# Replicating sucess: a model for conservation and development projects

Bajracharya, Siddhartha B.

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Berlin-Institute for World Population and Global Development

# Replicating Success

## A Model for Conservation and Development Projects

A Study by
Siddharta B. Bajracharya
Kathmandu, Nepal

for
Berlin Institute
for World Population and Global Development
Berlin, Germany

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# READ THIS FIRST

In 1997 two German NGOs "German Foundation for World Population" (DSW) and "GEO Protects the Rainforest" started an **Integrated Conservation and Development Project** together with the Nepali organization "Annapurna Conservation Area Project" (ACAP). The project was centered in the small community of Bhujung on the southern ridge of the Himalayas and affected 23000 people in different villages. After a three year period the project was evaluated by independent experts and rated as extremely successful and efficient.

**What Lessons Can Be Learned from this Project?**
Based on this experience the "Berlin Institute for World Population and Global Development" initiated this study to investigate how the success of the project could be replicated without investing too much money and manpower into the planning process. And how other organisations could make use of the positive and negative experiences of the project in the most efficient way.

**Why is Replication so Important for Development Cooperation?**
Successful development projects demand time and funding. But nowadays, funding for reaching humanitarian goals is insufficient and the unmet human basic needs for food, clean drinking water, shelter, sanitation, education, health and reproductive health are increasing. As the former US-President Bill Clinton said: **"The Challenge of the 21st Century is to Find what Works and Scale it up".**

This study analyses an existing project and shows how and where components of the project can be replicated. In a second step the "Berlin Institute for World Population and Global Development" will develop a **Condensed Version of this Study for the Internet**. It will be available under www.berlin-institute.org by the end of 2002 and act as an interactive forum, where NGO´s can gather information and contribute their own know-how and experiences in development and conservation projects. These comments will be constantly included in the existing study to provide as many examples from different projects as possible.

This is how the idea of a **"Franchise Model for Conservation and Development Projects"** came into life. Franchising is the most successful method in the commercial sector for systematic replication. It is a system for marketing products of the same kind in different societies and countries. But whereas the benefits for commercial companies - like uniformed production lines and marketing strategies - are obvious, for different reasons this method is not used in conservation and development projects, because:

- Information about successful projects and lessons learnt are not always accessible.
- Many large development organizations do not like to do the same things again and again, even if they promise success. Project responsibility changes quite frequently and every new planner of a development project likes to incorporate his own ideas into the work of the organization. In development work the wheel has been reinvented many times whereas the finish line is rarely crossed.
- The donor organizations are often reluctant to fund projects of the same type again and again. What can be promising in the field might be boring to the agents of funding organizations.
- Many development experts are sceptical about franchise models. They argue that the "McDonald's approach" of selling the same product in different environments does not work with development projects. There is some truth in this critique. But as underdeveloped regions anywhere in the world share the same basic needs, social franchise models can - with certain extensions and modifications - be transferred at least in part into the area of development cooperation.

A Social Franchise Model should serve as a handbook for organizations involved in the field of conservation and development. This does not mean that any project can act as a 100 percent blueprint for follow up projects in different cultural, economic and social environments. But it certainly can serve as a model that can be integrated into other projects with certain modifications.

This is why - in a third and final step - the "Berlin Institute for World Population and International Development" would like to **develop detailed Social Franchise Models for different Project Components** like safe drinking water, energy supply, income generation, reproductive health or education.

It is important to know that replication (which is the topic of this study) does not equal Social Franchise. Simple replication is often limited to the capacity of the executing organization. Standardized trainings and manuals are missing and a central marketing is not available. Furthermore successful project managers are often not

capable to design and conduct larger replication projects. Learning from the commercial sector about franchising that has proven efficient offers an enormous chance to avoid mistakes and to plan effectively.

Our experience shows that it makes a lot of sense to copy - and modify - good ideas even if they are not our own ones. Social Franchise Models offer a solution for conservation and development projects in times of limited resources and increasing problems in many parts of the underdeveloped world.

**Dr Reiner Klingholz**
*Berlin Institute for World Population and Global Development*
July 2002

## ACKNOWLEDGEMENTS

This report is the result of a 3-month study shaped up together with a decade of field experience in a conservation and development project. The main aim of this report is to present a replication model for conservation and development. Our experience shows that replication of good practices with modification makes a lot of sense. This is the first such attempt to document the field experiences. Therefore, there is plenty of room for the improvement of this report.

My greatest debt is to the KMTNC management team for giving me a great opportunity to work in Annapurna Conservation Area with various important responsibilities and authorities. I would also like to acknowledge the support provided by the KMTNC Member Secretary and Directors during the research. I would like to take this opportunity to thank Mr. Migma Norbu Sherpa and Dr. Chandra P. Gurung, former Project Directors of KMTNC/ACAP for their untiring guidance and encouragement given to me to work in the field of community-based conservation. They are my Conservation Gurus.

The community members have provided incredible support during my journey towards community based conservation and in recent research. This would not have been possible without support of the community members and staffs from the ACA. I would like to offer special thanks to Mr. Ram Chandra Nepal, Senior Conservation Officer and Mr. Roshan Sherchan, Officer-in-Charge, KMTNC/ACAP Bhujung for their invaluable assistance in the preparation of this report. I would also like to extend gratitude and to acknowledge the financial support of "Berlin Institute for World Population and Global Development", Berlin, Germany, to develop this research report. Special thanks to Dr. Reiner Klingholz and Dr. Hans Fleisch who provided useful insights during the research and valuable comments on the draft report.

**Siddharta B. Bajracharya**
*Kathmandu, Nepal*
June 15, 2002

## BIOGRAPHY

Mr. Siddhartha B. Bajracharya has several years of experience and expertise in environment, tourism and rural development issues. Mr. Bajracharya is associated with the King Mahendra Trust for Nature Conservation's "Annapurna Conservation Area Project" (ACAP) in progressively increasing capacity since 1989. He was the Director of ACAP from July 1994 to April 2001. Mr. Bajracharya has gained a 2-year Masters in Zoology from the Tribhuvan University, Nepal. In 1993, he acquired second Masters degree in Natural Resources Management from the Asian Institute of Technology, Bangkok. At present, he is enrolled in the University of Edinburgh in Scotland as a three-year full-time postgraduate student. He is conducting his postgraduate research on "Community involvement in conservation: an assessment of impacts and implications in the protected area of Nepal". His late Majesty the King of Nepal conferred him with Gorkha Dakshin Bahu IV in 1998 for his excellent work as the Director of the Annapurna Conservation Area. He has participated in various national and international trainings, workshops and seminars.

# EXECUTIVE SUMMARY

There are many good practices of conservation and development in the world, which have successfully dealt with poverty, population growth, and environmental issues. But, what is often missing are the crucial questions on whether and how good practices are replicable. This study is a step to fill this gap in the area of integrated conservation and development projects. This study focuses on the replicability of conservation and development projects as a prerequisite for replication.

Participation for local communities in many villages is nothing less than the way of rural social life. ACAP took the advantage of a traditional system of participation in social activities in the villages to make conservation and development intervention people-centred. The aim of participation is to empower local communities to undertake increasingly self-reliant initiatives. Ownership of a project by the local community helps to increase people's participation and also ensures sustainability.

The conservation and development issues in rural areas are multifaceted and diverse. For that reason, successful integration of conservation and development is essential. It has been experienced that establishment of trade-off is one of the important approaches to successfully integrate conservation and development initiatives. Cost sharing by local people develops a deep sense of responsibility and a feeling of ownership on the project.

This study has made attempt to highlight a list of conservation and development examples from the Annapurna Conservation Area - like forest plantation, introduction of different energy sources, sanitation and safe drinking water, education and awareness, reproductive health, etc.

Most of the examples from the field are validated by successfully replicating them within ACA and outside. However, it is important to note that there is no single blueprint for conservation and development projects as culture, economic and social systems, and ecological conditions differ widely. Therefore, it is a matter of careful adoption with modification with respect to culture, socio-economic situation and environment of the area or region. The important next step will be to replicate this approach in other regions and learn how certain models can be replicated with modification. The final goal is to develop Social Franchise Models for each component of conservation and development projects.

**Exaples for eleven different projest components are given in chapter 4, especially focusing on replicability.**

# ABBREVIATIONS AND ACRONYMS

| | |
|---|---|
| ACA | Annapurna Conservation Area |
| ACAP | Annapurna Conservation Area Project |
| AIDS | Acquired Immune Deficiency Syndrome |
| ANM | Auxiliary Nurse Midwife |
| BSc. | Bachelor in Science |
| CE | Conservation Education |
| ELCO | Eligible Couple |
| FCHV | Female Community Health Volunteer |
| FP | Family Planning |
| HMG/N | His Majesty's Government of Nepal |
| ICDP | Integrated Conservation and Development Project |
| ICE | Information, Communication and Education |
| IUCN | International Conservation Union |
| KMTNC | King Mahendra Trust for Nature Conservation |
| LPG | Liquid Petroleum Gas |
| MWRA | Married Women of Reproductive Age |
| NGO | Non Governmental Organization |
| PRA | Participatory Rural Appraisal |
| RH | Reproductive Health |
| STD | Sexually Transmitted Disease |
| TBA | Traditional Birth Attendant |
| UCO | Unit Conservation Office |
| UNDP | United Nations Development Programme |
| VDC | Village Development Committee |
| WWF | World Wildlife Fund |

# REPLICATING SUCCESS
# A MODEL FOR CONSERVATION AND DEVELOPMENT PROJECTS

## 1. INTRODUCTION

The broad goal of development is to improve the quality of life. Generally, people of an area and region are the means and end of development efforts. Development and modernisation are commonly considered synonymous in substantive meaning. Modernisation catalysed the process of industrialisation, which is often not ecologically friendly. This kind of development has also assumed serious levels of negative consequences[1]. Degradation of ecosystem, social anomalies, and disintegration of norms and values of societies in developing/underdeveloped countries constitute the syndrome of such negative consequences[1]. We should take into account that there is a strong link between nature and human beings especially those settled in the rural areas. It has been well recognized that improvement in the quality of life of rural community can only come about by not destroying the stability of ecosystems[2]. The concept of an integrated conservation and development programme evolved as a result of this recognition.

It is clear that low levels of income by themselves do not lead inexorably to degradation of the environment. For centuries populations in many parts of the world lived in harmony with their natural environments at what are today considered to be very low levels of per capita income. Environmental degradation and the disintegration of traditional social systems have generally occurred in response to outside pressures of different kinds. For example: in recent decades rapid declines in mortality rates have occurred which were not accompanied by declining fertility rates. This imbalance created pressure on the natural resources base, which were not immediately matched by the expansion of production capabilities through new technologies, investment, or efficiency through specialisation and reorganization[3].

Nepal, ranked 144th in Human Development Index, is also ranked in (1) low-income category with GNP per capita of $760 or less in 1998, (2) least development countries category and (3) low human development category[4]. A recent nationwide survey estimates that 42 percent of Nepal's population – about nine million people – still live in poverty, particularly in the rural areas[5]. Poverty alleviation efforts have failed to reach these hinterlands. Moreover, large areas of the country lack even the most elementary infrastructure. Similarly, throughout the entire country, development efforts have failed to make significant changes in lives of most of people from disadvantaged groups. Poor governance pervades development efforts in Nepal. Nepal's case clearly shows that without people's participation in development and people's ownership of the development process, poverty will perpetuate[5].

Poverty coupled with population pressure is argued to be most prominent factor contributing to environmental degradation in less developed countries. However, poverty and population pressure are not only the casual factors of un-sustainability. Poverty as such cannot be said to cause environmental degradation, however, often the two are associated with each other. It is the failure of policies to adapt to new circumstances that is a common cause of these twin scourges. Since poverty and threats to environment are associated with each other, it follows that strategies which do not address both issues effectively are likely to fail. If the poor find no alternative, they will use the land and water endowments of their communities in ways which will impair the future productivity of those same resources. The not so poor behave in similar ways unless policies are enforced which effectively discourage them from doing so. Environmental degradation can be the result of inadequate social organization, flawed legislation, and improper policies that impose constraints, limit opportunities, alter incentive structures, or misdirect capital and labour flows among sector and regions. Panayotou (1990) elaborated five conditions that all development projects, programmes and policies must meet for qualifying the sustainability criteria (as referred in Rao et al 1994)[1]:

[1] Rao, K. S. and Saxena, K.G. (1994) Sustainable Development and Rehabilitation of degraded village lands in Himalayas. G. B. Pant Institute of Himalayan Environment and Development, India. pp 268 + xiii.
[2] Ludmilla, T. and Dixit, K. (1986) Preface. In: Ludmilla, T. and Dixit, K. (eds.) Bikas-Binas. Development-Destruction. Geobuch, Munich.pp 394
[3] Asian Development Bank (1990). Economic Policies for Sustainable Development. ADB Manila, Philippines. pp 253 + xix
[4] United Nations Development Programme (2000) Human Development Report 2000. Oxford University Press, Oxford. Pp 290 + xiv
[5] UNDP (2002) Nepal Human Development Report 2001: Poverty Reduction and Governance. UNDP Kathmandu, Nepal. pp 154 + xii

- limit population growth rates
- alleviate poverty and reduce income disparities
- maintain ecological balance
- avoid irreversible changes in the environment and
- any foreclosure of options unless near perfect substitutions

There are many good practices of conservation and development in the world, which have successfully dealt with poverty, population growth, and environmental issues. Nevertheless, the experience gained during planning, designing and implementation of good practices are not often shared amongst similar interest groups and region. Learning from others experiences and replicating the experiences with modification as needed could make similar new initiatives more successful and efficient. An attempt has been made here to present a replicating approach to Conservation and Development based on the experiences from Annapurna Conservation Area Project in Nepal.

This study mainly focuses on the design of conservation and development modules and their replicability. Integrated projects may offer a means of balancing the needs of local people and the environment for future generations. Nevertheless, many people who know how to implement a good project often are not so good in replication. As a result, the replication often becomes unsuccessful. Other people reinvent the wheel over and over again, and replicate failures as well. A model for systematic replication therefore could give some information, about how financial and human resources for development could be used more efficiently.

**The study report is structured into four chapters:**

- **ACAP experience in retrospect**

- **Strategies and principles**

- **Conservation and development examples from field with guidelines for replication**

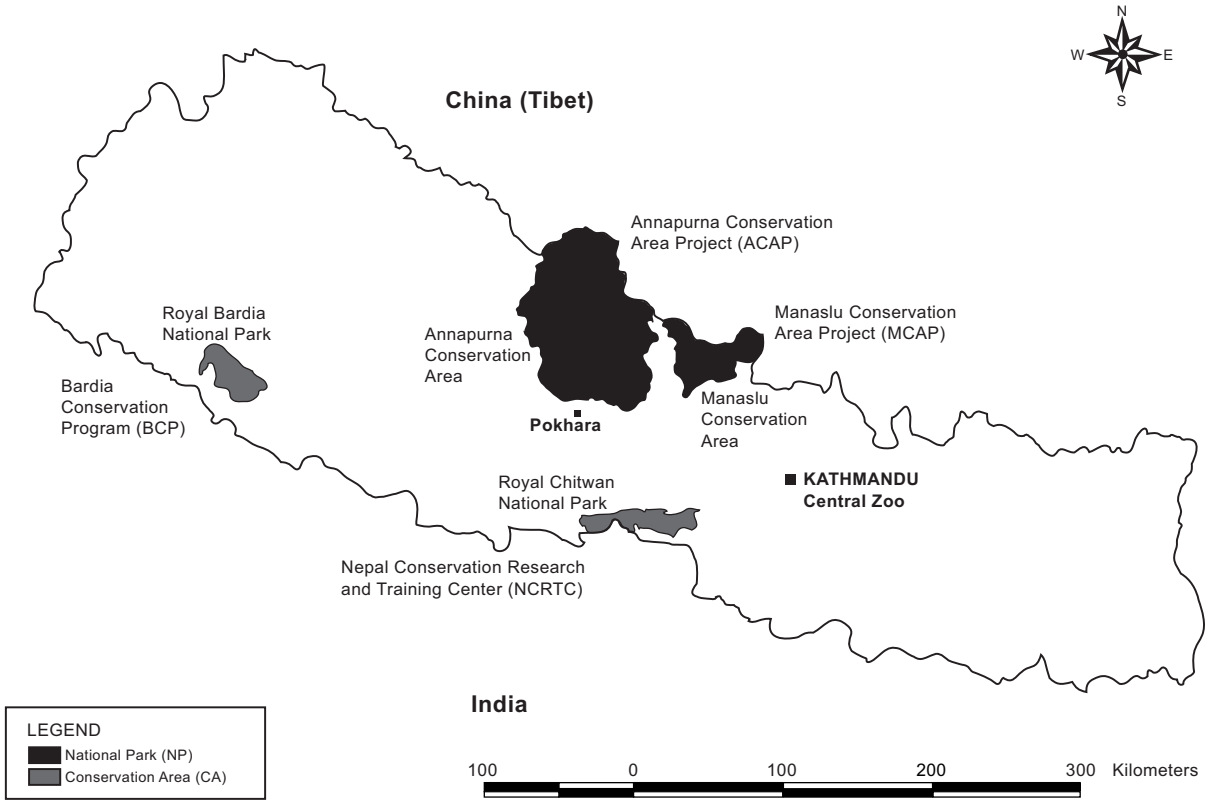
- **Outlook**

# 2. ACAP EXPERIENCE IN RETROSPECT

## 2.1 BACKGROUND

Annapurna Conservation Area (ACA) is a designated protected area located in western Nepal. ACA is spread over 7629 sq. km, which is about five percent of the total area of Nepal. This area is well known for its remarkable physical setting, ranging from an elevation of less than 1000 meters to 8091 meters - Annapurna I, the eighth highest peak in the world within a distance of 120 km. Two distinct climatic regions occur in ACA; the southern Annapurna Region with about 4,000 mm of annual rainfall is the area of highest precipitation in the country while the northern Annapurna being trans-Himalayan region receives minimal precipitation of 250-500 mm annually (ACAP-1997). The ACA's great diversity of habitats has produced a correspondingly outstanding diversity of plants and animals, including 1140 species of plant, 101 species of mammals, 478 species of birds, and many of Nepal's 700 medicinal plants[6]. ACA is inhabited by many rare and endangered species of mammals and birds such as the snow leopard, musk deer, and Tibetan argali. It houses five of six pheasants found in Nepal. The King Mahendra Trust for Nature Conservation, a national environmental NGO, manages ACA through official mandate from His Majesty's Government of Nepal (HMG/N).

**PROJECTS OF KMTNC**




More than 120,000 people from five major ethnic and tribal groups live here. That makes the area culturally diverse. Most of them are subsistence farmers, depending and surviving on the depleted natural resources for fuel, food, timber and medicine. Due to its great scenic beauty, development in tourism infrastructure and relatively easy accessibility, ACA has become one of the most popular trekking destinations in Nepal. Approximately, 70,000 trekking tourists, which is over 62 percent of the total trekkers of Nepal, visited ACA in 2000. Increase in population and their growing needs, negative impacts of trekking tourism and overgrazing of pastures/forests were some of the overriding problems. These problems had led to deforestation, erosion and landslide, litter pollution, aberration in the local cultural values, poverty and socio-economic inequality. Therefore, ACA was initiated in 1986 to mitigate the problems of degradation of the fragile environment of the Annapurna

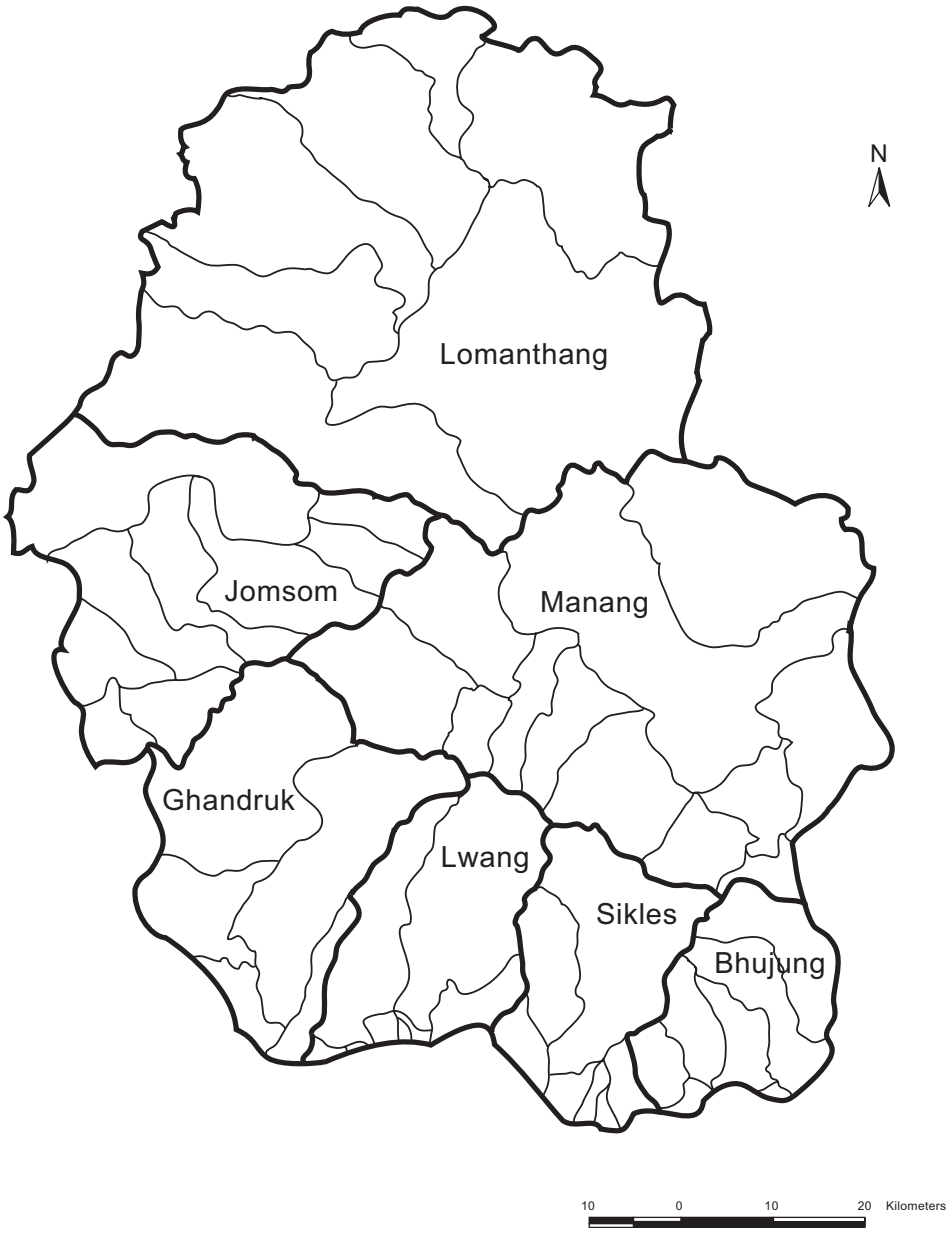
[6] Adhikari, J. and Lama, T. (1997) A new approach in Protected Area management. KMTNC/ACAP. Pokhara, Nepal. pp 39

region and to improve the quality of life of the people living in the area. Proper incorporation of social and economic factors together with environmental factors made ACAP a successful operation.

## 2.2 STEP BY STEP EXPANSION

Implementation of conservation and development activities in the 7629 sq. km area at start up phase was not feasible from technical, financial and administration point of view. For this reason, the projects and activities in ACA were executed in a step by step manner. This has enabled to expand its coverage gradually, based on the experience. This approach of project implementation gave ample opportunity to mobilize people and make them prepare for the implementation of project. Now, the projects and activities have been launched in overall area through seven strategically located unit conservation offices (UCO). The gradual expansion of working area also gave good confidence to the ACA management team to successfully implement conservation and development activities in different socio-economic, cultural and environmental settings.

**ANNAPURNA CONSERVATION AREA**
Unit Conservation Offices



## 2.3 SITE SPECIFIC INTEGRATION

ACA is ecologically and culturally diverse. Therefore, a package of integrated programme designed for an UCO might not be suitable for other areas. To make the ACA activities effective and efficient, the integration of projects and activities has been done according to the need and situation of a particular site. Natural resources conservation, sustainable rural development, conservation education and extension components are integrated with other site-specific components such as tourism, agriculture, livestock, cultural heritage, reproductive health etc.

For example: Bhujung UCO covering eight village development committees is one of the UCOs of ACAP. The UCO in Bhujung was established in 1993 in order to coordinate and implement the ACA projects and activities in Lamjung district. There are approximately 4,000 households with a total population of 21,387. The social survey conducted in 1994 indicated that 42% of the total households were devoid of health care facilities and 35% of the population did not have access to reliable facilities for safe drinking water. There was no limitation on use of firewood, which is harvested from forest. The villagers were not able to link health problems with the village sanitation situation. Hence, village sanitation was in an extremely life threatening situation.

Initially, an integrated project with natural resources management, agriculture development, alternative energy, women's development and conservation education components was designed and implemented in the area. This initiative helped to gear towards building a rapport with the local people and introducing the ACA philosophy and objectives. Various local institutions such as conservation committees, mother's group were formed to manage resources and village development issues. Later reproductive health and income generating activities were integrated together with conservation and development projects based on the health status study. Early marriage, high child mortality, ignorance of family planning and lack of proper reproductive health material and counselling were some of the reasons for integration of reproductive health in overall programme of Bhujung UCO. The integration was extremely effective and successful. The project was also evaluated by independent experts and rated as extremely successful and efficient.

## 2.4 THE REASONS BEHIND SUCCESS

The ACAP's approach to conservation and development has been well recognized at national level and worldwide. Kanchunjunga Conservation Area and Manaslu Conservation Area were established in Nepal to replicate the ACAP's approach to conservation with certain modification. There are certain important reasons behind the success of the ACAP approach. The design of the ACAP's approach was made through wider consultation with the local community. The feasibility study conducted by the KMTNC team discussed conservation and development issues in greater depth with the local communities and these were well incorporated in the plan. The study team identified several problems and also observed successful resource management schemes practised by the local people that were more effective than the large ones implemented by the government and other agencies. Therefore, considerable emphasis was given on the strong community structure in villages of ACA from start up phase. They were regularly consulted, trained, empowered to conserve and develop the area by them and for them. This has paved the way for a functional set of local institutions such as Conservation Area Management Committee, Mother's groups, Micro Hydro Management Committee etc.

Women's groups popularly known as *Ama Toli* (i.e. Mother's group) in all villages of ACA are a unique and strong component. *Ama Toli*s are trained and empowered through adult literacy classes; exposure visits to villages with good practices; workshops and training such as skill development, income generation, reproductive health, nutrition, leadership etc. Hence *Ama Toli*s are actively and collectively involved in conservation and development activities in all the villages. The women in the area have become gradually self-reliant and equal. The *Ama Toli*s have been established as equal partners in social activities. The *Ama Toli*s are able to make decisions regarding different conservation and development activities such as improving village access, sanitation improvement, tree plantation, controlling illegal hunting. The *Ama Toli*s have been able to gradually change the village sanitation. This has changed the conventional social responsibility of women from only domestic work to social work. Involvement of women in social activity through *Ama Toli* has increased work burden at certain level. However, development of infrastructure such as drinking water, access improvement, day-care centre for children has generally eased the burden of women[7]. Women's role in conservation and development in ACA is well recognized at the national level.

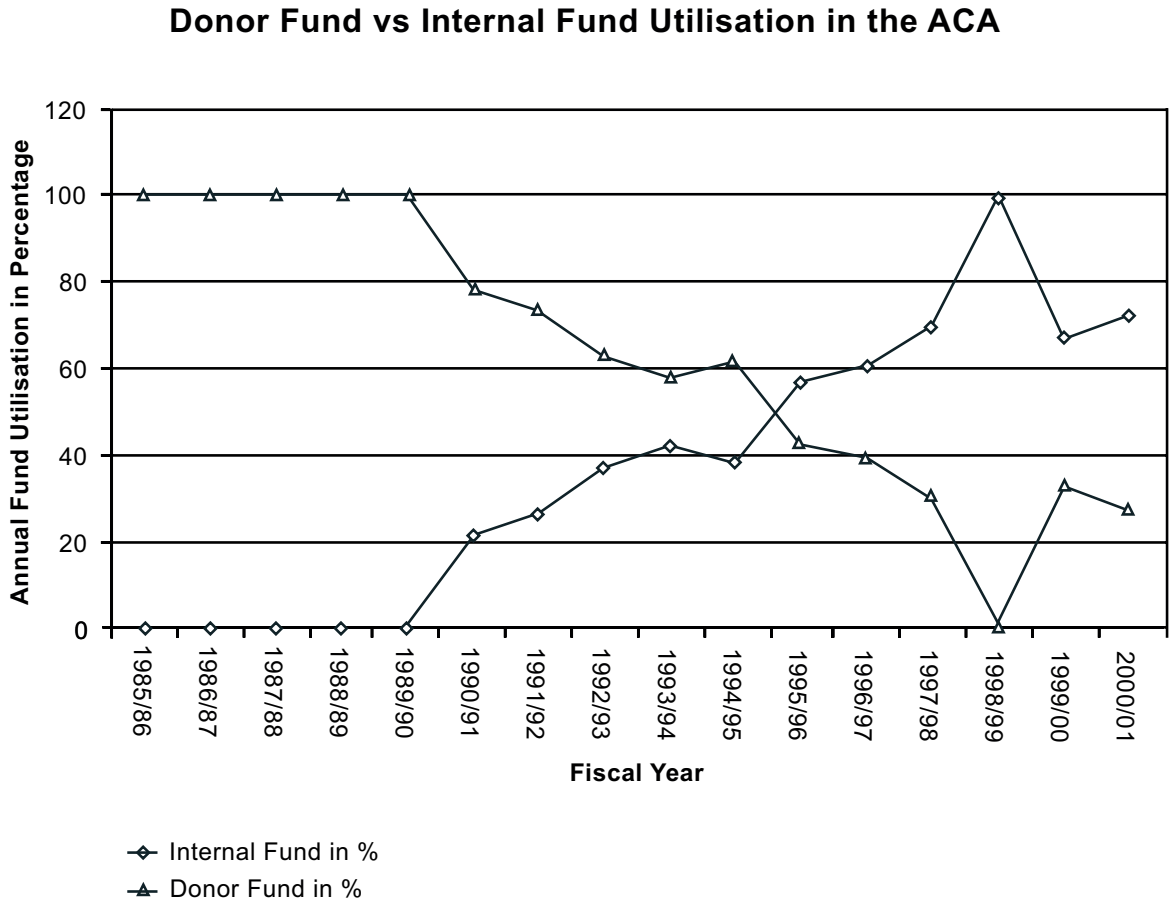
[7] Gurung, D. (1995) Tourism and Gender: Impact and Implication of Tourism on Nepalese Women. Discussion Paper Series No. MEI 95/3. ICIMOD Kathmandu. pp 84

Gurung, Thakali, Bhotia (Ethnic Tibetan) and Magar are the major ethnic groups of ACA. All these ethnic groups have a strong sense of community and similar socio-cultural system. They live in a clustered community and have a very effective system of helping each other. Most of these ethnic groups have traditional local committees led by a village headman '*Mukhiya*' for every village. This committee is responsible for settling most of the issues related to the village such as forest use, organising traditional rituals, deciding on village conflicts etc. Local institutions such as conservation committee, mother's group, micro hydro management committee are created based on the traditional local committee. Success of conservation and development activities in ACA must also be attributed to this community structure.

ACAP was initiated with longer time frame compared to other development projects that have relatively short time frame of three to five years. This has given ACAP ample opportunity to show successful projects with good results. There are many good examples from the field. Plantation in community land and private farm is one of the best examples. During the start up phase people were encouraged to plant trees in degraded community land and private farmland. People were hesitant to start plantation because they do not exactly know the outcome. ACAP briefed them about benefits of the plantation such as less dependency on forest resources, decrease in landslides, easy availability of firewood and fodder. At present, the local people are getting all these benefits. This increased the trust on the ACA's project and made other project implementation more efficient. If it was a short-term project, ACAP might not have the opportunity to perceive these impacts. Normally, it takes more than eight years to grow a plantation forest such as alder tree plantation ready for harvest.

Similarly, the effect of micro hydropower on reducing firewood takes more than five years after installing a micro hydro plant. Local people do not immediately switch to micro hydro or other energy sources. The local people should be confident enough that the micro hydro and/or other energy sources could efficiently be used for cooking and heating. It is often the micro hydro electricity that encourages the local people to use other energy sources such as kerosene, LPG gas, and solar energy. But it does not happen overnight. It is more process oriented than target specific. Therefore, installing a micro hydro scheme in a village necessarily does not mean reduction on use of firewood.

Most of the donor funded rural development projects in Nepal stop functioning once the donor withdraws the fund. However, the situation is very much different with ACAP. ACAP is gradually becoming financially self-reliant through its own income sources. At the start up phase, ACAP was initiated with the donor funds. To develop financial independancy, KMTNC adopted different ways to sustain the ACAP activities once the donor agencies phase out. The chart shows that almost for five years ACAP was managed only through donor funds. KMTNC used its internal fund from the sixth year. The internal fund utilisation was gradually increased annually. At present, more than 70% of the annual budget is met through the internal fund. That means, ACA has gradually shifted from donor supported to partially donor-supported project. The main source of the internal fund is the entry fee levied to every trekking tourist visiting ACA. His Majesty's Government of Nepal granted permission to the KMTNC to collect and use this entry fee. Every tourist, at present, pays approximately US $ 25.50. A similar approach is also maintained amongst the infrastructure development projects where the local people are trained and mobilized to make provisions to continue the activities. Community management of micro hydro is one of the outstanding examples. The micro hydro management committee levies certain users' fee on electricity. The fund generated from the user's fee is used for management, repair and maintenance. The surplus fund is kept in a bank for major maintenance or improvement in the system. The Ghandruk Micro Hydro management committee recently invested the surplus fund in the improvement of intake by constructing a reservoir tank. At present, all the micro hydro management committees are self-reliant.




His Majesty's Government of Nepal has strong interest and commitment in the protected area management for biodiversity conservation and sustainable development. Legal designation of the ACA as a conservation area and endorsement of conservation area regulation lay emphasis on HMG/N's commitment. The strong commitment and interest helped and encouraged to make the approach successful.

A strong emphasis has been placed on awareness and education of local community, which is one of the reasons for the success. The increased level of awareness and education has generated the co-operation of local people on implementation of conservation and development programmes. Therefore, conservation education and awareness has been considered as the heart of the ACA activities. The education and extension has been the key component in all ACA activities whether it is reproductive health, infrastructure development or resource conservation. Majority of the villagers have become aware about consequences of environmental degradation, poor sanitation, need of self-initiative for successful conservation and development activities, need for community management etc. As a result, effective actions have been taken by the local people themselves to conserve and develop their village.

Management of the ACA projects by the well established, national environmental NGO "King Mahendra Trust for Nature Conservation" (KMTNC) made the planning and implementation more effective and efficient. A team of professional Nepalese staff leads the KMTNC. There is a relatively flexible bureaucratic system with clear chain of command. The KMTNC aims for a people-centred approach, hence the project activities are focused on good governance and decentralisation. Well-trained staff members, people friendly administration, and smart mobilisation of tourism revenues and donor funds added the value in the success of the ACA projects.

## 2.5 A BASIC PROCEDURE OF REPLICATION WITHIN ACA

ACAP replicates its approach to conservation and development activities within its command area. ACAP follows a certain procedure during the replication that assures involvement of community, sustainability of project and catalytic role. The ACAP experience has demonstrated that exact replication is not possible even in similar villages with varying conditions. Therefore, substantial efforts on adaptive management have been made by ACAP during the replication of conservation and development initiatives. The procedure of the replication is summarised in different steps here.

1. A team of the ACAP staffs visits the new expansion village. The team will meet and discuss with the key village leaders individually. The aim and purposes of the project will be explained without any ambiguity. Planning with the leaders from the beginning on can make the initiatives more effective. This design will specifically mention the date of commissioning of the initiatives in the village. If the discussion with the key leaders is successful, a village meeting with all the interested villagers is organized. The aim of this meeting will be a formal announcement of the planned initiatives in the village. The villagers including women and occupational group of people must be allowed to raise queries. Their queries must be answered without any ambiguity. The team will make good efforts neither to generate high expectation nor lower the interest on the proposed initiatives. If the majority of the villagers are positive on the initiatives, then the next step will be to find a local house for establishing a field office. There should be sufficient land in proximity to the house for establishment of a forest nursery and an agriculture demonstration plot.

2. Frequent interaction with the villagers including local leaders, women, youth and occupation groups is crucial in the start up phase. Therefore, further visits in an interval of a month or so will be organised. The visit will primarily focus on rapport building and identifying possible conservation and development projects. The identification of different projects will be conducted in a participatory way with different groups in a community. Ranking of conservation and development projects with the community will make the project design more effective. This also encourages people to get involved in the initiatives. Implementation and management modality of projects must be explained to the community. The community should know its role.

3. The ACAP management team will prepare a detail plan for replication. The management team also decides on key areas of programme integration such as natural resources management, sustainable agriculture development, conservation education, sustainable rural development and reproductive health. This process will identify the project manager and his/her team who will lead the initiatives. Possibility of recruitments of local staff will also be discussed based on earlier visits. Recruitment of local staff is very essential for successfully implementing the project based on socio-cultural norms of the village. Recruitment of local staff for social mobilization, women group mobilization, forest nursery management, agriculture demonstration plot management etc. is found very effective.

4. The next important step will be to formally establish a field office in the village as agreed with the village leaders. It is often very effective to organize an opening function in a traditional way. All the villagers must be formally invited to attend the opening function. A speech programme with light refreshment at the end might be effective to mobilise the local leaders and deliver our message to the community. However, a good preparation is needed for organising this function. Therefore, a team of staff usually goes to the village at least a week before for this preparation.

5. Recruiting local staff will be initiated immediately after the local establishment of the office. It is effective to have at least 40% local staff. Gender balance in recruitment must be considered. The recruited staff will then be given orientation training on different aspect of initiatives.

6. The first year of project implementation is extremely vulnerable because staffs are outsiders for the place; local people have low level of awareness on conservation, health and sustainable development issues and village politics. To overcome this situation, ACAP implements different programmes by careful integration. Establishment of a forest nursery and an agro demonstration plot in the premises of field office have been found to considerable enthusiasm among the community. The villagers visit the nursery and demonstration plot. They might come up with a lot of queries. The staff must respond to their queries professionally. This is the opportunity to persuade local people on different aspects of conservation and development.

7. A small team of staff will organize an extension and awareness programme. The extension and awareness programme will focus on home visits, village meetings and video programmes. The home visits will build rap port and mutual trust with the local villagers including women and occupational groups. The village meeting will clarify various issues on conservation and development initiatives. Audio-visual programmes in the evening will aim to show good and bad practices related to conservation and development. The audio-visual extension will also highlight the aims and objectives of the initiatives. At the start up phase, audio-visual extension is very effective to convey conservation and development message to huge mass of different age groups. Organizing the extension programme in each cluster of a village helps to develop rapport with a majority of the community. Organizing an extension and awareness programme at an interval of every six months at the start up phase will help to change the attitude and increase awareness. However, the extension and awareness programme should be attention grabbing and arresting to local villagers. That means, a good team of creative and enthusiastic staff must lead the extension and awareness programme.

8. Revival or formation of local institutions such as conservation committee, women's group etc. should be initiated. The groups must be encouraged to plan, design and implement various conservation and development initiatives. Exposure tours for the members of newly formed committees to different areas with good and bad practices are very effective to develop self-reliance among the villagers. This activity should be followed by various relevant trainings and workshops for the members.

9. Establishment of a demonstration plantation site in the start up phase is very effective to mobilize local community to plant tree seedlings in community and private land. A variety of fast growing indigenous tree seedlings should be planted in the demonstration plot. Local community must be involved in site selection and plantation. This plantation might be organized to celebrate a special event or a day such as World Environment Day.

10. On the other side, infrastructure development activity must be initiated. Improvement in access to village drinking water, school repair or construction is a good entry point. Establishing trade-offs during infrastructure construction is very effective. (see Chapter three and four for more information).

11. Once the process is started, efforts must be made to give more roles to the local community in decision-making. Therefore, training, workshops and exposure tours need to be organized at frequent intervals to empower the local institutions. A successful development of a local institution indicates active participation of local people and greater assurance of sustainability.

12. Involvement of local community in conservation and development initiatives develops ownership on the project.

13. ACAP regularly has meetings with the members of the local institutions. The ACAP management provides feedbacks on various conservation and development issues during the meetings. The local institutions' concerns are also listened to carefully.

14. Most of the institutions are well established in ACAP now. Therefore, a five-year operation plan to implement conservation and development activities has been developed for each village development committee. The villagers through the guidance of the ACAP staff prepare this operation plan. The aim of the plan is to implement conservation and development activities gradually by the local institutions.

15. During the replication process the ACAP staff always gave a lot of respect to local community and their culture. Most of the activities are implemented based on village norms. Value of time and seasonality for local community are kept well on mind during design of a project. Meetings are always conducted to their convenience. Implementation of different infrastructure development activities is planned during agriculture slack seasons. Equal thought is given to incorporate all groups of people from a community in all conservation and development initiatives. Attention is always given to minimize any negative consequences of the initiatives on any group in the community.

16. ACAP is very successful in replication of conservation and development initiatives. These procedures have been replicated in other project areas within the country and region with certain modifications.

## 2.6 LESSONS LEARNED FROM FIELD

- A team of well-motivated field staff is important for the success of a scheme. The field staff must be able to establish rapport, so that villagers will understand and trust them.

- Education and awareness is the key to success of any sustainable rural conservation and development project.

- Systematic improvement of knowledge, skill and attitude amongst the villagers is critical to the sustainability of the projects.

- Close contact and cooperation between the villagers and the project implementer is crucial for the success of the project.

- Regular visits by the project staff leads to development of trust and sincere relationship between the villagers and the project staff.

- Sustainable rural conservation and development projects could be launched in rural areas provided that they are well defined and relevant to the villagers.

- Project activities could be sustained with the empowerment of the villagers who are motivated to initiate and follow-up on their actions.

- When the villagers are empowered, they will decide their own best course of action in village and community development.

- The success of a village development project is linked to clear and acceptable leadership role found in the village.

- Devolution of power to a local institution is one way of mobilizing people's participation in development.

- Employment of field workers, who are residents of the sites or live close to the site, will contribute to communication and cooperation between the villagers and project implementers.

- The participation of local people provides a unique assurance of the sustainability of a conservation and development project.

**Key Points to be remembered:**

- Implement the project gradually
- Integrate the need of the area
- Look for effective traditional institutions and initiatives
- Organize women into a group
- Design a project with a long time frame
- Explore the possibilities for financial self reliance
- Seek support from national government
- Put emphasis on awareness and education
- Establish people friendly administration
- Train your staff

# 3. STRATEGIES AND PRINCIPLES

Conservation and development issues in rural areas are multifaceted and diverse. Therefore, targeted approach to a single issue might not be very effective. For example, deforestation in rural areas has become a common phenomenon because rural people very much depend on forest resources. But the issue of deforestation cannot be tackled just by excluding the local people from the area. Deforestation might have been caused by lack of alternative source of energy, population growth, lack of management, overgrazing etc. Thus, an original plan of conservation and/or development initiatives must adopt an integrated approach to address all these issues carefully. Projects must be designed in a way that fulfils the local needs and at the same time motivate local community to participate in these initiatives. The programme implementation must be flexible and open to revision according to local situations because effectiveness and participation of the villagers during implementation depends on interest of the villagers, management capability of local community and intervening organization, solidarity within the village. The intervening agency, which may be governmental, non-governmental or a donor agency, must change their role from that of implementing to facilitating financial and technical support that helps to foster local ownership, institution and long-term sustainability.

Annapurna Conservation Area (ACA) managed by King Mahendra Trust for Nature Conservation (KMTNC) has used its innovative approach of involving the local people in all stages of its conservation initiative. It has been shown that the integrated approach is the realistic method of addressing the complex environmental and social problems and that appropriate site-specific solutions to these problems must be used rather than a single targeted approach. ACAP believes that global environmental concern can be tackled only through appropriate site specific local solution. Local people have been put first in the ACAP activities and considered as partners rather than obstacles in conservation and development. ACAP has adopted people's participation, sustainability and catalytic role as three guiding principles to achieve the goal. Some of the important criteria for successful replication projects based on the ACAP experience are outlined below.

## 3.1 PEOPLE'S PARTICIPATION

The change in the development paradigm from *top-down* to *bottom-up* in 1980s brought in the words 'participatory', 'participation', 'community involvement' and 'community-based'. Participation has often become the latest buzzword in the official discourse of both international development organizations and governments in many developing countries. In practice, however, its real meaning varies from using people as labourers on government driven community development projects to getting stakeholders directly involved in defining environmental policy guidelines and in designing projects and programmes[8]. Participation is also defined as a process of empowerment, which means that people are able to organize and influence change on the basis of their access to knowledge, political processes, and to financial, social and natural resources[9]. Participation is also considered as a condition by which local knowledge, skills and resources can be mobilized and fully employed[10]. However, participation for a local community is nothing less than the way of rural social life, which has been followed for generations. Whether it is construction of a trail to a village or maintaining an irrigation canal or ploughing a private agro-field, they do have a traditional system of cooperating with each other. This local system of participation is called '*Huri'* in the villages. It is a system where every household from the village provides labour service to a family in the village as part of mutual exchange of labour. The *Huri* system is specifically popular in agricultural activities such as crop plantation, harvesting etc. The intervening project should take advantage of the *Huri* or similar other traditional system of participation to make intervention people-oriented.

Local people confronted with problems understand village needs in an integrated way and easier than the distant governments or other agencies. It has also been realized that top down approach does not work. Therefore, people must be brought into the mainstream of conservation and development process. For successful conservation and development activity, three things need to be considered: greater participation of people to improve their capacity for their own development; an integrated approach in the design and implementation; a devolution of power to mobilize people in conservation and development activities.

The aim of a participatory project is to empower communities to undertake increasingly self-reliant conservation and development activities. However, participatory processes require certain investments of time and resources. Creativity and managerial resourcefulness are often necessary for full local participation[10].

[8] Zazueta, A. E. (1985) Policy hits the ground: participation and equity in environmental policy-making: World Resource Institute

[9] Slocum, R. and Tomas-Slayter, B. (1995) Participation, empowerment and sustainable development. In: *Power, process and participation - tools for change*. ed. Slocum, R. and Others, pp 3 - 8. London: Intermediate Technology Publications, Ltd.

[10] Borrini-Feyerabend. G. (1997) Participation in conservation: why, what, when, how? In: Borrini-Feyerabend. G. (ed) Beyond Fences: Seeking social sustainability in conservation, IUCN, Gland, Switzerland.

### *3.1.1 Ownership*

Local ownership of a project or activity helps to increase people's participation and ensures sustainability. In general, maximizing local responsibility and authority in conservation and development results in more effective projects. However, maximizing local control must be done within the context of all stakeholders' interests. Ideally, conservation and development must be demand driven. Consultation, mobilization, involvement of local people with cost sharing and responsibility in a demand driven conservation and development project help to develop ownership on the project.

Forest management in most of the villages of ACA presents a good example of ownership. Before declaration of ACA, the ownership of forest resources was with the government. Thus, every citizen had rights to go and harvest forest resources from the area if they had a valid permit from the government. The local villagers did not have any control over forest use decision made by government. The establishment of ACA gave the people a role in forest management. They were gradually handed over the responsibility to manage the resources. At present, the local people have developed a strong feeling of ownership of the forest. They do not allow any one including villagers to misuse forest resources. The villagers through conservation committee have made specific rules and regulation of the use and management of the resources. Harvesting of resources is carried out based on the decision made by the conservation committee. The committees have banned the felling of standing trees, allowing villagers to collect only dead and dry wood. Collection of dry and dead wood is relatively time consuming. Sometimes it will take six hour to collect and transport dry woods. However, the local villagers are happy with this rule because they have seen significant improvement on forest condition. They often feel very proud to claim that they have managed their forest.

Another good example is the micro hydropower scheme. The micro hydropower scheme is constructed through active involvement of the local community. The local villagers contribute both cash and labour during the construction. The micro hydropower scheme is handed over to the local management after successful commissioning. The Village Electricity Management Committee will be given overall responsibility of management including decision making on tariff, appointing a manager and two operators, end use planning, monitoring on use and misuse of electricity etc. They were given technical training, training in administration and account keeping. It has been found that the majority of micro hydropower schemes in ACA have been well operated by the local committees. All the electricity users are regularly paying the tariff. The committee is repairing and maintaining the plant in a regular interval. The main reason behind successful operation is community ownership through a local management committee. ACAP's presence within the village proximity for regular consultation or during an emergency unquestionably has assisted in the successful operation.

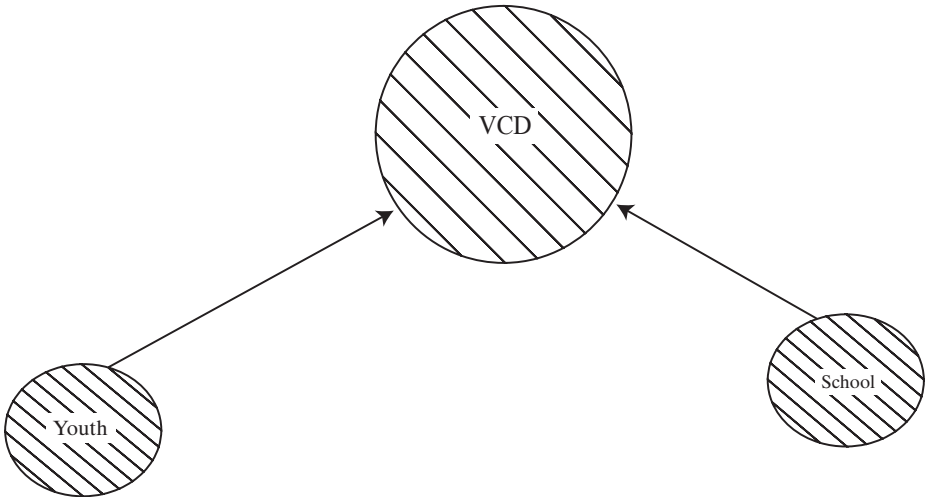
## 3.2 ROLE OF LOCAL INSTITUTIONS

### *3.2.1 Importance of local institutions*

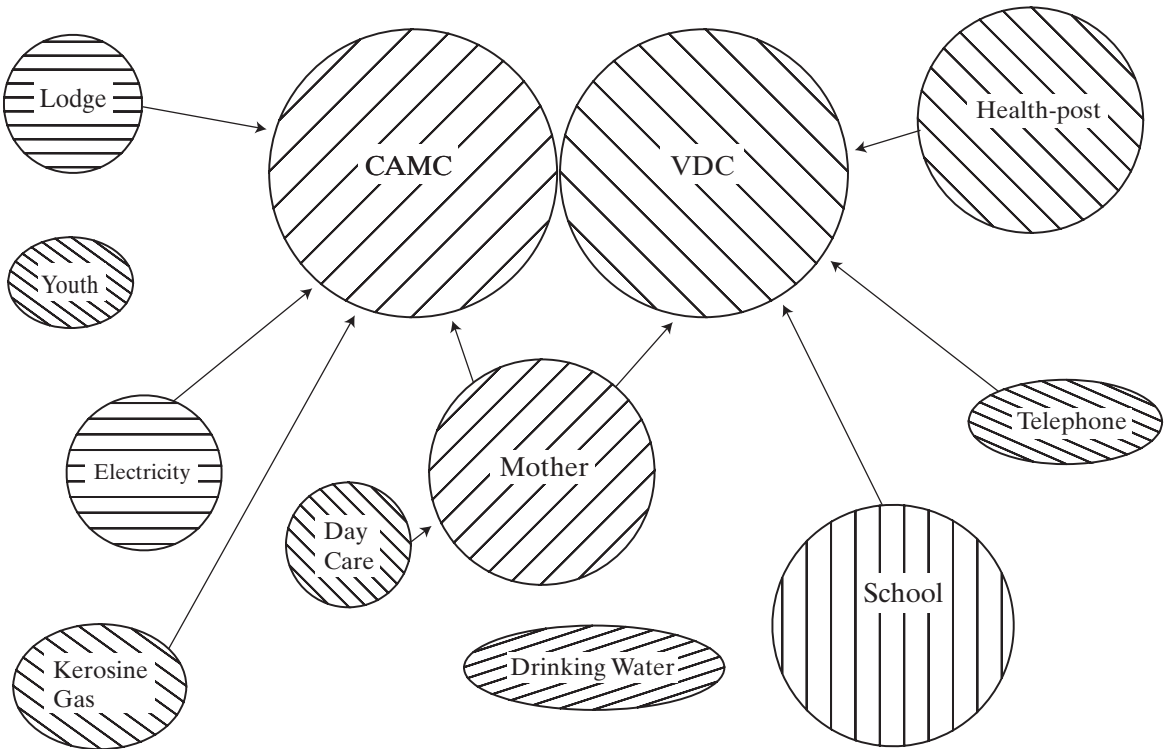
A successful development of local institutions indicates active participation of people and greater insurance for sustainability. Local institutions play a key role in organizing the people, which provides opportunity to enlarge their choices and opportunities, and provides for the participation in decisions affecting them.

The underlying assumption is that traditionally local people get organized to work together if they live in close proximity and share common interests for conservation and development of their village. Therefore, more and more emphasis must be given either to revive the traditional system of local people getting together or to form a new local organization. An institutional analysis in ACAP villages showed that a significant number of functional organizations evolved after the successful conservation intervention. These are Conservation Area Management Committee, Mother's Group, Community Micro-hydro Management Committee, Tourism Management Committee, School Management Committee, Youth Group, Health Post Management Committee, Drinking Water Management Committee etc.

*Venn Diagram – Institutional Analysis (Pre-conservation intervention)*




*Venn Diagram – Institutional Analysis (Post conservation intervention)*



All these committees have evolved at the community level to perform specific functions within the village. These committees have a clear mandate and responsibility. Village Development Committee, Conservation Area Management Committee, and Mother's group are considered the most important institutions within the village. The locally managed services such as forest, drinking water, electricity, pharmacy etc. are more responsive to local needs, which encourages better use of services by the local people. Most infrastructure projects in Nepal suffer from slow execution, poor selection and design, shortage of funds, flawed criteria for selecting beneficiaries, poor labour management, and lack of monitoring and evaluation[11]. However, development of local institutions in ACA has relatively reduced this national development syndrome because major players in conservation and development projects in ACA are local people. They plan, design, select beneficiaries, manage labour and arrange for future management. ACAP acts as a facilitator by providing technical and financial guidance and support when and where necessary. This development has also helped to reach the poor more effectively and efficiently. Before conservation intervention, there were only three organizations, which were Village Development Committee, School Management Committee and Youth Group. All these three committees were not functional because they did not have any specific responsibility and financial resources. However, using a single blueprint approach to institutional design might not work because a particular set of rules work well in one setting and it does not necessarily works equally well elsewhere.

### *3.2.2 Process of formation of local institutions (samiti)*

Local institutions (*samiti*) do not evolve with the initiation of a project. A good rapport and mutual trust with the local villagers are crucial factors for development of active and committed local institutions. The social mobilizer or extension staff have to visit the village frequently in the initial stage to mobilize the local villagers. Usually, they should meet the villagers as a group in discussion meetings or at home with the key villagers including women and occupational groups. Home visits build rapport and mutual trust with the local villagers. The meetings aim to clarify the conservation initiative and approaches and explore village concerns and issues. Importance of a strong local institution (*samiti*) for management by the local community and solidarity within the village should be clearly explained. The local people should be allowed to decide on what and how they would like to do about conservation and development in the village. There might exist a functional traditional organization. Therefore, participatory analysis of local institutions is extremely useful to identify pre-existing functional institutions.

The creation or revival of a local institution must be initiated in the presence of all those residents of a village whose interests are best served by organizing themselves as a group. Various *samiti*s can be created depending on the need and interest of different groups in a village such as forest conservation committee, mother's group, tourism management group etc. The extension staff has to facilitate during the discussion meeting. Ideally, all the stakeholders should be included in an institution. However, including too many people raises the cost of decision-making. If there are too few people, they may not want to bear costs that benefit those who are excluded. The ACAP experience has demonstrated that a local institution with 13 to 15 members is practical and effective. Representatives of women and occupational groups must be fully represented in a local institution.

Newly formed institutions should be given orientation training to clarify their roles and responsibilities, and on effective management to upgrade their existing skills. Various skill and knowledge development training and workshop should be organised in a regular interval in order to enhance their overall capacity. They should be encouraged to conduct regular monthly meeting as decided among them. Presence of supporting staff in the initial phase facilitates effective meetings.

### *3.2.3 Role of stakeholders in a local institution*

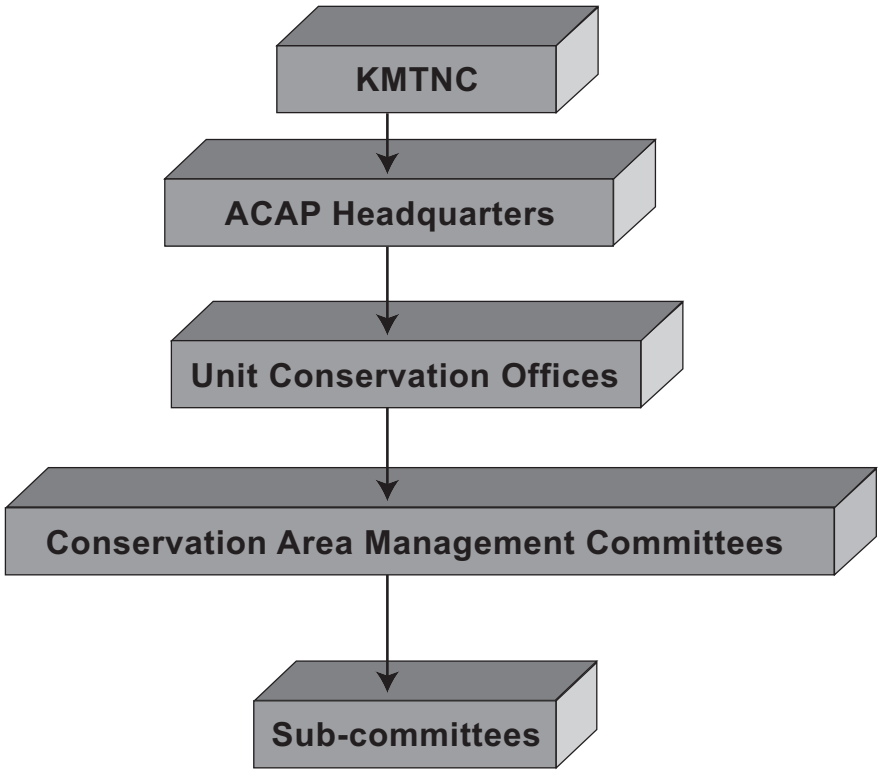
A local institution is a representative group in a village, which is generally created with the consensus of all the local stakeholders to facilitate decision and management. A local institution must have a clear role and must have support from all the villagers. In general, one member from each household of a village should attend the formation of a local institution. The core representative members are selected/nominated by the local stakeholders to perform specific tasks such as forest management, micro hydropower management etc. Regular meetings, which can be attended by the local people, should discuss and decide on various issues. The local people can put forward their issues of concern to be discussed in the meeting. However, they cannot influence the decision.

[11] UNDP (2002) Nepal Human Development Report 2001: Poverty Reduction and Governance. UNDP Kathmandu, Nepal. pp 154 + xii

The existence of a committee does not mean that the villagers are involved in the process. Most often the villagers or stakeholders are not represented in the committee. Therefore, it is very important to share information with all the villagers through the committee. Information sharing gives the feeling of trust and confidence among each other in the village.

### *3.2.4 Strengthening local institutions*

A decade of ACAP experience demonstrates that local institutions are crucial for sustainable development of any community-based activities. However, effectiveness and sustainability of their actions and activities depend on the capability, commitment and good leadership within the local institutions. Most of the NGO led development activities have a trend of creating many local institutions. The number of local institutions is also taken as an indicator of successful outside intervention. Most often they do not function, therefore exist only in the reports of a NGO because there was no system to strengthen the local institutions. The ACAP experience has demonstrated that it is important to identify the pre-existing local institutions rather than forming new ones. Reviving local institutions and nurturing these with new ideas and concepts is efficient and sustainable. For example, the traditional forest management committee locally called *Ban Samiti* was identified, formally recognized and trained. Initially, they were only given responsibility of forest management. Once they proved their capacity, commitment and skill, they were upgraded to a Conservation Area Management Committee responsible for all conservation and development issues of their village. Besides capacity development of the committee, a process of devolution of power is also initiated to make them autonomous. The local institutions activities have been gradually legalized. The Conservation Area Management Regulation 2053 defines the roles and responsibilities of local community by the designation of Conservation Area Management Committee (CAMC). The committee is authorized to create sub-committees to support their conservation and development actions.




***Organizational structure as outlined in Conservation Area Regulation 2053***

Development of a local institution rarely occurs rapidly. Decision-making related to a community and finding rules that are efficient and fair, is a trial-and-error process of great complexity. Some decisions or rules may lead to unexpected results. Some decisions might fail to find solution. Yet the community can learn from their mistakes. For example, a conservation committee in a village made rules to strictly ban the use of a bamboo species (*Arundinaria* sps.). This bamboo species is widely used to produce household implements such as bamboo basket, mat etc. The local villagers did not abide the rule. Therefore, the committee was forced to review the rule. With the new rule, the villagers are allowed to collect the bamboo species only twice in a year for a specific period of time and location instead of free collection throughout the year. The conservation committee understood that not every decision they make is acceptable to the villagers if it does not consider the villagers needs. This was a very good lesson for the committee.

A local institution needs certain skills such as basic administration, financial management and relevant technical issues etc. Exposure tours to different parts of the country have been found very effective to develop confidence. These tours expose them to various scenarios, which will broaden their perspective regarding their village and the country. There are many good examples from the ACA villages where the committee worked very hard in a team after the tour.

A mother's group from a village within ACA was taken to Ghandruk village. The village has developed an effective system of regular village clean up. The majority of the households has constructed toilets through active leadership and initiatives of the *Ama Toli*. Therefore, Ghandruk village is much cleaner than other similar villages. The study tour participants went all around the village. The participants were very much impressed by the explanation of the Ghandruk villagers and encouraged to replicate the clean up and toilet use system in their village. Immediately after returning to their village the participants organized a women's meeting and decided to initiate the village clean up and toilet campaigning. At present, the village has also dramatically improved the village sanitation condition. However, training or exposure trips alone can strengthen an institution. Government and other intervening organizations must devolve power to promote self-governance to undertake increasingly self-reliant development activities.

### *3.2.5 Sustainability and local institutions*

The sustainability of a rural conservation and development project very much depends on the capacity and commitment of local institutions. Management of conservation and development activities by a local institution develops a feeling of ownership of a project, which is an indicator of sustainability. For example: Sustainability was the key issue during the establishment of the first 50 kW micro hydropower plant in Ghandruk. The local community members were actively involved from the beginning of the power project. A micro hydro construction committee was formed during the construction phase. The committee was given all the responsibility of supervision, monitoring and supporting construction of the micro hydro project. With the support of the committee, the micro hydropower project contractor successfully completed the micro hydropower project. The construction committee was given the responsibility of micro hydropower management after completion of the construction work. The Village Electrification Management Committee locally hired and trained two operators and one manager to support their initiatives. The committee has very effectively managed the micro hydropower for a decade. The local management committee has kept the plant in very good condition. They are able to raise regular electricity use taxes from villagers. They took action against the villagers who overuse or misuse electricity. They also carefully balanced equal distribution of electrical power to all the villagers. The good leadership and a committed team together with strong sense of community made them able to achieve this success although the committee members do not have technical knowledge on micro hydropower. This good practice has been replicated in micro hydro project all over the country.

### *3.2.6 Indigenous knowledge*

Local people often have a rich and detailed knowledge of local plants, animals and ecological relationships, sometimes called traditional ecological knowledge or indigenous knowledge systems[12]. The incorporation of indigenous knowledge systems is critical to the design of socially sound projects, building on existing social arrangements, knowledge and skills. In most situations, a project has more of a chance of meeting its develop-

[12] Alcorn, J. B. (1997) Indigenous resource management system. In: Borrini-Feyerabend. G. (ed) Beyond Fences: Seeking social sustainability in conservation, IUCN, Gland, Switzerland.

ment and conservation goals if it expands upon the existing circumstances than if it tries to impose externally developed technologies and institutions[13]. Indigenous knowledge systems, including information on specific aspects of resource management and use, trends in resource availability, and socio-cultural factors impacting the resource base, play a critical role in the design of a successful integrated conservation and development project. Strengthening and direct involvement of local institutions often encourages the villagers to use indigenous knowledge in planning, designing and implementation of conservation and development activities.

### 3.3 CATALYTIC ROLE

Participatory approaches where people have a significant role in the development process can be achieved only if the intervening institution assumes a catalytic or facilitator role. The conventional administered development process creates dependency on the intervening institution, which makes the intervention unsustainable. The catalyst role played by the intervening institution enables the local people to plan, make decisions, implement and manage conservation and development initiatives for them and by themselves. This makes the initiative more effective, more efficient and more sustainable. The same approach must be taken by all the intervening agencies. Acting as a catalyst and facilitator is the second guiding principle of ACAP.

### 3.4 SUSTAINABILITY

Sustainability is the third guiding principle of ACAP, which is often difficult to define precisely. All development interventions, which serve their purpose for more than a generation, are considered sustainable. Sustainability of a project depends on various factors such as local ownership; local capability; solidarity within the village; social mobilization etc. Local ownership of management ensures sustainability of services. Hence, sustainable rural projects should be administratively, financially and technically manageable by a community. Whether it is a drinking water scheme or a community plantation, it is important to evaluate the manageability of a project in terms of administration, finance and technology to ensure its sustainability.

A drinking water project was constructed in Bhujung village through active participation of the villagers. This was the top priority project in the 'shopping list' of the villagers. After completion of the project, it was handed over to a newly formed local drinking water management, which is successfully managing the project. On the initiative of the committee, the villagers regularly clean the drinking water source, reservoir tank and tap stand. The committee also takes good lead on repair and maintenance of the drinking water system. As a result, all the villagers are receiving uninterrupted supply of clean drinking water close to their houses. This is a good example of community management and it clearly indicates sustainability.

### 3.5 THE NEED FOR INTEGRATION

ACAP believes that biodiversity conservation is possible only when local people are brought into the mainstream of conservation and their basic needs are fulfilled. Thus, integration becomes the key approach of sustainable conservation and development as rural areas are faced with not one but many interrelated problems. The degree of success in achieving sustainability depends on how far one succeeds in integrating diverse and varied issues of conservation and development[14]. This concept has led to development of the Integrated Conservation and Development Project (ICDP) approach. In a broad sense the local community must perceive development activities as an incentive for their contribution in sustainable management of the resources. Local community's needs such as drinking water, health-post, school building, trail repair are carefully amalgamated together with the protection of global biodiversity in the integrated conservation and development programmes[15].

In some cases, development interventions cannot be built around the resource that the project seeks to conserve. In this case, provision of social infrastructure and other services may be planned. It is critical that local resource users view these benefits as worth the costs incurred by the conservation action and that they have viable options to replace their lost access to biological resources. For example: the conservation committee in a village decided to establish a community plantation site on a degraded piece of land. The committee protected the plantation area with fencing and did not allow any grazing in and around the area. A group of poor farmers wit-

[13] Brown, M. and Wychoff-Baird, B. (1992) Designing Integrated Conservation Development Projects. The Biodiversity Support Program. USA. pp 64 + xiii
[14] Ludmilla, T. and Dixit, K. (1986) Preface. In: Ludmilla, T. and Dixit, K. (eds.) Bikas-Binas. Development-Destruction. Geobuch, Munich. pp 394

hin the village were affected by this decision. They notified the loss of grazing ground to the committee. Considering their problem, the committee decided to allow the affected farmers to collect grasses from the area. They were also supported for trail improvement. Good access to their part of the village and regular supply of grasses encouraged them to support and participate in the conservation initiatives.

An essential element in the design of every ICDP is the consideration of the linkage between the conservation and development objectives. All material benefits of a project must be clearly linked to its conservation actions. The first step in addressing linkages is to consider where the conservation and economic development goals intersect. When this intersection occurs, as is optimal, it is possible to effectively introduce development interventions that will result in conservation and wise use of the natural resources, provided other factors (e.g. security of tenure, favourable policies, markets, etc.) are in place[13].

### 3.6 PRIORITY BASED PROJECTS (SITE SPECIFIC)

The specific problems and issues related to conservation and development in rural areas differ from place to place depending on resource availability, accessibility, terrain, culture, ethnic composition etc. The priority programmes differ from area to area depending upon the specific opportunities and problems of the area. For example vegetable farming could be priority programme for an area but another area might need to be focused on tourism. The original project document should therefore define appropriate site-specific solutions to these problems rather than a single approach. This reflects a need of participatory planning and designing of a project.

ACAP introduced a firewood saving device called back-boiler water heater. This system consists of a pipe and a galvanised iron drum with a capacity of about 100-200 litres. The pipe is connected to top and bottom of the drum and then buried within the traditional cooking hearth. The cold water from the bottom of the tank flows through the coil and becomes heated through the fire generated in the hearth. The hot water is then circulated to the tank through the top connection. This system was very popular in the lodges because it saves firewood, provides hot water and is relatively inexpensive to install. Popularity of this system in the villages with tourists inspired ACAP to promote it in the villages without tourists. Many people started to install the system in the initial phase but did not succeed. The key reasons for failure were: the village household does not need much hot water as the lodges do; the household fire hearth does not operate all day, hence hot water is not available when needed; irregularity in use disintegrates the pipe and starts water leaking; it was also reported that some local villagers used fire hearth all the day to keep water warm thereby using additional firewood. This experience from the field led ACAP to drop the idea of promoting the back-boiler in the villages without tourists. This was a good lesson learned by the ACAP management.

Support for a priority project of a community with equal interest and priority by the intervening agency tremendously generates support of the local community in other interventions. For example: a team of ACAP staff together with representatives of a donor agency went to a new village to replicate ACAP's activities as part of expansion. The team held meetings with the villagers who were very reluctant to accept the ACAP approach in their village. Therefore, the discussion was focused on infrastructure development issues rather than conservation. They mentioned that they would support the initiative only when ACAP would support the construction of a bridge. When they asked for support to construct a bridge, all the team members thought about a big suspension bridge. The team explained the policy of ACAP in infrastructure development. ACAP has a policy to give first priority to immediate needs such as drinking water, school, sanitation, and health centre rather than motor roads and big bridges. The villagers were not happy with the idea though they desparately needed support for other projects. Therefore, the team decided to visit the site and appraise the need of a bridge. Here they learned that the span of the proposed bridge is merely 10 metres. Nevertheless, the proposed bridge would connect the village with its main farmland, crossing a stream which is difficult to pass during farming season due to monsoon rain. Realizing the importance of the bridge, the team decided to support 50 percent of the total cost right at the site. The local community constructed the bridge with tremendous enthusiasm within three months. This helped to develop a good relation with the local community and encouraged them to participate in all other initiatives. This experience reflects that villagers' priorities are not always for a big project but for immediate needs which affect their day to day life. There are many good examples from the field where global biodiversity conservation goals and local development needs are successfully linked and accomplished.

[15] Sherpa, M. N., Coburn, B. and Gurung, C. P. (1986). Annapurna Conservation Area, Nepal: Operational Plan. Kathmandu, Nepal, KMTNC and WWF.

### 3.7 TRADE-OFF BETWEEN CONSERVATION AND DEVELOPMENT

Rural areas are characterized by lack of basic infrastructures such drinking water, village roads, health centres, schools, proper sanitation etc. Government and non-government agencies might not get in touch with these villages because of inaccessibility. On the other hand, the villagers cannot succesfully approach the agencies responsible for the development of their village. An initiative by an intervening agency with villagers, therefore, might encourage villagers to come up with a long "*shopping list*" of development activities. Generally, this list might not include any conservation activity because their immediate development needs are much more essential for them, compared to conservation needs. However, this does not mean that conservation activity is not in their priority. Acute needs of development simply put conservation in the shade. It has been experienced that the establishment of trade-offs is one of the important approaches to successfully integrate conservation and development activities.

Sidhing village in ACAP has scarcity of safe drinking water all year round. Even in summer, it takes 2 to 3 hours to fetch a bucket of water. The situation becomes worse during monsoon with landslides on the way to water source. Neither government nor non-government agencies had ever approached this village for any development projects because it is relatively inaccessible. A safe drinking water system within the village was in the top priority list for more than a decade. After conservation intervention in the area, we visited the village to orient ourselves. Knowing our role in the area, the villagers approached us for support in the drinking water project. We decided to establish a trade-off between controlling drinking water and hunting, which was a main source of animal protein for the households.

ACAP put forward a proposal to construct a drinking water scheme, if the villagers were willing to control hunting. Complete control in hunting was prerequisite for the initiation of a drinking water scheme. The village was given 8 weeks to discuss this issue with all the villagers and come up with a final decision in a written commitment. They decided to have a drinking water system in the village and to stop hunting immediately. The project supported the construction of a drinking water scheme, which will benefit all the households in the village, whereas, very few people were benefiting from wildlife hunting. Hence morale pressure from community forced the minority to abandon hunting.

Similarly, slash and burn agriculture practice and wildlife hunting were severe problems of Singdi village. This is another very remote and isolated village in the area. Various approaches such as home visits, study tours, punishment were used to discourage locals from shifting cultivation and hunting. The local conservation committee punished some of the villagers for illegal hunting. But this did not help to control hunting and shifting cultivation. Some years later the villagers decided to electrify their village. They have a very good source of water next to their village sufficient to install a micro hydropower plant. The villagers approached ACAP for support. ACAP accepted their proposal with a condition. The condition was that the villagers must take initiatives to stop hunting and shifting cultivation. The villagers agreed to ACAP's condition because electrification is in the interest of all villagers whereas shifting cultivation and hunting is profession of very few persons. Regular observation of the village for a year proved that the villagers strictly put up with their commitment. Only after that monitoring ACAP decided to support the micro hydropower scheme. Establishment of the trade-off on one hand dramatically reduced hunting and shifting cultivation, on the other hand the community will be able to electrify their village within a few months.

### 3.8 COST SHARING

Present rural development system often creates 'dependency' on intervening agencies from construction to future repair and maintenance because the development work is implemented on a hundred percent subsidy basis. The local people are neither consulted nor do they share any cost of the project. As the project does not have any stake of people, they often do not see it as their own project. Therefore, it is very crucial to involve local community from the planning, implementation to management of the project. Cost sharing of around 30 to 50 percent with the local community generally helps to develop ownership of the project. Cost sharing could be in terms of cash investment or skilled and unskilled labour during implementation of the project.

ACAP has a very effective approach of cost sharing. In all conservation and development projects, the community must share 50% of the cost. The cash scarce villagers do not need to contribute cash but they should contribute voluntary labour, collect locally available materials such as sand, stones, gravel etc. Except in case of micro hydro, voluntary labour in the form of skilled and unskilled labour, and supply of locally available material approximately cover 50 percent of the total cost of an infrastructure development project. The contribution of local people should be clearly calculated in the detail cost estimation of a project. Cost sharing by a local community in an infrastructure development project develops a deep sense of responsibility and feeling of ownership of the project, which are important for the sustainability. For example the local villagers in Landruk village completed a 35 kW micro hydro project within six months. They worked very hard in a team during the period. They voluntarily transported a generator, two transformers etc from the road head. It took 35 persons three days to (105 man days) to transport the generator from the road head to the powerhouse. They also collected all the locally available materials. Besides, the villagers made cash contribution by taking loan from the Agriculture Development Bank. After completing the project, they were very proud of their work and achievements. They proudly claimed that their efforts made this project successful. At present, all the villagers are very much concerned about the project. Even if the electricity turns off for a few minutes, the villagers immediately check the intake site and powerhouse.

**Key Points to be remembered:**

- Identify the existing local institutions
- Either revive or feed the local institution with new ideas
- Prevent too many village level committees to be formed
- Organise exposure trips to show and bring up new ideas
- Create a feeling of ownership to make projects sustainable
- Give proper orientation to the committees
- Share cost with the local community
- Allow them to learn from mistakes
- As intervening agency act as a catalyst
- Identify priorities of a village community
- Establish trade-off for proper integration of conservation and development

# 4. CONSERVATION AND DEVELOPMENT EXAMPLES FROM THE FIELD
WITH GUIDELINES FOR REPLICATION

This study of a conservation and development project is an attempt to present a basic replication model based on the experiences in Annapurna Conservation Area Project. The readers should not forget that there is no single blueprint of a replicable model as economic and social-cultural systems and ecological conditions differ widely among regions. Nevertheless, these models can be replicated with certain modifications in other areas and regions. Each region or cultural community will have to work out its own concrete policy implications. Attempt has been made here to highlight a list of conservation and development examples and a brief guideline for replication from Annapurna Conservation Area Project.

## 4.1 PLANTATION

Forest depletion is one of the major environmental issues in the country. The forests have decreased in both area coverage and density over previous decades. Between 1978/79 and 1994, the estimated rate of annual deforestation in the Hills of Nepal was 2.3 percent while for the country as a whole it was 1.7 percent. The situation is not much different in ACA. Therefore, plantation on community or private land is initiated to curtail human pressure on natural forest. Firewood, fodder and timber are basic requirements of a village community. Traditional energy sources such as firewood and agriculture residues respectively supply about 75% and 20% of the total energy demand in Nepal. Therefore, villagers generally have shown keen interest in plantation activities. The main objective of plantation is to provide easy access to fuel and fodder, and thereby reduce pressure on the natural forest. A demonstration of plantation on community or private land is an effective way to initiate plantation activity in a village. Establishment of a demonstration plantation site together with establishment of a forest nursery is the beginning of conservation initiatives in a village. The demonstration plantation site is one of the potential sites for visits to encourage the local community from the village and vicinity.

### *4.1.1 Key requirements*

- A village with high demand in fuel and fodder.
- Willingness and commitment of villagers to initiate plantation.
- Considerable areas for plantation.
- An agency with funding and technical capability.
- Supply of tree seedlings from a nursery managed by a locally hired staff.
- Trained staff for production of seedlings .
- A forestry assistant with at least intermediate degree in forestry. The forester must be well motivated to work with the villagers. He or she has to play the role of a facilitator in forest conservation work.
- Formation of a 10 to 15 member Forest Management Committee for identifying plantation site, plantation preparation, fencing and management.
- A conservation extension team could be an additional benefit to mobilize the community.

### *4.1.2 Preparation*

Preparation is needed for a successful plantation initiative. The following preparatory steps are recommended:

- Organize series of home visits and discussion meetings to mobilize the local villagers. Home visits build rapport and mutual trust with the local villagers. The meetings aim to clarify the conservation initiative and approaches and explore village concerns and issues. There should be frequent home visits and discussion meetings.

- Organize conservation awareness programmes; slide presentation on impact of deforestation, wildlife conservation, landslides etc.

- Help to organize regular meetings of the Forest Management Committee. The meetings should be hold at village level and all the members must attend. They should be encouraged to meet every month. In the start up phase, the meetings will be semi-structured and aim to discuss forest conservation issues such as local rules for forest management, deciding community plantation sites, control of poaching and hunting and other village related issues.

- Provide technical support during the start up phase for plantation initiative. Regular technical advice, free distribution of seedlings, and support for individual site planning in the start up phase could help to make planta tion initiatives relatively successful.

- Demonstration of a plantation in a community or private land is an effective way to initiate plantation activity in a village. A demonstration plantation is usually effective with fast growing indigenous tree species. The demonstration site must be well accessible to all the villagers.

- Plantation at private farms at the start up stage could be relatively difficult. Generally, local villagers have a tendency of replicating schemes of neighbours. Therefore, a group of selected enthusiastic villagers should be encouraged to initiate plantation of fodder and firewood in their farm. Other villagers will gradually imitate them.

- Good survival rate of the seedlings is the indication of successful plantation, which depends on the time of plantations (i.e. season), size of the pit, refilling of the pit, species selection, management etc. For that reason, establishment of a good demonstration plantation is of immense importance to the local people.

- The villagers should not take plantation activity for granted. Therefore, community members must be involved in the entire processes of demonstration and plantation. The site selected must be devoid of any dispute.

- Provision for the protection of the plantation site at least for the initial few years is required. Grazing should be strictly controlled. Therefore fencing of the plantation site must be arranged.

- Operation plan for the plantation site management could make the initiative more effective. The plan should give details on weeding, thinning and pruning. It should also mention the period for banning grazing. Generally, alder plantation forest can be reopened for grazing after 8 years.

Plantation on degraded and fallow community land often creates dispute in the village community. Traditionally, local villagers use most of the degraded and fallow community lands for livestock grazing. Once the area is designated as plantation site, access to free grazing of livestock will be lost. In such cases, the Forest Management Committee in consultation with local villagers should designate another appropriate area for grazing or give priority to harvest grasses as compensation to those who are directly affected by the initiatives. Nevertheless, provision of financial compensation to affected villagers has not proved effective.

The maximum budget for the establishment of a community plantation site with 1000 seedlings, according to the ACAP experience is approximately US$ 500. It can of course vary according to the local situations such as availability of seedlings, labour cost, cost for site clearance, accessibility etc.

### *4.1.3 Strengths*

- Ownership: Local villagers develop a feeling of ownership. With the success of a plantation, they themselves act as community mobilizers. They also get actively involved in the conservation of natural forest areas.

- Time Saving: Utilization of a plantation forest usually saves substantial amount of time of local villagers. Generally, collection of resources from natural forest is relatively time consuming simply due to the distance from the village. Local people have reported saving 2 to 4 hours after having a plantation forest. This time could be used in other productive activities such as agriculture, small cottage industry etc.

- Successful plantations have resulted in self-sufficiency in fodder and firewood among villagers with big landholdings. Some of these villagers have planted more than 5000 tree seedlings in their farmland. Usually they are the key resource users in a village.

- Socially deprived people have got easier access to firewood and fodder from the forest because the villagers with farm firewood have started using firewood from their own land.

- The main strength is the increase in green cover and substantial reduction in natural forest utilization. This also helps to reduce soil erosion and landslides.

#### *4.1.4 Replicability*

Community and private plantation have been established very successfully in many rural areas of Nepal. More than 200,000 seedlings of different tree species are planted annually in community and private lands in ACAP. At the start up phase, plantation was initiated in the Ghandruk village. These plantation forests have been very well established now. Many visitors from ACA and other parts of the country visit the Ghandruk village to gain knowledge of plantation forest and share the villagers' experience. Many other villages have established plantation forests based on the knowledge gained in Ghandruk village. It has been replicated in other Southeast Asian countries such as Bhutan, India. Nevertheless, certain issues must be carefully considered during replication such as environmental condition, purpose of plantation, species selection, need for fencing, land ownership etc. Replication of plantation in Mustang region of ACA was carried out with certain modifications because Mustang receives very little rain. The growth rate is extremely slow in Mustang due to little rainfall, low nutrient soil and low temperature. Therefore, there is high seedling mortality. To reduce this problem, planting of Salix and Populous species has been done on the community plantation in the area.

#### *4.1.5 Weaknesses*

- The success of a plantation highly depends on conservation awareness of the local villagers. Management of the plantation site at least for certain years is needed. If the local villagers are not aware of the importance of the plantation, they may allow livestock grazing in the area. This will reduce the survival rate of the seedlings. Hence, conservation awareness and plantation should be implemented in an integrated way. Mauja village in Kaksi District does not have sufficient forest to fulfil the demand of the villagers. Besides, the majority of the forest is under private ownership. Therefore, some of the villagers initiated fodder trees plantation in marginal private lands with the support of an international donor agency. But the survival rate of tree seedlings was found extremely low because they allowed free grazing in the agriculture field after harvesting the crops. The villagers did not make any efforts to control grazing in the plantation area. This clearly reflects that the fodder tree plantations were not done because of their awareness for need of plantation. They rather did because an external agency provided seedlings for them.

- Most of the plantation sites in ACA are established with monoculture species such as alder (Alnus nepalensis). This type of plantation site is highly susceptible for pest attack. Therefore, both quality and quantity should be focused on during the plantation.

- Establishment of a plantation forest in vicinity to an agriculture farm also increases crop raiding by pest animal species such as rhesus monkeys, porcupine and barking deer.

- Establishment of a plantation forest in vicinity to an agriculture farm might reduce crop production due to shade effect.

## 4.2 ENERGY SUPPLY

The majority of people in Nepal depends on the depleted forest for fuel, fodder, timber and medicine. Traditional energy sources such as firewood and agriculture residues respectively supply about 75% and 20% of total energy demand in Nepal. The domestic sector accounts for 95% of the total energy use. This sector consumes almost all of the firewood and part of the commercial energy[16]. Forest is a renewable source of energy. Therefore, efficient use of firewood has been a major concern. Nevertheless, high dependence on firewood as the source of energy for cooking and heating has caused deterioration in the quality and quantity of forests and often resulted in various problems such as deforestation, soil degradation, erosion, landslides, and flooding. Two main attributes for pressure on forest are population growth and lack of alternative fuel in villages.

ACAP realized that reduction in firewood use would not be possible without providing technology that either substitutes the firewood or minimizes firewood consumption. Therefore, the alternative energy programme is designed with the aim to reduce stress on critical resources primarily forests through wider use of electricity and other alternative energy devices such as kerosene, LPG gas, solar water heater, improved cooking stove etc. Local villagers are also encouraged to plant fast growing firewood tree species in the private farms. A recent study in Ghandruk village has shown that a majority of the villagers have already started harvesting farm trees for fuel purpose. A village leader from Ghandruk village in ACAP, Mr. Chij Bahadur Gurung aptly mentioned that more than 60 percent of the households are now self sufficient in firewood produced on their farms.

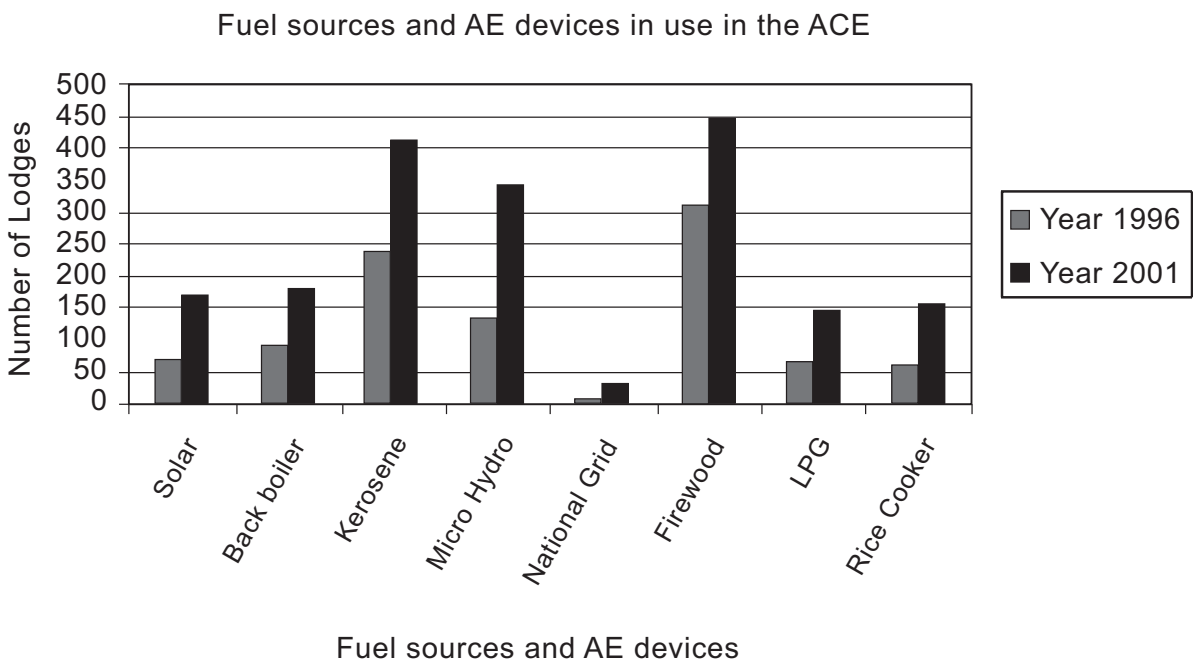
Firewood is still considered one of the best and most reliable fuel sources in the villages of ACAP in terms of easy availability and affordability. Majority of households use firewood as a prime source of energy for cooking and heating. However, certain well-off families have started using LPG gas, kerosene and electricity if available. Trend in use of other alternative energy in hotels and lodges is significantly growing. It has been found that a large number of households in the ACAP region are willing to use other energy sources such as LPG gas, electricity and kerosene. They considered that these energy sources are easy to use, comfortable and conserve environment. Electricity is considered the most preferred fuel source during a PRA preference matrix ranking. They gave highest ranking to electricity because it is easy to use, comfortable, and environment friendly. However, relatively high cost and unavailability of electricity are considered as a barrier for regular use. LPG gas and kerosene are also given higher priority compared to firewood.

**1. Fuel Preference Matrix Ranking (Low preference -1 and High preference - 5):**

| Fuel | Easy to use | Affordability | Availability | Comfort | Conservation | Preference Ranking |
|---|---|---|---|---|---|---|
| Firewood | 3 | 3 | 4 | 2 | 1 | 2.6 |
| Kerosene | 2 | 4 | 4 | 3 | 4 | 3.4 |
| LPG Gas | 5 | 3 | 3 | 4 | 3 | 3.6 |
| Electricity | 5 | 2 | 2 | 5 | 5 | 3.8 |

[16] Sharma, C. K. (1991) Energy and Environment in Nepal. Ambio 20(3-4): 120 - 3.

A study conducted in middle hill villages in ACA has reported an average daily use of 19.4 kg of firewood in a local household[17]. Saito (1990) reported more than 100 kg of firewood consumed by a lodge in ACA per day[18]. A similar study in 1994 in Ghandruk village estimated an average daily use of 28.5 kg of firewood in a lodge.[19] However, a study on impact of alternative energy technology in reducing pressure on forest resources in Ghandruk VDC in 1996 has shown significant reduction in use of firewood after the introduction of alternative energy technology[20]. The estimated daily firewood use among the lodges in Ghandruk was reported 9 kg per lodge, which is a decrease of 31.6 percent compared to the 1994 study. A recent comprehensive study of tourist facilities in ACAP has shown that lodges in ACAP increasingly use other alternative energy devices. This change has seen a parallel reduction in percentage of lodges using firewood as a source of energy. Compared to 1996, increases in use of other alternative energy sources have occurred in several areas. Notably, the near doubling of solar power use throughout ACA, the increase of micro hydropower that now reaches 58% (341) of the lodges, and LPG use in the lodges, that has more than doubled to 25% (147) since 1996[21] are some good indicators.




The introduction of alternative energy sources together with conservation education and awareness in ACA has brought a significant change in the level of energy use as well as in the overall energy efficiency among lodges. LPG, kerosene and firewood have met the majority of lodges' energy needs. There has been a very positive shift in the consumption of these three main sources since 1996, a shift away from the use of firewood as a main source towards kerosene and LPG. Nevertheless, 50 percent of the lodges are still using firewood as their main source of fuel. Firewood use at household level has decreased by 45 percent. Conservation education and awareness together with alternative energy sources brought the changes at the household level. Migration of family members, disappearance of traditional *Huri* system, strong and effective forest management systems and lack of manpower for firewood collection are key reasons for the reduction in firewood use.

There is little doubt that tourism has played an important role in this regard. Tourism has enabled the lodge owners to enhance their incomes, which has therefore made it possible for them to afford technology changes in energy use. The acceptance of alternative energy technology has been influenced by several other factors such as awareness of new technology and conservation, local institutions, availability in village etc. However, the technology adoption by households has not occurred to the extent that has been witnessed among the lodges. Although awareness among households with regard to conservation and firewood use has increased, the villagers have not been able to afford the technology due to the economic situation of the households.[20] Micro hydropower

[17] Adhikari, J. and Gurung, J. (1996) Firewood consumption survey in Madi valley of Kaski. An unpublished report. KMTNC/ACAP.Kaski, Pokhara. 10 pp
[18] Saito, K. (1990) Tree species utilised in Ghandruk village as firewood. An unpublished report. KMTNC/ACAP, Kaski, Pokhara. pp 18
[19] Rayamajhi, S. (1994) Management of Natural Resources: An assessment of the forest conservation program conducted by Annapurna Conservation Area Project in Ghandruk VDC. MS Thesis, Agriculture university of Norway
[20] Baskota. K. and Sharma, B. (1996) Impact of alternative energy technology in reducing pressure on forest resources in Ghandruk. CREST. Kathmandu, Nepal. 41pp
[21] ACAP (2001) Tourist Facilities Survey. An unpublished report. KMTNC/ACAP. 85 pp + Annexes

in ACA now reaches 58 percent of all lodges. Availability of electricity from Micro hydropower projects has encouraged both the villagers and lodge owners to reduce the use of firewood either by burning it efficiently or by introducing some alternative energy devices. The initiative to reduce firewood demand by utilizing alternative energy devices that are effective and cost-efficient is one of the important first steps in sustainable development of the villages from an energy standpoint.

### *4.2.a. Micro hydropower scheme*

Micro hydropower scheme is one of the major components of the energy supply project. Micro hydropower has been introduced to reduce and if possible to replace the firewood use in cooking and heating. The experience over a decade has shown that Micro hydropower in isolation does not help much to reduce or replace firewood. However, combination of Micro hydropower with other energy devices such as LPG, solar and kerosene has found very effective to reduce firewood use. Significant increases in the use of LPG, kerosene and solar in lodges are the indicators of shift in energy use pattern.

### *4.2.1 Key requirements*

The key requirements for the initiation of a Micro hydropower scheme are:

- A strong commitment from the villagers in need of a Micro hydropower.
- Feasibility of Micro hydropower generation.
- A good technical team.
- A team of well motivated extension workers.
- An organization with funding and commitment.
- Commitment for contribution of 30 percent of the total cost by the villagers. Approximately, 15 percent comes in terms of cash, labour or materials, and remaining cost has to be covered by a loan from bank.
- A detail survey of the scheme.
- A good construction contractor.
- A well motivated village electrification committee.
- A turn key agreement with a Micro hydropower contractor.

### *4.2.2 Preparation*

A Micro hydropower scheme is comparatively expensive and highly technical. Therefore, good preparation is needed for successful implementation of a Micro hydropower scheme. The following preparatory steps are recommended:

- Organize series of discussion meetings to mobilize the local villagers including women. The meetings aim to clarify the importance of a Micro hydropower scheme, different processes during construction, role of the villagers during the construction and management in future. There should be regular discussion meetings to appraise construction work.

- Sign a contract document between supporting agency on behalf of the community and a micro hydropower construction contractor. The decision on a contractor should be done by inviting tenders from all the interested Micro hydropower contractors. The contract document should include the technical specifications, work responsibilities of various parties and payment procedures.

- Sign an agreement document between the village electrification committee and the supporting agency. An agreement document must outline the project features, financing structure, village responsibilities including labour/cash contribution, loan, collateral, land acquisition, water right, future management, pricing of electricity etc.

- If the villagers have to take a loan from a bank to contribute 30% as their commitment, it should be initiated immediately after signing the agreement document.

- A good record of labour or cash contribution by the villagers during the construction should be maintained. In general, only the households who contributed labour or cash are entitled for the electricity.

- The village electrification committee should monitor and mobilize the construction contractor. They must have a good rapport with the contractor.

- Organize transportation of the purchased materials by the villagers as agreed in the discussion meeting.

- Mobilize local community to collect and transport locally available materials such as sand, stones and gravel.

- Depute a staff member preferably an electric overseer for mobilizing and monitoring construction.

- Post construction management of Micro hydropower scheme is much more challenging for the community than during the construction phase itself. Therefore, a manager and at least two operators should be identified among the villagers at the start up phase so that they can get involved in the construction work as on the job training. They should also be given other appropriate technical training. The manager and operators must be able to learn basic troubleshooting methods.

- A regular monthly meeting of the village electrification committee should be organized to:

    - discuss the role and function of the village electrification staff – manager and operators;
    - follow up and review tariff payment by the villagers;
    - oversee and approve expenses for regular maintenance;
    - oversee the finances such as loan payment, administration of fund;
    - set rules and regulation on the use of electricity.

A Micro hydropower scheme is very expensive. Maximum budget for a Micro hydropower scheme depends on various factors such as remoteness of the site, transmission/distribution system and total electricity generation. Maximum budget per kilowatt production is approximately US$ 3000. In general, the supporting organization should contribute 70 percent of the total cost. The villagers will contribute voluntary labour and cash of approximately 30 percent. The Micro hydropower scheme will be handed over to the local Village Electrification Management Committee after completion for future management.

### *4.2.3 Strengths*

Electrification of a village is a dream of the majority of villagers. Village electrification through a Micro hydropower scheme has significant impacts on conservation activities. The tariff of community managed Micro hydropower promoted by ACAP is cheaper and more reliable than electricity from the national grid transmission. Therefore, the demand for a Micro hydropower scheme is very high. The following are the main strengths of a scheme:

- Decrease in firewood use: Establishment of a good trade-off with the community helps to dramatically reduce the firewood use.

- Improvement in personal hygiene: The villagers usually do not keep the interior of their houses organized because it is very dark inside. Typically, a village house has a kitchen with an open-hearth stove in the middle of the ground floor room. All the rooms are smoky. Electrification of a village brings changes in the pattern of a house. Many villagers shifted the kitchen to a separate room. They also kept the interior of their houses neat and clean.

- Time utilization: Availability of electricity has increased opportunity to work in the evening. Students can use this time for studies. Other household members use this time for productive activities such as weaving, sewing and cutting and other small-scale industries. Local leaders do not need to spare their extremely busy daytime for meetings. They can organize meetings in the evening.

- Trade-off: A good trade-off can be best achieved during construction of a Micro hydropower scheme. For example, the Chhomrong villagers were demanding the electrification of their village. The ACA management team had series of meetings with them regarding electrification of their village. The ACAP management team proposed to shift from the use of firewood to other energy sources by all the lodges of Chhomrong village from the day of commissioning of electricity in the village. They agreed to reduce the firewood use. With the electrification, the majority of the lodges stopped using firewood. Villagers can also be convinced to control illegal hunting if they would like to have electricity in their village.

- Community involvement: An outstanding involvement of local villagers can be generated during the construction of a Micro hydropower scheme. Local villagers have been ready to provide voluntary contribution for more than 180 days. Strong interest to have electricity makes them work very hard. The local villagers can be effectively persuaded to get involved in other conservation and development projects during the construction of the scheme.

- Ownership of a scheme: Contribution by the local villagers in transportation of materials, collection of locally available materials and unskilled labour during the construction together with cash investment generates a remarkable feeling of ownership among the villagers.

- Power subscription: To encourage maximum utilization of electricity, power is subscribed on wattage per month basis. A household or lodge can subscribe power based on their purchasing capacity. The average power subscription in regions with low flow of tourists is 100 to 250 watts. Whereas in regions with high flow of tourists it ranges from 300 – 500 watts. Unlike in the use of national grid power, where the tariff rate is based on a per unit use, the villagers have unlimited access to subscribed power.

- Institutional development: Management of a Micro-hydropower scheme by community is relatively challenging. The village electrification committee must be capable enough to handle technical, administrative and financial management. The work of the committee is like managing a small industry. It has been experienced that local committees can successfully handle management. However, they should be given proper backing in the initial phase. They should also have a properly trained manager and operators. Once they run the hydropower for a year or two, their management confidence will certainly develop.

#### *4.2.4 Replicability*

Strong willingness of villagers to electrify their village usually makes replication of the scheme relatively easy. Community managed Micro hydropower schemes have been widely replicated within and outside ACA. The replication might be affected by unavailability of proper water sources, altitudinal gradient and sufficient funds. However, the approach to supply energy to reduce pressure on forest can be definitely replicated. Therefore, the intervening agency in consultation with local community members has to look for manageable and practical sources of other energy such as biogas, solar and wind energy. Successful replication also depends on various factors such as socio-cultural system, management capability of local community, solidarity within the village, planning and implementation set-up. On top of that there should be firm commitment from the intervening agency for successful energy supply to reduce pressure on forest.

#### *4.2.5 Weaknesses*

This scheme has some weaknesses:

- Lack of proper planning, dispute within the village, and inadequate mobilization of villagers and construction contractor can delay the scheme.

- All the households in the village must equally contribute to the construction of a Micro hydropower scheme. Lack of capability of a village electrification committee often creates disparity on voluntary contribution by the villagers. This might become a cause for dispute in the village.

- The most important function of villagers is the management of the scheme after successful commissioning. Therefore, the role of the village electrification committee is crucial. If the committee formed

during the construction is capable, they should be given management responsibility. The local villagers should directly be involved in making decision regarding a management committee. However, presence of staff of the interacting agency could make the process more effective.

- The role of a village electrification committee in management of a community-based Micro hydropower scheme is crucial. An incompetent committee could lead a scheme to collapse. Use of electricity beyond allocated wattage by households, irregularities in tariff collection, lack of regular maintenance, improper financial management are some of the challenges observed in community management.

- The village electrification committee is often not keen on setting aside funds for regular maintenance. If they have loan from a bank, they are more inclined to pay back the loan.[22]

- Most often the locally hired operators are not well qualified to carry out regular repair and maintenance work. This has created dependency on other agencies.

- The Micro Hydro Management committees have a tendency to keep electricity tariff low. The Chhomrong Village Electricity Management Committee has decreased the tariffs twice during two years of operation.

- The Micro Hydropower could be a burden to cash poor villagers. Villagers might face difficulties to pay the electricity use tax regularly.

## 4.3 VILLAGE SANITATION IMPROVEMENT

Nepal Human Development Report 2001 mentioned that low coverage of sanitation services still exists in Nepal because public investment in sanitation has been at a low level. Nevertheless, ACAP's integrated intervention has been addressing sanitation issues from the initial phase on. The village sanitation improvement scheme is one of the most successful interventions made by ACAP. The situation in villages before the intervention was very poor. Children used to defecate on trails and adults on field or nearby stream. It was difficult to walk in the trails because of penetrating smell and ugly sight. During rainy season the problem used to be worse. Similarly, due to defecation in the field and nearby streams, it was difficult to work there. Water was polluted. Therefore, many villagers suffered from water borne diseases such as gastro-intestinal diseases (cholera, dysentery, diarrhoea) and skin diseases.

The main objective of this intervention, therefore, is to improve the living condition of the villagers with emphasis on sanitation awareness, toilet construction, regular village clean up and proper disposal of the garbage.

### *4.3.1 Key requirements*

The key requirements for the initiation of a village sanitation improvement activity are:

- A team of well motivated extension workers.
- A set of good toilet designs.
- A Skilled man-power for toilet construction.
- An organization with funding and commitment.
- Adequate space for construction of a toilet.
- A set of audio-visual equipments, audio-visual materials and other extension materials to begin extension programme.
- A team of well motivated extension workers preferably young and female.
- Formation of a Mother's group (Women's group) to coordinate regular clean ups.

[22] Thapa, D. (2001) Micro Hydropower projects of KMTNC/ACAP. An unpublished report. KMTNC/ACAP, Kaski, Pokhara.

### *4.3.2 Preparation*

Certain preparation is needed for a successful village sanitation improvement initiative:

- Organize series of home visits and discussion meetings to mobilize the local villagers, especially women. Home visits build rapport and mutual trust with the local villagers. The meetings aim to clarify the importance of village sanitation and explore possibilities to construct toilets at household and community level. There should be frequent home visits and discussion meetings.

- Build a demonstration toilet either in a school or organization's office to promote toilets in the village.

- Organize regular clean ups in the village with the participation of all the villagers. Involvement of women in clean up is crucial. Participation in clean ups by staff encourages the local community.

- Encourage local women to construct toilets in their households.

Promotion of a simple pit toilet in start up phase is often effective. The pit toilet should be replaced by other improved design of toilets once the villagers are habituated with toilet use. Toilets with a suck pit are relatively expensive but they are long lasting and hygienic. This type of toilet should be promoted at the private level with minimal material support of approximately 25 percent of the total construction cost for a couple of cement bags, a toilet pan and two sheets of galvanized tin for roofing. Establishment of a community toilet needs support of approximately 50 percent of the total construction cost. Considering permanent and temporary toilets, most of the households in ACAP now have toilets. A villager from Chhomrong village in ACAP, Mr. Chitra Bahadur Gurung pointed out that nowadays people cannot use open places as a toilet because they feel shame. The villagers come back home to use toilet even when they are in forest.

Similarly, regular clean up of the village with active involvement of all groups of a community is a very effective way to improve sanitation conditions. Weekly clean up is ideal in the start up phase. At least one member from every household must attend the clean up. Presence of extension workers during the clean up will act as a catalyst of change. The extension workers should properly organize the clean up such as dividing the responsibility among villagers, proper disposal of the collected garbage etc. Regular clean ups have become a common system in most of the villages. There is no more need of outside intervention to clean up the villages.

This intervention does not cost much compared to its impact on health and sanitation. Maximum budget for construction of a private toilet is US$ 500 out of which the intervening organization might subsidize 10 percent by providing cement or toilet pan etc. The maximum budget for a community or school toilet is US$ 950 out of which the intervening organization should contribute around 50 to 60 percent of the total cost for skilled manpower and purchasing construction materials. The villagers will generally provide unskilled labour.

### *4.3.3 Strengths*

The strengths of the project component are:

- Costs are relatively very low compared to its effect on health and sanitation of the villagers. This intervention also substantiates that prevention is better than cure. This intervention will help to drastically decline incidence of gastro-intestinal problems, skin diseases and fever.

- The main strength is the improvement of the living conditions of the villagers in a clean and organized village.

- It increases confidence to work in a team in other social activities.

### *4.3.4 Replicability*

Village sanitation improvement project is very easily replicable. Effective replication is best achieved by organizing a study tour of villagers to a village with good sanitation systems. Majority of the villages in ACAP have replicated this component very successfully. Therefore, the villages are relatively clean and organized compared to villages outside of ACAP. Improvement of village sanitation is a gradual process because it is based on change in the behaviour and attitude of individual villagers. Encouragement of the villagers to keep their place clean is very important. Replication of village sanitation project depends on community structure, socio-economic situation and leadership in a village.

### *4.3.5 Weaknesses*

This intervention has some weaknesses:

- Success of the intervention very much depends on the ability of the extension workers to convince the villagers. It has been found that it is usually more successful in a village with homogenous community. Therefore, success of this intervention is often minimal in a heterogeneous community. Nevertheless, the success also depends on level of literacy and sanitation awareness.

- Success of a community toilet depends on a number of factors such as level of awareness, management capability of the villagers, nature of community. Generally, community toilets are effective in homogenous communities. A toilet with two to three rooms needs to be constructed in a small cluster of 8 to 10 households within the village. The cluster of households should be given proper responsibility to manage and maintain it.

- Village clean up activity might be unsuccessful if there is no regular supervision and encouragement to the villagers. The clean up activity is also more effective in a homogenous community.

- Every household should make equal contribution in improving village sanitation. Therefore, the village sanitation project will not be successful where the villagers do not share a sense of community.

## 4.4 DRINKING WATER SCHEME

The low level of public investment in drinking water and sanitation is a major, but not the only reason for the low coverage of drinking water and sanitation services in Nepal[23]. Consequently, drinking water is one of the highly prioritised infrastructure development projects in the villages. Lack of easy access to safe drinking water and time taken to collect a bucket of water are the main reasons for demanding drinking water schemes. Generally, local villagers fetch water directly from a natural stream or extract water from a well. Annual outbreaks of water-borne diseases such as gastro-intestinal diseases, skin diseases and typhoid also signify the urgency and importance of safe drinking water in a village. Generally, collecting water in a village house is a women's job. Women often have to travel around an hour in a difficult terrain to fetch a bucket of water. The situation is vulnerable during monsoon especially when streams swell up and paths fall in landslides.

The main objective of this scheme is to improve the living condition of the villagers especially women with an emphasis on easy access to safe drinking water and sanitation awareness.

### *4.4.1 Key requirements*

The key requirements for the initiation of a drinking water scheme are:

- A request from a village in need of drinking water.
- A team of well motivated extension workers.
- Appraisal of need using participatory tools.
- A technical team.
- An organization with funding and commitment.
- A well motivated local construction committee.
- A good technical design of the scheme.
- A team of well motivated technical staff preferably an experienced civil overseer and skilled manpower.

### *4.4.2 Preparation*

Good preparation is needed for a successful drinking water scheme. The following preparatory steps are recommended:

- Organise series of discussion meetings to mobilize the local villagers including women. The meetings aim to clarify the importance of a drinking water scheme, identify possible disputes of water use rights, construction, the role of the villagers during construction and future management of the scheme. There should be regular discussion meetings to appraise construction work.

- Sign an agreement document between the construction committee and the supporting agency. An agreement document must contain all the details of the project, clear division of responsibility between the construction committee and supporting agency, time frame etc.

- Purchase construction materials such as cement, polythene pipes, GI pipes etc. and transport to the nearest road head.

- Organise transportation of the purchased materials by the villagers as agreed in the discussion meeting.

- Mobilize local community to collect and transport locally available materials such as sand, stones and gravel.

- Deputation of a staff, preferably an overseer, for mobilising and monitoring the construction.

- Prepare the villagers for future management of the drinking water scheme.

[23] UNDP (2002) Nepal Human Development Report 2001: Poverty Reduction and Governance. UNDP Kathmandu, Nepal. pp 154 + xii

The Nepal Human Development Report 2001 reports that most of the public sector drinking water schemes, even in the rural areas, are implemented by state agencies with minimal consultation and participation of the people who are supposed to benefit from these projects. This results in high cost per beneficiary, while local contribution remains low. For that reason, involvement of local villagers in the detail survey is crucial. The detail survey of a drinking water scheme must take into consideration some important aspects such as the total demand of water, the nearest and reliable source, proper location of the reservoir tank and distribution taps. The design prepared after the survey should be discussed thoroughly with the local villagers. They should be properly informed about the location of the distribution taps. All the households of the village must have easy access to distribution taps. These issues should be clearly explained during the agreement between the construction committee and the supporting organization. The agreement should also deal with trade-offs between conservation and development. The villagers must be willing to contribute to conservation issues of the village such as controlling hunting, management of natural forest area, plantation on degraded land, improving sanitation condition of the village etc. The extension staff must inform the villagers about the importance of conservation and development activities. Explanation of the ecological linkage between water sources and forest is often very effective. Establishment of a successful trade-off in this scheme can have remarkable social and ecological impact. There are many good examples of successful trade-offs during construction of a drinking water scheme such as the decision to stop hunting, plantation in community land, campaigning toilet construction in individual households etc.

Most households in ACA now have access to safe drinking water supplied through gravity flow water distribution system, which supply water for drinking, cooking and other domestic water uses. Maximum budget for a drinking water scheme depends on various factors such as distance of the water source from the village, number of households, nature of the village (dispersed or clumped village) etc. The maximum budget for a scheme with 300 households in the middle hills approximately costs US$ 15,000. The supporting organization should contribute around 60% of the total cost for skilled manpower and purchasing construction materials. The villagers will generally provide unskilled labour during construction, collect and transport locally available materials such as sand, stones and gravel.

### *4.4.3 Strengths*

There are certain strengths of the scheme, which are:

- Provision of safe drinking water significantly reduces water borne diseases.
- Improvements in personal hygiene: The villagers slowly habituate to wash hands regularly and even take a regular bath thereby improving personal hygiene.
- Time utilisation: Easy availability of drinking water saves a considerable amount of time especially for women. This time can be used in many other productive activities such as firewood and fodder collection, vegetable farming, income generating activities, child rearing.
- Trade-offs can be best achieved during a drinking water scheme.
- The local villagers can be effectively persuaded to get involved in conservation and development projects during construction of drinking water schemes.
- Ownership of a scheme: Contribution by the local population generates a feeling of ownership among the villagers of the scheme.

### *4.4.4 Replicability*

A drinking water scheme is one of the high priority projects in a village. Therefore, the project can be successfully replicated. Nevertheless, successful replication is often achieved only with proper planning. Successful replication might depend on various factors such as availability of water sources, management by local community, solidarity within the village, planning and implementation set-up.

### *4.4.5 Weaknesses*

This scheme has some weaknesses:

- Lack of proper planning, disputes within the village and inadequate mobilisation of the villagers could delay the scheme.

- All the households in the village should equally contribute to the construction of a drinking water scheme. Lack of capability of the construction committee often creates disparity on voluntary contribution by the villagers. This might become a cause for dispute in the village.

- Post-construction management is relatively difficult. Therefore, formation of a management committee is crucial. If the construction committee is capable, they should be given post construction management responsibility. The local villagers should directly be involved in the formation of a management committee. However, presence of a staff member can make the process more effective. Regular repair and maintenance of a drinking water scheme can be problematic. A system of collecting a nominal amount of a users' fee on a monthly basis can help to resolve the problem of regular maintenance. The monthly fee can be in cash or as per the rule of the village.

## 4.5 PHYSICAL INFRASTRUCTURE IN SCHOOL

Centralised education management in the country, which results in the isolation of the schoolchildren from their communities, is the root cause of the ineffective delivery of basic education[24]. Number of schools, enrollment in schools and number of teachers is relatively low in Nepal. There are only 3.9 and 3.4 teachers available in a primary school and a lower secondary school respectively[25]. Inaccessibility, high dependence on labour intensive agriculture and livestock farming, low government input on education and low level of awareness are some of the main attributes for the poor academic environment. The problem is compounded further by weak education administration, which is unnecessarily burdened with management responsibilities in individual schools. There is no exception for the villages in ACA, which are attributed by inaccessibility, heavy dependency on agriculture and livestock and low level of awareness.

Education is directly linked with knowledge, perception and attitudinal changes. Therefore, education is often considered as the key element for the successful implementation of an integrated conservation and development project. Most of the villages do at least have a primary school but a high school is generally in 1 to 2 hours walking distance from a village. However the physical and academic environments such as proper school building, blackboard, benches and desks, trained teachers and educational materials, required for a good output is not generally existing in the villages.

Taking this into consideration, school infrastructure has been focused on in development programmes. ACAP has supported school building constructions, reconstructions, upgrading school furniture, toilet construction, drinking water scheme, playing grounds, etc. The government pays to run a school and ACAP supports to make the physical environment conducive for better education. All these supports will be provided only after proper trade-offs. The students have to contribute and maintain rubbish pits, regular clean up, school plantation, organise regular debate activities on conservation issues etc. The students and villagers have to contribute voluntary labour during infrastructure development activity.

### *4.5.1 Key requirements*

The key requirements for providing support to a school are:

- Demand from the local village to improve physical infrastructure.
- Willingness of villagers to provide voluntary labour.
- A team of well motivated extension workers.
- A technical team.
- An organization with funding and commitment.
- If construction work is needed:

    - A well motivated local construction committee.
    - A locally acceptable design of the school.
    - A team of well motivated technical staff preferably an experienced civil overseer and skilled manpower.

- If other support is needed:

    - A well motivated school management committee.
    - A list of required materials such as benches and desks.
    - A committed team of staff.

[24] UNDP (2002) Nepal Human Development Report 2001: Poverty Reduction and Governance. UNDP Kathmandu, Nepal. pp 154 + xii
[25] CBS (2001) Statistical Year Book of Nepal 2001. Central Bureau of Statistics. Kathmandu, Nepal. pp 447

### *4.5.2 Preparation*

The following preparatory steps are recommended:

- Organise series of discussion meetings to mobilise the local villagers including school management committee and teachers. The meetings aim to clarify the importance of a good education system, different processes during construction, role of the villagers during the construction and management in future. There should be regular discussion meetings to appraise construction work.

- Sign an agreement document between the construction committee or school management committee and the supporting agency. An agreement document must contain all the details of the project, clear division of responsibility between the construction committee and supporting agency, time frame etc.

- Purchase required materials such as cements, benches and desks etc and transport to the nearest road head.

- Organise transportation of the purchased materials by the villagers as agreed in the discussion meeting.

- Mobilise the local community to collect and transport locally available materials such as sand, stones and gravel if needed.

- Depute a staff member, preferably an overseer, for mobilising and monitoring construction.

Surveys and design of the school building must take in consideration some important aspects such as locally acceptable design, proper location of the building and division of classrooms. Involvement of local villagers in the detail survey and design is crucial. The design prepared after the survey should be discussed thoroughly with the local villagers. They should be properly informed about the location and design of the school. Any issues related to construction should be clearly explained during the agreement between the construction committee and the supporting organization. The agreement should also deal with trade-offs between conservation and development. The villagers and the school students must be willing to contribute to conservation issues of the village such as participation in plantation, clean up in the village, clean up in school, promotion of toilet use in the village etc. The extension staff must inform the villagers about the importance of conservation and development activities. Successful trade-off in this scheme can have remarkable social and ecological impact. There are many good examples of successfully established trade-offs during the construction of a school such as successful promotion of toilet by the students, participation of students in plantation etc.

Most students in ACA now have access to a primary school with basic physical infrastructure. Besides, most of the high schools have upgraded their physical infrastructure. The high schools also give conservation education based on the curriculum and materials developed by ACA. Conservation education has been implemented in schools to impart knowledge and practical skills to students about conservation.

Maximum budget for improving physical infrastructure of a school depends the on the nature of activities such as construction of a new building, repair of an existing building, construction of a toilet, support of benches and desks etc. The maximum budget for construction of a new school building with a capacity to accommodate 1000 students will approximately costs US$ 30,000. The supporting organization should contribute around 60% of the total cost for skilled manpower and purchasing construction materials. The villagers will generally provide unskilled labour during construction, collect stone, gravel and sand, and transportation of the materials.

### *4.5.3 Strengths*

There are certain strengths of the scheme, which are,

- Decrease in school drop out rate: A school with a nice building and other infrastructure is often a good attraction for the school going children. Change of classroom from water leaking during monsoon to waterproof, dark to brighter rooms with natural lights always encourages the children to continue the school.

- Trade-offs: Establishment of a proper trade-off during school support could bring a lot of good changes in the village.

- Community Involvement: The local villagers feel pride to have a school with good infrastructure. Therefore, there is usually high involvement of the community.

- Ownership of a scheme: Contribution by the local population during the construction remarkably generates the feeling of ownership among the villagers on the scheme.

- Conservation education: Support for the infrastructure development in a school often makes them obliged to run different conservation awareness activities. Most of the secondary schools take initiative to run conservation education in their school. Hence supporting a school has significant conservation impacts.

### *4.5.4 Replicability*

Improvement of school infrastructure scheme is on a village's priority list. Therefore, the project can also be successfully replicated. Successful replication might depend on various factors such as management by local community, solidarity within the village, planning and implementation set-up. Nevertheless, its replication success is often higher than other infrastructure development schemes because it has relatively less techno-complications during construction.

### *4.5.5 Weaknesses*

This scheme has some weaknesses:

- Lack of proper planning, dispute within the village and inadequate mobilisation of the villagers could delay the scheme.

- All the households in the village should equally contribute to the construction of a school building. Lack of capability of a construction committee often creates disparity on voluntary contribution by the villagers. This might become a cause of dispute in the village.

## 4.6 CONSERVATION EDUCATION IN SCHOOL

Good education imparts the relevant knowledge, refines perception and facilitates attitudinal changes, which is absolutely crucial for a community based project. Implementation of conservation and development programmes by ACAP is based on the cooperation with local people. Therefore, conservation education has been considered as the heart of the ACAP activities. The ultimate aim of conservation education is to ensure that effective actions are taken by the local people themselves to conserve and develop their village. A set of activities is designed to successfully implement the education programme, which are study tours, conservation education in schools, mobile camps, awareness camps etc. Toilet construction, reduction in hunting, cleaning village and using rubbish pits, plantation and vegetable farming are the major fields where skills and knowledge from conservation education has been utilised. Conservation education in school is one of the important activities of conservation education. The main objective of conservation education in school is to impart knowledge and practical skills to students about conservation. Conservation education is taught in grades 6-8.

### *4.6.1 Key requirements*

The key requirements for initiating conservation education in school are:

- A secondary school in the village.
- Willingness and commitment of school management to initiate conservation education.
- Interested teachers with knowledge in conservation.
- A well motivated conservation education staff.
- A set of conservation education curriculum and guide books.
- An agency with funding and technical capability.
- A good plan to initiate conservation education in schools.
- A well motivated conservation education staff.
- A set of conservation education materials.
- An interested group of students.

### *4.6.2 Preparation*

Some preparation is needed for a successful implementation of conservation education in a school. The following preparatory steps are recommended:

- Conservation education (CE) is often an additional course in school. Hence, a formal memory of understanding must be drawn between the school and intervening agency to effectively launch the course.

- Conservation education (CE) should be taught from interactive methods using games and role models. That means, it differs from conventional teaching models in village schools. Therefore, CE teacher must be oriented in interactive teaching methods.

- CE curriculum, guidebook and other educational materials should be in the school in advance.

- Conservation education staff must be made responsible for regular monitoring of the CE classes in schools.

- An annual grant of US $ 300 per school for organising games, outdoor activities, education material and some incentives to CE teacher makes CE more effective.

Conservation education in school is relatively inexpensive. However, a good investment must be made in the start up phase to produce a curriculum and guide books. Regular publication of CE materials makes the activity very effective. Maximum annual budget to run CE courses in 5 schools with total of 1000 students will cost US $ 4000. Additional budget of US $ 15,000 is required to produce CE curriculum and guide books. The curriculum produced can be used in all schools with similar culture, environment, biodiversity, belief system and language.

### *4.6.3 Strengths*

There are certain strengths of the scheme, which are:

- CE students are found relatively sensitive to environmental issues such as village sanitation, biodiversity conservation, importance of forest, energy conservation, water and air pollution etc.

- CE course encourages students to participate in conservation and development activities. CE students are found independently involved in village sanitation work and tree plantation activities. They are also influencing their parents and neighbours on good environmental practices.

- CE courses help to produce a cadre of conservationist in a village.

- CE with nominal investment will have long lasting impact on environment.

### *4.6.4 Replicability*

Conservation education in school can be replicated in different parts of the country and region. However, successful replication depends on the design of conservation education, commitment of school management and training given to the CE teacher. CE taught with examples from the surrounding environment is very effective. Therefore, for the successful replication of CE a good curriculum must be developed based on the environmental and cultural situation in and around the area.

### *4.6.5 Weaknesses*

- Lack of proper motivation and commitment of CE teacher could make CE ineffective.

- Insufficient knowledge and skill related to conservation and ecological understanding among CE teachers.

- Unavailability of appropriate CE materials such as ecological charts, wildlife photographs, materials required for playing games, etc.

- CE taught in non-interactive methods.

- Students sometimes do not pay much attention to CE because there is no system of formal examination.

## 4.7 ADULT EDUCATION

Almost half of the population in Nepal cannot yet read or write. A recent socio-economic study in a village of ACAP reported that 57% of age five and above are illiterate. Illiteracy is more common among females (51%) than males (34%)[26]. A similar study in Bhujung in 1996 reported 69.7% females and 33.0% males in 15 –60 years group were illiterate[27]. Disadvantaged ethnic groups (occupational castes) have the lowest level of literacy for both sexes.

Education is often considered as the key element for the success of integrated conservation and development projects. Therefore, adult literacy classes have been initiated. The ultimate aim of adult literacy is to increase the literacy skill mainly of women by informal education approach. A six-month adult literacy class is initiated in the start up phase. The graduates from this class will study another five months in advance literacy classes.

### *4.7.1 Key requirements*

The key requirements for running an adult literacy program are:

- Demand from the mother's group to run adult literacy.
- A public place to run the adult literacy class.
- A list of interested participants.
- A well motivated person preferably female to help as facilitator.
- One adult literacy supervisor.
- An organization with funding and commitment.
- One adult literacy classroom.
- A list of 15 to 20 participants.
- Educational materials such as books, pencils, blackboard etc.
- Electricity or an alternative light source such as kerosene light or solar light.
- A trained facilitator to conduct adult literacy class.

### *4.7.2 Preparation*

Certain preparation is needed for an effective adult literacy class:

- Organise series of discussion meetings with the mother's group. The meetings aim to clarify the importance of education and the ways in which classes will be operated. Role of mother's group should be clarified.

- Conduct training for the facilitator to run adult literacy classes. Training conducted in a group of 10–15 participants are cost effective. The training should focus on delivering education in an informal manner.

- Prepare relevant curriculum and course materials on adult literacy.

- Fix appropriate time and place suitable to the majority of the participants. Also inform all the participants regarding class time and venue.

- Clean, clear and prepare allocated place for the adult literacy.

- If the class is planned for the evening, a volunteer's team should be formed to reduce any possible vandalism.

Majority of the participants are always women. In general, women's are preoccupied by different household activities such as cooking, childcare, looking after livestock etc. For that reason, the venue and time of the adult literacy class should be decided only after thorough discussion with all the participants. All the adult literacy classes in ACAP are run after dinner from 8 PM to 10PM. During the start up phase, this might not be acceptable to participants' guardians. They need to be carefully informed about the importance of education. Obser-

[26] CREPHA (2001) Socio-economic and Reproductive Health baseline survey in Landruk (Lumle VDC). KMTNC/ACAP, Pokhara, Nepal. pp 71
[27] KMTNC/ACAP (1996) Integrated Conservation and Reproductive Health Programme. A proposal. KMTNC/ACAP, Pokhara, Nepal. pp 10 + Annexes

vation of the class by guardians should be encouraged to reduce confusion. After attending regular classes for six months, the participants will be encouraged to learn more. Running additional five months advance courses should fulfil this interest. There is no end for learning; hence the participants should be encouraged to continue learning through self initiative. Establishment of a library for the participants could help them to continue and practice adult learning.

The intervention does not cost much in terms of its impact on building capacity and confidence of participants especially women. Maximum budget for running an adult literacy class for 1000 participants will cost US $ 10,000. This cost includes training, materials, remuneration and other expenses.

### *4.7.3 Strengths*

- Adult literacy is a way of increasing literacy skill and imparting knowledge. Therefore, the adult literacy package should be designed and developed as per need of the area. For example: The adult literacy package developed by ACAP includes lessons related to participation, conservation, development and reproductive health. When the participants are learning to read and write, they will also get various skills and knowledge. Each chapter gives one definite message such as deforestation, population growth, improved firewood stove, village sanitation etc. This is a very effective way to impart relevant knowledge and skill.

- Adult literacy participants are more actively involved in tree plantation, adoption of energy saving devices, village sanitation, personal hygiene etc.

- Adult literacy participants are more confident than earlier. They do actively participate in meetings. They were found discussing village issues more systematically.

- Majority of the participants are aware of ACAP's aim and objectives.

- Many of them are able to read and write basic alphabets. They are often eager to learn more.

- Adult literacy has encouraged people to get involved into various local institutions.

- Social status of the adult literacy participants has improved. They are no more considered illiterate.

### *4.7.4 Replicability*

Replication of adult literacy can be successfully achieved. However, certain obvious issues such as culture, language, need of the village and objectives should be clearly addressed. For example: ACAP replicated adult literacy from the "Save the Children, USA" programme in Gorkha. When the mother's group from ACAP Ghandruk went to Gorkha for the study tour, they observed the adult literacy class. The study tour participants from Ghandruk saw elder women going to adult literacy classes at 8 PM after finishing their household work. They were very much impressed by this and decided to initiate adult literacy classes in their village. ACAP replicated adult literacy with certain modification. ACAP made effort to link adult literacy with conservation and development issues. As this approach went very well, it was replicated in other areas of ACAP. One major lesson learned during replication was that creativity of the staff is extremely important. A very dynamic ACAP women development officer, who was responsible for promotion of adult literacy interacted and communicated with various organizations to develop ACAP specific materials for adult literacy. Besides, her team actively monitored, supervised and encouraged the adult literacy participants to make it successful. A dynamic team makes replication successful.

### *4.7.5 Weaknesses*

This intervention has also some weaknesses. These are:

- Generally, dropout rates are often very high. Average dropouts in ACAP adult literacy class are 34 percent. There are various reasons for abandoning the class. Main problems are children at home, dependency on labour for livelihood, bad visibility at night and sickness.

- Adult literacy facilitators and supervisors must be well trained in adult learning.

- Assessing the overall performance of participants by exam creates psychological terror. Therefore, a system of continuous assessment should be developed.

- To impart other skills and knowledge, adult literacy should be carefully linked through exposure visits, outdoor sessions, debates on conservation and development issues, quiz contests etc.

## 4.8 STUDY TOURS

Study tours are organised mainly for the members of various local institutions. Destinations for such tours are usually the places known for resource conservation and community development. The basic objective of study tours is to expose villagers to different resource conservation activities and community works with the aim that they will be inspired to replicate some of the ideas in their households or villages. A study conducted by ACAP has shown that a significant percentage of the study tour participants have used the knowledge gained from study tours. Seeing and learning from the experience is long lasting. Therefore, study tours into places with good and bad examples help villagers to open their eyes.

### *4.8.1 Key requirements*

The key requirements for the initiation of a study tour are:

- A team of two to three well motivated staff members who can organise a study tour.
- A good objective oriented plan for a study tour.
- Identification of destinations according to objective.
- An organization with funding and commitment.
- A team of 15 to 20 interested participants.
- Sufficient cash for the trip.

At present, study tours are organized within ACA and outside. They are categorized as internal and external study tours. A model village with an active mother's group or different plots of community plantation, a good vegetable farming system etc are destinations for such tour. External study tours focus on the places within the country with good examples such as Royal Chitwan National Park, Madan Pokhara for community forestry, Damauli agro-forestry farm, Central Zoo etc. Study tours are designed for target groups such as mother's groups, conservation committees, tourism management committees, micro hydro committees, youth clubs, school students etc. For example, the micro hydro management committee members from a village with recent electrification has been taken to various villages with good and bad management of micro hydropower. The tour participants discussed various aspects such as technical, financial and administrative management. They also shared the problems and the issues they faced and ways of solving the problems. After successful completion of the tour, the participants will normally discuss issues such as tariffs, maintenance etc which they learned in the tour and decide which issues they can replicate in their village. The participants are also taken to villages where the micro hydro is not properly managed. They then will discuss the issues regarding poor management.

### *4.8.2 Preparation*

Proper preparation is extremely important to run a successful study tour. The following preparatory steps are recommended:

- Organize series of discussion meetings to mobilise local people. The meetings aim to clarify the importance of exposure trips.

- Clearly objectives and destinations. For example: the objective of the study tour could be to orient villagers on possible negative impact of tourism. Then, the destination must be in a place where we can see negative impacts. Nevertheless, taking the villagers to a destination with positive impacts from tourism might give opportunity to make a comparison of impacts.

- Identify a good team of villagers of same interest for the tour.

- Properly plan the tour by arranging travel, destinations, accommodation, possible meetings etc.

A well organised study tour brings immediate results. A group of Bhujung farmers went to Ilam in eastern Nepal to study tea farming and started tea farming in Bhujung the same year. A group of women from a village went to Bhujung to learn from the Bhujung Mothers' group. They immediately formed a Mothers' group in their own village to initiate similar activities as in Bhujung. A farmers group from Bhujung went to observe community

plantations and private plantations in Ghandruk and Lwang. They saw the impact of plantations. They were extremely impressed by farm fodder trees grown in Ghandruk and Lwang. The visitors from Bhujung were very much encouraged to establish community and private plantation sites in their village. A group of conservation leaders went to learn about national park management in Chitwan. They observed various park management activities. This strengthened their ability to run conservation work and the confidence in their initiatives developed by themselves.

Nevertheless, an unplanned study tour may lead to frustration. A team of the Bhujung microhydro management committee went to Ghandruk and Tikhedhunga to study community management of micro hydro. The team could not meet the key leaders who managed these micro hydro electricity schemes. Therefore, they did not get the opportunity to exchange ideas and concerns. They just visited sites and observed micro hydro electricity plants. In fact, the Bhujung team had a list of issues to discuss such as tariff setting and collecting, regular distribution of electricity, day-to-day management, role of committee, financial management, hiring operators, end-use of electricity etc. They were unable to discuss these issues. The team was very disappointed. They realised that they wasted their valuable time. The simple reason for disappointment was that the organising team did not communicate well with the destination team. The knowledgeable leaders from both destinations were unaware about their visit. Therefore, proper planning with communication and coordination with concerned personnel is critically important before organising a tour. Similarly, selection of a good team for a study tour makes it more effective. Responsibility for selection of villagers for a study tour should be given to the villagers together with a set of criteria.

A study tour is one of the most efficient ways of extension but it can be relatively expensive compared with other extension tools because of travel and transport cost. The intervening agency has to contribute 100% of a study tour. The maximum budget for organising a study tour within the country is US$ 10 per person per day. It can vary according to the local situation and travel destinations.

### *4.8.3 Strengths*

There are certain strengths of study tours, which are:

- The study tour participants learn a lot from real life examples from the field. One of the successful examples of the study tours, which had tremendous positive impact on the village, is Siurung village in Khudi VDC. Siurung is one of the most remote Gurung villages in Khudi VDC, four to five walking hours from the main trekking trail (Annapurna Circuit). The mother's group from this remote village was taken to an exposure tour to Bhujung village, where ACAP has been concentrating its pilot programme activities such as demonstration agro farm, forest nursery, community toilets, microhydro, etc besides other conservation and development activities. The conservation committee, village development committee, mothers' group and other local institutions are remarkably active in Bhujung. They have achieved dramatic changes in the vil lage over a five-year period. This was achieved mainly because of strong solidarity within the village, good leadership, and an extraordinarily active mother's group. The mother's group from Siurung observed all the changes Bhujung made in a short span of five years. Bhujung and Siurung villages have similar terrain with the same ethnic composition and socio-economic situation. The mothers from Siurung inspected the clean and well-organised village being proud of its achievements. Some of the mothers could not believe what they saw and heard. But for some others it turned out to be a great challenge. They started to bring up the question on why they couldn't do the same in their village if not better. This question persuaded them to have a community meeting in Siurung and initiate similar initiatives in their village. They also held consultations with the ACAP staff. The outcome of this initiation was a mass campaign in toilet construction and village clean up by the mother's group. Today most of the households in Siurung have at least a low cost toilet.

- A study tour is one of the most efficient ways of extension. It has been found that more than 70% of the study tour participants from ACAP uses the new knowledge gained from the study tour in practice[28].

- A study tour is a good incentive for remote villagers. Therefore, study tours besides fulfilling their objective also encourages the participants to get involved in conservation and development activities.

[28] Adhikari, J. (1998) Conservation education and extension programme. A report of an evaluative study on the impact. KMTNC/ACAP, Pokhara, Nepal. pp 48

- Study tours often have mutual benefits. For example, the study tour participants from Bhujung observed successful community plantations in Ghandruk. They were very much impressed when they visited the plantation site. They developed self-confidence that they can easily replicate these project components in their village. One the other hand, Ghandruk villagers were very proud because other villagers were visiting their village and appreciated whatever they had achieved so far.

- Study tours are one of the best ways to replicate successful examples. Annually groups of visitors from the country and region (India, Pakistan, Bhutan, Kirgistan, Vietnam, Burma) visit ACAP to learn about community approach of conservation and development such as village sanitation, forest management, tourism management, electricity management, women mobilisation etc.

### *4.8.4 Replicability*

Study tours are most widely and easily replicated activities. Notably, most of the development intervening institutions include at least one study tour during the design of a project. However, the success of the tour depends on objective oriented visit, level of interaction during the visit and adoption of observed examples in action. Observation of too many different activities in a single tour often makes the study tour participant confused. International organizations such as WWF, IUCN, UNDP, CARE are initiating study tours very effectively within the region.

### *4.8.5 Weaknesses*

- Insufficient planning and guidance might lead to a very unproductive study tour. A team of women from Bhujung who had never travelled outside Bhujung was taken to a study tour within ACAP and outside. The travel distance was relatively long. Hence after visiting one or two key destinations, all the participants were very much exhausted by long bus drives. Most of the participants were not interested to observe and listen to briefings when they reached the planned destination. The organizer should carefully plan a study tour according to the capacity of the audience and their immediate interest.

- Study tours are often effective if the group is homogenous in terms of interest, culture, politics etc. A group of villagers from Ghandruk was taken to a weeklong study tour. On the second day of the trip, some of the participants realised that the places they were visiting were not educational to them, whereas others were happy with the plan. They had a long meeting in the evening. They could not decide on whether to continue or change the plan. Finally, all of them decided to visit Kathmandu city, which is not related with previous objectives. Lack of leadership in study tour management and heterogeneity in the group of participants forced the group to end the tour in Kathmandu city.

- Study tours must be organised based on the objectives and needs of a village. Frequent arrangements of study tours does not indicate effective mobilisation of local villagers. In the start up phase, ACAP organised frequent study tours. But these were not as effective as the first ones because the same persons repeatedly participated in the tours. Therefore, they did not get new opportunities to learn about new ideas.

## 4.9 REPRODUCTIVE HEALTH

Reproductive Health is unofficially defined as health related to people's reproductive organs, their physical and mental satisfaction in sex and reproduction, and freedom regarding reproductive rights. RH was integrated in conservation activities as a pilot project in Bhujung in 1998.

A PRA study on the local health status conducted in a few villages of Bhujung UCO in 1996 gave an eye-opening picture of the health situation. There were 3804 households with a total population of 21,387. The average family size was 6 persons per household. 42% of the households were devoid of health care facilities. The study showed that the awareness and demand in family planning was almost non existent. Due to ignorance, superstitions and myths, the local people were not interested in family planning and young couples did not have much ideas and interest in using contraceptives although they were available. Many of them believed that more children meant more security as they hoped that their children will look after them in their old age.

The majority of the women in the UCO area got married and pregnant at the age of 15 to 20. Almost half of the women got married at that age and 44.33% got pregnant. These figures were particularly high for those belonging to the occupational groups who were also the poorest. Moreover, the highest percentage (42.5%) of women of the 15 to 20 years age group gave birth to not one but two children. Regarding family planning, it was noted that 80.47% of the respondents did not use any family planning methods at all. The study report mentioned that 47.39% of the respondents were totally ignorant about family planning.

The study strongly justified the need of careful integration of reproductive health, especially family planning in the overall integrated programme. Therefore, ACAP for the first time designed an Integrated Conservation and Reproductive Health Programme for this UCO. This new integration included reproductive health as one of the key components of overall integrated conservation programme. The integrated programme was initiated as a pilot project with following objectives:

1. Improving the reproductive health situation of the women in the project area,
2. improving the economic situation of the women in the project area and
3. improving natural resources conservation in the project area

The programme has the following specific reproductive health related sub-objectives:

- Overall improvement of the reproductive health of women in the target area.
- Generate awareness of the need and practice of family planning.
- Improve the existing family planning and health delivery services.
- Ensure safe delivery practices, mother and childcare facilities and improve the nutritional status of women and children.
- Generate awareness on AIDS and STDs and their prevention.
- Gender advocacy to remove discrimination against women.

The key strategies followed to implement this pilot project were:

- The activities directly focussed on women, men and children of the target area.
- The main thrust of the programme was on generating awareness amongst local villagers focusing particularly on women.
- Close coordination and cooperation with the government and non-governmental agencies were maintained for capacity building of the beneficiaries and for supporting the government family planning and health care delivery mechanisms.
- Emphasis was given on linking the activities with the overall programme and activities of ACAP so that they support each other.

- The pilot project was initiated with the following key components:

  - Family planning - counselling and service delivery.
  - Safe motherhood - Counselling and service delivery.
  - Mobile clinic - counselling and service delivery.
  - IEC material distribution- extension/counselling.
  - Training/workshop for MWRA (Married Women of Reproductive Age).
  - Training/workshop with material support for TBA (Traditional Birth Attendant).
  - Training/workshop for FCHV (Female Community Health Volunteer).
  - Training/workshop for local youth.
  - RH class in CE school with ICE material distribution.
  - Infrastructure support in health post.
  - Training/workshops/study tour for RH project staff.
  - RH awareness camp (group extension).
  - RH mobile extension (mass extension).
  - Youth exchange visit and extension through peer groups etc.

### *4.9.1 Key requirements*

The key requirements for RH programme implementation are:

- A village with high demand for service on FP methods.
- Collaboration with the village health post for future continuity.
- A team of RH extension staff (3 to 5 persons) willing to work with local villagers in a remote village.
- An agency with commitment, funding and technical capabilities.
- Recently collected information related to RH situation .
- ELCO (Eligible Couple) maps collected through PRA method involving women leader, community key persons, TBAs and FCHVs.
- A team of well motivated RH extension workers preferably young and female.
- A memorandum of understanding document prepared with the village health post and district health office.

### *4.9.2 Preparation*

Careful preparation is needed for successful implementation of a RH project. The following preparatory steps are recommended:

- The provision of proper orientation of staff on RH implementation is a prerequisite.

- Organise series of discussion meetings with ward representative, existing Traditional Birth Attendants (TBA), Female Community Health Voluntees (FCHV) and other women leaders. The meetings aim to clarify reproductive health objectives and disseminate relevant information. There should be regular discussion meetings to appraise construction work.

- Regular home visits based on the ELCO map, provide counselling and service delivery.

- Supply of family planning methods like condoms, pills to the extension staff of the health post.

- A reproductive health assistant with at least the qualification of an ANM (Auxiliary Nurse Midwife).

- A locally hired reproductive health worker with at least 10th grade academic background for a cluster of settlement area.

- Regular information sharing with the local TBAs, FCHVs regarding the RH situation of the targeted clients.

Immediate acceptance of this programme could be difficult because RH is a sensitive programme dealing primarily with the reproductive organs, their functions, sex, marriage and reproduction, which are considered as a taboo in our socio-cultural context. Besides, reproductive issues are considered very private issues, which are not generally discussed with other people. In many instances, even the husband and senior family members might not know about the situation of the women in the household. Therefore, extra carefulness and politeness is needed during social dealing. There are a lot of possibilities that people do not share their problems and issues even though they are in a dire need of counselling and service delivery. The mode of counselling and service delivery, thus, should also be considered with care. For example, discussion of sex and reproductive issues might not be acceptable to a woman in front of her father or mother in law. The Bhujung experience suggests that women feel more comfortable to discuss with a female reproductive health worker rather than with a male. Similarly, males are more open during discussions with a male reproductive health worker.

This implies that rapport building and trust gain with the target community is equally crucial for a successful implementation of a RH programme. Considerable focus on the youth from the early stage of programme is absolutely important. Youth target groups are effectively reached through peer group extension since young people are a quite vulnerable and introvert and feel comfortable only within their own age. Integration of RH education in the school curriculum is also very effective to reach the adolescence group in a village. These awareness and attitudinal changes of local people are determined and reflected by the sense of RH rights (marriage age, understanding between couple, right to choose the type of FP methods, FP methods, number of child, birth spacing etc.)

One of the significant changes observed after only three years of the reproductive health intervention in 1999 in Bhujung is the increase in knowledge of family planning service and methods. More than 62% of the villagers knew about the service of the traditional birth attendand (TBA) and 82% knew about the female community health volunteer (FCHV) service in the village. Most of the TBAs and FCHVs are providing regular counselling services to their clients. It is interesting to note that today 25% of the married fertile couples are using either a reversible or temporary family planning method. A good number of community groups such as the youth group (83%), the mother's group (92%), and secondary school students (70%) now can name at least two main transmission routes of STD and HIV/AIDS. Enrollment of girl students in Bhujung is increasing annually. A recent evaluative study has shown that there is a 34% increase in enrollment compared to 1998. This is a positive indication for lowering early marriage and pregnancies.

The annual maximum budget for initiating of a well designed RH programme to reach 1000 people in a rural settlement is US$ 38,000. It can vary according to the local situations such as education level, accessibility, resources availability in health post etc.

### *4.9.3 Strengths*

There are certain strengths of the programme, which are:

- Acceptance: RH issues, though the villagers hesitate to discuss them in open forum, are directly linked with everyones life. Most of the villagers are very much concerned about it. It has been found that careful implementation of RH programme has a high acceptance.
- Reaching the poorest of the poor: Early marriage, high infant mortality, maternal mortality, nutrient defi ciency etc. are more wide spread among poor people within the village. Therefore, this programme directly approaches this section of the community. Proper counselling and regular service delivery with greater emphasis to this section of the community also helpes to get them involved in other conservation and com munity development programmes.
- Integration of RH education in the school curriculum is an effective way to reach the adolescence group.

### *4.9.4 Replicability*

ACAP has replicated its RH experience from Bhujung UCO to Ghandruk UCO with similar socio-cultural environment. It has been proven that RH-components can be replicated. Thus, a new proposal has been developed to replicate this project in other areas of ACAP. Nevertheless the success depends on various factors including commitments of government agencies, skill of implementing staff, socio-cultural environment, adaptability and level of education. Replication is more effective when implemented in an integrated approach rather than in isolation.

### *4.9.5 Weaknesses*

This scheme has some weaknesses:

- Lack of proper planning and inadequate mobilisation of the villagers especially the poorest section of a community can delay the program.

- A clear RH need of a village should be properly identified. Implementation of a RH programme without knowing the real need of the people could fail.

- Lack of appreciation of local culture and belief system may lead to failure of the project.

- Sustainability of this programme very much depends on post-programme service delivery through a government agency such as a village health post. Irregularity in availability of family planning methods such as condoms, pills in a health post might force a couple to discontinue family planning.

## 4.10 VEGETABLE FARMING

Most of the middle and high hill villagers do not consume diverse vegetables in their regular diet. They do not grow many vegetables in their farm. Unavailability of the vegetable seeds, lack of technical know-how, ignorance about vegetable growing and unawareness about nutrient value, etc. are some of the reasons for not growing vegetables in hilly regions. The ACAP area was no exception to this general phenomenon. A majority of the villagers in Bhujung area of ACAP used to grow only broad leaf mustard and radish in their farm. Most of them were unaware of the possibilities of growing other seasonal vegetables in their farm. ACAP initiated vegetable farming in Bhujung area through a small demonstration plot. The interested local farmers initiated vegetable farming once they saw vegetables growing in their village. It is assumed that the number of interested farmers will increase through this multiplier effect. At present, there is visible seasonal vegetable growing in most of the farm and kitchen gardens.

The main objective of vegetable farming is to introduce skill and knowledge in growing different seasonal vegetables in the village. Diversification in vegetable growing and relative increase in intake of fresh vegetables will also lead to better health situation.

### *4.10.1 Key requirements*

The key requirements for the initiation of a vegetable farming at farmers level are:

- A team of well motivated agriculture extension workers.
- An experienced agriculture staff, preferably having BSc. degree in horticulture.
- A good plot of land for demonstration farm establishment. The demonstration plot will be more effective if it is located close to the main trail of the village.
- An organization with funding and commitment.
- A set of audio-visual equipments, audio-visual materials and other extension materials to begin the extension programme.
- A team of well motivated extension workers preferably young and dynamic.
- Purchase or acquire good seeds of various seasonal vegetables such cauliflower, peas, cabbage, carrot, pumpkin, onion, tomato etc.

### *4.10.2 Preparation*

Certain preparation is needed for a successful introduction of vegetable farming in a village. The following preparatory steps are recommended:

- Initiate a participatory research using PRA tools to identify a list of vegetables grown and consumed in the village. It will be useful to explore the reason for not growing other seasonal vegetables and general problems related to vegetable farming.

- Organise series of home visits and discussion meetings to mobilise the local villagers including women and the occupation group. Home visits will build rapport and mutual trust with the local villagers. The meetings aim to clarify possibilities of growing various seasonal vegetables and importance of vegetable intake in the regular diet. There should be regular visits and meetings.

- A study tour to a similar villages with vegetable farming will help to expedite adoption of vegetable farming at household level.

- A good vegetable demonstration farm must be established in the village. The demonstration plot must be easily accessible to all the villagers. A demonstration farm must be very attractive with many different seasonal vegetables. The farm should not been maintained with too many external input.

- Local visitors must be welcomed in the farm. Visitors must be informed properly about vegetable farming techniques and related benefits of vegetable farming.

- A daylong training on vegetable farming is always very effective in the initial phase. The participants of the training should be given a few small vegetable seeds packages free of charge.

- Seasonal vegetable seeds must be easily available in the village at a reasonable cost.

- If vegetable farming is planned on a commercial scale, proper market links must be developed during the start up phase.

Promotion of vegetable farming through a demonstration farm and short-term training is very effective in the start up phase. However, vegetable farming might not flourish if we limit it to a demonstration farm. Therefore, the next immediate step should be to initiate vegetable farming at farmer's field level. Farmer to farmer extension is a proven agriculture extension technique. ACAP's successful extension of vegetable farming through conservation farmers also substantiates this technique.

Conservation farmers are the selected farmers from different settlement areas within a village who are willing to demonstrate and adopt different vegetable farming techniques. They should also promote 'organic farming' with low external inputs. ACAP takes these farmers as key agents at the village level for diffusing skill and knowledge on vegetable farming. Priority on training, exposure trips, new vegetable trials and technology dissemination will be given to these farmers. In return, conservation farmers function as role models for other farmers in the area. The farmer-to-farmer extension technique has been very effective to reach all the villagers.

Initial investment until adoption of vegetable farming technique at the villagers level is relatively high. Once villagers adopt, there is not much cost for continuation. Maximum budget for establishment of a demonstration plot is US $ 4200. Maximum annual budget of management of the demonstration plot is US $ 3500. Maximum annual budget for promotion of vegetable farming through conservation farmers' approach to 1000 households will cost US $ 15,000. This cost basically includes staff cost, purchase of seeds, extension activities.

### *4.10.3 Strengths*

There are some very important strengths of the initiatives:

- Vegetable farming in their farm or kitchen gardens will help to diversify the vegetable intake. This will directly help to reduce nutrient deficiency syndrome among the villagers.

- Generally, villagers buy onions, tomatoes and sometimes other vegetables from the nearest market place or vendors who come to sell in village. Regular vegetable farming in the village reduces household expenses.

- Initiation of vegetable farming by a farmer will encourage other villagers of peripheral villages.

- Agriculture is the main occupation of most of villagers. Dissemination of skill and knowledge on vegetable farming together with supply of seeds and seedling in the start up phase will inevitably encourage the villagers to continue farming.

- Once villagers are confident of vegetable farming, it can be developed at a commercial level. However, commercial vegetable farming needs additional planning and proper market linkage. For example, the farmers from a village in ACAP were so much energized by the success they made in vegetable farming, that they decided to make the first move to vegetable seed production at commercial level. They did produce very good seeds of various seasonal vegetables such as cucumber, pumpkin, tomato etc. Unfortunately, they could not sell the seeds in the market because a link to market was not planned initially.

### *4.10.4 Replicability*

Vegetable farming is easily and effectively replicated in different areas and regions. The majority of the rural people are agro-based, therefore they easily grasp the skill and knowledge of vegetable farming. Farmer to farmer extension is the best way for replication of farming techniques. Therefore, study tours of innovative farmers to different vegetable farms helps to quickly adopt the technique. As agriculture is the way of most of the rural

people's life, they will continue vegetable farming once they begin. Often the successful farmer promotes vegetable farming to others. For example, in the start up phase of ACAP, a group of interested and innovative farmers were taken to a study tour to the CARE-Nepal implemented agro-forestry project site. The farmers interacted with different farmers. They discussed various farming issues right at the site. They saw a small farm with various vegetables and fruit trees. These agro-forestry farms tremendously impressed the visitors. The group of farmers was encouraged to have a daylong debriefing of the visit. They were also asked to decide on possibilities for replication. More than half of them were interested to immediately try this in their village with technical guidance from ACAP staff. Most of them successfully replicated the farming techniques. The number of vegetable farmers increased in the village through this multiplier effect. However, the success of replication depends on various factors such as soil condition, supply of appropriate seeds and seedlings, availability of water, pest problems and technical guidance.

### *4.10.5 Weaknesses*

This intervention has some weaknesses:

- Supply of low quality vegetable seeds often leads to failure of farming. This will discourage the farmers to continue the vegetable farming.

- Lack of appropriate technology to control pest and other natural disasters such as high rainfall, drought, hail etc might force the farmers to discontinue vegetable farming.

- Lack of good cooperation among the villagers might lead to failure of the initiatives. For example, a vegetable farm is often very attractive to livestock and chickens. Therefore, all the villagers should help to control free grazing close by a vegetable farm.

## 4.11 SUPPORT FOR LIVESTOCK DEVELOPMENT

Livestock is very important part of the mountain farming system. They are held for provision of manure, without which the fertility of the terraced land would fall to the point of nil production[29]. Therefore, livestock is critical in maintaining soil fertility. They allow land use intensification through the concentration of nutrients and the acceleration of nutrient cycling. Cattle provide draught power, essential for land preparation. Livestock products add to the family diet and can be sold for cash or bartered. Livestock also plays an important role in mountain economies. Overall livestock contributes 36 to 47% of the total agriculture income in the mountains and hills of Nepal. Therefore, integration of livestock management in conservation and development can have significant beneficial effects on the sustainability of the mountain farming system as well as on the conservation of natural resources[30].

Livestock farming is one of the major occupations in the villages of ACA. However, there is no significant external input in the development of livestock. Most of the farming is done in a traditional system with local breeds. In the recent years, there was a gradual change in the livestock farming system. The number of livestock has decreased significantly in recent decades. Traditional livestock herding system is slowly erodeding. Most of the villagers do not have big herds of cattle. Instead, they are keeping only one or two cattle and buffaloes in a stall which are fed at home. Education opportunity in the village, migration of work force to urban areas and abroad, little economic return and decreased interest on labour intensive farming system are some of the key reasons for erosion of the traditional livestock herding system.

The main objective of the livestock development project is to improve livestock farming system together with easy access to livestock health services, to improve accessibility of fodder etc. Fodder trees plantation, livestock shed improvement, veterinary service, animal health worker training, goat farming training, provision of goats etc. are some of the activities implemented. The villagers are already carrying out stall-feeding during pre-monsoon and monsoon months when all possible land is under cultivation. To synchronise the conservation and livestock development work, local villagers are encouraged to carry out stall-feeding more during the remainder of the year. Advantages are[29]:

- Zero-grazing allows greater production of fodder per unit area than grazing freely. This also helps regenerate saplings in the forest.
- Maximum use of manure produced will be made; instead of random scattering, the quality of the manure will be better if it is properly stored and applied at the optimal time of year.
- Isolation of stall-fed animals helps to limit infectious diseases.
- Life cycles of internal parasites such as nematodes and fascola may be broken.
- Energy saved by not wandering may be used for production.
- In the absence of overgrazing, ground cover will be reestablished helping to reduce erosion.

There is one disadvantage of stall-feeding: Fodder must be cut and carried to the animals thereby increasing labour demands.

### *4.11.1 Key requirements*

The key requirements for the initiation of livestock development scheme are:

- A team of well motivated livestock health extension workers.
- An experienced agriculture staff preferably having BSc. degree in livestock management.
- An organization with funding and commitment.
- A set of audio-visual equipments, audio-visual materials and other extension materials to begin the exten sion programme.
- A team of well motivated extension workers preferably young and dynamic.
- Purchase or acquire of necessary livestock health equipments and medicines etc.

[29] Environmental Resources Limited (1988) Natural Resources Management for Sustainable Development: A study of feasible policies, institutions and investment activities in Nepal with special emphasis on the hills. Interim Report. Environmental Resources Limited, London, UK.

[30] Tulachan, P. M., Tej Pratap, Maki-Hokkonen, J., Saleem, M and Rajbhandari, B. (2000) Livestock in the Mountains and Highlands of Asia, Africa and South America: An overview of research and development issues and challenges. In: Tulachan , P. M et al (eds) Contribution of Livestock to Mountain Livelihoods: Research and Development Issues. pp 3 –31. ICIMOD Kathmandu, Nepal.

### *4.11.2 Preparation*

Certain preparation is needed for a successful initiation of livestock development in a village. The following preparatory steps are recommended:

- Organise series of home visits and discussion meetings to mobilise the local villagers including women and the occupation group. Home visits will build rapport and mutual trust with the local villagers. The meetings aim to clarify possibilities of improving the livestock management system. There should be regular visits and meetings.

- Study tours to a similar village with proper livestock management will help to expedite proper management of livestock at farmers level.

- A demonstration livestock shed must be established in the village. The demonstration shed must be easily accessible to all villagers. The demonstration shed must be well designed.

- A daylong training on importance of livestock management is always very effective in the initial phase. The participants of the training should be provided information on veterinary and other livestock related facilities.

- The veterinary facility must be easily available in the village at reasonable cost.

- If livestock farming is planned on a commercial scale, proper market links must be developed during the start up phase.

Promotion of livestock management through improvement in livestock shed and short-term training is very effective in start up phase. Grouping villagers with interest on livestock farming into a Livestock Management Committee is often effective to deliver services and information. Provision of livestock health service is lacking in villages. Therefore, training a few interested villagers on village livestock health management training could provide a good livestock health service.

Maximum annual budget for establishment of a livestock management scheme at 1000 households is approximately US $ 12,500. This includes support for livestock shed improvement, veterinary service, livestock management training etc.

### *4.11.3 Strengths*

There are some very important strengths of the initiatives:

- Support for livestock management will help to improve the livestock health and so the production.

- Training in better techniques will help to improve the local breed.

- Initiation of stall feeding in an improved shed by a farmer will push other villagers to replicate stall feeding.

- An integrated approach of livestock management with planting fodder trees, shed improvement, stall-feeding etc. is a good alternative to the traditional labour intensive but less productive livestock farming system. Two to three decades earlier, every household used to have a herd of 25 to 30 buffaloes and cattle. At present, most of the households have only one or two buffaloes. Only a very few have a livestock herd with a maximum of 12 animals. Big herds are managed through rotational grazing system. The animals are moved from village to forest and high pasture areas for grazing. This is extremely labour intensive and often the herders are very isolated from social life. Therefore, none of the new generation groups are interested to continue this farming practice. This is the main reason for the erosion of this traditional practice. In interviews with the herders, more than 80% of the herders have expressed their plan to discontinue this livestock management practice within a year. Therefore, stall-feeding is one of the best ways to continue livestock farming.

- Livestock is the source of protein and family income. There is a general assumption that decrease in the number of livestock will also decrease animal protein intake and income. However, this is not true. Instead of keeping the goat for many years without adding any weight, the villagers slaughter goats much earlier. They are also selling the goats and buffaloes frequently to maintain the low number of animals. So, the cash turnover from livestock is better than earlier. In the past, big livestock herds were maintained just for prestige.

- Low-income groups of people in the village have also got the opportunity to raise at least one animal. The low-income group of people are either getting animals from rich people on a shared farming basis or at low cost from rich villagers. The rich villagers regularly sells animals to maintain their livestock number.

- Income generation activity is also promoting goat farming to the cash poor villagers because goat farming gives quick return. Both income generation, training and goat farming training have helped to develop ecologically friendly and economically sound goat farming.

- Reduction in the number of livestock population has also improved the forest reestablishment. Community forest plantation and plantation of trees on private farms are more successful because damage by livestock grazing in the initial phase is minimal.

- Agriculture systems including vegetable farms are more effective because livestock manure is collected, stored and used properly.

### *4.11.4 Replicability*

Livestock farming is part of a rural life. However, overgrazing is a common problem worldwide. Therefore, maintaining a small population of animals in an improved shed is very effective. Veterinary service, livestock management training and fodder tree promotion should properly back up this farming approach. The livestock management scheme is easily and effectively replicated in different areas and regions. The majority of the rural people is agro-based, therefore they easily grasp the skill and knowledge of livestock management. Farmer to farmer extension is the best way for replication of the techniques. Therefore, study tours of innovative farmers to different livestock farms helps to quickly adopt the technique. However, the success of replication depends on various factors such as fodder availability, markets for selling the animals, veterinary services and technical guidance.

### *4.11.5 Weaknesses*

This intervention has some weaknesses:

- Successful integration of different components such as fodder trees plantation, livestock shed improvement and veterinary services together with training and exposure to the villagers is very important. Lack of one component could lead to failure of this scheme. For example, if the farmers have started stall-feeding but they do not have a regular supply of fodder, then this farming technique might not be successful.

- Maintenance of livestock sheds is very important for animal health. Therefore, regular maintaining and cleaning of the shed is very important.

- Value of livestock increases more when the villagers have only one or two animals. Therefore, considerable attention has to be given on reducing depredation of livestock by wild animals.

## 4.12 INCOME GENERATION THROUGH MICRO ENTERPRISE

Various surveys carried out by different agencies such as National Planning Commission, Nepal Rastra Bank and Central Bureau of Statistics estimated higher poverty incidence in rural areas compared to urban areas. Poverty is defined as inadequate consumption or income. Most of the rural areas do not have attractive income generating sources. Either it has not yet explored or available opportunities are not attractive. One of the most obvious sources of income in rural areas is agriculture, which is highly labour intensive. Therefore, outmigration especially among young people from villages to urban areas or abroad has become a growing phenomenon. Migration of working people from villages makes these villages even poorer, because rural areas have an ever increasing agriculture labour shortage.

Rural villages of Nepal do have a lot of good and secure income generation opportunities if they could be properly linked with market. Sustainable harvesting and processing of high value medicinal plants; cash crop farming such as cardamom, broom grass, coffee, ginger etc, commercial seasonal vegetable farming; animal husbandry such as goat farming, cattle farming etc.; promotion of tourism these are some of the potential income generating opportunities. However, a certain investment is required to initiate these activities. Cash poor and ignorant villagers, in general, are not able to take risk.

The Bhujung area in ACAP has the similar situation. Most of the people in the villages do not have any cash income expect some remittances from military jobs in India or the United Kingdom. Young people have high trends to travel abroad for a labour jobs. Those who live in the villages are either frustrated with village life or not interested in income generating activities. Therefore, the main aim of an income generating project is to encourage them and increase household income through creation of income generating opportunities within the villages. The project helps to empower women in their families and communities by making low-cost loans to small, women run businesses. Some of the income generating activities initiated by ACAP in the Bhujung area are goat farming, support in tailoring, vegetable farming, village grocery shop, poultry farming, bakery etc. Saving and credit groups have been formed in order to promote and develop micro enterprises. The formation of a saving and credit group encourages and motivates to create funds micro enterprises. Most of these activities are very promising but still too early to evaluate. At the start up phase, ACAP does not have any experience in income generation activities. Hence the project was initiated with the assistance from other national institution such as Industrial Enterprise Development Cooperation.

### *4.12.1 Key requirements*

The key requirements for the initiation of an income generation activity are:

- A group of interested villagers selected by the mother's group(women committee)or other local institutions.
- Appraisal of possible income generating activities.
- A team of well motivated staff with knowledge in micro enterprise development.
- A technical team capable of training in micro enterprise creation and development.
- An organization with funding and commitment.
- A good enterprise development plan.
- Seed money to initiate an enterprise.

### *4.12.2 Preparation*

Good preparation is needed for a successful enterprise development. The following preparatory steps are recommended:

- Run a study to explore the potential for micro enterprises.

- Organise series of discussion meetings to mobilise the local villagers including women, occupational people and youth. The meetings should aim to clarify the issues of income generation through enterprise creation.

- Organise an awareness creation workshop for the villagers on micro enterprise potential of the village.

- Design, plan and organise micro enterprise creation and development training for the interested villagers.

- Saving and credit groups facilitate the establishment of micro enterprise. Therefore, saving and credit groups must be organised in the village. For example: Mother's group members in Bhujung were given a saving and credit orientation training. Interested members of the Mother's group formed a saving and credit group after the training. Every month, the members of the group started depositing certain funds. A member of the group kept the fund in a very transparent way. Once the group had a sufficient fund to invest in a micro enterprise creation, they announced for possible investment. Priority was given to the group members to take a loan with nominal interest. If the group members are not interested, then the loan will be given to others interested. Many women in Bhujung initiated goat farming, tailoring and grocery shops through the loan from the saving and credit group. The presence of the saving and credit groups decreased the dependency of families on local moneylenders for financing of investments. Recognizing the enthusiasm and commitments of the saving and credit groups in micro enterprise development, ACAP provided US $ 630 as seed money to all the groups in Bhujung.

- Good guidance should be given to the villagers to identify appropriate enterprise.

- Proper training must be organised for villagers in the field of their interest such as goat farming, pig farming, vegetable seed production, sweater weaving, cutting and sewing, village animal health, bakery, village grocery shop, cottage industry etc.

### *4.12.3 Strengths*

There are certain strengths of the initiative, which are:

- The saving and credit group approach helps to develop a local cooperative system, which is often very effective in development of micro enterprise in the village.

- A well-established micro enterprise encourages young people to stay in the village. For example: A young villager from Bhujung, working as the micro hydro operator, decided to leave the village for a better job. He was working as an operator with an income of US $ 38 per month. He realised that the monthly income is not sufficient to support his family with two children. He approached the ACAP office in Bhujung. ACAP wanted him to retain as operator because he was doing a good job. Therefore, ACAP offered various enterprise opportunities. He was also recommended to visit some industries in urban areas and come up with some entrepreneurial ideas. Amazingly, this young micro hydro operator requested us to help him to establish a bakery in the village. ACAP found his idea fine. So, ACAP agreed to provide him training in a bakery. Mother's group provided him soft loan to purchase an electric baking oven and the village electrification committee agreed to provide the necessary electricity during daytime at a reasonable rate. This young villager is now successfully running the bakery - the first in the history of Bhujung. The establishment of this bakery benefits all the villagers: the village electrification committee can sell some energy during daytime, which generates extra income. Local villagers are getting bread in the village. The Mother's group is receiving regular interest from their investment.

- Income generation through micro enterprise helps to reduce unemployment in a village thereby assisting to reduce poverty.

### *4.12.4 Replicability*

Replication of income generation through micro enterprise is possible within the country and region. However, proper identification of appropriate enterprises is absolutely important. Success of a micro enterprise development will have very effective multiplier effects within the village. However, efforts should be made to diversify the enterprise. For example: success in goat farming does not mean that every villager should start goat farming. There is a unique tendency among the villagers to exactly replicate success stories without looking at its repercussions. Therefore, different options of micro enterprise should be explained to the interested villagers. Entrepreneurship is often influenced by culture and social system. Hence, considerable attention should be given to these aspects during the design phase. Various training related to micro enterprise creation and arrangements of credit system is important for launching a micro enterprise. Replication of enterprise in rural setting takes place slowly in the start up phase. Continuous encouragement, monitoring and even moral support is critical for the success of the initiative. Successful replication also depends on different factors:

- Realisation for a need of micro enterprise in the village.
- Access to loan, which is relatively effective through a village saving and credit group.
- Opportunities for income generation in the village.
- Initiation of a scheme within the cash poor group of villagers.
- Unity and trust within the community.

### *4.12.5 Weaknesses*

There are some weaknesses, which are:

- There is an always high chance of giving up the initiatives because a micro enterprise in a rural setting does not give immediate return.

- Inadequate linkage of the enterprise with market leads the enterprise into liquidation. This is one of the most critical problems faced by ACAP. For example: vegetable farming can be successfully started at commercial level in Bhujung village. But there is no close market place to sell the fresh vegetable products. The nearest market place is at 5 hours walking distance from the village. Hence, more logistic planning is required for a successful enterprise development.

- Unavailability of technical back stopping during the development phase of a micro enterprise often compels to stop the initiative.

- It has been experienced that micro enterprise is often ineffective where people have easy access to cash through bank or community.

- Regular monitoring and technical guidance is critically important in initial stage. Lack of guidance and moral support in the initial stage might persuade local entrepreneurs to discontinue the initiative.

# 5. OUTLOOK

Most of the conservation and development projects in rural areas are implemented on an experimental basic. There is a unique project culture of many intervening agencies to explore various new or hybrid approaches to claim their initiatives unique and successful. To consider the initiative as unique and effective, an intervening agency often shows reluctance to replicate good practices from other areas or regions even when the aims and objectives are similar. Most often, the project terminates without any major achievement, thereby draining huge scarce resources and time. For that reason, the replication approach to conservation and development is recommended here as one of the best ways to replicate good practices instead of "reinventing the wheel" every time. This approach makes the project design and implementation much more efficient.

This approach has been successfully replicated in various settlement areas within ACAP and within the country. In principle, the approach works very successfully. The strategy and principles mentioned in this report, which are the basic criteria for franchise models, are valid in all different situations. Nevertheless, it is important to note that there is no single blueprint of conservation and development projects as culture, economic and social systems, and ecological conditions differ widely among regions. Therefore, it is a matter of careful adoption with proper modification with respect to culture, socio-economic situation and environment of the area or region. The important next step will be to develop franchise models for conservation and development projects in other regions and learn how these models can be used with certain modification. The lessons learned from replication of project components in various regions will be extremely important to strengthen the franchise approach of conservation and development.

The international development and donor agencies are emphasising more on integrated conservation and development projects, which can be locally manageable, participatory, sustainable, relatively low in cost and with optimal involvement of women. Most of these components can be interwoven in a franchise model. This approach to conservation and development could be a new paradigm for effective and efficient intervention in the future.

Berlin-Institute for World Population and Global Development

Wissenschaftsforum Berlin
Markgrafenstraße 37
D-10117 Berlin
Germany
www.berlin-institut.org