program Evolution and Lessons Learned: Annotated Bibliography of Reports and Materials on Child Survival Programs.* Washington, D.C. and Nepal: USAID, BASICS II.

each type of analysis are described below, along with their specific outputs. All of these were methods were used to organize the data in ways that allowed common consideration and discussion of observations and findings across the different programs reviewed. Many of the methods are graphical—initially the interrelationships and changes were displayed on flip chart paper using large amounts of wall space. Graphics or pictures were then subjected to team discussion for consistency with document and interview data, and underwent considerable change before being finalized. Once the graphics were in front of all team members, discussion focused first on observations and second on implications to the success of health programs. Interestingly, when respondents were shown some of the displays, they began to add information and make their own analytical observations.

It must be noted that these are qualitative methods and were applied based on team experience and expertise, rather than on methodologies proven elsewhere. Undoubtedly, they reflect the biases of team members, although the composition of the team allowed for different technical backgrounds and interests. Given the nature of the study, the team's desire was to push the boundaries of the usual evaluation to uncover and document some of the forces that shape programs and results. As such, the team tried to strike a balance between new, not necessarily validated methods, and the common sense built on long experience both in international health and in Nepal. *Of special note is that the work done with matrices and graphs for systems and components should not be taken to be definitive in a quantitative sense.* Instead they have been interpreted more qualitatively and in the context of the descriptions presented earlier.

Type	**Purpose**	**List of Outputs**
Timelines	To clarify the sequence of steps and events for any one program or theme To align the sequences of different contextual and programmatic changes and consider them vis a vis each other	Grand Time Line Program Time Lines Policy Time Lines
Indicator Tables and Graphs	To document measures of performance and results from commonly used sources, including: outcome benchmark indicators most often obtained through large scale surveys; performance indicators usually obtained through specialized monitoring systems; and data from routine monitoring in the HMIS and LMIS	Overall mortality tables Intervention benchmark tables Intervention performance tables Routinely reported indicators by intervention
Nets	To trace the flow and relative magnitude of intervention, manpower, and approach changes over time for all programs together To align thematic changes in global and local policies and initiatives with program evolution	National program net Local program net National manpower net Local manpower net Global initiative overlay National policy/guideline overlay Idea/theme flow for national programs

Matrices, Line Graphs and Pareto Charts	To roughly assess the strength of subsystems and cross- cutting components of core intervention programs in a structured way To roughly assess the strength of subsystems and components in various time periods To roughly assess the strengths and changes in subsystems and components with respect to scale of implementation To compare the relative strengths of subsystems and components of different programs in different time periods To compare the relative strengths of systems and components taking scale into account	Systems Matrix Component Matrix Manpower/Funding Matrix Unweighted and weighted system score line graphs Unweighted and weighted component score line graphs Pareto charts for key subsystems and components by time period
Inter-relationship Diagrams	To identify the existence and direction of influence among programs To identify possible drivers of change between programs	Movement of approaches, methods Movement of types of staff
Venn Diagrams	To clarify functional integration at local, district, and national levels by time periods To compare differences in functional integration and the consequences over time	National Venn diagram pre '90-93 National Venn diagrm post 1993 District/local Venn diagram '90-93 District/local Venn diagram post 93

Method Descriptions

Timelines

Individual timelines were created by listing major events and steps, usually from documents. These were more difficult to create than expected because most come from reports that are for shorter time periods. (Often these time periods conform to funding cycles and investor requirements, and they are rarely sequenced in "histories" of program development.) Documentation from pneumonia and vitamin A programs was a notable exception. Timelines were then vetted with knowledgeable respondents and corrections made.

The Grand Time Line was created by individual team member contribution to a giant wall chart. This was then adjusted by team discussion and by review by respondents. It is unlikely that this time line will be "completed," as changes and additions have continued to be generated since it was moved to an electronic file. Rather it will be fixed at a point in time for the purposes of this report.

Indicator Tables and Graphs

Three types of tables and associated graphs were assembled for this report. They include benchmark outcome indicators, program specific performance indicators, and routinely reported data. As far as possible, standard indicators for each technical area were chosen and reported by source. This information is similar to what is contained in most reviews or evaluations.

"Nets"

"Nets" were one of the most important analysis methodologies used because they brought together information about transformation and allowed discussion of unconscious underlying assumptions. Much of the organization of change data comes from the process the team used to construct nets. The idea for nets was derived from idea flow diagrams as used in "The Age of Heretics."

Based on a broad-brush understanding of programs over time and the relative emphasis for each in any one time period, freehand drawings of the flow of changes for all programs together were made along an x-axis of decades (1970s, 1980s, 1990s, 2000). Adjustments were made in relative size and inflow and outflow vis a vis each other, and by time period, through all team members working together to bring to bear their detailed knowledge of each program. This method was applied to programs in general, then to program approaches, and finally to manpower. Finally, the timing of global initiatives (most of which were supported by Nepal through multilateral decision-making) was superimposed to view the growth and decline of relative emphasis in programs. This process was repeated with the timing of promulgation of GON policies and guidelines. Finally, a net was created by tracing the evolution of about a dozen key themes or ideas that were used to characterize Nepal programs.

Matrices, Line, and Pareto Charts

In order to review the relative strength of systems and components among the core programs, each individual system or component was scored for each program for each of five time periods using the same criteria in two priority matrices. The individual systems and criteria are noted in Table 1, and individual components and criteria are noted in Table 2 below. This process allowed the study group to apply both documented and interview opinions about individual system or component strength in a more structured way. The intent was not to use the quantitative scores that are neither standardized nor validated, but to roughly compare the relative levels of each system/component and system/component totals, and then roughly compare changes over time. Care should be taken not to over interpret the findings.

Systems and components analysis was applied to the key program areas addressed in Chapter 2, and the time periods were selected to be of approximately the same length, with turning points based on major changes in policy, organizational structure, or events. These turning points are noted in Table 34 (Section IV E) for each time period.

Since the geographic coverage of programs can be expected to make different demands on types and strength of systems, and since coverage varied considerably by time period and program, a weighting factor was also applied. Coverage was calculated by percent of districts in which a program was operating in the designated time period, and the scores were multiplied by that proportion. While this does not directly reflect population covered, since populations vary markedly by ecological zone, it was the most accurate factor available. (See Table 35 (Section IV E)).

Component Criteria

Individual Components	**Criteria**
Community Mobilization	**Strong local ownership** (Do VDC's and/or local influentials understand and support program objectives? Do they manifest this support concretely by investing time and VDC resources in such vehicles as "endowment funds?)

	Link to behavior change (Did community members stimulate changes in norms associated with increased use of services or adoption of specific health behaviors?) **Low cost in time, funding** Is the level of effort by program staff in time, materials and financial resources sustainable?)
IEC/BCC	**Media support** Do media products/programs support the program with targeted and appropriate messages (e.g. radio/TV/cinema/wall paintings/events/etc.) Are materials generally available at the local level? **Interpersonal Communication/Counseling** Do local health staff and/or volunteers provide effective individual or small group communication to support the adoption and maintenance of services and practices? **Behavior change results** Do the media and interpersonal communication inputs appear to result in adoption of desired behaviors?
FCHVs	**High community support** Do VDC's and/or local leaders actively support FCHVs role and efforts to achieve program objectives? Do they help to legitimize FCHVs or refer community members to them? Do they directly assist FCHVs in solving problems? **Behavior change results** Does the work of FCHVs result in referral to health facilities or the provision of care and/or advice directly related to the programs' explicit behavioral aims? **Low cost in time; funding** Is the level of effort in training and institutional support to FCHVs commensurate with the return (with regard to improvements in health status and health-seeking behavior in the community)?
Partnerships	High leveraging (resources) Value added to impact (effect + scale) Low transactional cost
Funding	Low volatility Low transactional cost Fundraising power
Manpower	National adequacy; all sources National adequacy; government District adequacy Community level adequacy

Line and Pareto charts were used to view the information generated by the matrices more easily. Line graphs provided a rough understanding of the evolution of the strengths of systems and components over time for all programs. Pareto charts were used to compare the strength status of different programs in different time periods or for all time periods. From the Pareto charts, lists of the strongest programs were generated and compared by time period. Graphs of weighted scores were used to distinguish system or component strength by scale.

Interrelationship Diagrams

Programs were often characterized by particular approaches or strengths. To understand the movement of approaches from program to program, a series of program boxes were connected by arrows indicating content and direction of movement. The number of exit and entry arrows for boxes were then counted to identify “drivers” and “recipients” of ideas.

Venn Diagrams

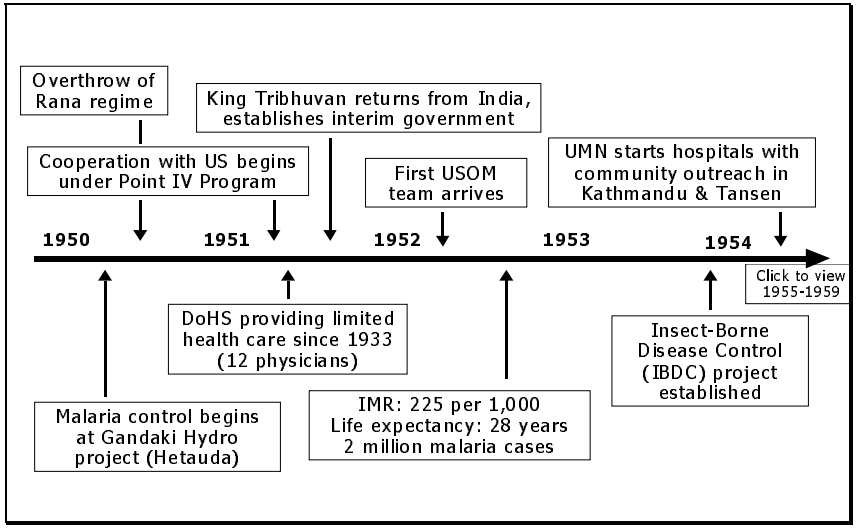
Several different methods were used to try to clarify the level and type of integration of programs. Structural integration within the MOH was relatively simple to describe, but was reported to be different by level. Perceptions of authority and decision-making were only clear when conflicts made them obvious to report. Venn diagrams provided the most insight into functional integration from a broad perspective. Diagrams were done by local and national levels (and differed), and were done for before and after 1993. The selection of 1993 was based on the actual implementation date of the 1991 health policy, which both restructured the MOH and set the stage for transferring more power to district and community levels.

1

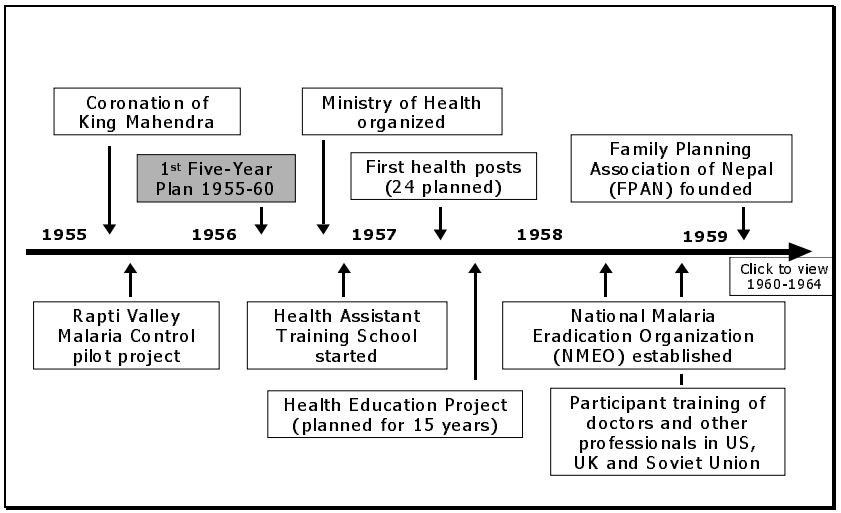
Annex B: Timeline of Nepal's Child Health Programs, 1950–2003

By Lyndon Brown

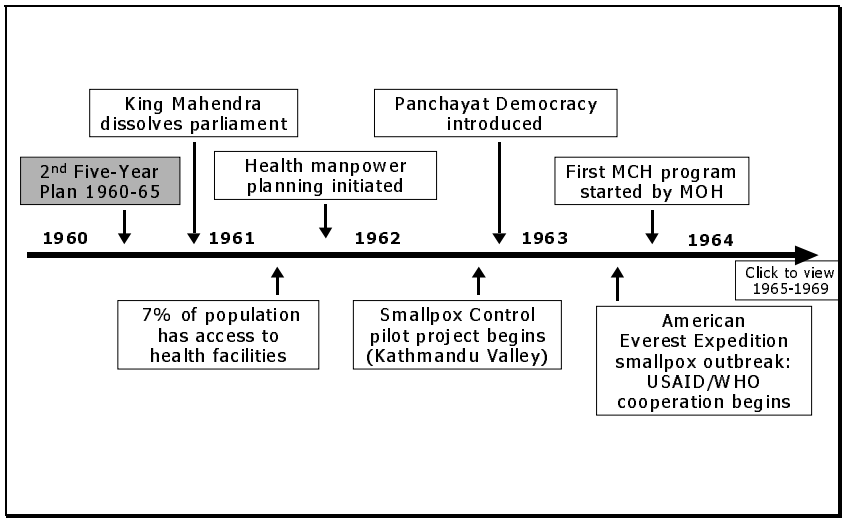
2



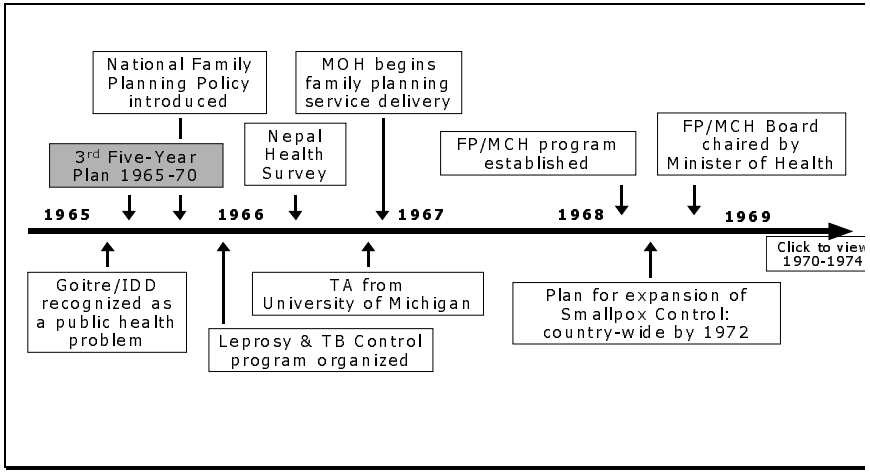
3



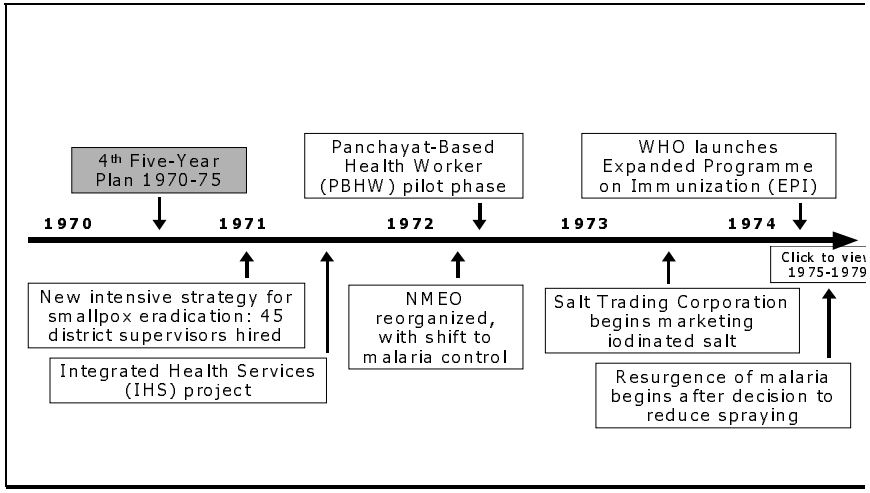
4



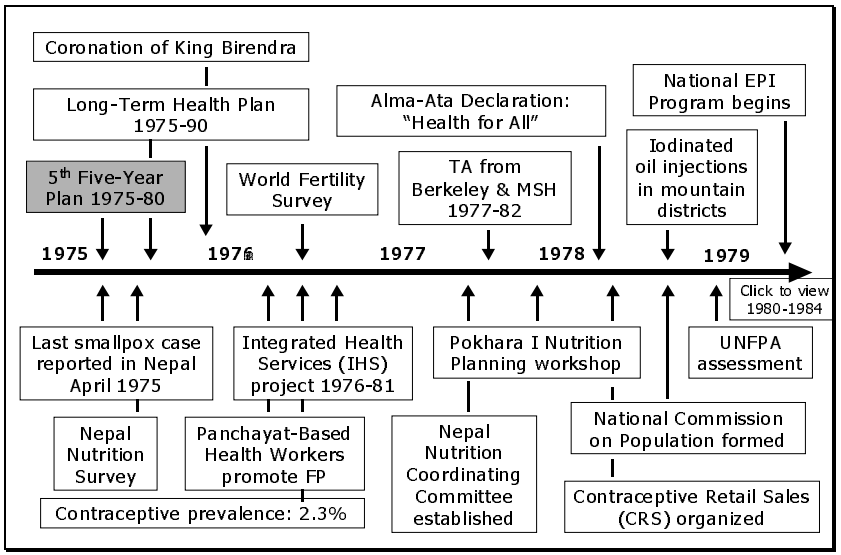
5


National Family Planning Policy introduced
MOH begins family planning service delivery
3rd Five-Year Plan 1965-70
Nepal Health Survey
FP/MCH program established
FP/MCH Board chaired by Minister of Health
1965
1966
1967
1968
1969
Click to view 1970-1974
Goitre/IDD recognized as a public health problem
Leprosy & TB Control program organized
TA from University of Michigan
Plan for expansion of Smallpox Control: country-wide by 1972

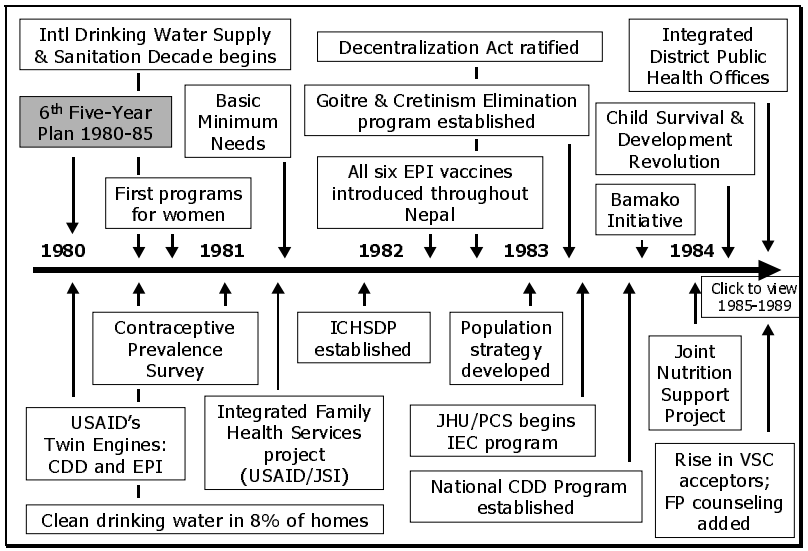
6


4th Five-Year Plan 1970-75
Panchayat-Based Health Worker (PBHW) pilot phase
WHO launches Expanded Programme on Immunization (EPI)
1970
1971
1972
1973
1974
Click to view 1975-1979
New intensive strategy for smallpox eradication: 45 district supervisors hired
Integrated Health Services (IHS) project
NMEO reorganized, with shift to malaria control
Salt Trading Corporation begins marketing iodinated salt
Resurgence of malaria begins after decision to reduce spraying

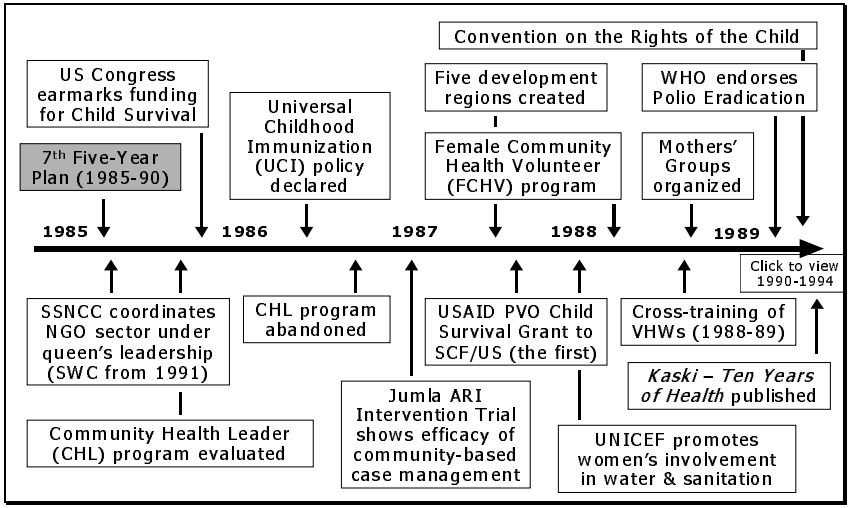
7


Coronation of King Birendra
Long-Term Health Plan 1975-90
Alma-Ata Declaration: "Health for All"
National EPI Program begins
5th Five-Year Plan 1975-80
World Fertility Survey
TA from Berkeley & MSH 1977-82
Iodinated oil injections in mountain districts
1975
1976
1977
1978
1979
Click to view 1980-1984
Last smallpox case reported in Nepal April 1975
Integrated Health Services (IHS) project 1976-81
Pokhara I Nutrition Planning workshop
UNFPA assessment
Nepal Nutrition Survey
Panchayat-Based Health Workers promote FP
Nepal Nutrition Coordinating Committee established
National Commission on Population formed
Contraceptive prevalence: 2.3%
Contraceptive Retail Sales (CRS) organized

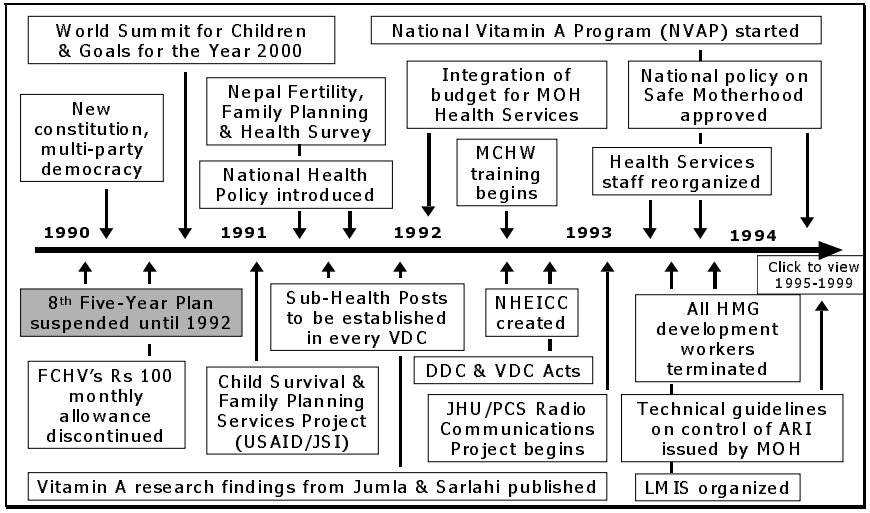
8


Intl Drinking Water Supply & Sanitation Decade begins
Decentralization Act ratified
Integrated District Public Health Offices
6th Five-Year Plan 1980-85
Basic Minimum Needs
Goitre & Cretinism Elimination program established
Child Survival & Development Revolution
First programs for women
All six EPI vaccines introduced throughout Nepal
Bamako Initiative
1980
1981
1982
1983
1984
Click to view 1985-1989
Contraceptive Prevalence Survey
ICHSDP established
Population strategy developed
Joint Nutrition Support Project
USAID's Twin Engines: CDD and EPI
Integrated Family Health Services project (USAID/JSI)
JHU/PCS begins IEC program
Rise in VSC acceptors; FP counseling added
National CDD Program established
Clean drinking water in 8% of homes

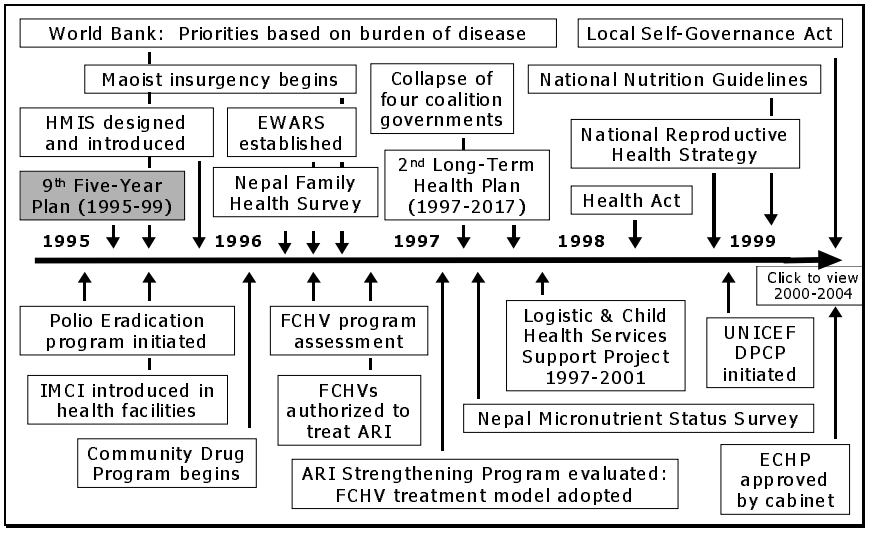
9


Convention on the Rights of the Child
US Congress earmarks funding for Child Survival
Universal Childhood Immunization (UCI) policy declared
Five development regions created
WHO endorses Polio Eradication
7th Five-Year Plan (1985-90)
Female Community Health Volunteer (FCHV) program
Mothers' Groups organized
1985
1986
1987
1988
1989
Click to view 1990-1994
SSNCC coordinates NGO sector under queen's leadership (SWC from 1991)
CHL program abandoned
USAID PVO Child Survival Grant to SCF/US (the first)
Cross-training of VHWs (1988-89)
Kaski – Ten Years of Health published
Community Health Leader (CHL) program evaluated
Jumla ARI Intervention Trial shows efficacy of community-based case management
UNICEF promotes women's involvement in water & sanitation

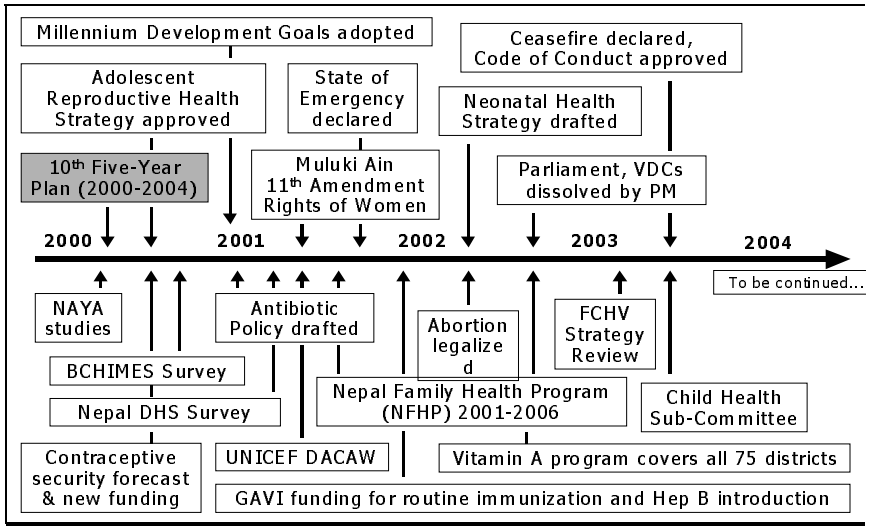
10


World Summit for Children & Goals for the Year 2000
National Vitamin A Program (NVAP) started
New constitution, multi-party democracy
Nepal Fertility, Family Planning & Health Survey
Integration of budget for MOH Health Services
National policy on Safe Motherhood approved
National Health Policy introduced
MCHW training begins
Health Services staff reorganized
1990
1991
1992
1993
1994
Click to view 1995-1999
8th Five-Year Plan suspended until 1992
Sub-Health Posts to be established in every VDC
NHEICC created
All HMG development workers terminated
FCHV's Rs 100 monthly allowance discontinued
Child Survival & Family Planning Services Project (USAID/JSI)
DDC & VDC Acts
JHU/PCS Radio Communications Project begins
Technical guidelines on control of ARI issued by MOH
Vitamin A research findings from Jumla & Sarlahi published
LMIS organized

11


World Bank: Priorities based on burden of disease
Local Self-Governance Act
Maoist insurgency begins
Collapse of four coalition governments
National Nutrition Guidelines
HMIS designed and introduced
EWARS established
National Reproductive Health Strategy
2nd Long-Term Health Plan (1997-2017)
9th Five-Year Plan (1995-99)
Nepal Family Health Survey
Health Act
1995
1996
1997
1998
1999
Click to view 2000-2004
Polio Eradication program initiated
FCHV program assessment
Logistic & Child Health Services Support Project 1997-2001
UNICEF DPCP initiated
IMCI introduced in health facilities
FCHVs authorized to treat ARI
Nepal Micronutrient Status Survey
Community Drug Program begins
ARI Strengthening Program evaluated: FCHV treatment model adopted
ECHP approved by cabinet

12


Millennium Development Goals adopted
Ceasefire declared, Code of Conduct approved
Adolescent Reproductive Health Strategy approved
State of Emergency declared
Neonatal Health Strategy drafted
10th Five-Year Plan (2000-2004)
Muluki Ain 11th Amendment Rights of Women
Parliament, VDCs dissolved by PM
2000
2001
2002
2003
2004
To be continued...
NAYA studies
Antibiotic Policy drafted
Abortion legalized
FCHV Strategy Review
BCHIMES Survey
Nepal DHS Survey
Nepal Family Health Program (NFHP) 2001-2006
Child Health Sub-Committee
Contraceptive security forecast & new funding
UNICEF DACAW
Vitamin A program covers all 75 districts
GAVI funding for routine immunization and Hep B introduction

Annex C: List of Selected Program Tools

ARI

Community Level Tools and Job Aids
- ARI Classification Card (infants under two months and children two months to five years) *Robin Houston and ARI CD**
- CHW Treatment Card (infants two to twelve months and children one to five years) *Robin Houston and ARI CD*
- CHW Referral Booklet (infants under two months and children two months to five years) *ARI CD*
- Home Therapy Card for CHWs *ARI CD*
- CHW Treatment Booklet *ARI CD*
- Monitoring Forms:
- Reporting Form for VHW and MCHW *ARI CD*
- Summary Results for FCHV and VHW/MCHW Interviews: ARI Strengthening Program *ARI CD*

Health Facility Level Tools and Job Aids
- Respiratory Cut-off Rate Card *ARI CD*
- Cotrimoxazole Dose Card *ARI CD*
- Health Facility Reporting Form *ARI CD*
- Monitoring Checklist *ARI CD*

Training Materials
- ARI Trainer's Guide for Community Level Health Workers *Robin Houston and ARI CD*
- Training Booklet for CHWs (Pictorial Manual) *Robin Houston and ARI CD*
- Technical Guidelines on the Control of Acute Respiratory Infections *ARI CD*

FCHVs
- FCHVs learn about ARI Case Management (Pictorial) *ARI CD*

Map of Program Districts *ARI CD*

Timeline *ARI CD*

IMMUNIZATION

- GIS Analysis sample *Lyndon Brown*
- GPS Mapping sample *Lyndon Brown*
- Mopping up Polio Campaign Monitoring (draft) *Lyndon Brown*
- Using GIS for Community Health *Lyndon Brown*
- Health Logistics and EPI Cold Chain Management Procedures Manual *John Quinley*

VITAMIN A

Community Level
- Flipchart for Community Level Vitamin A Training *Vitamin A CD***

Monitoring and Evaluation
- National Vitamin A Program Monitoring Survey for Vitamin A Capsule Distribution Questionnaire for Health Post *Vitamin A CD*
- National Vitamin A Program Monitoring Survey for Vitamin A Capsule Distribution Questionnaire for Mothers *Vitamin A CD*
- Training Manual on Mini-Survey (National Vitamin A Program) *Ram Shrestha and Robin Houston*

Health Provider and District Levels
- National Vitamin A Program Supervision and Evaluation Form during Capsule Distribution *Vitamin A CD*
- National Vitamin A Programme Training Guidelines: HP Level *Vitamin A CD*
- National Vitamin A Programme Training Guidelines: District Level *Ram Shrestha*

FCHVs
- National Vitamin A Program Monitoring Survey for Vitamin A Capsule Distribution Questionnaire for FCHVs *Vitamin A CD*
- National Vitamin A Programme Training Guidelines: FCHV Level *Vitamin A CD*

These selected tools were obtained from the following sources:
Mary Taylor, Ram Shrestha, Robin Houston, Lyndon Brown, John Quinley, USAID and JSI.

* "ARI CD" refers to:
United States Agency for International Development, John Snow, Inc. 2001. *The Nepal community-based pneumonia program (CD-ROM—June 2001)*. Nepal: USAID, JSI.

** "Vitamin A CD" refers to:
United States Agency for International Development, John Snow, Inc. 2002. *National Vitamin A Program in Nepal (CD-ROM—May 2002)*. Nepal: USAID, JSI.