

Adaptive Strategies for Flood and Drought Mitigation

Cooperative Agreement: 367-A-00-02-00211-00
 Institute for Social and Environmental Transition

Second Program Performance Report
 to

U.S. Agency for International Development – Mission to Nepal
 January 31, 2003-April 30, 2003

COMPARISON OF ACTUAL ACCOMPLISHMENTS WITH GOALS ESTABLISHED FOR PERIOD

As outlined in the original proposal, the project timeline is given in the table below:

Project Time Line: Years	Year 1				Year 2	
Phases	Phase					
Assuming the start is October 2002.	Oct-Dec	Jan-Mar*	Apr-Jun*	Jul-Spt*	Oct-Dec*	Jan-Mar*
Harvesting International Lessons						
Global Experience Review & site visits						
Development of Guiding Framework						
Field & Regional Institutional Documentation and Implementation Activities						
Initial visits to identify partners						
Project initiation meeting & finalization of partners						
Coordination and Training Meetings						
Coordination and Document Production Meeting						
Field & Institutional documentation by Partners						
Major Dissemination Activities						
Major regional dis. and training conferences						
Local (pilot area) dis. and training meetings						
Major Report Milestones						
Month end of period	3	6	9	12	15	18

- Legend
- Periods of intensive activity
 - Periods when work continues at a low intensity
 - Internal project meetings
 - Major conferences
 - Major report milestones



The main project initiation meeting was held on March 8-10th in Kathmandu. The report from this meeting is attached. Methodologies and partner responsibilities were discussed in detail during the meeting. In addition to the meeting, all partners and field sites have been identified and contracts have been written and approved by OFDA for partners in India and Nepal. Field trips have been made to sites in areas subject to flooding and detailed fieldwork led by collaborators in India has started in Rajasthan and Gujarat.

The project is proceeding according to schedule in relation to the above timeline.

The main point where changes have occurred with respect to the project is with regard to the review of global experiences and the location of the project leader, Dr. Marcus Moench. As noted in the previous quarterly report, when the project was initially designed, one of the principle staff members Mr. Ajaya Dixit was scheduled to spend three months working with ISET in Boulder on the global experience review and on international site visits. This has not been possible because Mr. Dipak Gyawali, the other project leader in South Asia became the Nepal Water Resources Minister. With Dipak Gyawali no longer available to the project, Ajaya needed to stay in South Asia in order to ensure that field and other activities there occurred as planned. Mr. Dixit's involvement in the global review is now planned to occur later in the project, after most of the fieldwork has been completed. In addition, a decision was made in February for the project leader, Dr. Marcus Moench, to stay in Nepal for an extended tour of duty over the spring of 2003. This decision was made with knowledge of the CTO because of the additional workload caused by the departure of Mr. Gyawali from the project. It has resulted in the project Director, Dr. Moench, spending more time than anticipated on project related activities – but has proved essential to move the project forward within the originally proposed timeframe.

REASONS WHY ESTABLISHED GOALS WERE NOT MET (IF APPLICABLE)

Not applicable

OTHER PERTINENT INFORMATION INCLUDING STATUS OF FINANCES AND EXPENDITURES INCLUDING ANALYSIS AND EXPLANATION OF COST OVER RUNS OR HIGH UNIT COSTS.

The project is proceeding as anticipated with no cost over runs or high unit costs.

Detailed accounting on the project for the period from January 2003 through April 2003 is now being undertaken by ISET. Relocation of the project leader, Dr. Moench, from Boulder to Nepal and intensive activity on the project combined with the U.S. tax deadlines in April resulted in an overload of work for ISET's bookkeeping staff. ISET has maintained regular contact with the USAID Controller (Kris Smathers) in Nepal on this and anticipates filing the required accounting forms over the coming week.

PROCEEDINGS

Adaptive Strategies to Floods and Droughts Project

Planning and Methodology Meeting

March 8-11, 2003

Kathmandu

PURPOSE AND CONDUCT OF THE MEETING

As initially conceived, the purpose of the meeting was as follows:

1. To finalize logistics, specific methodologies and partner outputs for the current project;
2. To place the current activities in a larger strategic frame; and
3. Within that strategic frame, to discuss ideas for moving beyond the current activity to a major regional program.

The above objectives were fully achieved during the course of the three days.

The first day was devoted to a series of presentations outlining core partner activities, the issues they see as being of fundamental importance for any project seeing to develop more adaptive strategies, and key factors in the wider context that need to be considered in responding to floods and droughts. The second day focused on specific methodologies and approaches for case study surveys. Individual meetings on the third day were used to outline the responsibilities and role of each participating organization.

THE LARGER STRATEGIC CONTEXT

Floods and drought are fundamental challenges throughout the region, and their impact is heavily influenced by larger water management issues. Current responses to both floods and drought are dominated by humanitarian relief, without concurrent development of long-term adaptive mechanisms with functioning institutional support.

In the current era of globalization and, of interest to us, of global climate change, global and regional searches for effective climate change response strategies are taking place.

Effective small-scale, innovative local coping strategies that are influenced by a range of economic, demographic and social factors do exist, and these need to be given attention, but up-scaling these to a higher level is difficult. The lack of information flow in both directions is a key problem. Despite an expanding network in this field, few have solid field level strategies and few local groups have links to regional and global debates.

The Adaptive Strategies Project is an initial attempt to reconcile differences in perceptions of and responses to extreme weather events in the context of climatic and social change. Partners to the Adaptive Strategies Project are the Indian Oceans Research Group through the University of Panjab, VIKSAT, the Institute for Development Studies-Jaipur, the Gorakhpur Environmental Action Group, the International Water Management Institute, WINROCK International-India, Sara Ahmed, the Nepal Water Conservation Foundation, and the Institute for Social and

Environmental Transition. Additional organizations where discussions have been held on the program include IIASA, the ESRC Science in Society Programme, the National Science Foundation, GECAFS and SDSU.

In thinking through the project and devising sound methodologies, attention was given to technologies and their risks and degree of adaptation to natural conditions, to hydrometeorological information flow, to larger socio-economic change processes, and to the wider context of water governance.

The key issues, presented by Dr. Moench, are the following:

- The differential vulnerability to uncertainty, risk and surprise are the key factor underlying observed impacts from extreme weather events, such as migration, starvation, poverty, etc.
- It is therefore important to identify the points of leverage for addressing the differential vulnerability within households, communities and social networks, and economic systems.
- It is necessary to develop conceptually sound but very tangible direct or *indirect* support strategies for actors such as NGOs, governments, aid organizations.

DISCUSSIONS ON DROUGHT ISSUES

Emphasis on both the immediate, short-term issues emerging as a consequence of precipitation within a given year and much longer-term issues such as ground water overdraft were discussed. Equal emphasis was given to people's responses and the incentives they face in reacting to droughts.

Dinesh Kumar of IWMI reported that according to the Central Ground Water Board of India, aquifers around Palanpur would be dry in five years' time if pumping continues at current rates. This is occurring in the context of a major shift from conventional farming to dairy farming. Some micro options are in place, although not all are either effective or accessible to every farmer. There is limited intervention from the Government. IWMI's strategy is to provide information and raise awareness, and to provide options with demonstrable benefits for farmers.

WINROCK International-India's Water Program of has a case study component in water harvesting and asset creation for drought resilience in the context of livelihood diversification as a factor in reducing incentives on the part of local groups in managing drought. The participation of WINROCK International-India in this project is important for linking this project to larger strategic action - it serves as the Project Management Unit for the climate change network in India. No other outside project is currently linked with WINROCK's water program.

Srinavas Mudrakartha of VIKSAT and M.S. Rathore of IDS stressed the mismatch between the unitary nature of policies regarding drought and the ecological as well as socio-economic diversity of the region, which results in very differing impacts of drought to communities. This differential also results in very different perceptions of droughts and their impacts. Lack of people's participation in policy formulation and archaic implementation styles of Government initiatives to address drought are major problems. The creation of a drought and flood policy stakeholder forum is of essence.

Sara Ahmed underscored that the importance of ensuring a gender focus in the study of adaptive strategies in the context of drought is essential because women and children at all socio-economic levels are always the more vulnerable in the face of disaster.

Gender and power relations are such that responses to drought may reinforce inequalities. Adaptive strategies to drought therefore need to specifically identify the roles of women and children as they bear the burden of the impact and in coping and adaptive responses. SEWA's fodder security system in Banaskantha was given as an example of an adaptive strategy from a woman's focus.

DISCUSSIONS ON FLOOD ISSUES

Again, emphasis on both the short term and long-term issues arising as a consequence of flooding along with people's responses and the incentives they face in reacting to floods were discussed.

Within the geographic context of this project, Ajaya Dixit of NWCF pointed out the difficulty presented by distinct hydroecological changes within a very short distance between sea level and the highest landmass on earth. This influences the high micro-level variability of precipitation in the region and the dynamism of the rivers with their high sediment load. There is a high risk of flooding, yet drought is also a regular phenomenon. These extreme weather events are coupled with very poor infrastructure and major institutional dysfunction in the region.

The IORG has extensive regional overview in climate change and adaptation. The IORG's objective is to develop a social science driven network of scholars for the region focusing on environmental security, water security and management, regional cooperation, and international population movement. The IORG Advisory Committee has confirmed its commitment to the Adaptive Strategies Project. IORG will be launching a project combining micro and macro levels of adaptive strategies to floods and drought, and this project will serve as a model. The IORG website will have a section where it can interact with partners to this project.

GEAG created a local network in the Gorakhpur area, Shayogh, for responding to floods, with a specific focus on livelihoods and food security. It has conducted about 25 studies on floods. Current responses to floods, both at the local level and from NGOs and Government, are in the form of temporary relief measures. A turning point in Government response was the huge 1998 flood. However, India's response was an archaic and ineffective flood management program. Local institutional frameworks for information generation and dissemination have not been created, and neither has interpretive capacity. Real time information is critical, and lacking.

DISCUSSIONS ON CROSS CUTTING ISSUES

Sara Ahmed will not only be ensuring a gender focus in the surveys of adaptive strategies to both drought and floods, but will also provide a link between the two sets of studies and ensure consistency in survey methodology in the field.

SALIENT ISSUES

Salient issues that came out the first day's discussions were:

1. The importance of the existing institutional and physical landscape of drought and flood relief in determining what can or should be done
2. The importance of borders (the mosaic of conditions, assets, ownership, physical infrastructure, etc.) in creating variation

3. The key role of assets (and asset distribution) in determining response strategies
4. The key role of information in enabling responses
5. The distinctions between
 - a. Adaptation
 - b. Coping (local and state)
 - c. Aspirations
 - d. Perceptions (people vs. government)

METHODOLOGY DEVELOPMENT

A three part methodology was proposed consisting of review, mapping and surveys.

It was agreed that the overall approach would be a nested one: Several village level dialogues and/or surveys will be conducted, embedded in a basin (flood) or region (drought) analysis, all placed within a macro context focused at the state level and above. Brief comparisons between the flood and drought scenarios will be made.

The process will involve reviews, mapping and surveys. Reviews will focus on the institutional/legal landscape for drought and flood relief as well as water management and insurance; existing knowledge on adaptations, coping strategies, aspirations, and perceptions; and major social, economic, and demographic trends at a regional level.

Mapping will include physical as well as peoples' mental maps of the region: Natural and infrastructure features; micro-macro scope of droughts and floods; household and community economic links and networks; household, community, family, caste assets and access to external assets; and information flow maps.

PRA surveys will focus on the differences in aspirations, perceptions, adaptation and coping strategies of the various members of individual households, of different communities, and between local groups and Government. The essential question is: Who adapts what, when, where and how?

VIKSAT proposed a methodology for their two drought case studies in Gujarat and Rajasthan with the objective of understanding and documenting gaps in perceptions, understanding coping strategies, and evolving adaptive strategies for developing drought resilience. The specifics of their proposed methodology are given in point form in Annex - 4: Methodologies.

ROLES

The roles of each partner in the Adaptive Strategies Project were defined and agreed upon as follows:

- ISET - Coordination
- VIKSAT/IDS/NWCF/GEAG/PU - field teams - case studies
 - Secondary data synthesis including the elements listed under section on reviews
 - Analysis and write-up based on primary data
 - Collection of key maps
- Sara Ahmed - gender focus and consistency of methodology in all surveys
- ISET - methodological and field support inputs
 - Training component

- Some fieldwork in each of the areas
- IWMI – synthesis of IWMI's work in relation to ground water and intersection with adaptive strategies
- PU/ISET/NWCF - wider synthesis of existing knowledge and issues
- WINROCK - inputs from asset building program and from climate change program
- Everyone - input to final write-up and conclusions

SCHEDULING

Coordination and operational meetings were agreed on as follows:

- September end: tentatively Rajasthan
- December – major writing workshop, Kathmandu
- March 2004 – next steps

Field meetings were agreed on as follows:

- April end: Ghorakhpur
- May: Gujarat, Rajasthan
- June/July: field in flood areas

PRODUCTS

The outcome of this phase of the Adaptive Strategies Project will be a Review Report of secondary data and literature (by region), a Field Study Report compilation of all surveys, and a final Synthesis Report that will be jointly produced by all partners.

All reports will be made available in draft form on 1st November 2003.

ANNEXES

The annexes contain all supporting documents that were prepared for the meeting as well as presentations and methodologies in point form:

1. Acronyms
2. Participants
3. Presentations
4. Methodologies
5. Preliminary schedule and meeting agenda
6. Program description and preparation for the meeting
7. Agreements with partners

ANNEX - 1: ACRONYMS

BMA	Bar Mukti Abhyan
GEAG	Gorakhpur Environmental Action Group
HH	Household
IDS	Institute for Development Studies
IORG	Indian Oceans Research group
ISET	Institute for Social and Environmental Transition
IWMI	International Water Management Institute
NWCF	Nepal Water Conservation Foundation
PRA	Participatory Rural Appraisal
PU	Panjab University
VIKSAT	Nehru Foundation for Development

ANNEX - 2: PARTICIPANTS

Participants in the meeting and their respective area of study and input (flood or drought) in the project were:

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ANNEX - 3: PRESENTATIONS

A. KEY ISSUES FOR RESEARCH - PRELIMINARY OVERVIEW: droughts and floods.

AJAYA DIXIT:

- Streams: Hazard focused stream versus vulnerability and risk stream
- The Adaptive Strategies Project is an initial attempt to reconcile different strands – technology dominated responses
- There are pockets of innovation, but also difficulties in up-scaling these initiatives – much of the impacts in the case of water problems are at the micro-level and there are difficulties in identifying strategies to influence those levels
- Linking the micro problems with a macro frame (information flow being a key point of leverage)
- SACI water links
- Existing political theory has a major problem grappling with existing institutional dysfunction
- The lead into innovative pilot projects for addressing flood and drought problems within existing political structures.

Moving away from traditional understanding of scale

B. CRITICAL DROUGHT ISSUES: Emphasis on both the immediate short-term issues emerging as a consequence of precipitation within a given year and much longer-term issues such as ground water overdraft. Equal emphasis on people's responses and the incentives they face in reacting to droughts.

IWMI - DINESH KUMAR:

- The Central Ground Water Board states aquifers around Palanpur will be dry in five years if pumping continues at current rates
- There is a current shift from conventional farming to dairy farming. There is a large-scale trade of dry fodder combined with seasonal and *daily* migration to neighboring urban centers – the fodder is migrating to the buffalo.
- Micro-options
 - Water harvesting
 - 50 NGOs are supposed to be working in many parts of northern Gujarat, but not many are actually working
 - Pressurized systems for water saving technologies exist, but they often don't work well under common conditions because a) they require additional pumps in order to actually operate, b) the energy costs for

additional pumping are major, particularly for small farmers, and c) perhaps 50% of farmers are dependent on water markets – they don't have direct access to the pressurized systems. Major power supply and power access issues need to be addressed for pressurized systems to work. All farmers who use pressurized systems have access to their own pumps! Additionally, there is a major gap in functioning (farmers operate off of residual pressure, which isn't sufficient, and therefore need independent pumps). Key point: Pressure costs - affordability depends on increased yields.

- Micro-tube (IDE supporting) very good and efficient.
- Micro management of agriculture by individuals
- Interventions from government
- IWMI strategy:
 - Increase yields rather than water saving
 - Information and awareness
 - Remove misconceptions
 - Provide choices (technologies, etc...) rather than single solutions
 - Demonstrate benefits
 - Enable access to financial resources, knowledge and technical inputs
- Operationalize Strategy
 - Strategic locations
 - Market research
 - Promote water ethics
 - Enhance technical input services
 - Market promotion (window of opportunity)
 - Supply chain key

WINROCK INTERNATIONAL-INDIA - SHASHI CHOPDE:

- 40 country affiliation
- Four units
 - Climate
 - Energy
 - Forests
 - Water
- Water Program
 - Case study program: water harvesting and asset creation for drought resilience
 - Again livelihood diversification (in this case diamond polishing) reducing incentive to manage
 - Legal barriers (one can't rent land for more than a year without the risk of loss under tenancy laws)
- Climate Program
 - Serves as PMU for climate change network in India – under GEF financing, coordinating many institutions
 - No projects currently linked with water program
 - Has links with energy (major) and energy research

Dinesh: concern about

- Increasing frequency of extreme events needs to be recognized as a critical point
- People might adapt – but this doesn't address the basic problems.

Shashi: Asset creation and diversification as key – hasn't been a focus. GEF could be a key target. Key emphasis: it isn't either/or (management vs. adaptation)

Access to information is key in reducing drought and flood vulnerability.

- Building on traditional knowledge systems
- Conducting a study on the impact of floods in the Sundarbans of West Bengal
- Diversification has taken place, different livelihoods is a byproduct

VIKSAT - SRINIVAS MUDRAKARTHA; IDS - M.S. RATHORE:

Key issues:

- Ecological diversity (within regions) – the nature and impacts of drought are different for each ecological area. The drought mosaic – a mismatch with the unitary nature of policies
- Socio-economic diversity: again huge diversity of families, economic structures, etc... being mismatched with unitary policies
- Diversity in perceptions of drought very different between people, households, policy makers, etc. Each have diverse strategies to mitigate drought. Some view it as a 'natural hazard' and sideline social and economic effects, some view it as permanent, some as transient. Policy makers generally view it as a disaster problem, but the meaning and impact of drought is different for different farmers. Unless we understand drought perceptions, policies can not be formulated
- Intervention issues (Need adaptation of intervention strategies. Within government, the western U.S. form of adaptive management is needed – one needs civil society mechanisms for regularly revisiting strategies and policies). *Need the concept of a drought and flood policy stakeholder forum.*
- Management systems and regulations outmoded in relation to legal and intervention strategies
 - Famine code
 - GS Disaster Mitigation Authority in Gujarat (new organization)
- Disjuncture between traditional coping strategies (such as migration with livestock) and state policies or changing land use patterns.
- State failure and lack of people's participation
 - Matters of perception
 - Absence of long-term plans
 - Rigid, archaic style of implementation (DRDA model for watershed development might make a difference – published budgets)
 - Plans and implementation create dependency syndromes and undermine traditional coping strategies when people are treated as beneficiaries rather than as partners. Example: single cropping strategies, separation of livestock and agricultural economic policies.
- Erosion of traditional coping mechanisms (people once grew fodder and food, now depend on the market systems for fodder and food)
- Other coping mechanisms have emerged (but people have differential access to them) – market as a coping mechanism, livelihood diversification.

Sanjay: What degree of problem is created by the presence of boundaries (state, etc...)? Think of it in terms of private property as well as state administrative boundaries. *Concept of migration trust?*

Ajaya: Good to look at different definitions of droughts.

Rathore: The link between data and funding introducing the same distortions as in the case of ground water.

Shashi:

1. What are the responses to extreme events by communities
2. What points of intersection exist between coping mechanisms and institutions in place (again linked to the question of boundaries).

SARA AHMED - GENDER AND ADAPTIVE STRATEGIES IN THE CONTEXT OF DROUGHT:

Why is gender a concern?

- o Worldwide, it is recognised that women and children are more vulnerable in the face of disasters, natural or otherwise, *even amongst the poorest of the poor or in marginalised communities.*
- o Failure to recognise that vulnerability is structured by relations of gender and power at the household/community level means that our responses to 'disasters' such as drought may reinforce inequalities.

Gender dimensions of inequality

- Economic
 - o gender division of labour, nature of work
 - o access/control of resources, limited rights of women to productive resources (eg. land)
- Social
 - o position of women in given cultural context
 - o limited endowments (education, skills)
 - o restricted mobility, access to public domain
 - o vulnerability to violence, sexual abuse
- Political organization
 - o Collective/self organization of women (eg SHGs)
 - o Access to decision-making forums at the community level (eg PRIs)
 - o Access to channels/technologies of information & communication
 - o Presence of alternative social actors, movements, NGOs - ability to mobilize women

Who are the most vulnerable women amongst the poorest?

- o Women heading households - number of dependants, children & elderly
- o Widows, women living alone or deserted
- o Women within marginalized or socially excluded communities - dalits, adivasis
- o Women with cognitive or physical disabilities
- o Malnourished women and girls
- o Women subject to assault or abuse

Gendered impact of drought

Increased drudgery of water collection:

- o More time spent on domestic water collection - distance increases, water often has to be collected at night
- o Reduces time available for constructive work (varies with socio-economic status of household and their access to water)
- o Increasing social conflict - in queues, in physical water collection (eg Utthan)
- o Girls and sometimes small boys too are involved in water collection or looking after siblings if their mothers have to walk further

- Impact on access to education, particularly for girls
- Less water available to meet personal hygiene of women (at times of menstruation, child birth, post-natal care)

Gender and economic vulnerability

Increasing economic insecurity:

- Male out-migration puts more pressure on women to manage (degraded) land and look after dependants, elderly, children
- Depletion of household assets (eg pawning of jewelry) weakens women's bargaining position in the household
- Household entitlements (access to food, income) may be contested

Women of SEWA share their vulnerability during drought

"We would make holes in the river bank at the right places to chase underground water – cleaner water came out of these holes, but it took far longer. If there was a marriage or death in the family, water was drawn out endlessly for the guests. I never played with the guests, but my brother did," Sangita remembering drought during her childhood days at home, married at the age of 14 to face the same problems.

"During the drought of 1985, my husband and I started going to work on the relief sites – digging earth. There was drought for four successive years and we dug earth for four years – there was no other way. All my hair fell out and I went bald," Bhachiben, married into a wealthy family (35 acres of land), but after her husband's father had died when he was 5 years old, the land was sold till the family was left with just 5 acres which she convinced them to retain.

"During the first drought year I was seven months pregnant, but I had to work on the relief sites, otherwise the family's survival would have been difficult. Regular work was never available – I had to borrow money to feed the family from time to time, the moneylenders would charge 4% interest. Just 15 days after my son was born, I resumed digging – my elder son who was then four, would look after his infant brother," Puriben (SEWA member).

Gender and social vulnerability

Dalit women in Patan district, North Gujarat record greater dependence on moneylenders, landlords and contractors during periods of drought for water and other livelihood needs in return for 'sexual favours'. Most of their men have migrated or been forced into bonded labour so they claim to have little option. Despite the presence of NGOs like Navsarjan in the area, women are reluctant to file cases.

The silence of the disempowered.

For the dalit women the exploitation starts at the water taps. In Taranagar village, there are three taps supplying potable water, but the dalits are forced to take brackish water from another one. "The Rabari-Desais will allow us to fill a few pitchers only if a young woman goes begging to them," says Paniben, age 65.

Gender, drought and vulnerability

- In sum, women's workload increases while her working conditions deteriorate,
- Her ability to 'recover' (economically) is generally slower than men's as in the context of male migration she has an 'expanded care-giving role'

- Social context of seclusion also restricts her mobility and access to other livelihood opportunities

How do women/men cope or adapt?

- In the short term: focus on immediate livelihood opportunities to meet survival needs (water, food and income security)
 - 'distress migration' (seasonal)
 - daily drought relief work (nearby)
 - diversify livelihood strategies (access to skills, resources, markets)
 - dependence on 'moral economy', social networks / social capital increases
- Adaptive strategies, long-term:
 - Construction of water harvesting and recharging structures and rejuvenation of traditional water conservation practices
 - Improved land management practices (for those who own land), low external inputs
 - Organization and capacity building of women's / men's groups and community institutions – equity and participation
 - Strengthening alternative livelihood options – access to information, markets

SEWA's fodder security system in Banaskantha as an example of an adaptive strategy

- Reciprocal exchange of fodder, mostly by women, forms an important social network in the construction of social capital
- Livestock are a valuable source of income, particularly for the landless during periods of drought when agricultural work is limited

SEWA AND DMI worked together to revive milk co-ops in Banaskantha and to ensure fodder security. Strategy based on four steps:

- Purchase of fodder at lowest prices during early phases (depends on demand and local availability)
- Storage of fodder (purahs)
- Distribution at the right time in required quantities (based on number of milch animals and quantity of milk supplied to co-op)
- Recovering costs

C. CRITICAL FLOOD ISSUES: Emphasis on both the short term and long-term issues arising as a consequence of flooding along with people's responses and the incentives they face in reacting to floods.

NWCF – AJAYA DIXIT

- The Eastern Ganga plains are fundamentally different from the western Ganga basin south of the Chure range
- The British were cautious with regard to implementing irrigation and embankment projects in this region:
- The distance between sea level and the highest landmass is short (Everest to ocean) with distinct hydroecological changes. There is a very high wet rainy season, and extremes in pulses very great. Very dense river and stream network. Precipitation has very high micro-level variability. Rivers have a high sediment load, largely natural, with 98% of sediment transport occurring during monsoon months. The soil is alluvial with high ground water levels. High risk of flooding, yet drought also a regular phenomenon: Orissa, for example, receives 1,700 mm of rain but still experiences drought and starvation deaths.

- Another characteristic of the region is poor infrastructure and poor institutions with major institutional dysfunctions. It is an area of largely subsistence agriculture with low productivity
- High river mobility – the Kosi River shifted 150 km west in the last century. Very, very, very dynamic river systems.
- Tremendously inequitable institutions at local levels
- Major environmental problems due to infrastructure blocking drainage. *Clearing drainage a key point of leverage?* Embankments, roads, canals, etc.
- Lots of half-built infrastructure
- Lots of out-migration from northern Bihar and eastern U.P.

Two systems will be taken as flood case studies for adaptive strategies:

- The Rohini River (not particularly embanked)
- The Bagmati River (heavily embanked after 1967), lots of data available, key location where lessons can be harvested. Good location for studying the trans-boundary issue of floods

Key issues to be considered:

- Nature of floods – dynamics of the flood system
- Vulnerability created by land tenure systems (land loss to shifting rivers), location (between embankments, within holdings), vulnerable technologies (fixed point diversions – high cost of irreplaceable structures), attempts to control dynamic systems
- Location of precipitation (trans-boundary between India and Nepal)
- Technology – vulnerability created by interventions in flood plains. Bridges are a particularly important point of vulnerability.
- Don't control the river, increase the drainage
- Flood disaster mitigation: Currently post-flood support in the form of relief.
- Major focus on community based strategies
- Major focus on bi-lateral communication and cooperation around marginalized rivers
- Social auditing – role in responding to contest flood mitigation strategies
- Flood forecasting – how the information actually gets to users and how it is generated? Question of language is critical. Transmission networks for information are critical.
- There must be something people 'can do' in response to flooding?

PU - SANJAY CHATURVEDI

IORG: www.iorgroup.org

Launched in November 2002 at the University of Panjab with the following partners:

- East-West Center
- Punjab University Centre for Study of Geopolitics
- University of Western Australia, Director of School of International Studies

Objective: To develop a social science driven network of scholars for the region. IORG has identified the following crucial areas for research:

1. Environmental Security (Australia Research Council), principle investigator: Timothy Doyle, Adelaide.
2. Water Security and Water Management, coordinators: Marcus Moench, Ajaya Dixit, Dipak Gyawali, Rhada DeSousa.
3. Regional Cooperation
4. International Population Movement (Migration)

Advisory Committee: NGOs, diplomats, Chambers of Commerce - extensive regional overview, committee currently includes representatives from Australia, South Africa, Malaysia, Singapore, Indonesia, Tanzania, Iran, and Oman. Pakistan will be included soon.

The IORG Advisory Committee has confirmed its commitment to the Adaptive Strategies Project. IORG will be launching a project combining micro and macro levels of adaptive strategies to floods and droughts. The IORG website will have a section where it can interact with members of the Adaptive Strategies Project members.

IORG Schedule: IORG is a 5-year program, currently in its second year. Holds annual regular policy seminars with concerned ministries invited for each:

- February 2004 (Tehran). 2nd meeting - Environmental security diploma courses – the methodologies for the Adaptive Strategies Project will be used for the course syllabus.
- February 2005 (Johannesburg). 3rd meeting - Water security and water issues.

The Adaptive Strategies Project will be used as a model for IORG partners.

GEAG - Tarik Rehman

- GEAG established for 25 years based in Ghorakhpur and with office in Lucknow
- Main focus on sustainable agriculture with gender perspectives
- Heavily involved in flood response in 1991. Founder of Shayogh, a local network for responding to floods. Specific focus on livelihoods and food security. Collaborating with Bar Mukti Abhyan
- Flood dominated by relief aid
- 1998 was the turning point with a huge flood. Accused Nepal of releasing water from its dams
- Community perceptions of flood
 - Hardest hit communities are the poor who live on the banks of rivers
 - In villages where embankments were breached, people call for higher and stronger embankments. Very few are in favor of decommissioning embankments (politically popular)
 - Government entities are strongly structured by relief approaches
 - Significant initiatives of NGOs are also relief dominated
 - Panchayat level water management committees are dysfunctional
- Government now publishing flood management program, remains a technical document. Governed by Relief Act with many outmoded requirements (must report by postcard!).
- GEAG has conducted 20-25 studies on floods
- Flood forecasting warning is useful – but the institution doing the forecasting must have credibility

- Local institutional framework for information generation and dissemination has not been created, neither has interpretive capacity. *Real time information is what is critical.*
- Security of assets is critical (thieves use flood warnings as opportunities)

Sanjay: Thinking of generalities and specificities: Politics of visibility and invisibility is very important. Stakeholder visibility also differs along these lines. Also boundaries – spatial and temporal:

- Who decides when a 'disaster' begins or ends?
- Critique of governmentality behind the politics of living with and managing floods...policies. Huge range of questions about land use; infrastructure boundaries
- Should one look at town planning? Users of public space – is it done keeping the issue of floods in mind.

D. CROSS-CUTTING ISSUES: Women's perspectives.

SARA AHMED

Gender refers to the socially constructed identities and relations between men and women, embedded in a historically changing social, economic, cultural and political context.

Some issues:

- Systems often overlook dynamic intra-household processes of negotiation and decision-making
- Fail to take into account needs of the young
- Women's workload increases while working conditions deteriorate, and their ability to 'recover' (economically) is generally slower than men's particularly in the context of mobility restricted groups.
- Changing role of men – sometimes men collect water – roles sometimes affected by technology.
- Conflict and cooperation in community relations around water sharing. Little known about negotiation processes (lots of reciprocal arrangements), e.g. shared roof water tanks (social capital – what kind of informal networks do women have and how are these sustained);
- Roof water tanks often valuable primarily from the point of view of storage – they enable people to purchase water at bulk rates.

Gender, Floods and Social vulnerability

- Women and girls more at risk
 - Priority on saving sons
 - Purdah limits access to timely information (information flow problem)
- Social hierarchy in village communities often means that female-headed households and other marginalized households are more vulnerable to flood damage
- Limited access to clean water
- Women farmers at greater risk (less ability to protect land claims)
- Post-disaster 'flight of men' well documented
- Increases in levels of stress and family conflict
- More visibility for men in post-disaster technical relief work
- Relief may reinforce gender inequalities
- Floods always viewed as 'disasters' rather than regular events

Mitigating impacts – adaptive strategies

- Mobilizing financial resources, facilitating self-help groups
- Diversifying employment opportunities
- Enhancing informal communication networks through use of IEC, IT, radio
- Promoting capacity building and technical training for women

Not much is known about adaptive strategies

Not much is known about aspirations

Not much is known about access to technology (radios, cell phones, etc...).

ANNEX - 4: METHODOLOGIES

Assumption of project: Everyone adapts – or tries to.

General

The salient issues that came out the first day's discussions were:

- 2) The importance of the existing institutional and physical landscape of drought and flood relief in determining what can or should be done
- 3) The importance of borders (the mosaic of conditions, assets, ownership, physical infrastructure, etc...) in creating variation
- 4) The key role of assets (and asset distribution) in determining response strategies
- 5) The key role of information in enabling responses
- 6) The distinctions between
 - a. Adaptation
 - b. Coping (local and state)
 - c. Aspirations
 - d. Perceptions (people vs. government)

Given the above, a three part methodology was proposed consisting of review, mapping and surveys.

It was agreed that the overall approach should be a nested approach. That is, several village level dialogues and/or surveys to be conducted, embedded in a basin (flood) or region (drought) analysis, all placed within a macro context focused at the state level and above. Brief comparisons between the flood and drought scenarios will be made.

Reviews

- Institutional/legal landscape for drought and flood relief plus water management and insurance (one summary report for each area);
- Existing knowledge on adaptations, coping strategies, aspirations, perceptions (one summary report);
- Review of major social, economic, and demographic trends at a regional level (a good review of trends exists in the last census, major literature).

Mapping

- Mental maps

- Geographic
 - Boundaries
 - Physical infrastructure
 - Property
 - Administrative
 - Rainfall, hydrology, etc.
 - Natural resources
 - Borders
 - The micro-macro scope of droughts and floods (drought and flood variation at very local levels – embedded in a regional picture)
 - Household and community economic links and networks (including migration of people and livestock)
 - Structures (embankments, water harvesting structures, aquifers)
- Sara to put us in contact with people using GIS for community-based dialogue
- Household, community, family, caste assets and access to external assets (by gender)
 - Social networks
 - Information
 - Economic networks - urban-rural linkages
 - Access to markets & institutions
 - Physical and natural assets – technology, land, water
 - Monetary assets
- Information
 - Distribution of cell phones and landlines
 - TVs radio, newspapers (what is people's primary source of news'?)
 - Access to radio channels -- what do people listen to?
 - External agencies (NGOs)
 - IT
 - Other

Surveys - Adaptation, Coping, Aspiration, Perceptions

- How do people perceive droughts and floods (as disasters, resources, general features of the environment?)
- What systems have people developed that are adapted to (fit with and take advantage of) droughts and floods?
 - Social
 - Technical (physical infrastructure)
 - Economic
 - Insurance
 - Other
- What systems have people developed to mitigate (i.e. cope with) the unavoidable negative consequences of drought and flood?
 - Social
 - Technical (physical infrastructure)
 - Economic
 - Insurance
 - Other
- What livelihoods do people aspire to and how would that change their vulnerability to droughts and floods?

- In each case, the differences in perceptions and strategies between local peoples and governments need to be noted.

- During household surveys it will be important to note the following information pertaining to the household in question: assets, livelihoods, information, adaptation/coping/aspirations/perceptions - who adapts what, when, where and how?

METHODS

The following methods will be employed for obtaining information for the reviews, mapping and surveys:

- Review of secondary data with a heavy focus on regional maps
- PRA: Assets, livelihoods (listing of jobs for all family members), information, perceptions/aspirations, attention to different ages of respondents, lifecycle of the household
 - Eldest
 - Middle
 - Youngest

VIKSAT's proposed methodology for field surveys:

- Understand and document gaps in perceptions
- Understand drought from the view of coping strategies
- To evolve adaptive strategies for developing drought resilience

METHODS

- Sampling within agro-climatic zone
- (Kutch and northern Gujarat)
 - Selection of villages (Bhiloda, Satlasna)
 - Selection of households
 - Survey
 - Village level through focus group
 - HH survey through pre-tested questionnaire
 - Secondary data
 - Questionnaire
 - HH details
 - HH assets
 - HH consumption
 - Access and control
 - Equity
 - Livelihood occupations
 - Agricultural, non-agricultural, wage labour, others
 - Migration
 - Male, family with livestock, just livestock
 - HH coping strategies
 - HH gender aspects
 - Resource mapping of the village
 - Access to
 - Assets

- Resources
- Technology
- Institutions
- Information, Market and forecasting (to identify points of leverage to draw strategies)
- Mapping of
 - Traditional knowledge systems
 - Land, water, crops, livestock, etc.
 - Social capital
- Sectoral policies of the state
- Institutions
 - Village level and social
- Impact of drought
 - Physical resources
 - Social
 - Economic
 - Environmental
 - Climatic Change

Primary data through HH survey (400 HHs in Rajasthan and two regions in Gujarat).
Spending roughly 5 days per village.

- Bikanar, Barmar, Jodhpur, Jaisilmir, Sikar
- Chhitore, etc.: total 19 villages, 20 HH from each village
- Regional literature survey can give much of the micro-level variation (Jodha, Chen, Doctoral studies).
- At least 4 villages where one has a combination of impacts of groundwater overdraft and drought.
- Survey team (2 women, 2 men), initial group discussion, map the village.

SECONDARY DATA

Gujarat:

- 10 villages in Bhuj Taluka of Kutch -- proposed
- 5 villages of Satlasna
- 400 households

Banaskantha:

- Fodder shortages
- Changes in water markets
- More adoption of water technologies
- Desertification

ANNEX – 5: PRELIMINARY SCHEDULE AND MEETING AGENDA

Saturday March 8: Key Issues Day

- 9:00 – 9:30 Introduction to the meeting and project, schedules, objectives for the meeting (Marcus Moench & Ajaya Dixit);
- 9:30 – 10:00 Key issues for research preliminary overview: Droughts and Floods (Marcus Moench & Ajaya Dixit);
- 10:00-10:15 Tea
- 10:15-12:15 Critical Drought Issues: Emphasis on both the immediate short-term issues emerging as a consequence of precipitation within a given year and much longer term issues such as groundwater overdraft. Equal emphasis on people's responses and the incentives they face in reacting to droughts. Presentations by:
IWMI
VIKSAT
IDS – Jaipur
- 12:15-1:00 Drought Synthesis Discussion focused on the key researchable issues. What exactly do we need to know and why in order to develop more flexible, adaptive response strategies?
- 1:00-2:00 Group Lunch
- 2:00-3:30 Critical Flood Issues: Similar session to the morning one on drought with an emphasis on both the short and long-term issues arising as a consequence of flooding along with people's responses and the incentives they face in reacting to floods. Presentations by:
NWCF
Punjab University
GEAG
- 3:30-3:45 Tea
- 3:45-4:30 Cross Cutting (Climate Change - WINROCK) & Women's Perspectives (Sara Ahmed)
- 4:30-5:30 Synthesis Discussion and Summary of Key Research Issues

Sunday March 9: Methodologies Day

This day will be used entirely for a group discussion on methodologies. We'll start with a synthesis of the key researchable issues identified on the first day and then move on to identify and develop as far as possible the specific tools (questionnaires, checklists, etc...) to be used in data collection. Roughly the first half of the day will focus on droughts and the second on floods. **The meetings will start at 9:00.**

Those of you who have already proposed or developed specific methodological tools should come prepared to present and discuss them. This is, for example, the case with the surveys proposed by IDS-Jaipur. ISET has done an extensive literature search on methods and approaches. Material from this will also be presented and disseminated.

The goal for the day is to come down to a specific set of researchable questions and specify the tools that will be used in relation to them.

A group dinner is proposed after the meeting.

Monday March 10: Logistics Day

This day will start with a brief (8:30-10:00) group discussion of the overall project schedule. After this, project participants will schedule individual and small group (where organizations are collaborating in individual sites) meetings with ISET to specify terms of reference and finalize budget and contract arrangements.

The goal for this day is to reach final agreements regarding project activities and schedules with each participant organization. We intend to clarify all scheduling, contractual and reporting details at this time so that actual contracts can be issued and any approvals required can be obtained from project funders.

Scheduling during the day will be sufficiently flexible that key project participants should be able to attend portions of the regional meeting being held at ICIMOD on cross-border hydrometeorological data sharing.

ANNEX – 6: PROGRAM DESCRIPTION AND PREPARATION FOR THE MEETING

Introduction

ISET is leading a project to identify improved strategies for drought and flood response that mitigate the immediate impacts of disaster while also responding to longer-term water management needs.

As part of this ISET will be hosting an initial meeting on March 8-10 2003 in Kathmandu with an array of potential regional partners. The goal of this meeting is to discuss the project objective and activities in detail and, if possible, to finalize both partners and their roles.

Background on the Project

The initial concept for this project evolved from two sources:

1. Increasing recognition on the part of individuals involved in the development of water management policy concepts that conventional approaches have limited ability to deliver results in the South Asian context. In many cases, the institutional and structural reforms required for conventional approaches to aquifer and basin management are politically unrealistic in the rapidly changing social, economic and political environment of South Asia. As a result, attempts to implement conventional approaches have, for the most part, proved unable to respond effectively to major regional concerns such as groundwater overdraft, droughts and flooding. Furthermore, even many of the 'newer' approaches that

move beyond the conventional (such as attempts to implement community-based ground and surface water management programs) are challenged by the rapid pace of change in social mobility and aspirations. An expanded response horizon is clearly required.

2. Growing frustration on the part of disaster relief entities regarding their ability to mitigate and reduce the impact of floods and droughts before disasters occur. In many cases, drought and flood relief serves only to reduce the immediate losses in a given event while doing little to reduce the vulnerability of populations to the well-known probability of future floods and droughts. In some cases, relief may even increase vulnerability because it enables populations to continue unsustainable or vulnerable livelihood systems. Clearly strategies that reduce vulnerability by responding to long-term problems, such as groundwater overdraft and flood dynamics, are needed.

The above two 'points of frustration' led ISET to explore the development of adaptive strategies that combine effective responses to short-term flood or drought events while also responding to longer-term water management needs.

What is the Adaptive Strategies Concept?

The adaptive strategies concept emphasizes the development of sustainable livelihood and environmental systems by adapting to and building off of opportunities inherent in hydrologic variability and processes of social, economic and water resource system change. The goal is to identify points of leverage for reducing the vulnerability of livelihood and environmental systems by working with variability and change rather than attempting to control or heavily regulate these processes.

While some of the above points of leverage will focus on the water system, it is important to recognize that many will be indirect – located within the larger economic context or within the coping strategies individuals already utilize to adapt to floods or water scarcity. In addition, rather than a fully planned management system, the adaptive approach is opportunistic and emphasizes development of the capacity to take advantage of such opportunities. Within the adaptive strategies concept, for example, droughts and floods can be viewed not just as disasters to be mitigated but as potential windows of opportunity for long-term systemic change. Droughts often force individuals whose livelihoods depend, for example, on unsustainable patterns of groundwater use, to seek alternative less water dependent livelihoods. They are also often political windows of opportunity when society is open to considering basic water use changes that would face substantial opposition during times of lower stress. Finally, floods and droughts are periods when the technical or scientific viability of management interventions (whether they be embankments or water harvesting structures) becomes most evident and new innovative strategies can be tested.

Why Are Adaptive Approaches Important?

Adaptive strategies are essential because conventional approaches are inadequate to respond to the dynamic and changing nature of society and water resource conditions. The adaptive strategies concept takes socio-economic change, natural resource variability, and human organizational limitations as a starting point. It is based on the view that:

1. Socio-economic change is inherent in the human condition. The economic basis of livelihoods is changing rapidly in many areas. Mobility and migration are

increasing and reshaping both urban and rural areas.¹ New developments in information access and communications are altering perspectives and aspirations. Political systems are fluid. Because of this change process, water use patterns and *equally importantly* the incentive for individuals, groups, communities and governments to manage water on a long-term basis are subject to relatively rapid change.

2. Water resource system variability often **can not** be controlled Conventional water management approaches assume stationarity – that water availability, river flows, sediment loads, infiltration rates and other key hydrologic parameters fluctuate about some stable and scientifically identifiable mean. This assumption underlies many of the basic approaches in conventional water management such regulating extraction from aquifers on a sustained yield basis and attempts to regulate rivers using reservoir and embankment systems. In many parts of the world the scientific information essential to identify basic hydrologic parameters is unavailable. Furthermore, the assumption of stationarity is almost certainly invalid (at least in a practical management sense). Even disregarding the increasing evidence of climatic change, extreme events that are rarely captured by hydrological monitoring systems are increasingly recognized as dominant factors shaping hydrologic system dynamics. In the Yellow River of China, for example, 50% of the total sediment movement over the past 150 years occurred in just eight events. Unless flows and long term water availability can be quantified at least within reasonable bounds, designing physical systems to eliminate inherent hydrologic variability will not be possible. Overall, as a result, the scientific basis for managing aquifers on a sustainable basis or controlling floods is lacking in many locations.
3. Society often can not resolve key human organizational limitations: Whatever the ‘need’ to directly manage aquifers and rivers to meet desired objectives, human organizational constraints often represent fundamental obstacles. As the literature on common property institutions demonstrates, for example, the number of individuals involved has a significant influence on the ability of communities to organize group management systems. In the groundwater overdraft case, the number of individual well owners tapping a given aquifer often numbers in the tens of thousands. As a result, attempts to create a common property management organizations – or for the government to regulate water use – may not be realistic. While it may be possible to organize management in high priority locations (such as the aquifer supplying a major urban area or on major rivers) management organizations are unlikely to be possible to develop in many locations. Overall, the ‘social space’ within which conventional management organizations can be developed and operate effectively may be limited to a small set of very high priority locations.

The above factors, we believe, represent inherent limitations on the ability of conventional water management strategies to respond to the water related problems now emerging in many parts of the world. An expanded, more adaptive, response pallet is, as a result, essential.

¹ The distinction between urban and rural may, in fact, become less and less relevant over coming years as much of the world becomes ‘peri-urban’ – economically and socially linked across an urban-rural continua.

What is the Adaptive Strategies Project?

The adaptive strategies project is designed to document and flesh out concepts and opportunities for more effective approaches to water management and flood and drought mitigation through an integrated set of studies in four field locations (two drought affected and two flood affected) within South Asia. Specific field locations have yet to be finalized, however, key locations will include:

1. The arid areas of Rajasthan and Gujarat (India);
2. Flood prone areas in the Ganga basin along the India-Nepal border;

Additional drought prone regions in Pakistan or India and flood prone areas in Bangladesh may also be included.

Where activities are concerned the program will document the following:

1. The nature of flood and drought related disasters and their links with longer-term water management issues;
2. Existing coping strategies followed by communities in drought and flood affected areas;
3. Larger patterns of social and economic change in case study areas that influence the vulnerability of livelihoods to drought and flood conditions and the opportunities these patterns may contain for reducing flood/drought vulnerability or mitigating long-term water management problems;
4. Physical options for reducing flood and drought impacts or meeting long-term sustainability objectives that are adapted to the dynamics of hydrologic and social systems and that do not require forms of knowledge or organization that are unlikely to be available in current field contexts;
5. Options for mitigating floods, droughts and longer-term water management concerns through indirect policy mechanisms including the retargeting of existing water management and flood and drought mitigation programs currently being implemented by the government, NGOs or other actors.

Additional focal points for documentation may be added during discussions with field partners and other collaborators.

Communications and questions on this project should be directed to:

Dr. Marcus Moench
Director, ISET
mmoench@i-s-e-t.org

Mr. Ajaya Dixit
Nepal Water Conservation Foundation
nwcf@wlink.com.np

ANNEX – 7: AGREEMENTS WITH PARTNERS

Punjab University

1. Sanjay Chaturvedi: As director of the flood program and link to IORG and Punjab University.
 - a. Current visit: 5 days
 - b. Field visit: 6 days
 - c. Between field and Sept: 10 days
 - d. Sept meeting: 5 days
 - e. Analytical – Sept-Dec 15
 - f. December meeting 10
 - g. Final inputs 5
2. Responsibilities to Produce:
 - a. A report/chapter on government policies and laws for flood relief: Institutional Landscape Mapping
 - b. Synthesis of literature on floods in Bihar and Eastern U.P. including comprehensive bibliography
 - c. Compilation of whatever maps are available
 - d. Involvement in fieldwork
 - e. Input to field reports
 - f. Input to final project report
 - g. Link on IORG web site
3. Key point: Led by IORG and Punjab University. All invitations should be to Dr. Sanjay Chaturvedi, Principle Coordinator, IORG, c/o Centre for Study of Geopolitics, Arts block 5, Punjab University.
4. Agreed to put together regional proposal through IORG in advance of Ghorakhpur trip.
 - a. Pradeep Monga: Advisor on Sustainable Development to UNEP, Vienna - could float something with him.
 - b. Investigate GEF (Sonam)
 - c. Timothy Doyle has put together research proposal to Australian Research Council through IORG.

GEAG

1. Responsibilities
 - a. Organize & coordinate field team for work in Eastern U.P. and Bihar
 - b. Undertake field surveys and other fieldwork using agreed methodologies
 - c. Analyze field data and prepare draft reports based on fieldwork
 - d. Coordinate and liaison with other local groups in region, IORG and ISET - Nepal
 - e. Coordinate with Sara Ahmed on gender and training
 - f. Contribute to synthesis reports
 - g. Attend main project meetings
 - h. Clear structure: documentation on floods within India is jointly led and conducted by the involved Indian organizations (IORG, GEAG).
2. Proposal to challenge Government Program on Flood Management?

IDS AND VIKSAT

1. Responsibilities:
 - a. Prepare report synthesizing drought issues, policies and programs for respective states

- b. Organize & coordinate field team for work in Rajasthan and Gujarat
 - c. Undertake field surveys and other fieldwork using agreed methodologies
 - d. Analyze field data and prepare reports based on fieldwork and secondary data search
 - e. Collect relevant maps and photos
 - f. Coordinate with Sara Ahmed on gender and training
 - g. Contribute to synthesis reports
 - h. Attend main project meetings
 - i. Provide audited account of expenditures on project
3. Coordination with Sara Ahmed and training session April 9-11, IDS starting fieldwork by 14th April, field trip to Udaipur-Ahmedabad (Satlasna on way).
 4. Clear structure: Documentation on Droughts within India is jointly led and conducted by the involved Indian organizations (VIKSAT, IDS-Jaipur).

WINROCK INTERNATIONAL-INDIA

Probable involvement

1. Inputs from Climate Change Program
2. Inputs from Community Asset Building Program
3. Responsibility
 - a. Brief synthesis report capturing results of community asset building program with respect to livelihoods resilience in drought context
 - b. Synthesizing results of studies under climate change program reflecting vulnerability and adaptation to extreme events
 - c. Providing input to project synthesis reports
 - d. Participation in coordination meetings (India and Nepal)

SARA AHMED

1. Responsibilities (numbers refer to days of consulting time committed)
 - a. Synthesis of literature on gender dimensions in droughts and floods and adaptive or coping responses to them along with structured field notes outlining insights from fieldwork in all areas with particular emphasis on gender dimensions and cross-regional parallels. Separate or combined write-up. Synthesis & field notes write-up.
 - b. Training of field teams (methodology and gender), Drought 4, Flood 7
 - c. Field work in both drought and flood area, Gujarat (7), Rajasthan (7), Nepal and Eastern U.P. (14)
 - d. Input to main project report in coordination and writing meetings (September and December) (10)
 - e. Contingency 6