

Chapter 2

The Implementation Process

Introduction

Various activities were carried out at both the central and the project level to prepare for the actual project activities. The central-level activities included the formation of a project steering committee, selection of the project sites, performance of case studies, selection of district partners, preparation of training manuals and policy guidelines, as well as monitoring and evaluation. Project-level preparatory activities included needs assessment, group formation, social mobilisation and capacity building, training of trainers, and exposure visits. These preparatory activities are described in more detail in the following.

The Project Steering Committees

Steering committees were formed in each country to supervise the activities implemented by the collaborating national partners. The members included representatives of line ministries, NGOs, and private academic institutions. The steering committees have also been instrumental in advocating for women's roles in the planning, design, and implementing of water and renewable energy technology interventions based on the lessons learned and the experiences gathered during the implementation of the project.

Case Studies

Case studies were prepared by the partner institutions in each country using secondary data, literature reviews, and interaction with various individuals and organisations related to women, water, and energy. The objectives were:

- to analyse the sources of energy and water used at present for cooking, drinking (by humans and livestock) and cleaning; as well as for household-level water harvesting and small-scale irrigation, and the associated constraints;
- to examine legal frameworks and regulations on access to water and energy for household use and their effectiveness, and in relation to sustainable use and protection/conservation of related natural resources;
- to make recommendations on legal, institutional, and capacity enhancement to improve access to and improve skills relating to the management and self-sufficiency of women in the area of household energy and water needs; and
- to identify potential sites for project implementation in each of the three participating countries, taking into account the potential for impact and replication.

The studies covered three districts in Bhutan (Wangdi, Punakha, and Ha); two districts in India (Solan in Himachal Pradesh (HP) and Almora in Uttaranchal) and two districts in Nepal (Dhankuta and Palpa). They provided an understanding of the local water and energy needs and helped identify the local, district, and national level inter-linkages. Some of the major findings are summarised below.

Bhutan

Almost no research has been carried out up to now in Bhutan on the needs and burdens of rural women and the resources that they represent in their communities. A multi-sectoral approach is needed in order to improve energy and water management practices among the rural communities, particularly for women and children. At the household level, a division of labour and domestic roles is needed to motivate both rural women and men to recognise their individual roles and rights. This could be accomplished by introducing energy-efficient technologies and educational programmes on the environment. The study suggested that project implementation in Bhutan should focus primarily on the institutional aspect of how to encourage an equitable distribution of work between women and men, on how to make the best use of the energy and water resources available, and on how to integrate women into the country's development mainstream (RSPN 2003).

India

There is a lack of institutional mechanisms in India for involving women in rural infrastructure development. There are few if any capacity enhancement programmes at the village level that are particularly in tune with women. Even where such programmes exist, they are primarily suited to men. Women do not have access to credit as they do not have property rights. Innovative approaches are required, and the formation of women's self-help groups (SHGs) may be suitable. Policies and programmes need to be designed to improve access to cleaner fuels and technologies with the main emphasis on women. There is also a need to emphasise an organised, institutional approach (such as the formation and involvement of SHGs). An enterprise-based approach to water and energy management with the active participation of women in decision making, access, and control over programmes for capability enhancement is a must. There is a need to mainstream issues related to the livelihood enhancement of women and to the proper utilisation of the natural resources that are available locally (TERI 2003).

Nepal

In Nepal women rarely participate to any great extent in community water- and energy-related activities because drudgery, poverty, and the prevalent social and cultural values restrict women taking part in many outdoor activities. Women have very little say in decision making at the community level, at the village level, at the district level, and at the national level. There is a lack of gender-balanced, local-level planning in the water and energy sector because of the low level of involvement of women in the selection of drinking water and irrigation projects. Women lack property rights and control over resources. Few women take up new water- and energy-related technologies. They have poor access to credit, partly because financial intermediaries are only located at the district headquarters. There is also limited access to credit through group lending to women without collateral. There is a need for women-friendly technologies, and for information dissemination with a special focus on women. It is also necessary to focus on disadvantaged groups in the implementation of water- and energy-related programmes (CRT/N 2003).

Regional Consultative Workshop

After the case studies were completed, a four-day regional stakeholders workshop was organised by ICIMOD and UNEP in September 2002 in Kathmandu, to share experiences and

lessons learned during the preparation of the case studies, to identify water and energy needs and constraints at the household/community level, to identify priority sites for the implementation of the programme, and to set up and agree on modalities for implementation. There were 43 participants: 9 from Bhutan, 7 from India, 16 from Nepal, 5 from outside the region, and 6 from ICIMOD (Figure 2.1).



Figure 2.1: Participants at the regional consultative workshop, September 2002

The workshop was instrumental in clarifying the role of small-scale energy and water schemes in reducing drudgery, reducing health problems, and providing the necessary linkage between energy and income generation. Several suggestions were made on how to improve and reflect women's needs and roles so that gender bias could be minimised while implementing energy and water projects in rural areas of the Himalayas. The workshop was also instrumental in charting a road map for the implementation of project activities in each country, with the main focus on enhancing the capability of women in planning and implementing energy and water schemes at the selected project sites. Some of the guiding principles agreed upon by all the participants were as follows.

- It is necessary to first identify needs, and then promote the energy- and water-related technology options selected by the women's group.
- It is up to the women's group to name their preferences (whether they see the benefits of renewable options or conventional options like grid connection, LPG, diesel).
- All interventions should aim at sustainability, both financial (the establishment of a revolving fund should be given priority), institutional, and environmental.
- 'Smart' subsidies may be provided for pump priming.
- The ultimate objective of the project is capacity building of the women's group but the implementation of selected technologies should also have a meaningful impact on livelihoods and help increase income.
- Project activities need to be integrated into existing programmes and plans.
- Indicators for impact assessment need to be developed at all levels (i.e., implementation, technology, institution, and policy) and properly monitored.

- Financial sustainability is key to the success of the project. It is a prerequisite for the integration of the private sector during the project implementation phase.
- There is a plenty of scope for the development of women’s entrepreneurship in the energy and water sector of the Himalayas. There is a need to bring advocacy to this process.

Selection of District Partner Organisations

In contrast to Bhutan, where ICIMOD’s national collaborating partner RSPN was directly involved in the implementation of the pilot project, the national partners in India and Nepal selected their own local NGO partners to implement the project activities. The village-level activities were conducted with the help of field-level motivators who were mainly responsible for motivation, social mobilisation, training, and the implementation of technologies at all the selected sites. The implementation framework of the national partners differed somewhat in the three countries, reflecting the different needs identified. These approaches are shown schematically in Figures 2.2 to 2.4.

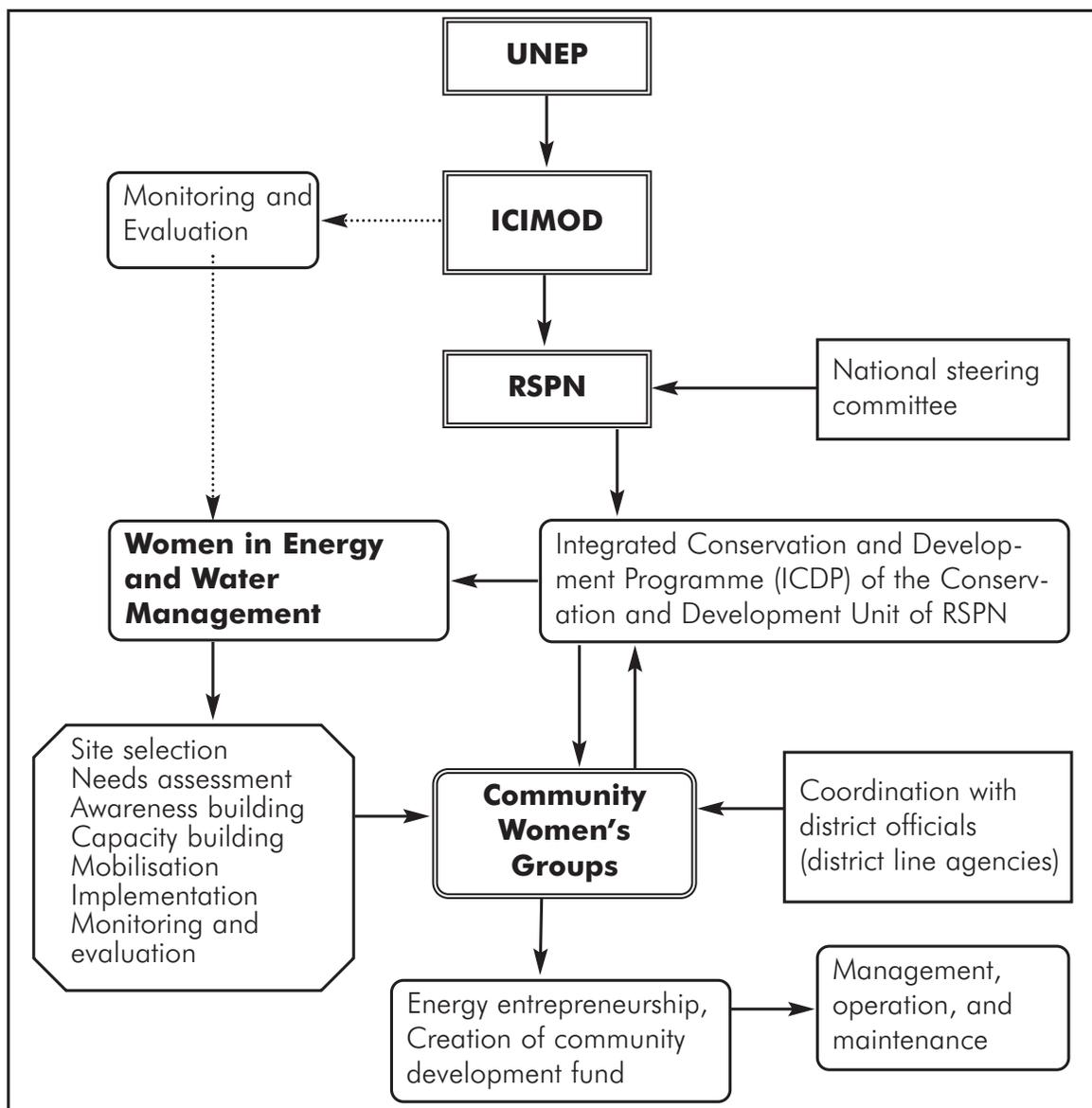


Figure 2.2: Project implementation framework in Bhutan

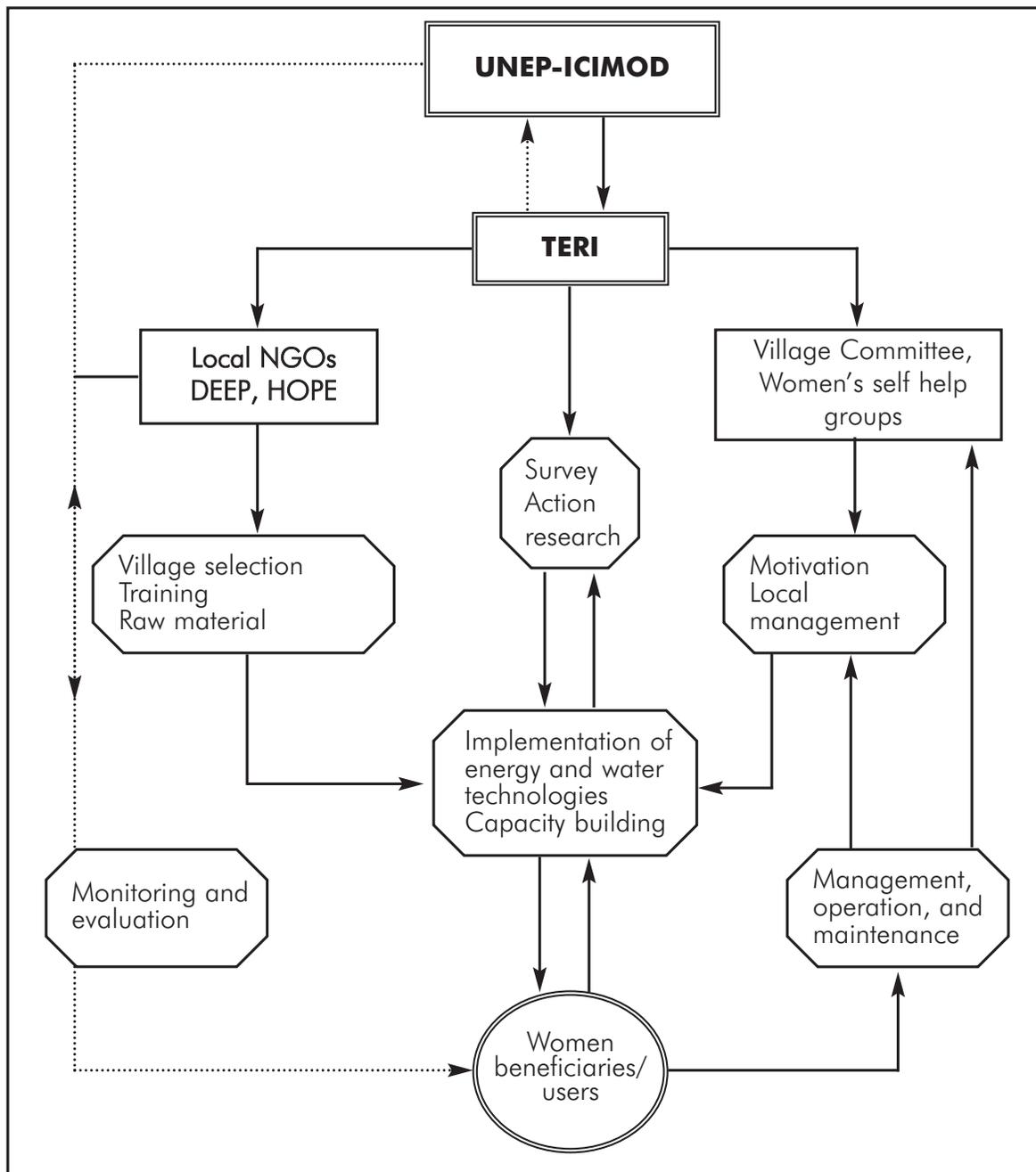


Figure 2.3: Project implementation framework in India

In Bhutan the project was implemented by RSPN by linking with its ongoing Integrated Conservation and Development Programme (ICDP), followed by coordination and linking with district line agencies. The project coordinator of RSPN was responsible for carrying out the village-level activities.

In India two local NGOs, the Himalayan Organisation for Protecting Environment (HOPE) and the Society for Development and Environment Protection (DEEP), implemented the activities in the Almora and Solan districts of Uttaranchal and HP respectively, based on their past experience with community mobilisation for pilot interventions in these areas. Detailed project briefings and field-level activities were discussed with these NGOs. The field-level

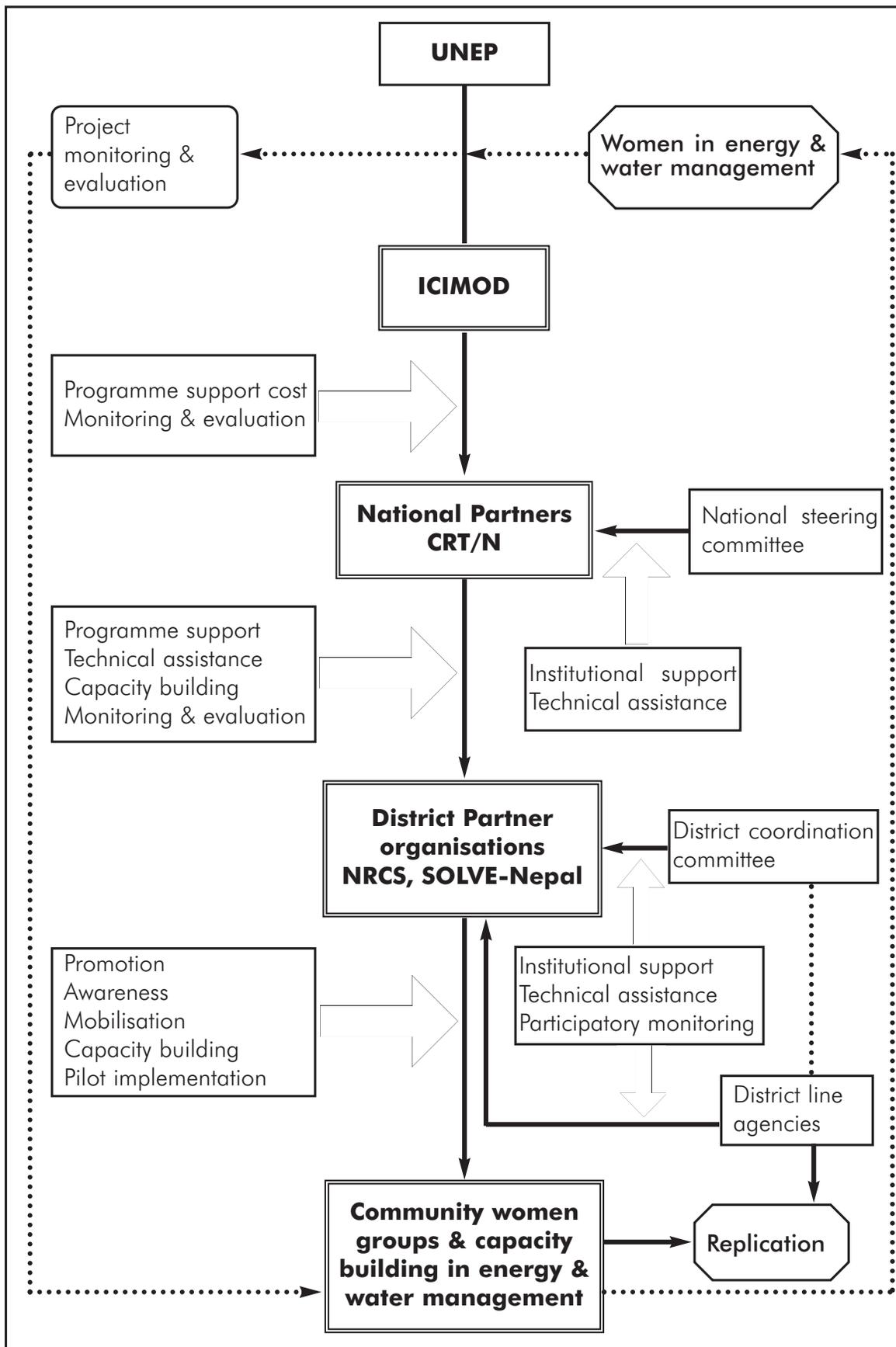


Figure 2.4: Project implementation framework in Nepal

coordinators and motivators were selected among the NGO staff and local people at the project sites who had had past experience working in related activities. The national partner TERI thus acted as an interface between ICIMOD, the local NGO, and the village committee during the implementation phase. The management committee had the full responsibility of providing local support and motivating men and women to adopt the technologies during implementation. The local NGO procured the raw materials, organised the working team, and provided technical know-how.

In Nepal, the Society of Local Volunteers Effort (SOLVE-Nepal) in Dhankuta, and the Nepal Red Cross Society (NRCS) in Palpa, were chosen as the district partner organisations (DPOs) based on their coverage and work experience with energy, water, and women in the project districts, as well as their good rapport with the district community. Following agreement with these partners, a series of discussions were held to implement the pilot project activities in collaboration with the district agencies and village and community-based organisations.

The Project Sites

Bhutan

Initially three project areas were selected in Bhutan through field visits made to a number of potential sites and in consultation with the steering committee (Table 2.1). The third project site, Ha, was dropped as this site had been selected by the government and was provided with grid electricity and a water supply scheme.

| District | Blocks | Villages |
|-----------------|--------------------------|--|
| Wangdu-Phodrang | Phobjikha, Gangte, Bjena | Haal, Kumbu, Yusa |
| Punakha | Limukha | Limukha, Nabchen, Omtakha, Gungkami, Yusakha |
| Ha | | Yomto, Gyensa, Talung, Jamtey |

Phobjikha

RSPN had already introduced the Integrated Conservation and Development Programme (ICDP) in Wangdue-Phodrang district (dzongkhag), with development interventions in Phobji and Gangte. It was considered important to capitalise on the ongoing conservation effort by incorporating activities that would address women's roles and needs in energy and water management practices.

The project sites of Haal, Kumbu, and Yusa are located in the Phobjikha Valley, they have 10, 15, and 11 households, respectively. The settlements are widely scattered and thinly populated with both rugged and gentle slopes. The main source of livelihood is subsistence agriculture. Potatoes, vegetables, and rice are the main crops. Irrigation facilities are limited. The average size of a landholding is about 1.4 ha with 8 head of livestock. The majority of households belong to the moderate-income bracket (Nu 30,000 to 50,000 per annum). The literacy rate is low with marked gender disparities. Female-headed households predominate as this is a matrilineal community. Fuelwood is the main source of energy for cooking and space heating and its consumption is high due to space heating. During the summer months

villages endure water shortages (Figure 2.5). Women have the main burden of collecting water and firewood. The ICDP is being implemented in the Phobjikha valley to protect the winter habitat of the black-necked crane and to develop the valley into a model village for biodiversity conservation. A Phobjikha Conservation Area Project (PCAP) committee has been formed to promote social and economic development and to ensure environmental conservation. The valley is relatively undeveloped and lacks modern facilities such as electricity, water, and sanitation, as well as transport and communication facilities. Being the winter habitat of the protected black-necked crane, the valley has been unable to obtain grid electricity since high voltage wires may hinder the flight of this rare and endangered species.



Figure 2.5: Water supply before project activities at Phobjikha, Bhutan

Limukha

The Lingmotechhu watershed area was selected because it adjoins Wangdhue-Phodrang district and has the representative characteristics of a lower altitude watershed, as well as having ongoing activities on watershed management by the Government of Bhutan. Limukha block (geog), was selected because of the inadequate electricity supply within the watershed.

The block has 6 villages with a total of 188 households. The project sites encompassed the scattered settlements of 5 villages: Limukha, Nabchen, Omtexha, Gungkami, and Yusakha. Limukha is located about 2000 metres above sea level (masl) on a hilltop. Livelihoods are based on subsistence agriculture with paddy and wheat the main crops. The fields are surrounded by forests and crop damage by wild animals is a regular occurrence. Although the village is accessible by road, the condition of the road is poor and it cannot be used during the rainy season. People use mules to transport goods to and from market. Punakha, the nearest market centre, is four hours away and getting goods to and from the market is a problem. This village was not electrified at the time of selection, nor did it have piped water

services. The government undertook these development activities after the project was launched. Fuelwood was the main source of energy for cooking and space heating, although some households used LPG. People in general were unaware of water and energy-related technologies that could improve their livelihoods and conserve the environment. Generally, women are involved in kitchen and overall household chores as well as weeding and harvesting of crops. Livestock rearing is the job of both women and men, but women usually take care of the cattle.

India

A list of possible villages was first prepared with the help of local NGOs already working in the different villages of the watersheds. After visiting all the potential sites, the final sites for implementation were selected based on the following criteria: a) villages should lie within one micro-watershed; b) the presence of an active women's group; c) persistent energy and water problems; and d) physical accessibility of the site. The selected sites are shown in Table 2.2

| State | District | Block | Villages |
|-----------------------|----------|----------|-----------------------|
| Himachal Pradesh (HP) | Solan | Kunihar | Nager, Kotla, Bhatuin |
| Uttaranchal | Almora | Tarikhet | Bajeena, Naila-Marwa |

Kotla and Nager: Himachal Pradesh

The project sites of Kotla and Nager are located about 40 kms north of Solan. Kotla has 14 households with a total population of 83; and Nager 25 households with a total population of 142. In both villages the majority of the households belong to under-privileged castes (92%). The female literacy rate is about 68% in Kotla and 56% in Nager. Agriculture is the main source of livelihood. The majority of the households (86% in Kotla and 88% in Nager) are marginal farmers owning 1 to 2 hectares of land. The average number of livestock per household is two to three. Almost all households possess electronic gadgets such as TVs and radios as all have electricity. Open well springs are the most common source of drinking water in both villages. Although every household is connected to a tap, the water supply is inadequate and meets only about 25% of demand. As the discharge of water from the spring diminishes, women have to travel further to collect water and spend three to four hours every day in this activity. Fuelwood, the major source of energy for cooking, is becoming scarce with the gradual degradation of forest resources in the vicinity of the village. Fuel requirements for domestic use are also being met through the purchase of wood, kerosene, LPG, and electricity. Fuelwood is mostly collected from the forest each day and women spend about 4 hours daily engaged in this task. Households use traditional mud 'chulha' without a chimney for cooking. Although the majority of the households in Nager and Kotla have LPG, biomass fuels meet over 90% of their energy needs. Due to the out-migration of males for employment, women have to take the overall responsibility for household affairs, spending over 68% of their available time in outdoor work such as gathering fuel, fodder, and water as well as caring for animals and agricultural work.

Naila and Bajeena: Uttaranchal

The village of Naila lies in the Kumaon hills. It is a small village located at an altitude of 1500 masl, about 1 km from the road and 15 km from the town of Ranikhet. The village falls within

Panchayat Mawra of Tarikhet block in Almora district. Naila has 24 households with a total population of 122 mainly Brahmin and Rajput families. The primary occupation of the villagers is agriculture, which is entirely rainfed. Due to the acute shortage of water there are no irrigation facilities in the village and agricultural productivity is very low. Migration is common. The village is fully electrified. Being close to Ranikhet, infrastructure facilities such as health and education are readily available. Underground springs called 'naulas' are the only source of water. The gradual decline of water discharge from the naulas has resulted in a severe scarcity forcing women to spend 4 to 5 hours a day collecting water. The situation has become worse with time and is especially bad during the summer when women have to spend their nights waiting in line to fill their vessels with water.

Bajeena is a typical hill village, situated on both sides of the main road, 14 km from Ranikhet. The village has 70 households with a population of 528, with both upper caste (65%) and scheduled caste communities. The primary occupation of the villagers is rainfed agriculture. Due to the absence of irrigation facilities agricultural productivity is very low. As in Naila, migration for employment is common. The village is fully electrified. Sixty-five per cent of women are literate, but very few women (8%) are involved in the government or in private service. The average number of livestock per household is 3.5. Ninety-five per cent of houses are made of mud and locally available material, and only 5% with cement. Naulas are the most prominent source of drinking water. Gradual deforestation and the drying up of the spring, means that villagers face acute firewood and water shortages, especially during the dry season. The supply of tap water in the village is irregular and is not enough to meet the village's water requirements. Women have to wait long hours to fill their pots from the trickle of water that comes from the spring (Figure 2.6) and have to travel long distances to fetch firewood.



Figure 2.6: Waiting for water at Bajeena, before the project

Nepal

Potential micro-watersheds in Dhankuta and Palpa district were first identified based on the following criteria: micro-watershed area with an altitude ranging from 1000 to 3000 masl, approximately 100 to 200 households, perceived need of technical and institutional intervention, avoidance of duplication, presence of proactive and supportive community, presence of functional groups, and relative accessibility and security in the prevailing conflict situation. Two watershed areas, Tankhuwa in Dhankuta and Aangakhola in Palpa, were chosen (see Table 2.3).

| District | VDC | Project sites/Ward |
|----------|------------|--------------------|
| Dhankuta | Tankhuwa | Ward 3 and 4 |
| Palpa | Pipaldanda | Ward 2 and 4 |
| | Humin | Ward 1, 8 and 9 |

Tankhuwa

Tankhuwa VDC is located in Dhankuta, a hill district in eastern Nepal with a total population of 168,781 in 27,445 households. Tankhuwa VDC lies in the Tankhuwa micro-watershed, which is located east of the district headquarters at an altitude of 450 to 2100 masl. It has 845 households with a population of 4665. The main ethnic group is Limbu. People depend heavily on subsistence agriculture and animal husbandry for their livelihoods. Rice, maize, and wheat are the main crops. Women are mainly responsible for almost all activities apart from land preparation. The district headquarters of Dhankuta is the nearest significant market and is almost 3 hours walking distance from the project area. There is severe scarcity of water due to the degradation of natural resources and the drying up of freshwater sources. Water for both drinking and irrigation is insufficient. The only source of water is the Tankhuwa stream. Most people use traditional cooking stoves with wood. However, fuelwood is becoming insufficient. Women often spend almost the whole day collecting fuelwood. Improved cooking stoves (ICS) had been introduced earlier by various organisations but not accepted by the community. About 45 households had installed biogas plants but were not satisfied with how they functioned.

Pipaldanda and Humin

Pipaldanda and Humin VDCs lie in Palpa, another hill district lying at an altitude of 200 to 2000 masl in western Nepal. The total population of Pipaldanda VDC is 7274 with 1074 households, and of Humin VDC 4232 with 455 households. In both VDCs, the major ethnic group is Magar (Tibeto- Burman). A drinking water supply system has been installed by the Nepal Red Cross Society, but drinking water is scarce during the summer and women have to spend much time collecting water from streams and rivers. Most cooking stoves use biomass fuel, mainly fuelwood. There is no electricity except in Wards 1 and 2 of Pipaldanda VDC. Solar power based electricity is present in some of the households from private companies and some households have biogas plants. The main source of income is from agriculture and livestock, but agriculture barely supports the daily needs of the population as production is low. The area has a very high potential for ginger production.

Preliminary Steps

Baseline survey and needs assessment

In any project, it is important to establish baseline data against which to assess the impacts of the interventions in key areas of project concern, in this case workload and drudgery reduction, utilisation of saved time for productive income generation, improved health, and other dimensions of livelihoods. It was also important for project design to have an understanding of the sociodemographic and economic conditions; the prevailing patterns of household water and energy use by sex; seasonal patterns of workload and drudgery of women; existing technological options and practices; and others. A detailed baseline survey was conducted at the project sites in India. The district partner NGO in Palpa (NRCS) conducted a baseline survey using various PRA tools such as household surveys, seasonal calendars, social mapping, wealth ranking, and participatory discussions. Similarly, the local partner in Dhankuta (SOLVE, Nepal) conducted a baseline survey using questionnaires and checklists covering the water and energy situation of the project area. Baseline studies and needs assessment reports were published in Nepali covering such aspects as the sociodemographic and economic conditions of the site, the water and energy situation, the status of health and sanitation, the present situation of women, and women's needs in the project area.

The information gathered complemented the findings of the case study reports and was useful in ascertaining the needs of women with regard to household energy and water. It was useful both for mapping the current situation and identifying the needs of the specific technologies, and also for the preparation of the training manual, for the training of trainers within women's groups, and in the implementation of various pilot project activities.

Introductory workshop

A workshop was organised by the national partners at each site to introduce the project and familiarise the local community with the objectives, approach, and intervention modalities. The workshop helped the project to understand local perceptions about the water and energy situation, existing programmes, and the different line agencies working in the area. Participants from the project sites included representatives of local leaders, community groups, and extension agents. A second meeting was organised with all the men and women who had taken part in the discussion. Suggestions from the villagers were noted down and discussed in detail for future action. Box 2.1 shows an example of the participatory mechanisms used to prepare action plans.

District coordination

The project management approach and project implementation varied somewhat among the national partners. In Bhutan and India coordination was established with district level line agencies and NGOs without forming a coordination committee; in Nepal CRT/N formed district project coordination and management committees in Palpa and Dhankuta (project-level advisory committee) to supervise, support, and coordinate project implementation activities at the district level. These committees were made up of representatives from local organisations, the District Development Committee (DDC), and other district line agencies related to energy, water, and women, and were instrumental in supporting the project in various ways.

Box 2.1: Preparation of an action plan by needs identification in India

Group discussions and structured questions were asked about the condition of natural resources to try to discover the availability of energy and water and to ascertain the perception of women about addressing the water and energy situation. Several possible measures for improving the livelihoods of women through drudgery-reducing technologies and capacity building were discussed. A detailed needs assessment was made to understand the costs and benefits of various appropriate technology options and to identify and prioritise the needs and choices of women, as well as to identify possible areas of intervention for energy, water, and income-generating activities. All the key persons, village elders, and women were contacted. The following options were suggested.

- **Energy:** improved cooking stoves, solar systems, pressure cookers, energy plantation
- **Water:** rainwater harvesting, renovation of traditional tanks, check dams, recharging ponds
- **Income-generating activities:** composting, forest and grassland development, group formation

Community mobilisation process

The ongoing process of community mobilisation adopted by local partners consisted of a series of participatory action processes involving motivation, sensitisation, and creation of awareness among local leaders, community groups, and local people. Motivators and mobilisers (all women) were selected from among the NGO staff and local people at the project sites in India and Nepal. Each household in a village was contacted through door-to-door visits and formal and informal meetings held from time to time. These meetings sensitised and built the awareness of the women on water- and energy-related problems. Box 2.2 shows the overall community participation process in Bhutan.

Box 2.2: Community participation mechanisms in Bhutan

RSPN developed a participation strategy for women and men during project implementation and M & E that avoided overly high expectations of women's participation and developed a practical schedule, as women often have both time and financial constraints. The strategies incorporated were as follows.

- **Organisational set up:** Women's representatives established in all the project villages and women's representation promoted in executive committees (e.g., chairperson, secretary, treasurer). Considered stipulating mandatory women's committees to ensure representation.
- **Group rules:** Clearly defined rules and responsibilities of members. Established grievance mechanisms and water- and energy sharing rules to avoid competition between men and women over user rights (e.g., regarding water requirements for home gardens and livestock). Documented the agreements in bylaws.
- **Construction:** Ensured work conditions that are conducive to women's participation (e.g. gender equal contributions and construction season).
- **Operation and maintenance:** Once the committee was formed it was mandatory for the committees to be the operators, caretakers, and water and energy source and technology monitors.
- **M & E:** Developed a feedback mechanism in which both male and female beneficiaries had a voice.
- **Informal village institutions:** Identified other village based communities that could facilitate women's participation during implementation and M & E.

Formation of women's groups

Formation of women's self-help groups (SHGs) is an important prerequisite for the provision of credit and other support services to women beneficiaries. The project implementing partners in each country attached great importance to enhancing the organisational capacity building of women and to women's empowerment. The formation of women's groups at each project site provided an institutional platform for women to undertake initiatives related to the

development of their community as well as their individual living standards. These groups hold monthly meetings and discussions, and take decisions based on transparency and consensus through the articulation of their concerns, vision, and commitments (Figures 2.7, 2.8). Details of the groups are given in Annex 2.

Two women's groups were formed in Bhutan, one in Phobjikha (initially nine members from the three villages of Haal, Kumbu, and Yusa, which later rose to 13) and another in Limukha. The women's group in Limukha started with 17 members from the 5 villages, was later reduced to 8 members as 9 women who lived far away did not participate, and then rose again to 12 members. After the group management training, these women formed a Women's Welfare Association and drafted a constitution and bylaws (see Chapter 3).

Two separate women's groups were formed in Kotla and Nager villages in HP with 20 members each and two in Uttaranchal – one in Bajeeana with 20 members, and one in Naila with 24 members.

In Nepal, the partner organisations linked and coordinated newly-formed and existing women's groups with the project. In Dhankuta there were five groups with a total of 112 members. In Palpa, two newly-formed groups joined with four existing groups to make six groups with 179 members (Annex 2). Each group set their own rules and norms regarding such things as the date of the regular meetings, the membership fee, the size of the monthly savings, lending rules, and overall management of the groups.

Separate sub-committees, for water, energy, and income-generating activities were formed from among the members of the SHGs at each project site to create awareness among the women and also to help with planning, implementation, supervision, operation, and maintenance, keeping the records, accountancy, and recording information about the project. Training was provided to all committee members in project-related programmes.

Initial Training

Preparation of the technology manual

A Technology Manual was prepared for the training of trainers (TOT) sessions based on the needs assessment reports and baseline surveys prepared by the DPOs. The manual incorporated appropriate rural energy- and water-related technologies that are pro-environment, pro-poor, and pro-women. The information for each technology consisted of a general introduction, construction of benefits, and operational and management aspects, and included costs and a relevant organisation which could be contacted for further details. The manual was produced in appropriate quantities in the national languages and was provided to the local partner organisations for use during the TOT. The manuals were refined during the course of implementation on the basis of the feedback received from trainers and users on the practical usefulness of the manual and the use and operation of water- and energy-related technologies.

Training of trainers (TOT) workshops

The plan was to train a group of women at each selected site as trainers; this core group would then be in a position to train other women members in their communities to manage and



Figure 2.7: Meeting of a women's group in Bhutan



Figure 2.8: Meeting of women's group at Kotla, HP

handle the selected water and energy technologies. In all the project areas, the trainees were selected by the women's groups themselves. The main objective of the training was to build the capacity of local women in appropriate rural energy- and water-related technologies in such a way that the women could transfer the acquired skills and knowledge to their respective districts for the effective management of energy and water resources at the household and community level. The training consisted of both theoretical and practical sessions. The actual package differed slightly in the three countries.

Bhutan

CRT/Nepal, provided technical assistance to RSPN by sending a technical support team to the project site to conduct orientation training-cum-exhibition on selected energy- and water-related technologies. The CRT/Nepal team assisted RSPN in identifying potential technologies, preparing an action plan for the implementation of activities, and preparing a technology manual. They helped RSPN to exhibit the technologies and carry out the TOT Programme. Altogether 13 women – 5 from Phobjikha and 4 each from Limukha and Haa – participated in the training. The participants experienced and learned about the benefits of various energy and water technologies such as the mud cooking stove with back boiler, improved metal cooking stoves, the improved one pot hole mud stove for cooking livestock feed, plastic water tanks, water harvesting tanks, sprinkler irrigation systems, peltric sets for hydropower generation, and solar greenhouses using plastic sheeting.

India

The TOT programme in India was organised at the DEEP complex in Solan, HP, to sensitise the women about the emerging scarcity of energy and water resources and to provide training on water- and energy-efficient technologies (especially improved cooking stoves [CS] and rainwater harvesting). There were 21 participants (14 women) from the villages of Bhatuin and Kotla in HP, and two from Uttaranchal. Training started with an introductory session, followed by a sensitisation and problem analysis session (using the PRA techniques of historic transect walk and tree analogy) focussing on water and energy and the role of technology. In the third session, the NGOs shared their experiences with different activities they had carried out. The fourth session was devoted to training in ICS. The local NGO partner, DEEP, highlighted the usefulness of the newly-designed multifunctional ICS with water heating facilities. Women were trained in the construction, use, and management of the ICS. Both ICS and rainwater harvesting technology were demonstrated and discussed in Kotla village with the help of a master trainer during the fifth session. This was followed by an exposure visit to the YS Parmar University of Horticulture and Forestry, Nauni, Solan, to introduce the women to the potential of different income-generating activities (forestry, animal husbandry, horticulture, forest products, and food processing) being carried out in different parts of the state. Finally, the outcome of the TOT programme was assessed; all the women trained as trainers expressed their confidence in being able to disseminate their acquired knowledge to other members of their community (Figure 2.9).

Nepal

A week-long TOT workshop was organised in Kathmandu for eight women and two social mobilisers selected by their communities on the basis of ethnic and geographic representation. The first two days of the training were conducted in Kathmandu and the remainder in Budol, Banepa, in a rural setting about 25 km east of Kathmandu. The training team consisted of four



Figure 2.9: Training of trainers session in HP, India

staff members from CRT/N and six resource persons. Participatory training methodology was used with the main emphasis on practical orientation through ex-situ field visits rather than closed session exercises. The training sessions were as follows.

- Interactive learning on theoretical aspects of water- and energy-related technologies relevant to women. Various promotional materials such as leaflets, posters, flip charts, and photographs were displayed.
- Exposure visits to ICIMOD's demonstration and training centre site at Godavari, and to technologies on CRT/N's premises and at ITDG and LOTUS Energy Nepal, to familiarise the trainees with different water- and energy-related technologies and to underline their relevance and usefulness in the rural context. Specific aspects considered were cost effectiveness, how environmentally friendly they are, their ability to reduce the drudgery of rural women, and the ease with which loans can be paid back through the wide scope of new income-generating prospects.
- An informal session held every evening before and after dinner to review the day's session with the help of a recorded video and also by showing documentary film slides related to the different rural technologies such as ICS and the improved water mill.
- An entertainment/interactive session with the help of different games on some practical training theme in order to establish closer and more friendly relations between participants.
- Action plan preparation and presentation followed by the subjective evaluation of the whole session by a trainee on the concluding day.

Exposure visits

Exposure visits were organised for selected participants from the project sites to familiarise the women with further relevant water and energy-technologies, and technologies relevant to income generation activities, and to facilitate exchange of experiences. The activities in the three countries are summarised below.

Bhutan

A three-day study tour was arranged for seven women from Phobjikha, eight from Limukha, seven from Bji block (geog) in Ha, and two steering committee members with a view to encouraging the women to exchange their experiences and to enhance mutual learning in water- and energy- related technologies.

The first day of the visit focussed on facilities in Thimpu such as the briquette manufacturing factory, fabrication units, and the solar showrooms. The women were exposed to the usefulness of briquette technologies, of various solar technologies including solar lanterns, solar water heaters, solar fans, and solar parabolic cookers, and the 'bhukhari' stove (a hollow metallic block with a chimney and grate) for room heating. The second day's visit to the Agriculture Machinery Centre and the National Post Harvest Centre in Paro enabled the women to find out about the procurement of agricultural machinery such as power tillers, post harvest machines, and small-scale driers for fruit and vegetables. The third day's visit was to a micro-hydro project where the women were exposed to a way of using locally available water from the existing irrigation canal and use of electricity to run simple machinery such as flour mills, rice hullers, and oil expellers for use in agro-processing operations, as well as for household lighting purposes. The study tour proved to be an eye-opening opportunity for most of the participants, who felt that many of the things they learned, could be replicated in their villages, especially in terms of solar technologies, the farming machinery, and the agro-processing.

India

Exposure visit of HP women to Uttaranchal

A group of nine members from the HP project site accompanied by two members of TERI visited the Uttaranchal project site for one week. The group first visited a number of organisations including the following.

- Diversified Agriculture Support Project (DASP) – The NGO Shri Jagdamba Samiti Dehradun helped the self-help groups to learn about different income-generating activities such as packing, grading, and labelling of agro-products and their efficient marketing through women's cooperatives.
- Alternative Energy Centre for demonstrations of various energy technologies such as the gasifier and its use for cooking, and the use of weeds/biomass in energy production such as for briquettes, as well as for coal, lighting and fuel.
- Uttam Urja in Rishikesh to see solar energy products such as solar lanterns, domestic lighting systems, solar torches, and 'mathani' (runner for improved water mill)
- HOPE (an NGO) to find out about the greenhouse techniques used in agriculture and about various medicinal plants.

The women's group then visited both project sites (Bajeena and Naila) in Uttaranchal where the NGO worker shared the whole process of organising the women and the activities undertaken to overcome the water- and energy-related burdens they faced including their successful efforts to recharge water springs through innovative conservation methods on the hill slopes and the usefulness of infiltration well technology.

Exposure visit of Uttaranchal women to HP

Nine members from Uttaranchal (six women and three men) visited the HP project site. The main purpose of the visit was to obtain information on energy, water, and income-generating activities and their benefits by visiting the different project sites in HP; to improve cross-learning within the groups by organising inter-group interactions; and awareness creation of different energy- and water-related technologies which can help them in daily life. The visits included the following.

- A visit to Shri Jagdamba Samiti, an organisation implementing the DASP in Dehradun, where women were exposed to various activities concerning self-help groups, marketing the production from the groups, and gaining better prices for their produce.
- A visit to Mathurawala village to learn about the management aspect of SHGs and the micro-finance activities being carried out under the project, including vermicomposting, mushroom cultivation, and greenhouse techniques.
- A visit to the site in Lachiwala to show women how a local entrepreneur was working to upgrade traditional water mills to generate electricity for various income-generating activities.
- A visit to Vaikalpic Urja Centre (Alternative Energy Centre) to learn how lantana weeds are harvested to produce briquettes.
- A visit to Uttam Urja in Rishikesh to see solar energy products such as solar lanterns, domestic lighting systems, solar torches, and solar mathani.
- A visit to YS Parmar University of Horticulture and Forestry, Solan, HP, to see techniques of seed production for major vegetables, plant propagation, nursery management, and the commercial production of fruit and flowers for income generation.
- A visit to the DEEP office, the NGO involved with the project in HP to learn about the construction techniques of improved efficient chulhas; rainwater harvesting; the different uses for conserved rainwater in irrigation, potable water, and animal husbandry; capacity building of SHGs for smooth execution of SHG records and bookkeeping; and coordination for development activities.

Nepal

Two successive study exchange and exposure visits were organised for the participants from Palpa and Dhankuta Districts to provide them with a unique opportunity to observe, share, and gain practical knowledge about water, energy, and income-generating technologies so that they would be able to identify and select the technology and organisational interventions best suited to their needs and environment (Figure 2.10).

An exposure visit of eight women members from the project site in Palpa was organised first. The women first visited several organisations in Kathmandu, including CRT/N, ITDG, ICIMOD, Solar Electronics, and the WEAN Cooperative to observe and learn about various aspects of drudgery reducing water- and energy-related technologies, including income generation, micro-financing, and institutional development mechanisms. Then they visited the

project site in Dhankuta where they exchanged their experiences, shared success stories, interacted directly with the women’s groups about problems encountered, and observed the progress status of the pilot project in Dhankuta.

A similar exchange visit was organised for the participants from Dhankuta. A team comprising nine members (the district coordinator, mobiliser, administrative head, and women members from the women’s groups) first visited several technological centres and organisations such as the WEAN Cooperative, MANUSHI (Energetic Women of Nepal) for Sustainable Development, and the Department of Food Processing. They later visited the pilot project site in Palpa where they observed the technologies adopted and shared their experiences.



Figure 2.10: Exposure visit in Nepal