

Adaptive Strategies for Responding to Floods and Droughts in South Asia

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

Fifth Program Performance Report
to

U.S. Agency for International Development – Mission to Nepal
October 1, 2003-December 31, 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



There has been one change in the project timeline above: the period of coordination and document production meetings has been moved from Oct-Dec 2003 to Jan-Mar 2004 (year 2 of the project).

Activities during the period October through December 2003 concentrated on finalizing collection of field work, undertaking second-round focused interviews with study village folk, collating field data and entering it into SPSS and other data management programs, and conducting a global experience review. Draft writings from data interpretation and syntheses were initiated and are ongoing. Meetings were organized in Kathmandu and Delhi, led by Marcus Moench, to bring those involved in the project (OFDA, US Embassy, etc.) up to date with project progress.

Attached are progress reports from project field partners in the following order:

p. 3: VIKSAT – Nehru Foundation for Development: Survey of drought sites in northern Gujarat, India.

p. 17: IDS – Institute for Development Studies, Jaipur: Survey of drought site in Rajasthan, India.

p. 19: ISET-Nepal/NWCF: Survey of trans-boundary flood sites along the Rohini and Bagmati Rivers, between Bihar and Uttar Pradesh (UP), India, and the Nepal Terai.

p. 23: Sara Ahmed: Gender dimensions and cross-regional parallels in droughts and floods, Nepal and India.

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 October through December 2003 has been submitted through SF 269 and SF 270 forms.

GUJARAT CASE STUDY: FINDINGS FROM PRIMARY DATA ANALYSIS

The following gives the initial findings from analysis of data from three areas in Gujarat, namely, Bhiloda in Sabarkantha district, Bhuj in Kachchh district and Satlasana in Mahesana district.

AGE-SEX DISTRIBUTION

- Overall sex ratio in the study area (Bhiloda, Bhuj and Satlasana) is 920/1000 (primary survey), which is comparable with the Gujarat sex ratio of 919 (Census 2001).
- The sex ratios according to primary survey: Bhiloda: 928/1000; Bhuj: 965/1000; Satlasana: 920/1000
- Sex ratio of children up to 5 years: Bhiloda: 717/1000 (highly unfavorable to females); Bhuj: 855/1000; Satlasana: 756/1000
- In Satlasana, the sex ratio in the age group of 6-14 years is 662/1000, which is alarming.
- Overall sex ratio of children up to 5 years of age in the study areas is 789/1000, which is a matter of serious concern.
- Sex ratio of children in Bhiloda and Satlasana are unfavorable to girl children. This will lead to great gender and social disparity in future. Factors responsible might be female infant mortality due to malnutrition of mother and child, which is seen during the drought period (from primary survey).

EDUCATIONAL ATTAINMENTS

- Literacy rates:
Bhiloda: 70%; Male literacy: 57%; Female literacy: 43%
Bhuj: 50%; Male literacy: 56.42%; Female literacy: 43.58%
Satlasana: 61.20%; Male literacy: 69%; Female literacy: 31%
Gujarat: 61.29%; Male literacy: 62%; Female literacy: 38%
- There are more illiterates in Bhuj (210 out of 535). Livelihood demands are for labor, which is reflected by labor being the primary occupation. In Bhiloda and Satlasana (123 and 156 respectively), the trend is closer to state averages.
- Female literacy is very low in Satlasana (31%) because it is strongly perceived that women are supposed to take care of household work. Hence, many girl children are not enrolled in school or literacy classes. This is also because they have to take care of younger siblings. This is reflected in the occupational pattern where 98% of women are engaged in full-time household work.

- Female literacy rate is higher in Bhiloda (43%) and Bhuj (43.58%) than the state average (38%). In Bhiloda, a tribal belt village, there is an established trend of people going into government service (such as in schools and defense) because of positions reserved for Scheduled Tribes (low castes) – a measure known as affirmative action. Further, women also go into business (22%) in Bhiloda. In Satlasana, women do not participate in either government service or business. Government service job opportunities in Bhiloda encourage the enrolment of girl children in schools.
- Although Bhiloda and Bhuj show similar female literacy rates, business opportunities for females are slightly higher in Bhiloda, and in contrast to Bhiloda, government service opportunities in Bhuj are nil.

OCCUPATIONAL STRUCTURE

In Bhiloda

- Agriculture is the primary occupation for males (44.25%) followed by agricultural and other labor work (36%).
- 98% of women are involved primarily in household activities.
- About 7% of the surveyed population is in government service (because of the reservation of jobs for tribal communities).
- Labor has been a major secondary occupation, especially during the recent drought.
- Many women are involved in agricultural labor as a secondary occupation followed by Balvikas and Balvadis.

In Bhuj

- Labor is the primary occupation of men (34.58%), followed by agriculture and service (12.88% each), and animal husbandry.
- 66% of women are engaged in household work and 28% in labor as a primary occupation. Further, over 50% of women are engaged in labor work as a secondary occupation.
- Only women are involved in household work.
- About 7% of the population is involved in business.

In Satlasana

- Agricultural labor (36%) and other labor (27%) constitute primary occupations for men.
- Women are not recognized as “cultivators” (due to cultural practices and caste differences) although their contributions to agriculture are reportedly significant: they are involved in a variety of activities such as seeding, weeding, plowing and harvesting.
- A majority of women (72%) are engaged in household work.
- Men are not involved in household work.

Overall observations on occupational structure

In Bhiloda, people (31%) persisted with agriculture during the drought while in Satlasana (also in North Gujarat and of a similar agro-climatic condition as Bhiloda), agriculture was reduced to a minimum (4%). People in Bhiloda perceive that regenerated forestlands help absorb the effects of droughts somewhat, and thus the effects of droughts were delayed.

In Satlasana, the effects of drought were felt almost immediately and severely within two to three years. Agriculture as an occupation is affected when the wells dry up. 36% of farmers take up agricultural labor work. 21% of the total working male population migrates, of which 9% goes on long-term migration (sharecropping, diamond polishing and construction labor – for more than 6 months).

The shift towards non-agricultural labor is high in all the three places (Bhiloda-69%, Bhuj-51%, Satlasana-65%) because of drought.

In terms of primary occupation, there is a clear shift of relative significance from agriculture (70% before drought, decreased to 4%) to animal husbandry (6% before drought, increased to 16%). In Satlasana, this is a coping mechanism aided by the dairy co-operatives which provide feed to sustain farm milk supplies.

The percentage of women working as laborers is high both in Bhiloda and Bhuj – over 50% - while in Satlasana it is almost zero. In Satlasana, most women do not participate in labor work because of cultural factors, though a small percentage (4%) is compelled to work as laborers within the village.

In Bhuj, 66% of women engage in household work while 21% work as laborers. Those engaged in household work are also involved in the handicrafts trade, in addition to the 21% of women for whom handicrafts is the primary occupation.

LAND HOLDING PATTERNS ACROSS CASTE / COMMUNITY GROUPS

Dominant Community

- Bhiloda: Dungari Garasia (tribal community)
- Bhuj: Rabari followed by Harijans; Muslims
- Satlasana: Darbars followed by Harijans; Muslims

Note: Harijans consist of Parmar, Maheshwari, Solanki, Vankar and Waghri.

Landless Groups / Communities

- Bhiloda – very few (only 3%) due to a variety of reasons: One, the government has distributed land to tribal groups in the past. Two, under government-sponsored schemes, loans were provided to tribal groups for the purchase of land.

Three, special subsidies available under certain government programs for agriculture encouraged tribal groups to buy land.

- In Bhuj, according to the primary survey, the percentage of landless people is as high as 57. However, it must be noted that most of them have “occupied” government land and generally cultivate rain-fed Kharif (summer) crops. Rabaris, Harijans and Muslims together comprise 83% of the landless.
- Satlasana has 14% of landless people – Harijans constitute 57% of these.

Marginal farmers

- 71% of the sample villagers in Bhiloda and 63% in Satlasana are marginal farmers; they constitute the majority of the population (146 out of 400 people).
- 36.5% of farmers have landholdings of up to 2.5 acres (71 out of 400 people).
- Small farmers (13.5%) and medium farmers (16.5%) comprise large landholders.

General Observations

- Marginal and small farmers constitute the majority in Satlasana. There is only one household in the sample survey with a landholding of more than 5 acres.
- There are more landless villagers in Bhuj.
- In Bhiloda, marginal farmers constitute the majority.
- In Satlasana, the Darbar community makes up the majority of people and 37% of them are marginal farmers.

HOUSING

- Housing is classified as kacha (semi-permanent) and pucca (permanent). Kacha houses need repairs every year and replacement of some housing components, especially roof materials.
- Bhiloda has more kacha houses (83%) than pucca (17%) houses. Materials (bamboo, grass, small timber, stones) used in the construction of houses come from the forests as part of the joint forest management program. Also, historically and culturally, tribal groups are used to the so-called kacha houses.
- Bhuj has more pucca houses (71%) than kacha (29%) ones. This is due to the large number of shelter reconstruction programs set up after the 2001 earthquake. Thus a pucca house in this case may not reflect the real economic status of the household.
- Satlasana has more or less equal numbers of kacha (49%) and pucca (51%) houses.

LIVESTOCK SITUATION DURING DROUGHT

- Goats are the most common livestock animal in Bhiloda (35%) and Bhuj (40%), whereas buffalo is more common in Satlasana (42%). In Bhuj, Rabaris comprise 34% of the population and are the predominant caste. They are also known as

Maldharis (cattle keepers) and traditionally rear goat and sheep (75%) as well as cattle.

- 10% of livestock in Satlasana is traded, most commonly buffalo (70% of traded livestock).
- Goats are the preferred livestock in Bhuj (70%) because of low biomass availability; Bhiloda also trades in goats (80% of traded livestock).
- Sheep, 21% of the livestock population, are not traded in Bhuj; cows are not traded in Bhiloda.
- The following animals died in the respective study areas: Bullock (29.7%) in Bhiloda, sheep (31.1%) in Bhuj, buffalos (70.2%) in Satlasana.
- Goats suffered the most and constituted a significant percentage of dead livestock in Bhuj and Bhiloda due to fodder and water shortages during the drought.
- The culture of offering livestock as gifts is not prevalent in Satlasana. It is prevalent in Bhuj, however, (preferred gifts: goats and cows). In Bhiloda only milch animals such as cows, buffalos and calves are offered as gifts. However, during drought, people in Satlasana used to leave their cattle with their relatives in greener areas and take them back after a good monsoon. According to our primary survey, under conditions of severe fodder scarcity during droughts, people abandoned their non-productive cattle in distant forest areas (Ambaji hills). They do not sell them to the slaughterhouse mainly due to the religious significance of cattle. However, some Rabaris have bought the cows at throwaway prices.
- Bulls are neither given as gifts nor left with relatives in any of the study areas.
- In Bhuj, even camels (21.05%), known for their tolerance to water scarcity, died during the last drought.
- Cattle deaths have been rampant during the drought:
 - About 10% died in Bhiloda
 - Over 17% died in Bhuj
 - Over 16% died in Satlasana

Fodder scarcity is an indicator of drought severity. The response is to abandon or sell non-productive cattle. Even traditional livestock choices (goats and sheep in the tribal hilly belt of Bhiloda, buffalo in Satlasana and camels in Bhuj) have lost their resilience and become vulnerable during droughts, breaking down the livelihood source of supplementary livestock rearing. However, there are exceptions when external support systems are provided through either dairy co-operatives or drought relief programs.

CROPPING PATTERN

- During the summer, crops are not planted in Bhiloda due to droughts, only groundnut is sown in Bhuj, and a small area (6.27 acres) is under fodder crop cultivation in Satlasana.
- Major food crops are: Maize, Green gram, Bajri and Wheat
- Major Cash crops are: Groundnut, Castor, Mustard
- Major Fodder crops are: Gower, Jowar (Sorghum)

- Mixed cropping practice is seen in all the areas. Crops mixed are normally pulses and cereals (Maize, Bajri, Pigeon pea and Black gram) in Bhiloda; Sorghum, Green Gram in Bhuj; Bajri (pearl millet) and Green gram in Satlasana.
- Wheat and Green gram are cultivated on a large scale during the winter in Bhuj.
- Maize and Pigeon pea are the major crops cultivated in both the summer and winter in Bhiloda.
- Groundnut cultivation is predominant in the summer in Satlasana and Bhuj. Mustard and Castor cultivation are prominent in Satlasana.

MONTHLY PER CAPITA CONSUMPTION EXPENDITURE

- Food consumption was significantly reduced (with very few exceptions) during the drought period in all field sites. Overall expenditure on food consumption was reduced by 70% in Satlasana and 26% in Bhiloda. Food consumption expenditure remained more or less the same in Bhuj, and in fact showed a 9% increase, which could be accounted for by the post-earthquake relief program (in 2001) which was also a drought year.
- Wheat is the major food item during droughts in the study areas. However, in Bhiloda, maize is the prominent food grain consumed during drought. In Satlasana, Bajra was the main food grain, but is now wheat. One of the reasons for this change is the distribution of wheat as partial payment for drought relief work.
- Expenditure on rituals and festivals did not change much in Bhiloda and Bhuj, while in Satlasana it was reduced by 90%.
- Vegetable consumption was substantially reduced (73% in Satlasana).
- The highest non-food expenditure in Bhuj was for medicines (Rs. 229 in a drought year compared to Rs. 29 in normal year). In many cases, this was primarily because of the major expenses to treat physical disabilities caused by the earthquake of 2001.
- Consumption of tobacco, liquor and cigarettes increased in Bhiloda whereas it decreased in Satlasana. This was explained by the villagers as stress due to the drought conditions in Bhiloda.
- Expenditures on litigations are not drought sensitive. Drought was not a factor intervening in fighting litigations in court. There are only four households currently involved in litigations, and these have increased expenses in their court battles from Rs. 2,340 to Rs. 7,800.

PERCEPTIONS OF THE CAUSES OF DROUGHT

Bhiloda			Bhuj			Satlasana		
Perceptions	Respondents		Perceptions	Respondents		Perceptions	Respondents	
	No.	%		No.	%		No.	%
Shortage of water	80	80	Insufficient rain	120	60	Shortage of water	90	90
Shortage of food	65	65	Reduced source of income	89	44.5	Insufficient rain	53	53
Fodder Shortage	57	57	Shortage of food	85	42.5	Fodder Shortage	30	30
Insufficient rain	28	28	Fodder Shortage	35	17.5	Shortage of food	28	28
Reduced source of income	26	26	Shortage of water	33	16.5	Price Hike	20	20
Reduction in Yield	9	9	Reduction in Yield	12	6	Reduced source of income	14	14
Increase in population	1	1	Others	7	3.5	Reduction in Yield	5	5
Reduced income from milk	1	1	Increase in population	1	0.5	Reduced income from milk	2	2
Price Hike	0	0	Price Hike	0	0	Others	1	1
Others	0	0	Reduced income from milk	0	0	Increase in population	0	0

- Respondents from Bhiloda and Satlasana, both in North Gujarat, perceive that drought is directly related to shortage of water, while respondents from Bhuj trace it to insufficient rainfall. Bhuj receives an average annual rainfall of 350 mm while Bhiloda and Satlasana receive 700 mm. While Bhuj usually has more years of drought (4-6 out of a 10-year cycle), Bhiloda has 2-3 years of drought and Satlasana 3-5 out of a 10-year cycle.
- Fodder shortage is a uniform problem across all three areas.
- Reduction in income sources is quite acute in Bhuj while it is less so in the cases of Bhiloda and Satlasana because of the availability of past savings, borrowing from relatives and pawning of jewelry. The people of Bhuj do not tend to borrow money because of the increased cash flow from drought and post-earthquake relief programs despite the reduction in income sources.
- Population increase is not a major issue. Fodder shortage, agricultural yield and milk yield is experienced fairly uniformly across all three locations.
- Interestingly, as many as 43% of respondents in Bhiloda and 28% in Satlasana believe that drought descends on the region for religious reasons. Other respondents from all three locations believe that drought is due to natural phenomena such as low rainfall and deforestation. However, respondents from Bhiloda put deforestation as a major reason for drought, while those in Bhuj do not consider deforestation a factor. This is because the people of Bhiloda, being in the tribal belt, identify with forests to a much higher degree and they are actively engaged in joint forest management programs. Bhuj, on the other hand, does not have any significant forest cover.

PERCEPTIONS OF DROUGHT RELIEF PROGRAMS

People have benefited from drought relief programs in terms of both food grain distributions as daily wages in Bhiloda and Bhuj and employment programs and fodder distribution received by as many as 85% the population in Satlasana. Satlasana has a high population of livestock and animal husbandry is an important secondary livelihood occupation.

LAND USE AND LAND HOLDING PATTERNS

- North Gujarat is well known for its extent of groundwater extraction. Primary data shows that nearly 75% of private land in Bhiloda is irrigated, while only just over 45% of private land is irrigated in Satlasana. This figure comes down to only 23% in Bhuj where irrigated cultivation is confined to a very few areas where groundwater is available.
- Over 60% of land leased for cultivation is irrigated. In Satlasana, the only irrigated land is land leased for cultivation.
- In Bhiloda and Bhuj, about 5% of women own land. No women own land in Satlasana.
- Average landholding sizes are: Bhuj: 7.97 acres; Bhiloda: 2.30 acres; Satlasana: 1.37 acres.
- 57% of the households sampled in Bhuj own no land, legally. However, a large number of people have occupied government land illegally, especially in the less fertile hill slopes. The government has proposed a scheme to legalize these illegal tenants against a small penalty payment of between Rs. 1,000 and Rs. 4,000 per acre. However, there is not much response to this offer as the whole process is reported to be muddled in corruption and bureaucratic delays. These lands are only being cultivated during the monsoon without substantial investments. There are an estimated 20-25% of truly landless households.
- Leasing land is common in all field study areas. Marginal and small farmers also lease in land for cultivation. However, the area of land under lease has been reduced significantly to the current level of 6% in Bhiloda and 2.6% in Bhuj and Satlasana. The main reason for this is the water scarcity conditions due to drought.

COPING STRATEGIES

The following coping strategies were resorted to, in order of importance:

- Migration (permanent, temporary and commuting for work to nearby villages and urban areas) as an immediate coping strategy to meet livelihood stresses created by drought. 9% of households in Satlasana, 7.5% in Bhuj and 6% in Bhiloda reported that members of their families had to migrate mainly due to drought.

- Borrowing money - In Bhiloda, 62% of the respondents resorted to borrowing money from various sources - relatives, fellow villagers and moneylenders.
- Using savings - 35% of the respondents in Bhiloda and 13.5% in Bhuj resorted to using their savings in the initial years of drought.
- Sale of assets such as livestock, trees and other mobile assets.
- Reduction in food consumption – Food consumption, including essential cereals and pulses, was reduced. Consumption of non-food items was also reduced (refer to the detailed analysis on consumption expenditure).

PURPOSES FOR WHICH LOANS WERE TAKEN DURING DROUGHT

- Agriculture and animal husbandry do not appear to be fulfilling income requirements. 47% of respondents in Bhiloda, 23% in Bhuj and 19% in Satlasana were required to borrow money to compensate. Thus taking risks in Satlasana and Bhuj is not very favored while in Bhiloda, because of perceptions of healthy natural resources such as water and forests, people take greater risks and more borrow money, which they are better able to repay.
- Across the three talukas, loans were taken primarily for meeting household needs.
- In Satlasana, people have also borrowed heavily to meet marriage expenses. In Satlasana, the tradition of dowry is very strong - the girls' parents have to raise at least Rs. 47,000 to marry off their daughter. In Bhuj, the dowry requirement for girls is not as prevalent as in Satlasana, and in Bhiloda, because of the predominantly tribal culture, amounts given as dowry are relatively small. Moreover, in Bhiloda the people help each other to raise necessary funds for marriages. Every person who participates in a marriage contributes to the expenses.
- In Satlasana, due to the dramatic depletion of groundwater, many farmers intensified their quest to obtain water from deeper aquifers; 7% of respondents had borrowed large sums of money from moneylenders and other sources to deepen their existing wells and drill new bore wells.

MIGRATION

- Over 21% of the working population of Satlasana migrates (permanently, temporarily, or to commute (20.16%) to nearby villages or urban centers) for work.
- Permanent migration is comparatively high in Satlasana, where 8.67% of male workers in our survey migrated.
- Child labor has been observed in Satlasana - long-term migration of children below the age of 14 years is as high as 2.30%.
- Of the three study talukas, Satlasana has the highest proportion (12.72%) of male workers who migrate temporarily.
- The large-scale earthquake relief programs in Bhuj have reduced the number of migrants out of that taluka.

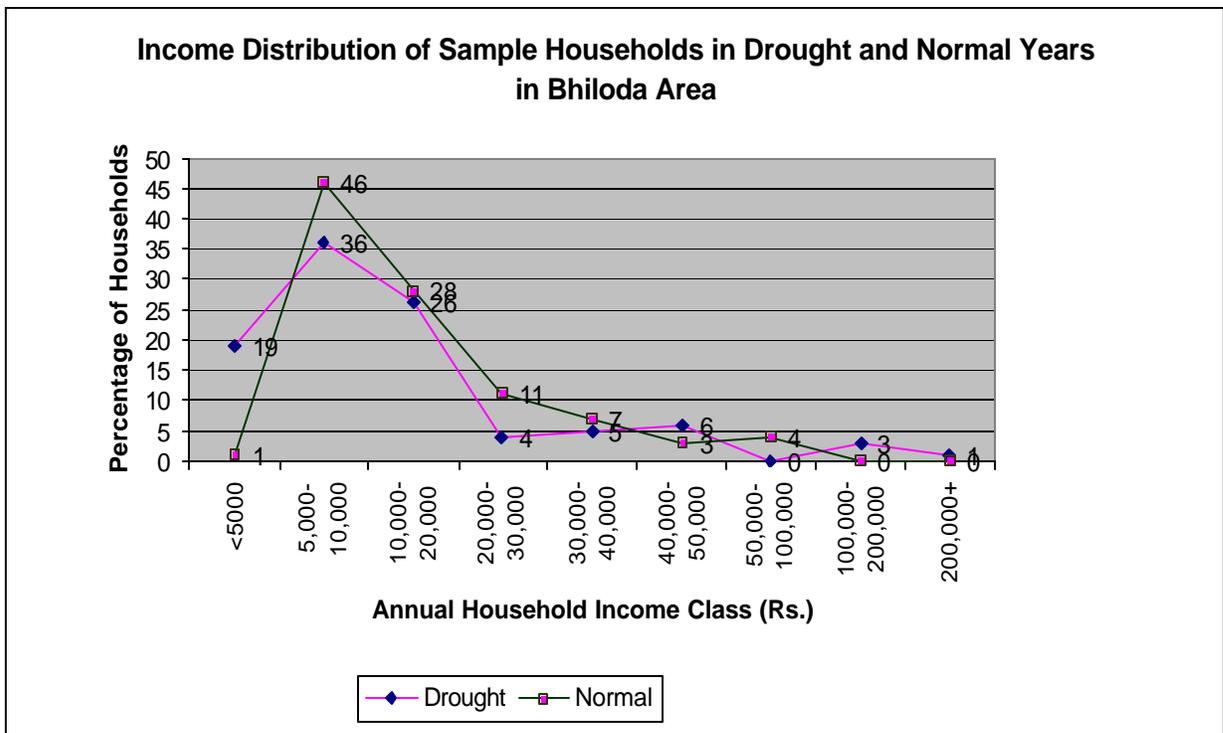
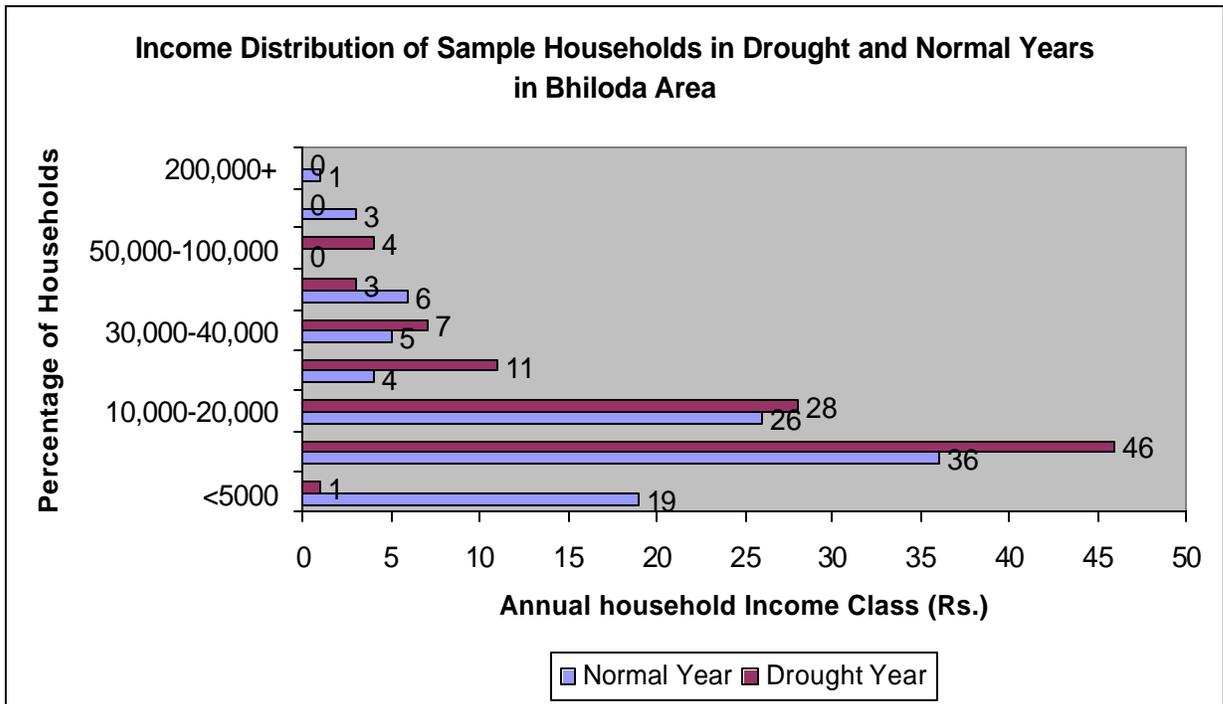
PURPOSES FOR MIGRATION

- People from the study sites primarily migrate in search of employment - 100% of the migrants in Satlasana, 96% in Bhiloda and 87% in Bhuj. In Bhuj, 13% of migrants migrate in order to graze their cattle. These are essentially the semi-nomadic Rabari who traditionally move from place to place to graze their cattle.

PLACES TO WHICH PEOPLE HAVE MIGRATED FOR WORK/ DISTANCES TO PLACES OF PERMANENT MIGRATION (MAP)

ANALYSIS OF CHANGES IN INCOME DISTRIBUTION AND POVERTY

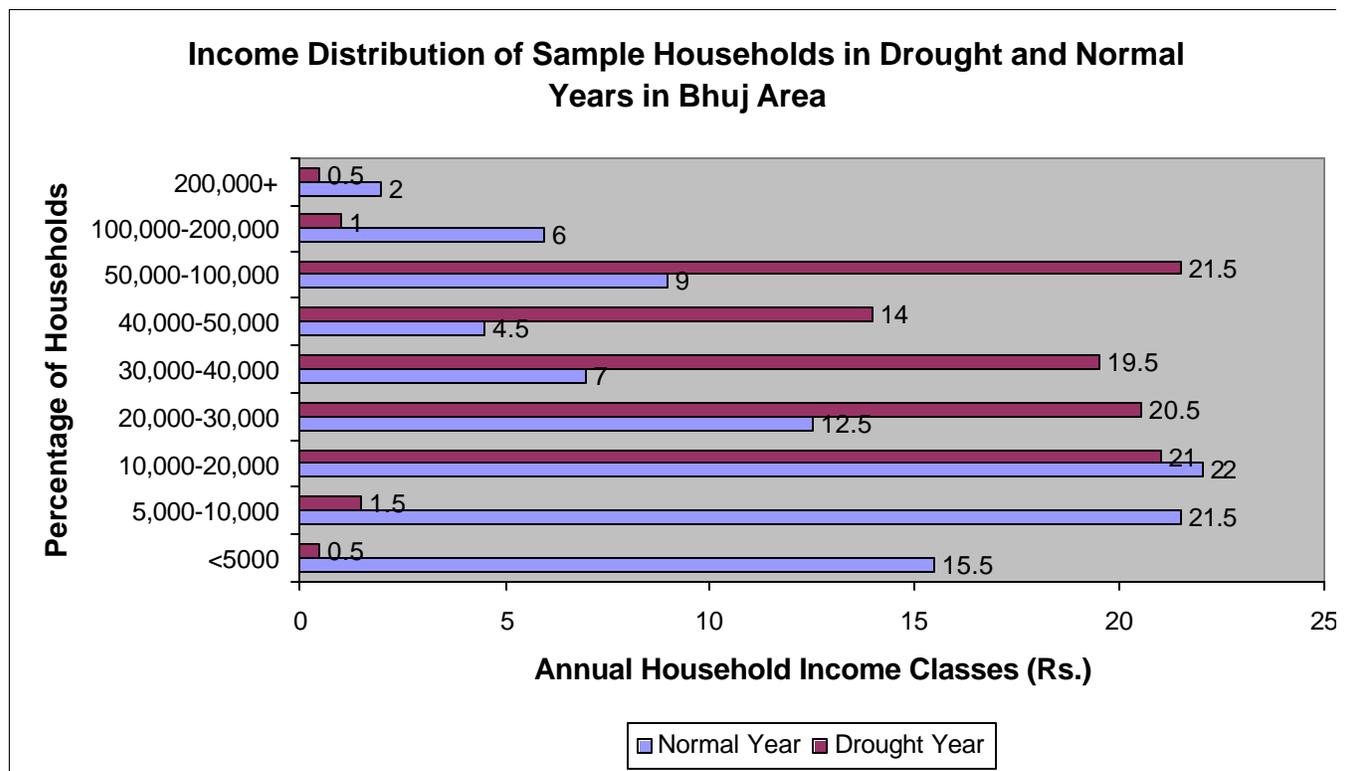
Bhiloda

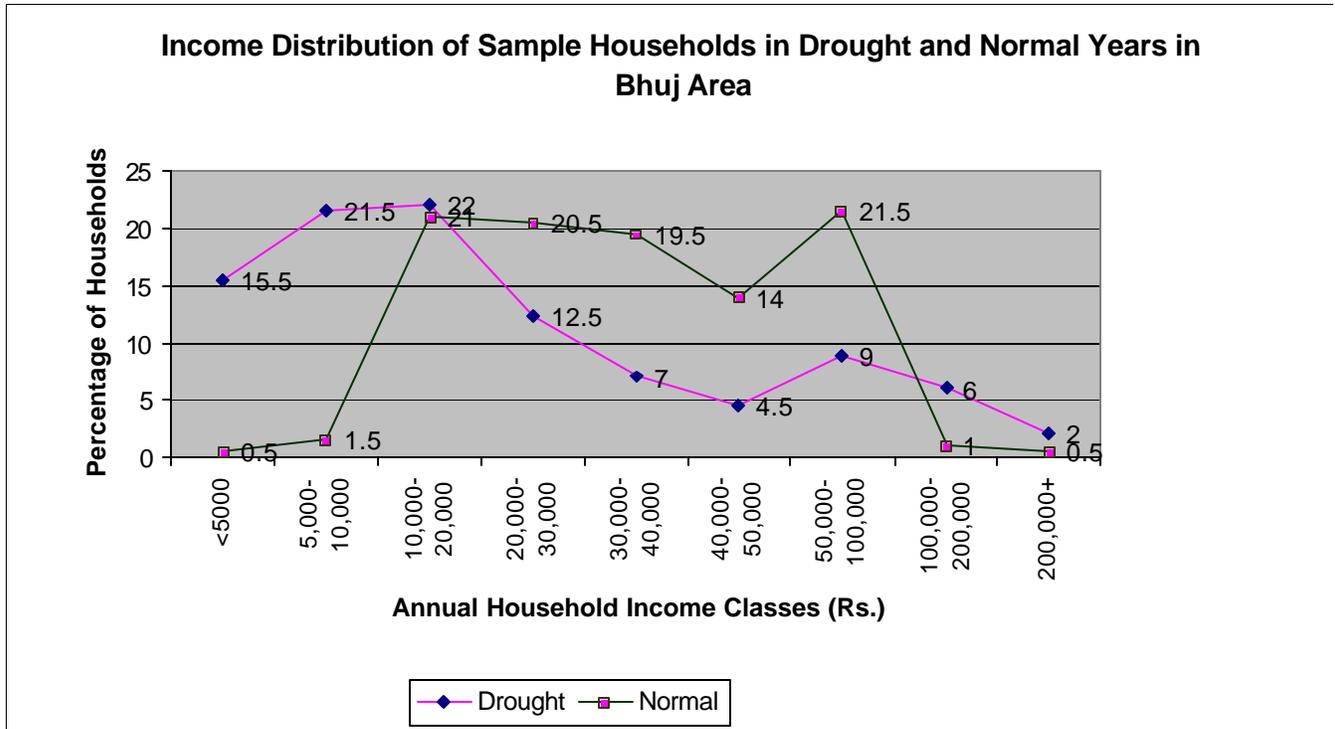


Drought has resulted in a general decrease in incomes across all income brackets. This is most pronounced in the most vulnerable, lowest income bracket (less than Rs. 5,000/year) which increased in proportion of population from 1% to 19%. This trend is also significant in the Rs. 5,000-10,000 per year bracket.

Effects on people below the poverty line: There has been significant worsening of the situation of people living below the poverty line. A significant proportion - 18%, has been pushed to the lowest income category, down to one-fourth of the poverty line. A further 12% of people living below the poverty line became four times poorer and 6% of people who were above the poverty line have slipped down to below it.

Bhuj



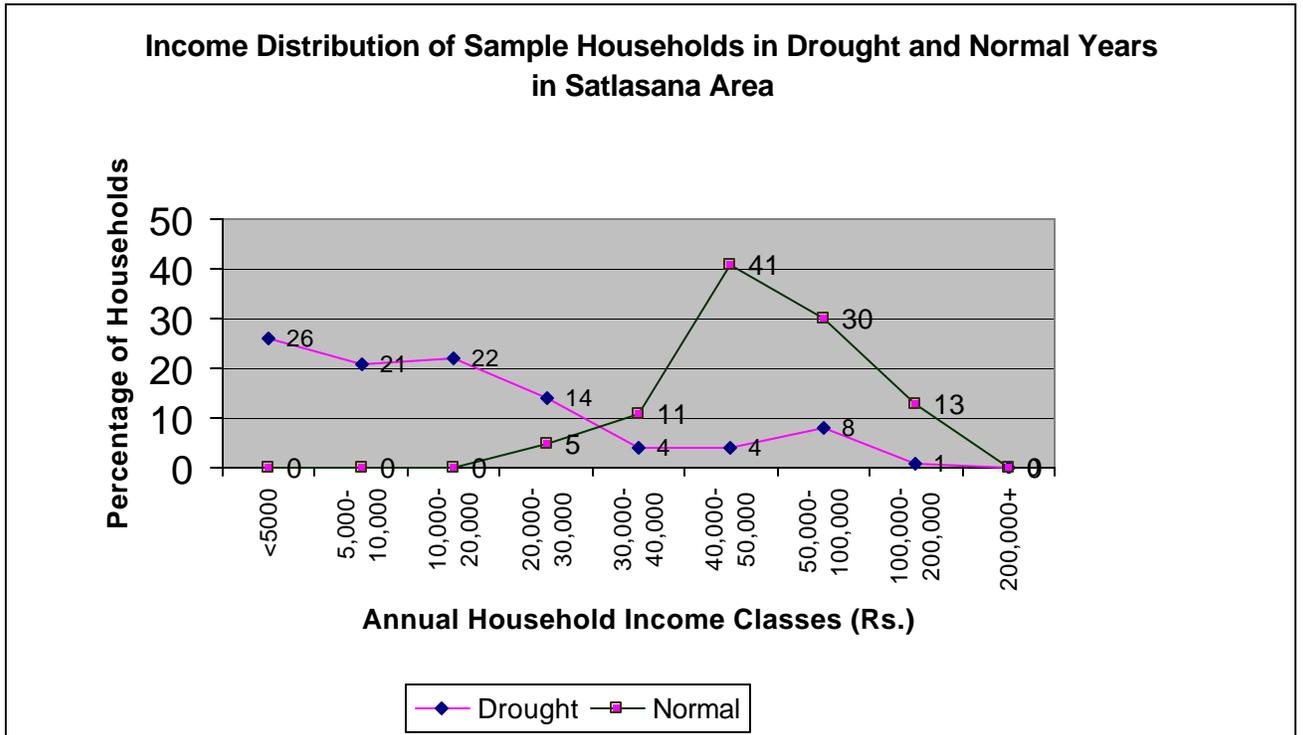
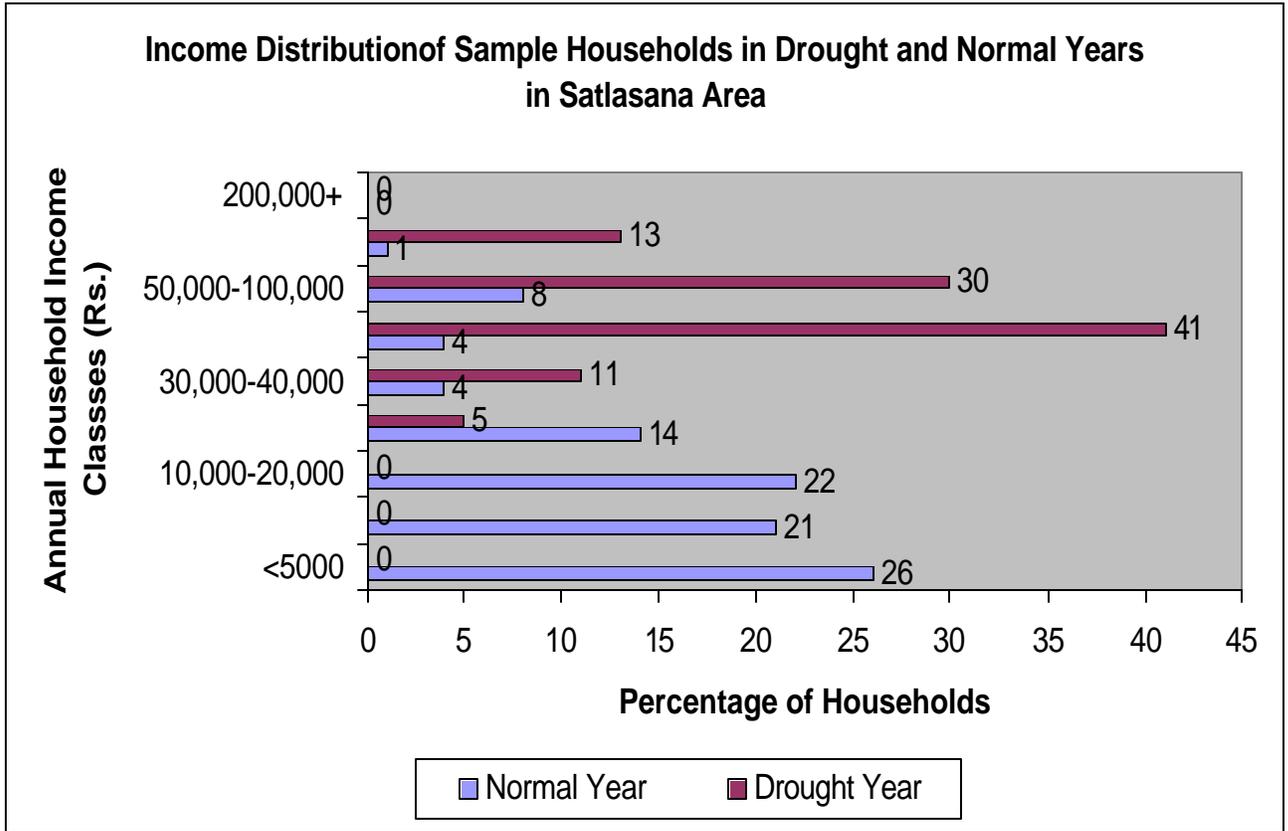


The drought has affected almost all income brackets in Bhuj, up to the Rs. 200,000 bracket. However, there has been an increase in the number of households amongst those earning over Rs. 200,000 a year, from 2% during a normal year to 9% during a drought year. These are mostly engaged in the service sector (government and private). Income levels of people in the Rs. 100,000-200,000 income bracket have also increased.

At the poverty line, the percentage of people has remained more or less constant from normal to drought years (21%-22%).

The total number of people living below the poverty line, however, has increased from 23% in normal years to 59%, indicating high vulnerability due to drought. There has been a drastic increase in the proportion of people (15%) whose income is lowest (less than Rs. 5,000/year), an indication of their increased vulnerability.

Satlasana



The drought has *severally* affected all income brackets in Satlasana. There is a distinct trend observed on either side of the Rs. 30,000/year threshold. The degree of vulnerability has been quite marked and high on both sides of this line. A significant percentage (78%) of people in the higher income brackets (above the poverty line) have seen their incomes decrease. Significantly, during a normal year, not one household lives below the poverty line in Satlasana. However, the drought pushed 78% of households to below the Rs. 30,000 bracket, of which 69% are now living below the poverty line.

- PROGRESS REPORT FROM IDS -

Data processing and report writing has been the main work during the October-December period. The primary survey was conducted through two sets of questionnaires: a household survey questionnaire and a village survey questionnaire. Data input and processing of household survey questionnaires for the entire sample population was completed. Analysis of data for various parameters along with report writing was started and is still in progress. Cross-tabulation of information collected is required for understanding the inter-linkages and dynamics of various social parameters. Emerging results are tested against existing hypotheses and results. Report writing is in progress.

- PROGRESS REPORT FROM ISET-NEPAL -

SCHEDULE

The activities detailed below were carried out at the following times:

Oct 1-20	Fieldwork continued in both Rohini and Bagmati basins.
Oct 26	Completed questionnaires arrived from different fields sites and were processed for data entry.
Oct 27–Nov 30	Data entry and extraction of output tables.
Dec 1-5	Rechecking data with field crew members.
Dec 7- 31	Analysis and report writing

We intended to complete the fieldwork by September. As reported earlier, field work continued through to the first week of September. At the September 23-25 review meeting, we agreed to complete data entry by November 10. However, we could only enter about two-thirds of the household data by that time. A new date (end of November) was set for the completion of data entry. After entering all the data for each Village Development Committee (VDC) in SPSS, we extracted output tables. Information for individual VDCs as well as for the entire basin was compiled and most of calculations were done manually. Compiling this information continued through to December.

The table below shows the actual location and number of households surveyed. As reported earlier, the number of households surveyed is slightly different to the number in the original survey design. The reasons are been explained below under the heading 'Difficulties Faced'.

LOCATION AND NUMBER OF HOUSEHOLDS SURVEYED

River basin	District	Study VDCs	Number of households	Villages
Bagmati	Rautahat	Kanakpur	104	Janglesahiya, Simari Brahmapuri Bhasedwa, Chamartol, Jhowa Samanpur, Tokar
		Brahmapuri	80	
		Bhasedwa	70	
		Samanpur	90	
		Santapur*	100	
		Paurahi*	200	
Rohini	Nawalparasi	Makar	133	Uphasnagar, Kalikasivir, Pitgadi, Kantisivir, Siswasivir, Tamnagar Beldanda, Valuhi, Munamadan chauk, Sandiptol, Rohinidanda, Jagrititol, Dandatul, Buddhanagar, Pragatibazar, Kolwa, Khareni, Putalibazar Madhawaliya, Purshawli, Hadauri
		Devdaha	368	
		Rampur khadauna	51	

	Rupandehi	Devgaun Kerwani*	54 191	Vaubari, Barari, Patkheli Tatara, Somrahanatol, Sispura, Tharutol, Bhejpur, Hurdiya, Fulbari, Bazartol, Sisaugarhi Nayabasti
		Koluwa*	25	
Total	Three	Ten	1,466	51

* resettled VDCs

After we finished entering the household data, we began entering information for resettled villages. The questions for these households were designed differently because the people in these villages had been resettled after previous floods had displaced them from their original locations. Some of these flood victims had come from the hills and mountains and therefore, unlike in other, non-resettled villages, were ethnically heterogeneous groups. They have very little land to cultivate and most depended on other sources of income such as labor and construction jobs. Entering data on these villages continued through to the end of December.

Information from case studies, group discussions and social maps prepared by the field crews was compiled and summarized for each basin and relevant key information for each area integrated. All focus groups had replied to a set of semi-structured questions and answers therefore followed a similar format. All social maps were analyzed and information for each of them noted. These maps will be presented in the annex of the final report.

Many organizations appearing in the survey on institutions are not directly involved in flood mitigation. Organizations directly involved in flood issues were considered separately and the others mentioned because they provide services which indirectly provide support to communities during flood mitigation. Institutions active in the study areas were represented in Venn diagrams and scanned for reports.

Interpretation of data and report writing began in mid December and is ongoing.

Labor distributions between males and females were recorded for a few selected households using a separate set of questionnaires. Although gender issues were embedded in the household questionnaires, a separate questionnaire was deemed necessary to make sure that we do not miss any aspect of gender (un)equality in labor sharing. We gathered information from 100 households to find out how labor within each was distributed between male and female family members. When we discussed some of the preliminary outcomes of the study in the September review meeting, labor sharing had not been included.

DIFFICULTIES FACED

Conducting a survey about floods and coping strategies during the monsoon had its advantages as well as disadvantages. Some of the difficulties faced are mentioned here. While collecting information, the field crews were sometimes unable to travel by road due to the floods, which remained for about two weeks; in many places they had to walk

in knee deep water. As a result, in both the Bagmati and Rohini basins, the field crews missed some important information from certain places. Some field sites had to be revisited after the floods subsided.

In addition, some of the answers on the questionnaires did not make sense to the data processors, and so two members from each field crew (one crew per basin) were invited to Kathmandu to interpret the information they had collected. In the Rohini basin, some previously selected areas could not be surveyed for security reasons (because of the ongoing insurgency); adjoining areas of similar size and which suffered similar flood problems were surveyed instead. The decision to survey these alternate sites was made after discussions with the field crew.

Another factor that slowed the fieldwork was our attempt to familiarize the local political leaders about the study and its objectives. It was very important that local leaders be briefed about the nature of our study and told that this was not a survey being carried out for a development project, which would normally be expected after an initial survey. It was also important that we build a rapport with the VDC members to ensure their cooperation and reduce the risk of being criticized as 'one more of those development surveys'. To this end, the field crews conducted general meetings with VDC members before they began the surveys. In the Rohini basin, more affected by the Maoist insurgency, we also had to inform security personnel before conducting such meetings.

Because of the rainy season we faced difficulty in getting people to answer a long list of questions which, in some cases, took longer than two hours. In Rautahat, farmers were busy cutting green sugarcane and paddy, recently planted, while we were trying to collect household information. The banks of the Bagmati River were caving in where the paddy and sugarcane was growing and farmers were cutting the crops to save them at least as fodder for their starving livestock. This provided an opportunity for us to take real-time footage and photographs of the impacts of floods and how people deal with them.

In the meantime, ISET and ISET-Nepal also organized meetings to brief concerned groups about the progress of the study project. On December 4, 2003, a meeting was held in Kathmandu to share the progress and preliminary results of the study with Katherine Koch and Jaipal Shrestha of the Regional Environment Office, US Embassy. The meeting was attended by Marcus Moench and Sonam Bennett-Vasseux of ISET and Dipak Gyawali, Ajaya Dixit, and Madhukar Upadhya of ISET-Nepal. Background information on initiatives to study adaptive strategies and some of the findings were discussed.

Marcus Moench, Dipak Gyawali and Ajaya Dixit also gave an informal presentation to interested people at the USAID Nepal office on the project and future collaborative activities.

Dipak Gyawali and Ajaya Dixit also had a meeting in New Delhi with US Embassy officials, where other partners studying adaptive strategies to drought from Gujrat were also present.

LESSONS LEARNED

One of things discussed in these meetings were the lessons learned from the project field studies. Preliminary findings of the study indicate that floods are not isolated events and that their management is a complex issue and conventional approaches have not helped communities reduce the damages. Very little is known about the changing nature of Himalayan rivers. Data that is available about river flow is scant.

A general understanding of managing floods should be guided by basic livelihood issues rather than attempting to control rivers. Many possible solutions are not necessarily applicable because of the economic context of the region, which dictates what 'can' be done as opposed to what 'should' be done. Consequently, communities remain vulnerable and in some cases become even more vulnerable after a flood. We believe that the goal in flood mitigation should be to change the long-term vulnerability of communities. This may involve income diversification, saving assets and information flow. It also means looking at available infrastructure such as transport, education and communication. It is generally seen that community-based initiatives are more adapted to the recurring event of floods.

Documenting the set of activities that help mitigate floods at the local level is one such activity that helps identify what works and what doesn't. The democratization of data on river hydrology and rainfall patterns by involving local institutions and communities also helps in understanding the local situation. This may bring facts that were either ignored or not known to the forefront.

In order to minimize the impacts of floods, adaptation to both the natural environment and the existing set of social activities seems important. Equally important is adapting to the existing political environment where many remedies, which may seem to be socially and economically valid, do not necessarily work in a different context.

Given the above realities, the Adaptive Strategies study attempts to identify points of entry and activities that do not require the volume of scientific data required by the more traditional flood management activities which are based on flood control. It can be said that by changing the nature of the questions asked to reduce flood hazards, one begins to see the problem and its solutions from a new point of view. This new angle could bring us closer to identifying areas of intervention could help in reducing vulnerability.

ISET Nepal also coordinated activities carried out by partners in India. Tariq Rehman of GEAG was in constant touch with ISET-Nepal in Kathmandu.

VISIT TO GEAG, GORAKHPUR, NOVEMBER 11TH-15TH, 2003

I visited GEAG from November 11th-15th to review the survey data collection and do some preliminary qualitative interviews focusing on gender, life-cycles and women's strategies for coping with floods. It was not possible to do much with the survey data as it was still being entered and there was little time for discussion on possible analyses. Instead I spent three days in the field visiting villages in Deoria and Gorakhpur districts where GEAG had undertaken fieldwork (surveys, PRAs and focus group discussions). A member of GEAG's field team accompanied me for translations and I also collected copies of their field notes, largely in Hindi, as well as secondary material on floods in Eastern U.P. I had a short discussion with the Bihar field crew on the work they had undertaken in Bihar and some of the emerging gender insights.

The main purpose of the field-trip was to talk to old women about their experience of floods – as girls, as young brides and wives, and as elderly women, mostly living and managing on their own. From fear and excitement, to being sent to their parents' home at the time of floods to the various hardships they have endured shaped by identities of gender, caste and class, the narratives provide us with valuable insights on women's experiences of floods. However, given the difficulty in getting these few interviews – women were reluctant to speak without some compensation in cash or kind and doing oral histories takes time as well as raising memories which are painful – this task is not complete. It was not possible to go beyond the older generation and speak to other women in the household – daughters, sisters, grandchildren.

I also looked at GEAG's pilot project on giving women members of self-help groups (SHG) ducks as a livelihood strategy (what they call a 'model flood project') and its potential impact. Following are a few inserts, quotes and photos.....

THE GENDERED CONTEXT OF VULNERABILITY: REMEMBERING FLOODS IN EASTERN UTTAR PRADESH

For all the old women interviewed, their early memories of floods are not only contextualized by their gendered identities intersecting with poverty and caste, but also by geographical place. As girls they had little opportunities for education, partly because there were simply no schools nearby for either girls or boys, and partly because poverty meant that for most families, educating girls was of little priority. If they lived in flood prone villages, they would stay indoors with their mothers (during flood periods) and only venture out if they needed to go to the toilet. This would basically be a wooden plank or *machan* kept over the floodwater just outside the house. Because they could not swim, unlike perhaps their brothers, and because they would inevitably be helping with domestic preparations, their early memories of floods are rarely of awe at nature's fury.

Kalavati, a 65-year-old woman from the village of Chittari bordered by the Rapti River, remembers floods as a girl with some degree of incredulity; an excerpt:

“We lived in the village of Simra, near Madhanpur, on the other side of the embankment and therefore not in a flood prone area. When I was a small girl, maybe 10 years old, I do remember some floodwaters coming near our village. There were these small insects swimming around in the water and as children we thought that if we drank the water, we would be able to swim just as the small insects were doing! At night, I remember my father used to tie the boat so that it would not float away.”



Surji, about 75 years old, spent her childhood in the village of Kalidar, about 16 kms away from Ghaighat in Gorakhpur district, and an area not prone to flooding. Like most of the women interviewed, she got married at the age of 12, but only came to live with her husband and in-laws when she was 15 years old:

“I had heard that this was a flood prone area, but my parents had already decided my

marriage and there was little I could do. I was very scared when I saw the first floods just after I came here – the water was coming up to our house and I did not go out for three days. Then my father came and took me home.”

How sustainable are ducks as a livelihood resource to help women cope with floods? Although GEAG just initiated this project with some of its self-help groups (in June 2003) and there is a tremendous response for ducklings and duck eggs in the market, the sustainability of this venture is debatable. For one thing, many of the women in the first SHG where ducks were bought with loans either lost their ducks to stray cats and foxes or to the weather (intense heat during which the ducks suffocated in their cramped wooden crates). Only some women who had ducks were able to sell the eggs on a regular



basis – most of the time the eggs were eaten at home, particularly by children, which is no doubt ‘positive’. However, the ducks do provide many other ecological benefits – they aerate the soil and their droppings are a good fertilizer plus they are easy to maintain, unlike apparently hens!

