

**OCCASIONAL PAPERS IN
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2000**

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SOCIOLOGY AND ANTHROPOLOGY**

Volume 6

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EDITORIAL NOTE

Sociology and Anthropology are the most neglected disciplines in Nepal, specially on the part of national planners, policy makers and politicians. The inevitability of these disciplines in nation-building process is still least recognized by the government. Apart from such discriminations, these disciplines have gained recognition from the NGOs and INGOs functioning in the country. In the very short span of time, these disciplines have also gained wider popularity among the circles of Nepalese students. There is every reason to believe that the popularity of these two disciplines has been possible through teaching, research and publications we do living under the grand umbrella of Central Department of Sociology and Anthropology, Tribhuvan University, Kathmandu Nepal.

The Occasional Papers in Sociology and Anthropology has been all the times playing a laudable role in disseminating knowledge and information to the readers about these disciplines. It also emphasizes on how such disciplinary knowledge could be more useful in accelerating nation-building process.

Like previous issues, this volume is specially projected to elucidate the most pressing issues inherent in the Nepalese society and culture. The pragmatic solutions to address those problems have been also identified and proposed by the paper contributors. The editorial board would like to thank to the contributors, who, despite their heavy schedule, could contribute to this volume.

We should also mention that the timely publication of this volume is seriously affected by limited financial and human resources available to the Department. Hopefully, we should be able to overcome these constraints in the near future.

Finally, the editorial board would like to thank all those who have made it possible to bring out this volume in the present form.

Prof. R.R. Regmi
Head of the Department
on behalf of
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FOREST, PEOPLE'S PARTICIPATION AND CONFLICTS IN NEPAL

Dr. Rishikeshab Raj Regmi*

Introduction

Nepal is a landlocked country wedged between India in the south and China on the north. It has a surface area of 147181 sq. k.m. According to last census (1991), it has a population of 18.5 million with an annual growth rate of 2.08 percent. The population of male and female consists of 49.9 and 51.1 percent, respectively. The average life expectancy is 54.6 years. The literacy rate is 40 percent. The Terai (plains) in the south, the central mountain and the hills and the high Himalayan in the north divide the country into three main ecological zones. Each ecological zone differs in geology, climate and hydrological characters. The Himalayas region is inhabited mostly by Mongoloid ethnic groups and contains 7.8 percent of the total population and the Terai has 17 percent of the total land area. The life in this area is extremely difficult and isolated. The mountains, hills and terai covers 68 and 17 percent of the land area. 45.6 percent of the total population is settled in the hills and mountains. The Terai is inhabited by 46.6 percent of the population with increasing migrants. The dependency ratio in the present population structure is around 60 percent and agriculture is the main mean of livelihood. There are three main river systems, namely, Koshi, Karnali and Gandaki, which traverse from north to south and are uncrossable when swollen by monsoon rains and melting snows during much of the year. There are 5 regional centres, 14 zones, 75 districts and about 4000 Village Development Committees (VDCs) which play vital role as administrative and political units.

The mountain region ranges from 5000 meters to 8000 meters in altitude which constitutes about one-third of national territory. The

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hill region contains most of the grazing land and the forest for about 43 percent and the rest is the fertile tropical extension of Indo-Gangetic plain area locally known as the Terai. In the past until 1960, the Terai had the vast stretch of dense forest area. After 1960s when virulent malaria was eradicated, people from different directions migrated to this place causing huge deforestation and new settlements.

Food, fodder and fuelwood are scarce in the mountains and the hill where traditionally most of the caste/ethnic groups inhabit. Declining soil fertility, soil erosion, migration, landslides and growing population is pressing hard on the land resources and agricultural productions as well as to the environment.

Structure of Nepali Society

Owing to the mountainous environments the people of Nepal became very ingenious and militant in character and preserved their traditional life style or cultural behaviour till the middle of the present century without any change. There are several caste groups constituting 56.4 percent and the 60 ethnic groups constituting 35.5 percent of the total population. Majority of the people speak Nepali as their national language along with their mother tongue. Although officially, Nepal is a Hindu country, it has religious diversity with substantial Buddhist and Muslim minorities. Nepali society is made up of a variety of small units. They are knitted with deep network of social and cultural relationships through common descent, kinship, marriage, caste, religion and ethnicity. The social traditions of Nepal are an important feature of the cultural heritage of Nepal. The whole society of Nepal, be it any ethnic group is divided in various caste groups. The structure of the caste in every ethnic group is very elaborate and complex. Nepalese social, cultural, ethnic, political and religious spheres have been deeply influenced by its topography. Religious tolerance and co-operation with syncretism is the hall mark of Nepalese people.

Overview of Forestry in Nepal

The forest area of Nepal covers about 5.5 millions hectares (37%) of the total land area. Over a period of 12 years, 99,000 hectares of forest land has been lost, at an annual rate of 1.3 percent. In the mountains and the hills, less forest land has been lost than in the Terai because of the scattered nature of the forests and the lower agricultural productivity of the underlying land resources.

In the Terai area, the tropical forest consists of predominantly Sal (*Shorea robusta*) and other broad leaf species. *Acacia catechu* (Khair), *Salmalia malabarica* (simal), *Pinus longibora* (chir) are found in many parts of Terai. Sub-tropical forest are found in 3000 ft to 6000 ft on the mountain and the hills. Main species found are *Schima Wallichiana* (chilanue) and *Castanopsis (katus)*. Other common species found are *Dendro calamus* (bamoo), *Ulnas nepalensis* (utis) and *Rhododendron arboreum* (Guras). Temperate moist mountains forest prevails in the highlands between 6000 ft to 1300 ft. The common plants found in the area are evergreen conifer oaks, *Rhododendron*, *Juglairegia* (Okkhar), *Michelia excelsa* (Champ) and *Fraxinus floribundra* and *Arundinaria (nigalo)*, Cedar (deodar), etc.

Forest of the high mountains and Himalayas are mostly conifers and are suitable for commercial purposes. Forest in the middle mountains are now in a state of very low productivity because of over-exploitation. The forestry sector contributes more than 40 percent of livestock nutrition (HMG/DANIDA, 1988). A significant quantity of forest litter is used as compost for manuring the farmland. And more than two-thirds of the country's energy requirement is provided by fuel wood that comes largely from forest, shrub lands adjacent to farm. In addition, almost all the timber used comes from the forest.

Forests and Farming System

Forests are an integral part of the farming system. In Nepal, particularly in the middle hills, forest and trees are integral part of agricultural life. Farmers must have access to forest and tree products such as fuelwood, fodder, leaf litter and timber in order to survive. Farming system at lower elevation (below 1500m.) and the bank of the river have relatively more irrigated flat and terraced lands usually cut into the valley sides slopes. The land which is more flat and large size is known as '*Tar*' and relatively alluvial flat terraced having irrigation facilities during the dry season are known as '*khet*'. Rice is grown in both of these land types, where two to three crops per year are grown. In the higher elevations, villages have few irrigated lands known as '*Khet*', and more widely dispersed rainfed terraces are known as '*Bari*'. Rice is grown in both of these land types, where two to three crops per year are grown. In the higher elevations, villages have few irrigated lands known as '*Khet*', and more widely dispersed rainfed terraces are known as '*Bari*', Every year farmers grow two crops of maize, millet, barley, wheat and a variety of other crops on rainfed terraces. Another

kind of agricultural slopy land called 'Pakho'. 'Bari' is suitable only for the cultivation of the maize. Farmers usually plant potatoes or barley buck- wheat in the fields above 2300 meter because of the cooler climate, steeper slope, stonier soils. Agriculture is very marginal in such areas. The land located above 2500 meters is known as 'Lekh', which is covered by monsoon cloud and has broadleaf evergreen forest.

Forest and the Livestock

Livestock-raising is an integral part of the rural household economy and of the farming system that supports and supplements crop production and is the additional source of household income. It is also an important source of nutrition especially for the hill people and is intimately related with the religious and social status. Almost every farm family maintains livestock; cattle, buffalo, sheep, goat, pig and poultry. Livestock is the specialised activity of the mountains while in the hills it is subsidiary. Nepal has one of the highest per capita livestock per household in the world and thus has the world's highest livestock population per unit of land. Forest is also declining due to excessive pressure of livestock population because most of the animals are to be fed by fodder from the forest. The farming system continues to be a traditional one evolved over centuries. Crop production, livestock and forestry have been closely integrated and interlinked in the farming system, each supporting the other.

The agrarian people of Nepal depend on agriculture in which forest sector plays a vital role. The contribution of forestry to agriculture has given rise to the concept of agro-forestry. Forest supplies fodder for livestock, fuel to villagers for heating and cooking. Wood has even now remained a dominant domestic fuel for rural people. Fuelwood provides about 87 percent of the energy of Nepal and 7 percent in the rural areas. About 240 kg of dry wood is needed per year person for cooking and heating. This increasing demand for bio-fuel from forest can be attributed to the population growth in Nepal. Timber is another use of forest. Wood for construction is taken carelessly and the depletion of forest is extreme. The leaves and wood of trees have also religious and ritual significance in the Nepali society. Many Hindu and Buddhist rituals can not be fulfilled without the use of certain tree leaves and wood burning.

Irrespective of the form, deforestation, in fact, has not only increased soil erosion and landslides but also has made the availability of fuelwood, fodder, timber and other forest products more scarce.

Farmers spend more time and energy to collect their daily requirements. In spite of the international and national efforts, the status of rural people and ecological and environmental equilibrium is on decline. Grassland is essential for cattle. Poorly managed grasslands have degraded and given serious resource management problems in rural regions.

Socio-economic Factors of Forest Degradation

The most direct socio-economic factor that influences the forest resource is the size of the population and migration trends. The second socio-economic factor that influences the forest resource is income and price. The other important factors are the cultural determinant among various castes and ethnic groups, the role of women, in decision making process and property rights. It is because in Nepal inheritance of property is strictly on male line.

The other socio-economic factors that are responsible for forest degradation are:

1. Increasing dependence of local households on forest based cottage industries and other manufacturing processes.
2. Tourism, and
3. Hill-terai and valley plains linkages.

Community Forestry in Nepal

Community Forestry (CF) has become one of the government's main strategies for developing and managing the country's forest resources. Rules and regulations are provided to make local communities responsible. Though in the past forestry sector was controlled through a feudal system farmers had established their own system of management of local forest. These systems followed locally accepted cultural and social rules, norms and values. Following 1950, government nationalised all forests in 1957 to prevent feudal rulers from continuing to use Terai forest as their own property. After the nationalisation, forest ceased to be the property of the government. The people became apathetic towards the government because they were deprived of their right to manage and benefit from the forest. This alienation of the people from resource management culminated at the heavy destruction of the forest. The government failed to manage the forest resource through its bureaucratic machinery and in 1976 it recognised by law that forests will be managed by villagers who had used it sustainably and protected the forests. This initial attempt to set

things right took the form of entrusting the resources to the community through the local political body known as *Panchayat*. This policy was continued for over a decade until it was recognised to be ineffective. The local body was found to be too large a unit to develop genuine interest in supervising and managing local forests. This failure was amply seen by the decrease of forest area of 6.5 million hectares in 1965 to 5.5 million hectares in 1996.

The government brought a new Forestry Master Plan in 1989, which recognised the community forestry programme (CF). This programme relied on local user groups for protection, management and utilisation of the forest. The strategy was to phase wise handling over of all accessible forests to local communities to the extent that they were able and willing to involve in management. Studies show that the potentiality of such community forests is 3.5 million hectares, 61 percent of the total forest area.

The procedure for handing over a forest to a community consists of :

- Formation of a user groups, following an identification process.
- Demarcation of forest as a community.
- Preparation and approval of an operational plan
- Handing over the forest to the user group and implementation of the operation plan.

Forest Legislation

The first legislative act of nationalisation of private forest took place in 1957. It abolished private ownership of forests and transferred it to the government which was taken negatively by the people. Private plantation with less than 1.25 hectares in the hills and 3.25 hectares in the Terai were allowed to remain under private ownership. The second important legislative forest act of 1961 tried to restore government control of the national forest by providing offences and punishments. This act provided the regulation of sales of forests products and empowered the government to classify national forests into different categories according to use. This Act was amended in 1976 and classified national forests into four different categories:

(1) Panchayat forest (2) Panchayat protected forest (3) Religious forest and (4) Leasehold forest.

Panchayat forests and Panchayat protected forests were those forests which could be handed over to local village Panchayats for

protection and management. These rules were amended twice, once in 1979 and again in 1987. The salient features of these rules were:

- The district forest office would hand over a forest to a local village Panchayat after seeking approval from the Regional Forest director.
- The local village Panchayat would form a user group which will be responsible for protection and management of the forest according to an operation plan.
- The village Panchayat could dissolve the user group and form another if the user group deviated from operation plan.
- The money from sale of forest products would go to the Panchayat fund.

The 1978 legislation gave authority to the Forest Department to handover forests to elected village leaders of Village Panchayat (an elected village unit) but despite the policy and orientation to village leaders, legislation was very conservative and impractical. It suggested that the government wanted to shift deforestation and degradation problems to the local body without conferring any benefits or real authority to the people. This legislation directed that only badly degraded lands could be handed over to the local community. To the policy makers and senior forest officials the problem was that there was no long term vision. The bureaucrats and technocrats wanted to shift the protection problems of highly degraded forests to community leaders, and retain the other good forests with the government. Due to this, community forestry (CF) programme did not progress well. In 1989, after the restoration of democracy, the term 'Panchayat' was amended to 'User Group'. In 1993, the government published the forest act of 1993 which has been implemented recently. The forest act of 1993 categorised the forest into two broad classes, National Forest and Private Forest; (ii) Leasehold forest; (iii) Government managed forest; (iv) Religious forest and Protected forest.

The main Features of Forest Act are :

- The district forest officer is empowered to handover the management of a forest directly to user group;

- The user group can fix the price of the forest produce independently, sell the forest product, and transport them any where in the country;
- User groups can appeal to the Regional Director if the district forest officer decides to take back the community forest for deviation from operation plan.

Present Status of Community Forestry

Previously field staff tried to motivate people towards community forestry program through extension even though they were not trained well. Initial field activities focused on nursery establishment and plantations to provide demonstration to villagers. The formation of user groups and handing over of community forest was very low. At present, focus of the community forestry programme is on natural forests because the villagers prefer to take over rather than establishment of plantations due to the quick benefits associated with them. Non-governmental organizations are also active in convincing local people to take over forests. User groups are provided opportunities to discuss ways and means of managing community forests through networking in districts and at the national level. Formation of users' groups and handing over of forests in the hills and mountains in particular is gaining popularity. The district level forestry staffs are encouraged to plan community forestry work through Range-level planning, by a method of participatory rural appraisal. The user groups received a cash subsidy as an incentive for plantation development and protection. They are getting training and managing through their voluntary participation. The majority of operational works are done by the members of the Forest User Group (FUG) as part of their jobs. Some of the subsidies received from the government for protection, nursery raising, planting and pruning are saved and deposited by the FUGs in their fund. As funds were accumulated and forestry operations were not costing, government was completed to amend the legislation so that "the surplus fund of the FUGs could be spent for other community development works" such as drinking water, irrigation, school, health, sanitation, roads and social activities. This amendment made them educated, healthy and their socio-economic status increased. In many FUGs the fund was used for loan mobilization which is cheaper and easily managed by the groups. This showed the community forestry is the best solution to

manage degraded forest resources of Nepal through people's participation. The empowering of people is progressing.

Different Types of Conflicts

Conflicts do occur when people of different views and perceptions on an issue meet and discuss. When decision is made and others interest is encroached, people divide themselves in opposing groups. These conflicts are found between individuals, within a group, between groups or even between institutions. Similarly conflicts are also seen within a forest users' group, between two forest users' groups, or between a users' group and district forest office.

Conflicts within Forest User Groups

Because of the domination of high caste people in users' group, sometimes low-caste people do not speak out during the formation of users' group but later on, the conflict surfaces during benefit sharing. This type of conflict has been seen in Dolakha and Ramechhap districts of Nepal.

Conflict in Sharing of Benefits

Community forests, handed over to users' groups, are utilized for fodder, fuelwood etc. Conflicts arise on the issue as to how the forest produce should be shared among the various types and size of the users' families.

Conflicts in Participation

Conflicts arise when a member of a users' group is inactive. The active members feel that because of their low participation, the inactive members should not get same benefit as the active members. Visible participation in community forest is observed in the protection work. In many communities, the users decide the protection work by rotation. Protection works require continuous watching of the forest and physical presence at the sites. But sometimes, some users of higher social status or caste may not participate to the desired extent and yet may wish to enjoy the benefits. Higher social status may prevent other members from rotating lower status from complaining openly but they will feel resentment and this leads to conflict. The people residing near the forests are asked to participate or contribute to vigilance and protection work. If they are asked to do such duty for longer period, they demand more benefits creating conflict with the other members of the users' groups.

Conflict for Leadership

In a village or community, people want to gain social status either by wealth, or by gaining higher education, or being in a leadership position. Being nominated as a Chairman or a secretary or to any other position in a user-group committee helps one elevate his/her status. This could be stepping stone to becoming a local leader. When two or more people compete for the same position conflicts generally occur. This becomes very serious when their desire is driven by political motives.

Conflicts Between Users Groups

If a patch of forest lies in one Village Development Committee (VDC) and the forest is being used by villagers of the same area and when the boundary of a VDC is redrawn, then the conflicts arise. The conflict also takes place when the boundary of VDC is not correct and users' groups claim the benefits of the forest products irrespective of their equal participation.

Conflicts Between FUGs and DOF (Department of Forest)

When the operation plan is approved and the forest is handed over, a representative of the users' group committee, usually the Chairman, and the district officer sign an agreement to implement the operational plan without deviating from any provision. But instances of deviation have been found. Deviation occurs when DOF or users' groups are zealous to profit money or income.

Resolution of Conflicts

Various types of conflicts which arise within FUGs are resolved through mutual understanding and negotiations. If conflicts are politically motivated, then resolution becomes difficult without the intervention of powerful political workers.

Major Constraints of Community Forestry Legislation

Due to the following observable problems or constraints in CF legislation, smooth resolution of conflict sometimes is not an easy affair. The main constraints are:

1. FUG can punish their own members but cannot punish persons outside their FUG if they misuse the resources.
2. FUG can amend the operation plan and need to inform to DFO (District Forest Officer) but do not need approval which may lead to the uncontrolled

exploitation of the forest resources instead of conservation.

3. If FUG commits mistakes, DFO can take the forest back without intermediate soft punishment or provision to alert.

Current Policy of the Government

The government of Nepal has shown its commitment to institutionalisation of forest users' groups by recognising them as legal independent entities in the new rule. The recently implemented forest Act (1993) and the Forest Rule (1995) have diminished some of conflicts. Provision has been made in the new rule for the users' group to mortgage forest products of the CF on the approval of district forest officer if the forest users' group desires to obtain a loan from a financial institution for development of community. The forest users' groups previously were allowed to market their forest produce on the discretion of forest officials causing conflict. This has been resolved with the provision of free marketing of forest produce in new rule.

The objective of the community forest program has been under debate as to whether it is only to fulfil subsistence needs for forest produce or whether it should commercialise the community forest by permitting installation of wood-based industries. This conflict has been resolved positively by the Government by incorporating a provision in new rule that allows users' groups to install wood-based industries with the permission of the district forest officer. The new policy allows users' groups to farm non-timber forest products and also some kind of cash crops which do not affect the growth of the forest.

Lessons for Other Countries

The Community Forestry Programme through people's participation did not reach the current phase with 1978 legislation alone. The foresters and bureaucrats were not sure how to manage the ever degrading forest resources. The indigenous and traditional knowledge was not well studied and recorded. The problem was becoming serious. The forester realised that people's participation was a must but they were not clear which approach would be the best. It was very difficult to compromise between the legal owners and the real users of the forest resources. Lot of lessons were learnt from the good approaches of the forestry programs carried in Indian State of Gujarat and Indonesia during 1980s. However, their programs were

found to do only with private forestry and industrial planting than with common property resources. It was found that the problems of Nepal's forestry was of different kind because the problem of Nepal was more to do with the degeneration of biodiversity in National Forests, desertification, and to meet the requirements of local community. The experiences of Gujarat and Indonesia were modified to suit the local socio-economic situations and political environment of Nepal. The politicians, bureaucrats and donors were well co-ordinated to bring positive changes with experiences from different parts of the country. Because of the many multilateral and bilateral donors such as from Australia, U.K, Germany, Denmark, Finland and Japan were attracted to support the various projects. Along with these countries, several INGOs and NGOs are helping to raise the forest with various programs. Other countries have learnt the lesson regarding many issues and solutions from Community Forestry projects of Nepal. The main lesson was that in a country like Nepal if the communities are empowered and people's participation are encouraged, the resources can be well protected and well managed. Simply involvement of local communities in government programs cannot be successful. The users should get feeling of ownership.

The community Forestry in Nepal is designed to suit the regional ecosystem, socio-cultural factors, subsistence agriculture in mosaic form with forests, indigenous knowledge, the political situation, the slow growth of vegetation, 100 percent government owned resources, misuse of resources by the people and the government, linkage of forestry with agriculture, open livestock grazing, forest fire problems, fragile Himalayan physiography and the co-ordinating attitude of the people of mountains and the hills.

It has been seen that the organised communities are the better managers. They should be empowered and supported. The procedures to implement programs depend upon indigenous knowledge and socio-political and ecological conditions of the regions. The users should be protected with sound legislation through people's mandate. The administration should be positive and supportive, not barrier. The journalists and media have to play major role in communicating government's policy and successful cases from one corner to another. Intensive training and preparation of guidelines play key role to make the CF program successful.

Conclusion

Community forestry in Nepal with the participation of the people since 1970s has developed positively in action. The process of handing over community forestry is continuing and increasing. Large forest areas are brought under community management and protected national parks and reserves. Nepal is endeavouring hard in community management of common resources and had to address many kinds of conflicts. Historical development of Nepal and its socio-cultural aspects have played a great role to the evolution of conflicts in community management of the resources. Many political, social, cultural and economical factors play critical role in the functioning of community forestry and creating the new problems and also resolving the conflicts. The conflicts have occurred within and between users' groups and between users' groups and the Department of forests. Each type offers unique lesson, showing the need for stakeholders to know and understand the enormous potential of community management of forest resources. The potential and constraints provided by forestry laws and regulations and the importance of facilitation and mediation to resolve conflicts is enormous.

There are conflicts which have impact on sharing of natural resources within the communities. Stakeholders become helpless when they are marginalized socially, economically, and politically by outsiders. Conflicts come before the scenes not only due to lack of access and inequitable distribution of forest resources but also due to prejudices based on class, caste, ethnicity, gender and power. They appear constantly in guise of community forestry conflicts. There is a web of social interaction over the exploitation of common resources. Sometimes gender discrimination underlying the dispute between women's forest user group and Department of forest creates profound problems. The disputes arise when there is no equitable distribution of forest products. Issues of boundary dispute, leadership and access to grazing and are brought out severally during community meetings. In the mountains and the hills social and kinship relationship adversely affect the community management and benefit sharing. Conflicts not only breaks down but also strains the social harmony and structure of the rural society. We are aware of the impact on natural resources but do not have authentic anthropological and ethnological documentation of human impacts. Unresolved disputes and conflicts disrupt social harmony and hinders development interventions. Because of the

growing population pressure and depletion of natural resources more and more conflicts are bound to occur in Nepal in future. Therefore, there is a need to give urgent attention for conflict resolution policy, laws, procedures, operational guidelines, institutional arrangements and human resource development at national and community level.

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RESTORATION OF DEMOCRACY AND PEOPLE'S EMPOWERMENT IN NEPAL

Kailash N. Pyakuryal*

Political Economy -- A Quick Review

The process of planned economic development in Nepal was begun in 1956 with the inception of its first five-year plan (1956-1961). Nepal has now entered into its ninth plan period (1997-2002). A government document reveals that, despite the development of some physical infrastructure such as roads, schools and colleges, health centers, few industries and the like, achievements of these plans do not measure up to the expectations. No substantial improvements have been made in the agriculture sector, which is still the source of livelihood for the majority of the population (Panday, 1999). Internal savings have been low. External assistance has not been utilized gainfully. Nepal has a foreign trade deficit. Unemployment and economic inequality have not been reduced. As a consequence, the problem of poverty remains unresolved. Economic growth does not keep pace with population growth, and 42 percent of the total population of Nepal still falls below the poverty line.

Nepal had a long tradition of a feudalistic pattern of governance in which the entire state machinery was geared toward fulfilling the interests of a handful of upper caste ruling elite. Whether it was during the Gorkhali conquest (1768-1846) and the autocratic Rana regime (1846-1950), or after the overthrow of the Rana regime, the situation did not change much. Nepal was liberated from its own people in 1951, when a parliamentary democracy was declared. During this period, the king appointed several prime ministers who formed governments. These governments survived from 3 to several months. A general election was held in 1959 and the Nepali Congress Party obtained an absolute majority. A single-party government was formed. However, people at large did not experience any substantial

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change in the way the whole system operated - the state continued to be under the control of the king and the ruling class, who were not willing to relinquish the privilege they were enjoying. In 1961, this system was prematurely dismissed after being allowed to operate for nearly 18 months. This was followed by a partyless Panchayat system in which the king appointed the Prime Minister. The Panchayat system operated under the direct and absolute control of the king supported by the army and the established economic and political interests.

By 1990, the people of Nepal had become quite restive and totally disillusioned with the palliatives administered by the Panchayat rulers in the name of economic development and social justice. They rose against the repressive Panchayat regime and were able to restore a multiparty democracy. Yet the past nine years (1990-1999) remind us of almost the same number of years in the 1950s (1951-1959). During the 1950s, there were very few political leaders in each political party and also a very few conscious mass to propagate political ideology. Those who were in power were either mostly engaged in supporting their own party or the party members, and the majority of the people were left behind. More recently, during the 1990s, the Nepali people have tended to partition themselves into various political groups and factions, and the political parties and the leaders have clamored for power, oftentimes at any cost, even by indulgence in blatant violation of law and criminal activities. The significant difference is that the center of power shifted from the royal palace to political parties and their influential leaders.

Thus, Nepal remained isolated from the outside world, shackled with feudalistic modes of production and distribution until 1951. A handful of influential families and caste groups basically controlled the economy, and the majority of the people were deprived and alienated by the ruling classes. The dawn of democracy in 1951, democratic exercises during 1951-59, and the first parliamentary general election in 1959 had opened some opportunities for some progress. But the dismissal of the parliamentary system and introduction of a more stable but undemocratic Panchayat regime in 1961 had a setback on development. The restoration of the parliamentary system of democracy in 1990 has once again opened opportunities on several fronts for positive actions to raise the quality of life of the people. However, the continuation of power and influence of the established interest groups, coupled with political

uncertainty, has resulted in no noteworthy progress. As a result, Nepal has remained one of the poorest countries of the world.

Nepal's Development Needs

In the past, Nepal's needs were either identified by the rulers or the donors, or more recently, by the multinationals. The majority of the people have no say in shaping the destiny of the country, as always in the past. They have been treated merely as the objects.

In the name of development, the Rana rulers abolished slavery from Nepal and established one high school and a college in Nepal during their regime. As the people were utterly exploited, the Ranas thought that some kind of progressive activity might help them raise their profile among the people elsewhere and also it might be helpful in reducing some of the dissatisfaction inside the country. Thus these changes did not arise out of a real desire to help people get relief from their miseries.

Similarly, when Nepal was declared a democratic country, donors' interest in Nepal grew (Dahal, 1998). Each developed nation had its own path/stories of success, while the practice of development in Nepal looked like the story of the blind men and the elephant. Some donors thought Nepal needed assistance in health, others in education. Some assisted in roads and others in agriculture. In recent years, water resource has been perceived by the multinationals as one of the important areas that could raise Nepal's standard of living to a great extent, and several organizations and countries have expressed their intent to get involved in harnessing this resource. Who gets most of the benefit after these resources are exploited remains to be seen.

Nepal is one of the developing countries that suffer from poor development performance and an uncertain social future. In numeric terms, Nepal might have succeeded in achieving some physical targets, but development is about human beings, their habits and habitats. Those numbers have their values only when the members of the society graduate to become humane and resourceful to their families and ultimately the nation. When they are not, as definitely is the case of Nepal, the numbers can be deceptive. The social structure is still feudal. Property and wealth are in very few hands. Land, which the majority of the Nepali people need for their livelihood, has a very skewed distribution. Very few have most of the land and the majority of the farmers have very little. Unemployment and poverty are rampant, and they have become a key feature of Nepal's economy. Very few have access to safe drinking water, and the same is true of

health and education facilities. These are not accessible to the majority of the poor. Most of the farming is dependent on rain-fed agriculture. The yield rates of important crops have declined during the past three decades. Landslides, soil erosion and land degradation are other problems that need to be addressed immediately.

Nepal has been fortunate to receive foreign assistance very disproportionately to its size, as compared with some other countries. But its effectiveness has become questionable.

Hundreds of thousands of young people have emigrated (muscle drain) to other countries to look for jobs or to get better education. Skilled intellectuals, too, have been migrating in increasing numbers hunting for better job opportunities abroad and creating an acute brain drain in the country.

People need appropriate and relevant education. There is a need for a charismatic leader who could help hundreds of thousands of followers restore self-esteem, dignity and high morale. At present, there is not even a single leader, political or spiritual, who has credibility. The majority of the people have almost lost faith in the bureaucrats and politicians, and corruption and greed have become a big problem to Nepal's development.

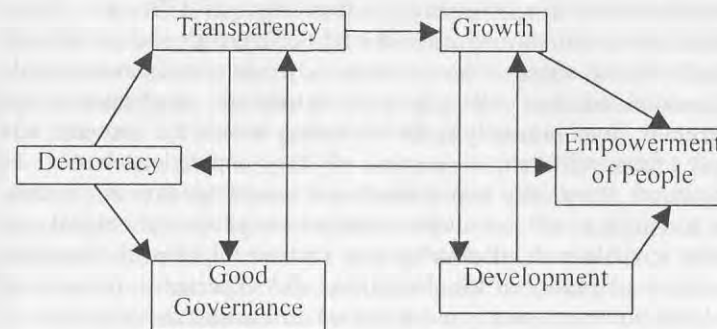
The prolonged economic and social stagnation is having its effect on the future of the society as a nation-state. The inability of Nepal to solve old problems and cope with new ones has resulted in a larger issue of ethnic tension, communal competition and other forms of social stress. The country is gradually losing the collective will to struggle earnestly. The unabashed subservience of the ruling classes to their selfish instincts, on one hand, and the external benefactors, on the other, may be only one indication (Chapagain, 1999). Can a democracy rooted in a fragile economy and a feudal social structure become sustainable? One needs to find out the development needs of Nepal in this context.

Conceptual Framework

Democracy. It is assumed, that democracy brings about transparency and good governance, which, in turn, facilitates growth and development. When growth and development take place, people are empowered. Thus democracy ultimately leads to empowerment of the people. Empowerment is viewed as an ability and right to make decisions. It encompasses the freedom of thought and action, access to information to develop one's potential and ability to earn a living.

Democracy is usually assumed to be a sufficient condition for empowerment.

Diagrammatically this is represented as follows:



People's Aspirations

The people of Nepal struggled hard to bring democracy in their country. Several of them achieved martyrdom. But the exploitative mechanism in the society did not change, and the majority of the people remained untouched by such political changes. The Rana rulers overshadowed the Shaha king's dynasty and captured power for 104 years. The people's revolution overthrew the Rana regime., This resulted in reinstating the king's power. Thus for nearly four decades, the country treaded on the path of a non-democratic partyless Panchayat system under the active leadership of the king of Nepal. Freedom fighters during this period operated their liberation movement with their lives at stake. Thousands of such nationalists were killed by the state, and many more were put in jail and tortured to death. Those who survived fought together with new vigor, motivated the people to get mobilized in the people's movement of 1990 and were successful in restoring multi-party democracy by toppling the Panchayat system and making the king a **constitutional monarch**.

The people of Nepal and the Nepalese abroad of all classes aspired to a changed situation where they will be able to improve their life situations. They trusted in the leadership, and in the integrity and competence of their political leaders. They believed that the leaders would be able to properly guide the bureaucracy, which then together will follow an uncorrupt path with all democratic norms. The leaders

were expected to become the **role models** to the society as they had preached ideals and political doctrines to their political cadres and ultimately the people during the underground period (Panchayat period, 1961-1990). The intellectuals who shouldered important responsibilities during the people's movement of 1990 and helped political parties in various ways during the underground period also aspired a Nepali society where very quickly a democratic norm would get established and all existing exploitative mechanisms and institutions from primarily a feudal society would be uprooted and people from different segments of the population would be empowered. It was also hoped that Nepal would develop as a nation-state and none would feel alienated. Nepal would very quickly take up a more suitable path of development that would help the Nepalese improve their quality of life. Nepal was also expected to preserve its good traditions and quickly move toward economic transformation.

Critical Assessment: Hopes and Despairs

Nepal has entered into the new millennium. But nearly half of Nepal's population still lives in absolute poverty and illiteracy. Basic amenities of life are still a luxury to most of the people of Nepal.

Nepal's GDP growth rate has steadily declined throughout the 1990's. Agriculture, which is the mainstay of the population, is growing at almost the same rate as population during this period. The performance of the non-agricultural sector has decelerated. The fiscal deficit is largely financed by foreign aid. Over the past several years, the current account deficit has been fully financed by foreign aid and miscellaneous capital inflows (Dahal, 1998; Economic Survey, 1996-97).

Under the umbrella of planned development, Nepal over the past four decades unsuccessfully tested a number of development models financed fully by foreign aid. The current package of economic reform programs dates back to 1986 and came into broader and deeper form in 1992 when it was introduced by the first elected government after the restoration of democracy under the broad banner of "liberalization and privatization". When the 1994 parliamentary election resulted in a hung parliament, political instability set in while further reforms slowed down. The third parliamentary election of 1999 has mandated a single party to run a majority government, and its assessment would be premature at this moment.

Poverty, unemployment and business slowdown, and political tension and unrest are on the rise. Criminal elements appear to have

gained influence. Corruption has gained higher grounds. There has been a sharp decline in social values and norms such as respect for honesty, competence, hard work, entrepreneurship and intellectual integrity are systematically being undermined.

Political change was thought to be the panacea to all kinds of human miseries in Nepal and the multiparty parliamentary democratic system an enabling factor to empower the Nepalese people. But to a great despair, the majority of the people have remained untouched -- i.e., they are still not the partners of development.

More and more people are becoming indifferent, and they see development as something alien to their own culture. So, development has meant something that relates to a notion to change and to be different. Can Nepal then be said as developed when it is different from what it used to be? Or, is it absolutely necessary for someone to behave very differently to be labeled as "developed"?. If so, then Nepal can be seen as already developed. I am saying this because the Nepalese used to be in harmonious relationship with one another in the past. But ethnic tensions have increased at present (there are 61 ethnic groups in Nepal as recently recognized by the government). The present mode of development has created this situation. There were few people to feed and Nepal used to export food grains until the mid-1980s. Now it imports food grains and crop yields have declined. Land has degraded and unscrupulous use of chemical fertilizers and insecticides and pesticides has increased. Similarly, organizations have grown and become more complex. These are only some examples. Hence if being simply different is development, then Nepal is already developed, but this is not true. Similarly, if getting a different political system that is labeled as one of the best systems would have been a sufficient condition to democracy, empowerment and development, we should certainly have by now experienced the fruits of democracy. ***I see corruption and greed as two of the most important factors that have hindered the Nepali society from moving ahead.***

In spite of an adorable degree of faith in the wisdom and integrity of their leaders, the Nepalese people generally were betrayed. During the period of hung parliament, the lawmakers were sold and bought for millions of rupees by political parties for defecting from or supporting the parties. These political parties had to collect this money from business houses or even smugglers. What would we then expect from such leaders or the parties that had no choice than to surrender to the investors? These lawmakers made business by passing a bill in the

parliament to get all tax exemption for the parliamentarians on imported vehicles. Businessmen and smugglers imported costly vehicles on the MPs' quota, and as commissions, those MPs either took cash or cheaper vehicles from their investors. Some others rented their vehicles to earn money. Several of the MPs who had their constituencies on the high hills where there were no motorable roads also imported vehicles for accumulating money.

Those MPs were not even ashamed of smuggling men and women to foreign countries by misusing their diplomatic (red) passports. They even handed over their diplomatic passports to the smugglers, who imported foreign goods and materials with all duty exempted at the airport custom. *Thus there was an utter misuse of authority, and those who misused most might have earned most, and they were the ones who succeeded in becoming more powerful.*

The election costs have reached a level beyond the reach of an ordinary Nepali. It is always a desire of an ordinary politician to compete and get elected again. This provides opportunities for various ways to illegally collect money, and the one with more money also becomes a darling to the party and has a higher chance to get a ticket for candidacy. This in Nepal is known as a "Pajero" culture, which is synonymous to a corrupt parliamentarian. But who taught the Nepali politicians all these dirty political games? Certainly their colleagues in Bihar and Uttar Pradesh in India were the role models and some diplomats in Kathmandu who in the name of supporting democracy in Nepal, got involved in financing these corrupt politicians and parties.

In bureaucracy, too, things are not much different. A foreign consultant with the same degree and similar experience (most of the time less experienced in the Nepali situation) gets usually a monthly house rent that may be equivalent to the annual salary of his/her Nepali counterpart. The consultant has all facilities and all costs of business promotion covered by his organization. The poor Nepali counterpart, on the other hand, can not spend/reciprocate in the same way. This is very humiliating to him. The foreign consultant makes an assessment of this situation and exploits him in many ways such as by extending his own visa or obtaining goodwill and other fringe benefits. If the consultant is smart enough, he may help one or two of the counterpart's children get admitted to one of the universities abroad. Nepalese culturally feel so much obligated with this kind of help by the consultant that the counterpart may then do any unethical thing for the consultant's benefit.

A very high ranking government officer in Nepal hardly gets a monthly salary of little more than US\$100.00 whereas an ordinary foreign consultant generally draws \$ 10,000 a month with additional benefits. If he goes to the field for seven days, his per diem may cover all the costs for the whole month. On the other hand, a Nepali official gets a per diem which is barely sufficient for a meal. If he has two school-going children (average family size in Nepal is six persons), he would like to send them to an English boarding school, and the monthly cost for the school for two children might generally be closer to \$ 90. He has only \$ 10 left for renting a house (an ordinary house in Kathmandu, which has three bedrooms and a living room, would cost nearly \$80), to cover the costs of food, medicine, telephone, water supply and the like. One could ask me why they need to send their children to an English boarding school. My answer would be because they must get good grades in the English examination (TOEFL) before they could be considered for admission in good universities abroad. But nobody seems ever have considered that efficiency in English may certainly facilitate the review of literature in English but may not be related to one's intelligence? If a foreign expert asked me to guess the weight of a lamb in bushels and I ask that foreigner to guess the same thing in dharni (Nepali unit for weight), I am sure both of us will be rated as dull.

The root cause of greed and corruption is not generic to Nepali culture and society, although there is a tendency amongst some of the foreign donors and collaborators to project it that way. It is an acquired syndrome nurtured very well mostly by the multi-nationals. The highest and ugliest corruption appears in any foreign-assisted mega project where international bidders (companies) secretly compete among themselves through their agents and motivate the local recipient organization to accept huge amounts of money illegally and make decisions in their favor. In most cases, the donors know this, and yet they support their own companies. To curb this, we need assistance from the countries of the north, too, though some international influence in Nepali politics will remain there, which is unavoidable and is equally true elsewhere.

What could we infer then? Is there still a hope to improve and strengthen democracy and liberate the Nepalese from the vicious circle of exploitation, poverty and loss of dignity? I strongly believe that Nepal could still be appropriately developed. Nepal is rich in natural resources. These could simultaneously be harnessed and conserved. Its

cultural heritage as a symbol of ancient civilization, its scenic beauty and the majestic Himalayas would still attract visitors, and its geopolitical situation will continue to be of interest to many. Nepal's terrain, rivers, plain and high hills all offer a situation where it should be successful in utilizing comparative advantages. It is interesting to note that Nepal already has a critical mass of well-trained human resources currently partitioned into various political ideologies but with a great potential to work together. Its people are hard working and well disciplined. The endemic anomalies can also be arrested, provided that there are sincere political will and leadership with good faith in the democratic ideals coupled with a civil society that directs the government to become more transparent and accountable to its people. Having achieved this, Nepal would certainly march towards the path of environment-friendly development through empowering its people and strengthening its democracy.

Epilogue

No one disagrees that the pace of development has been slow in Nepal. The elite, the intellectuals and the political activists all believed that political change -- i.e., restoration of democracy - was a sufficient condition to the empowerment of people and development. Free and fair elections would pave the path for better democracy.

Nepal had its third general election in May 1999 and on average, 66 percent of the voters cast their votes. Although this participation rate is promising, the voters had no say in the nomination of their candidates. It was the party president/the general secretary or his designate, who had the greater role to play in approving a party candidate for each constituency. The people's power and authority were indirectly stolen away by the parties and the party leaders.

The elected governments in the past passed a Human Rights Bill and the Local Autonomy Act (decentralization). These can be taken as positive steps toward making a transparent and accountable government. However, until now, these bills have been more talked about than practiced.

Nepal certainly has an open political system where we can agree to disagree. But the democratic culture and values must be allowed to flourish. People in Nepal are very cautiously optimistic about the success of democracy, which would ultimately lead toward empowerment of the people. Nepal's democracy must provide the Nepalese opportunities for mass participation in each step and the process of development. Democracy that ignores people's

empowerment can lead to anarchy, and over centralization might lead to self-destruction. A democracy that is founded in a very weak economy and fully dependent on foreign assistance is always in danger, and empowerment of people under such conditions always becomes a desired goal. Though democracy is a necessary condition to empowerment and development, it is not a sufficient condition. So Nepal must find ways to strengthen its nascent democracy by improving the quality of life of the majority of its people.

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PEOPLE-CENTERED DEVELOPMENT IN NEPAL : An Innovative Approach

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1. Introduction

The concept of development, in recent years, has gained much prominence as a subject of study and reflection. It is now well accepted that development obviously is a multi-dimensional effort. It also involves a multi-faceted approach in explaining the processes of economic development and social change. More importantly, development, instead of being a growth of few parts, is a broader process of social evolution encompassing all aspects of human life. This would also imply that it draws attention to the process of change which is purposive and positive as a result to which happiness of both people and their society is ensured.

In spite of this well-deserved status, the parameters of development are so intricate that they cannot be defined to universal satisfaction. Anthropological studies unanimously suggest that people representing different social, cultural and ecological realities always have differing perceptions of what is desirable to them. This, in turn, implies that meaning of development varies across societies, cultures and ecological settings. Thus, this multi-faceted term "development", like an abstract art, gives different visions to different people. This idea is rooted in the very fact that human societies throughout the world represent diversities in terms of their culture, societies, needs and concerns. It is against the background of this very context that the concept of people-centered development enters the scene of anthropological discourse and deliberation.

(a) Significance and Relevance of the Present Study

The concept of people-centered development occupies a central place in the present study. The basic premise for the people-

centered approach entails that if development is meant to fulfil people's needs and aspirations, it cannot be imposed from "above" and transplanted from outside, which have often far-reaching counter-productive consequences on the harmonious functioning of the small-scale societies. Such an attempt would be similar of fixing alien key in our lock having exactly a reverse profile. It does not work at all.

The concept of people-centered development leads us to the profound realization the development must be an indigenous process. The concept of indigenous development *per se* envisages a perspective in which people living in a specific social, cultural, economic and ecological setting define their own concept of development definition of relevance and correspond indigenous circumstances (Berreman 1994 : 6). Above all, it should be indigenously inspired, selected, guided and evaluated. This means development policies and practices must identify, nurture and sustain indigenous potential, means and resources to express diversity and plurality of social values, culture, institutions and identities of each nation and community (Wangoola 1993: 3). Accordingly, for the purpose of this study, people-centered development is primarily defined as a culture-relative, location specific, ecologically conditioned and social setting ingrained concept.

Particularly, over the last few years, people-centered development has been quite useful in understanding the broader processes of change and development because among other things, it focuses on the challenges of equitable and sustainable development (Korten 1992:5). On the other hand, it also stresses pragmatism, flexibility, and the contextuality for innovative solutions to the process of social change (Brohman 1996: 329).

In recent decade, it has been widely realized that the problem of development is basically social, cultural and human in nature and not merely technological or economic. Merits of technological change is one aspect but the more crucial aspect is how people perceive it and how close it is to their needs, problems and priorities. In reality, development through strong techno-economic base does not necessarily mean a search for best solutions for the enhancement of overall progress of the community. It rather entails contact with the world of real people and rediscovery of their needs, aspirations, priorities and potentials. Mathur (1990 : VI) attempts to put the concept of people-centered development within the perspective of anthropology as he points out, "the people-centered development presupposes first-hand knowledge of the people concerned". This implies

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that development entails contact with the real world of people, rediscovery of their ways of life, incursion into their vision of society and nurturing their potential to overcome problem-situations so that their intended goals are truly achieved. Above all, people-centered development approach is pragmatic and innovative

(b) The Debate

A recent debate on development seems to be moving around two dominant development paradigmatic orientations. The first view holds that villagers are poor, ignorant and incapable of handling problem-situations which they face in their day-to-day life. Hence, they must be convinced, motivated, educated, manipulated and if the need arises then intervened through coercion. In the present study, this is referred as paternalistic, mechanistic and deterministic approach to development intervention. The conventional theories of techno-economic growth are trying to maintain this approach.

The second view presumes that villagers know a great deal about the causes and consequences of what they do in their every day life. People are also capable to handle problem-situations by making optimum use of cultural, social and human resources available within their village communities. In this perspective, it is maintained that villagers should be left alone to undertake their development with no outside interference or stimuli. This is referred as a liberal or populist approach to local level development intervention in the present study.

The fundamental question raised in this study is that both these above mentioned approaches are unable to address the complex social, cultural and economic problems faced by the people especially at the village level. Based on these insights, it has been realized that there is a need to develop an alternative innovative model which concentrates on the integration of "outside" scientific know-how, resources and other forms of assistance with the "inside" culture, knowledge system, resources and other empirical methods of the villagers. According to Barnett, an innovation is "any thought, behaviour, or thing that is new because it is qualitatively different from existing forms" (1953: 7). To follow Barnett's view, its newness is rooted in the old, in the sense of recognizing that which already exists and making it compatible with the new one to effect a more rational and appropriate change. Indeed, the term "Innovative Development" in the context of the present study is understood as a process of incorporation of "new" into the existing one and also involves a framework to recognize or modify it to address the changed

circumstances of the present. This innovative model of development, allows technological involvement from both directions, "inside" as well as "outside". It is believed that such an approach exerts a great potential to ameliorate inner inclusiveness of outside know-how, support and assistance in more appropriate ways for the solution of the local level development problems.

2. Aims and Scope

In the South Asian region, Nepal provides a typically "hard case" of development in several ways. Nepal's development problems have many sides. The most visible and posing problems faced by the country are: rapid population growth, widespread poverty, excessive depletion of both natural and cultural resources, slow planning process and knotty issues related to the upliftment of the quality of life of the rural poor. It is a stark reality that the majority of the people who live in the rural areas of Nepal are marginalized, vulnerable, weak and powerless.

In order to overcome these pressing problems, Nepalese planners and policy makers have tried many development models most of which have been borrowed from the successful spread effects of western countries. Their origin have been embodies in different historical realities, different socio-cultural contexts and different sources of knowledge as well. Not surprisingly, the irony is that the models which work successfully elsewhere have failed to address Nepal's complex social, cultural, economic and ecological problems.

Of these many problems faced by the Himalayan Kingdom of Nepal, reports on the frequent failure of development policies, programmes and projects are the most critical phenomena. Hence, the challenges on the rural development front seem most daunting and enduring. Under the present circumstances, the need for a better understanding of development programmes and projects under implementation, specially at the grassroots level, prompted the selection of this particular research work. Against this background, the present study aims to examine the *modus operandi* of the programmes and projects in operation, the crucial bottlenecks in their successful implementation and the parameters of planning framework required to support innovative development for the rural areas in Nepal in the emergent future. In order to address the above mentioned challenges and to provide thereby a policy context for innovative development planning, this study sets the following objectives :

- (a) to examine in detail the processes and problems of people-centered development in rural area from the point of view of local people; essence of structure of their society and the inner logic of their culture, institutions and values;
- (b) to assess the potential role of underlying socio-cultural forces and variables chiefly responsible for making the development programmes and projects unsuccessful or partially successful or successful primarily those implemented in the village communities in Nepal;
- (c) to search for an appropriate *modus operandi* to elaborate and identify new people-centered policies and strategies for rational management of rural development planning in Nepal and
- (d) to provide insights and ideas for academicians, development planners and practitioners to generate and fertilize knowledge concerning potential direction for innovative people-centered development policies in Nepal.

3. Area and People

The intensive fieldwork on which the present study is based was conducted from September 1995 to November 1996 in the two Village Development Committees, namely, Mehelkuna and Sahare of Surkhet district, Mid-western Development Region, Nepal.

According to the recent results of Village Development Committee level Census Profile 1997, the study area contained 2976 households comprising 16072 people of which 8018 were males and 8054 females. The study area is inhabited by various caste/ethnic groups: Brahmin, Thakuris, Chhetris, Magars, Botes, Rajis; and occupational groups: Kumals, Kamis, Sunars, Damais, Sarkis and Badis, each occupying a significant position in the hierarchy of the Hindu caste system. At the village level, a sense of human relationship through the idiom of caste hierarchy is specially pronounced.

4. Research Design and Methodology

Research design selected for the present study adheres to the "grounded theory" approach which is used mainly in collecting first-hand qualitative data directly from the field level. However, in order to understand holistic and valid socio-cultural realities prevailing in these two VDCs a "multi-instrument" research approach accompanied with a "multi-kit of tools" was selected for the present study.

The whole field work endeavour was mostly guided by the spirit of "listening to" and "learning from" the villagers of the study area. It may be plausible to argue that the ethnographic approach provided the researcher an opportunity to observe a holistic and valid picture of the community life in Mehelkuna and Sahare. As such the ethnographic approach, like a good map, provided a quick and realistic orientation of the physical, cultural and social terrain to the study area with which the researcher was not familiar previously.

5. Main Findings

As discussed in the present study, three types of development programmes and projects are going on simultaneously in the village communities of Mehelkuna and Sahare. These include :

- (a) Development programmes and projects induced by the government and non-government agencies and organizations from "above" and "outside";
- (b) Development programmes and projects initiated and implemented by the people themselves in their own village communities; and
- (c) Development programmes and projects run jointly with a spirit of mutual partnership between development agencies and the villagers.

For the purpose of the present study, all these development programmes and projects have been classified into three broad categories : unsuccessful, partially successful and successful. The criteria of this classification is based on the varying degree of success which they have achieved in the area of enhancing sustainability, developing a sense of program ownership among the beneficiaries, helping to develop people's own community based organizations, assisting people to meet some of their basic felt needs, even if indirectly; and the degree of their involvement in the decision making processes.

5.1. Characteristics of Unsuccessful Development Programme and Projects

Drawing evidences from the empirical case studies, the findings have provided profound understanding that the approach of mechanistic intervention seems too rigid and narrow to address the complex problem-situations faced by the people of the study area. As a consequence, many externally induced programmes and projects in the

study area were rejected or at best evoked lukewarm responses on the part of the villagers. The reasons have been identified as follows :

- (a) The externally induced programmes of intervention such as Small Farmers Development Project, Production Credit for the Rural Women, Maintada Irrigation Canal Construction Project, Mehelkuna and Sahare Drinking Water Supply Projects, Government Controlled Rural Rehabilitation Project, Agriculture Extension Service, Livestock Health Development Programme, despite heavy investments, good intention and technological perfections, failed to exert any influence on the behaviour, perception, cognition and attitude of the villagers. The weak reception of these programmes and projects can mainly be attributed to the lack of understanding of real life of villagers by planners and programme implementors. Further, policies and plans conceived at the central and district levels rather than the village level; too rigid targets set from outside without prior consultation with the concerned beneficiaries; emphasis on the outcomes of intervention rather than an innovative process; transfer of technology taking place from the hands of experts to the innocent villagers; lack of co-ordination among development agencies and finally, people's lack of conviction in the relevance of programmes and projects for their lives and concerns.

Findings of the case studies indicate that in all these above mentioned programmes and projects, neither socio-cultural variables were taken into consideration in the planning stage nor were the people consulted for their view points during their implementation. From the case studies, it is revealed that these projects were only passed through the technological and administrative tests of the Line Agencies. However, efforts to pass through socio-cultural tests were not substantially taken into account to make these programmes and projects suit the local contexts and conditions. The findings of this study, thus, agree with Cernea (1994) who argues that if social variables remain unaddressed or mishandled, than a project will remain unsustainable and fail, no matter which governmental and non governmental agency promotes it. The crucial point of this realization is that for the successes of a project, a competent social analysis based

on the social and cultural inventory of the area becomes particularly essential. Similarly, findings of the present study support the view of Mathur (1990) who mentions that unless human dimension is given due consideration in all stages of planning and management, project howsoever otherwise perfect technologically, will not be able to produce the desired results.

Another crucial factor behind the failure of the externally induced programmes and projects is the lack of sense of their ownership among the villagers. Plans and decisions are made by central and district level leaders and projects are implemented only where they convinced of turning them into votes. This is clearly evident from the findings that there is a lack of motivation and understanding of local situations, immediate concerns and point of view of villagers on the part both central and district level planners and politicians. According to Bandhopadhaya (1991), the project will have greater chance of success if it is related to local perception of ownership and responsibility; decision making mechanisms and structure of turning decision into action.

- (b) One of the widely identified reasons for broad based resistance on the part of villagers to Primary Health Care Service and Deliver, Population Education and Family Planning Programmes, Basic and Primary Education Project, Pit Latrine and Improved Cooking Stoves Programmes was that all these programmes and projects were socio-culturally underdesigned. Each of the cases discussed suggested that the impact of all the externally induced programmes and projects on the ways of live of poor people have remained slow or minimal. Hence, it is conceded that for the success of a programme or project, due consideration to social, cultural and psychological variables, therefore, becomes very crucial. Hence, the findings of the present study strongly support the views of Dube (1958: 132) who argues that the acceptance of programme itself, or its constituent parts, is governed to a considerable extent by a variety of complex cultural factors, ranging from simple habits and accepted social practices to intricate patterns of belief, social structure, worldview, values and attitudes.

- (c) As evident from the findings, the most important missing element is the effective relationships between government institutions and people's organizations. These cases collectively suggest that all efforts through local level planned interventions, by and large, construed development as the replacement of existing culture, organization, values attitude, knowledge systems and genius traditions of the local people. For this reason, the new government created secular institutions, for example, Users Committees, Credit Group, Co-operative Committees, Management Committees, etc. in many ways in conflict with the secular institutions of the villagers such as *gaon sallaha*, *dharam panchayat*, *gaonle chhal phal*, *padima*, *pani pale*, *gaonle ban samiti*, *gaonle kulo samiti* and *dharam bhakari*. All these socio-economic institutions are primarily community based, culture-specific and decision are made by mutual discussion and agreement. Findings indicate that villagers do not consider the newly created government institutions as part of their own social organization in terms of their structure, function, meaning and processes. Thus, these were outrightly rejected by the villagers.
- (d) Findings of the present study highlight the fact that the joint family, kinship, caste and local action groups from a broader bases in making decisions and undertaking various sorts of development activities at the community level. Villagers realize the importance of these social and cultural institutions in the course of solving their problems more effectively. But the findings of the present study point out that the present practice of monolithic intervention have produced several grave consequences such as : breaking down of these indigenous institutions into bits and pieces and creating a cultural dustbowl at the grassroots level, emergence of a culture of unreasonable silence especially among the poorer sections of the societies, destruction of polytechniques of local artisans by the megatechniques of engineers, the creation of a negative social image of people towards development and emergence of an environment of mistrust between general public, local leaders and planners. As a consequence, these village communities have gone astray and

the poor have been pushed away further inch-by-inch from their own established ways of work and life.

Findings of this study suggest that deficiencies in decision-making, no due consideration given to cultural and human side of development, absence of effective institutional configuration, inappropriate intervention strategies, lack of co-ordination and integration, etc. indicate shortcomings of techno-economic-centered model of local level planned intervention in Nepal.

5.2. Characteristics of Partially Successful Development Programmes and Projects

Findings of the case studies reveal that for all self-initiated programmes and projects, villagers show strong commitments for participating at every stages of decision and planning processes and their subsequent implementation. However, it was soon observed that villagers efforts for their self development has been sabotaged due to the following reasons :

- (a) Almost all people-initiated projects, despite availability of strong socio-cultural and institutional base within the community, suffer from a lack of scientific know-how and acute shortage of cash and construction materials such as cement, rods, pipes etc. Since most of the villagers are poor, they are willing to contribute their labour but not cash for construction projects.

Villagers hold the view that it is almost impossible to complete some projects such a Sahare-Thakleni Irrigation Canal, Apkholi Irrigation Canal, Mehelkuna-Maintada Irrigation Canal and Nange-Kopchi Irrigation Canal without external scientific know-how, technological support, construction materials and financial resources.

The Line Agencies did not seem anxious enough to help the people-initiated programmes and projects to run in proper tracks because they thought that it would provide them with an additional work-burden. It was observed that such a non-cooperative attitude upheld by the Line Agencies have seriously damaged the spirit of self-development of the villagers, resulting into acute frustration among them.

- (b) It is also clearly evident from the findings that the built-in rigidity in existing rural development planning practices provides no room for learning from the people's initiative of

self-development already available at the local level. However, there is no official word yet to incorporate these projects into the regular planning activities of the concerned Line Agencies.

- (c) The communities in these two VDCs, which are at the receiving end of the plans, are composed of a mixture of people from different castes and ethnic groups, with varying hierarchy, power and unequitable access to available resources. Despite these above mentioned differences, it is discovered soon that people co-operate and work together in many development programmes that directly address the challenges of their pressing subsistence and other strong felt needs. In the village communities of Mehelkuna and Sahare, the programmes that fall under this category include Raniban Protection and Conservation Programme, Ajingare-Gaile and Hanuman Village Irrigation Canal Construction Projects, School Building Construction Programmes, Protection and Conservation of Village Pasturelands and Construction of Village Trails. These are the types of projects which have continued over several years with no assistance from outside development agencies. Thus, the findings of the present study go closer to Shrestha (1993: 142) who observes in the context of a mountain village of Nepal that people co-operate and work together to meet the constant challenges of survival and subsistence. According to him, this spirit of co-operation often overcomes the constraints imposed by the rigidities of an orthodox Hindu hierarchic village social structure.

In short, the above findings suggest that the call for "development by people" in policies and practices, for an enduring development, is a serious call which requires deliberate efforts to recognize the centrality of what people are capable of doing themselves and what they need from outside and when, both in ideas and in the action, or practice.

5.3. Characteristics of Successful Development Programmes and Projects

The village communities of Mehelkuna and Sahare are liberally associated with many more or less successful experiments in the direction of achieving programme and project success. The most successful development programmes and projects, as identified in the village communities of Mehelkuna and Sahare, include Raniban

Community Based Forest Protection and Conservation Programme, Nange-Kopchi Farmers' Managed Irrigation Project, Simalgaira Womens' Group Controlled Irrigation Project, Gokulkund Farmers Managed Irrigation Project, Chandra-Surya Environment Conservation and Village Sanitation Promotion Programme and Farmers' Group Based Secondary Crop Development Project. These are also the projects and programmes which provide the important data and information on how people create projects locally, how they make decisions, how they utilize their social stock of knowledge for the formulation and implementation of village based development programmes and projects, in what ways they organize both internal and external resources, what sort of strategies they follow while negotiating with development agencies, how they work collectively on programme and project execution activities and what is the pattern of sharing programme outcomes within a village community? All these aspects have been discussed in detail in the thesis.

Following can be some of the identifiable characteristics of the most successful development programmes and projects.

- (a) Success of these programmes and projects resulted from the due consideration given by the development agencies to incorporate local conditions, contexts, concerns as well as social, cultural and human variables in designing projects and carrying out subsequent executing activities at the village level;
- (b) In fact, the most important reason for the success of these programmes and projects is that the local beneficiaries have been allowed to make decisions and organize themselves on the basis of culturally accepted manners and development agencies extended their support to peoples' decision on an equal footing;
- (c) Success of these projects was facilitated by the firm conviction which the Line Agencies carried with the local people regarding the possibility of developing partnership in development through the spirit of mutual control, mutual learning, joint action, negotiation, accommodation and consensus building and so on.
- (d) The case studies also disclose the fact that success in these projects was mainly due to the local people's enthusiasm to incorporate outside scientific know-how, support and assistance in their own social stock of knowledge,

technologies and other empirical methods with a goal in mind to solve the immediate project problems;

- (e) As regards designing and executing programmes and projects, the development agencies also facilitated important mechanisms for an active involvement of local beneficiaries in the entire program activities by transferring greater responsibilities to people's local institutions. This kind of flexible and decentralized operational procedures adopted by development agencies also enabled the poor villagers to respond creatively and effectively to improve programme performances;

In addition, the participatory nature of development strategies adopted by development agencies specially in programme design and implementation, efforts oriented to generate an interactive process of "learning by doing" involving development agencies extension workers and the villagers, identification of local interest and action groups, recognition and respect for people's spirit of self-help development and incorporation of these efforts into the line agencies' regular planning activities, are some of the decisive pre-requisites. When all these factors were moulded together in a single thread; they contributed enormously to the success of the development programmes and projects bringing them closer to the stated objectives.

Finally, it is evident that there are hundreds of big and small social, cultural, economic, political and religious institutions functioning for centuries in the village communities of Mehelkuna and Sahare. All these institutions aimed at managing, caring, sharing, harmonizing and conserving the scarce resources available within the boundaries of the village communities. In fact, these form the greatest resources available for planning authentic and genuine "people-centered" development models/designs for the rural areas of Nepal. It may be conceded that, if harnessed properly, solution of the present problems can also be found in the traditional systems of the local people.

6. Concluding Remarks

In a nutshell, the present work is a modest attempt to initiate discussions and debates which acknowledge the fact that rural development policies, strategies and practices to be innovative need to be flexible and culturally sensitive to blend with needs, concerns and priorities of the local people. Hence, it is suggested that local values,

traditions and good old ways of the community are used constructively and not destroyed or discredited.

The present study contends that innovations projected for community level, cannot realize their full potential unless calibrated adequately and appropriately with the elements of culture, institutions, values, ethos and knowledge systems of the local people. It is discernible that the merits of intervention is one aspect, that other crucial aspect is how people perceive it and how close it is to their culture, institutions, needs, problems and priorities. In this sense, it becomes reasonable to argue that innovations cannot yield desirable results unless socio-cultural dimensions of development and human elements involved in it, are taken seriously.

In the present study, the innovative programmes and projects have been identified as those in which there are best expressed provisions of incorporation of new ones from outside into what already exist and are available within the village communities. It is concluded that development to be innovative, people-centered and pragmatic, it must be designed in such a way that it becomes congruent with the existing conditions, contexts, culture, institutions and genius traditions of the villagers. It is asserted that the greater this congruence, the greater would be the programme and project-effectiveness. It is believe that the centrality of integration, accommodation, adjustment, negotiation and configuration between "new" and "old" can no longer be ignored if innovative development is to take place in the real sense.

It is hoped that these lessons will be of enormous value to the practitioners of rural development, policy-makers, scholars and students of Sociology, Anthropology, Public Administration and the general public interested in how society can be developed thought the joint innovative efforts of the government and the people.

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FUNCTIONS OF AN ORGANIZATION IN AN INDIGENOUS IRRIGATION SYSTEM: A Case Study from a Hill Village of Nepal.

Laya Prasad Uprety*

1. Introduction

Agriculture in Nepal contributes about 40 percent of the country's total Gross Domestic Product (GDP). But this agricultural economy, the source of livelihood and employment for 81 percent of the population, largely depends on the erratic rains which come during the period of monsoon from June to September. For this reason, irrigation acquires great importance as a strategy for increasing agricultural efficiency, augmenting agricultural yields and generating larger incomes.

Nepal is very rich in indigenously built irrigation systems. According to the updated Master Plan for Irrigation Development, 1995, the total irrigable agricultural area in Nepal is estimated at 1,766 thousand hectares comprising 1,005 thousand hectares of the existing irrigation. The 75.7% irrigable area is in the Terai and remaining 24.3% in the Hills and Mountains. Out of the existing irrigated area of 1,005 thousand hectares, about 721 thousand hectares or 71.8% is managed by the farmers and the remaining 284 thousand hectares or 28.2% by the Department of Irrigation. About 721 thousand hectares of the farmer-managed irrigation systems consists of 582 thousand hectares under surface irrigation and 139 thousand hectares under groundwater (East Consult, 1995). As such, the indigenous irrigation systems remain the dominant source of irrigation in Nepal. Water and Energy Commission (1981:36) observes:

Farmers more than anyone else are aware of the benefits to be derived from irrigation. As a result, they have developed or been instrumental in

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developing irrigation wherever they have considered it worth their resources and technical capabilities. On the strength of the ingenuity and scale of what has been achieved these capabilities should not be underestimated. Most of the irrigations in Nepal have been developed gradually without direct government involvement over many generations as population growth has led to a need to expand the area under cultivation and to a need to intensify agriculture....

The Commission also points out that in general, the indigenous irrigation systems operate better than government-built systems. A survey conducted by the Commission shows, for example, that government irrigation projects, largely constructed with the assistance of donor agencies irrigate only half of the command areas for which they were originally constructed, and thus fail to achieve the expected cropping intensities. This failure has been attributed to the exclusion of the farmers' involvement in the planning and implementation on stages--an observation similarly noted in existing studies of irrigation development in Third World countries.

The achievement of stable food supplies in poor countries is feasible through the development of irrigation systems. Siy (1982) observes, for instance, that in a water-scarce environment, interaction and coordination between and among water users are highly indispensable. One vehicle to achieve this coordination, he adds, lies in rural organizations such as indigenous irrigation systems which are geared to enhance the involvement in the development process of the masses whose organizations are self reliant in the utilization of indigenous raw materials, energy sources, skills, and other agricultural inputs.

Indigenous irrigation systems have thrived in Nepal for several centuries as an adaptive response to a water-scarce environment. They are located mostly in the Hills of Nepal and demonstrate a very high degree of organizational and managerial inputs, both of which become imperative in view of the shortage of capital for the construction and maintenance of the canals. Over time, the indigenous irrigation organizations have developed their own rules and regulations regarding resource mobilization, water allocation, system maintenance, conflict resolution, property rights in water and the like.

Recently, these indigenous irrigation systems have started to receive assistance from the Department of Irrigation whose main concern is to enable them to cover larger command areas and achieve greater cropping intensities. This assistance program involves prospective beneficiary farmers in the stages of plan formulation, implementation and benefit sharing and strives to incorporate farmers' age-long ideas, experience and self-help attitudes. Laudable as this program is, however, it is still necessary to know how the indigenous irrigation systems are organized and how they function or adapt to water-scarce environments. While sociologists and anthropologists have produced an abundant crop of literature on ethnographies and social changes in Nepal, little has been conducted on irrigation compared to those already done in other Southeast Asian countries such as the Philippines, Thailand, and Indonesia. In discussing the need to carry out research on indigenous irrigation system, Siy (1982:1-2) notes:

There are, however, many irrigation systems throughout the world that were built by the independent groups of farmers. Since many of the groups were formed at the initiative of the farmers themselves, the institutional resources of these groups had relatively much more time to gestate and mature before the actual full-scale operation of their irrigation systems. As such, indigenous associations often develop organizational skills and techniques which are, in a manner of speaking, more effective and appropriate than the administrative procedures of practices in systems that were not indigenously developed or designed. However, there is not much detailed information on how such indigenous irrigation groups function and operate. Such knowledge can definitely contribute towards a clear understanding of how farmers' organizations participate in the critical function of water control and allocation and of system construction and maintenance. This knowledge, in turn, forms the basis of guidelines on how governments can best assist such groups.

This knowledge can also help planners to better appreciate the indigenous irrigation systems. Unfortunately, technocrats trained

under the conventional development model ignore the fact that farmers also have indigenous knowledge for resource management and utilization. As Yoder (1986:17) writes:

Technocrats responsible for irrigation development, however, have generally dismissed farmer-managed systems as viable models because they are "inefficient". Engineers often fail to see or understand that farmers have collectively organized their irrigation activities and can mobilize labor, cash and expertise to make their temporary structures functional.

The Nepalese government cannot continue to build the bureaucratically managed and operated irrigation systems in all extremely mountainous terrain because of the high cost of irrigation canal construction and the lack of trained manpower. A more feasible alternative would be to strengthen existing indigenous irrigation systems through a set of supportive plans and policies, especially those using a people-centered development paradigm. But to formulate better supportive plans and policies, extensive knowledge of the organization and operation of existing indigenous irrigation is needed. The present paper seeks to provide some of this knowledge by presenting the functions of an organization of an indigenous irrigation systems of a hill village of Nepal.

2. The Study Locale and Methodology

In 1988, an empirical research to garner in the data on the functions of organization in the indigenously-developed irrigation system was conducted at Dhaitar village of Kabrepalanchowk district, a hill district in the Central Development Region of Nepal. The village was chosen for the research because it has a predominantly an agrarian economy based on an indigenously-managed irrigation system and farmers have their own irrigation organization which handles matters dealing with water acquisition, resource mobilization, water allocation, system maintenance and conflict resolution. The irrigation system covers 30.45 hectares of land as its command area. Dhaitar grows multiple crops because of irrigation facilities indigenously developed by the farmers themselves. Irrigation is used for paddy, the principal crop, twice a year. It is sown in February and March and harvested in June and July. After harvesting the summer paddy, the winter one is transplanted in June and July and harvested in November and December. After the paddy is harvested in winter,

either potato or wheat depending upon the farmers' choice--is sown in November and December for which canal irrigation is also used. Dhaitar has a multi-ethnic society, consisting of the Brahmins, Chettris, Newars, Tamangs, Kamis and Damais. At the close of field work (October, 1988), a total of 90 households had been enjoying the benefits of indigenously built irrigation system.

Unstructured interview guide questions were used to collect data on the organizational structure and its activities related to resource mobilization, water acquisition, system maintenance and conflict resolution. Key informants were interviewed to generate a vast array of qualitative data. They included 9 executive members of the irrigation organization and other 11 elderly heads of the water using households of the command area. The selection of these key informants were based on these criteria: knowledge about the research subject, length of stay in the village, responsiveness and cooperativeness. The analysis followed two steps: ordering the raw data (classifying the raw data) and immersion in the data (feeling or internalizing the data). Since the study was basically a qualitative one, the data were processed by classifying the information, that is, incorporating the relevant information under different subheadings.

3. Theoretical Notion of Irrigation Organization

Irrigation has to be treated as hydrological, engineering, agricultural, economic, organizational and institutional entity. The human side of both the organization and operation of the irrigation systems must be taken into account in irrigation studies. In this sociological perspective, as Uphoff (1986) points out, irrigation has to be understood as a "socio-technical" process which combines both material resources and people.

Uphoff (1986:6) also holds the notion that four basic sets of activities—decision-making and planning, resource mobilization and management, communication and coordination and conflict resolution—constitute the core of an organization. In other words, an irrigation organization exists to insure that these four sets of activities occur on a regular and predictable basis. Moreover, an irrigation organization is formal if these four sets of activities occur according to explicit, written and possibly legal requirements. But even though they are informal, i.e., based on implicit understanding and social sanctions, there still exists an irrigation organization.

Still focusing on the sociological aspect of irrigation management, Freeman and Lowdermilk (1978) observe that an

irrigation social organization affects the effective utilization of water resources. They (1978:153-4) write:

Irrigation water is of sociological importance because people must organize collectively to secure it, transport it, divide it into usable shares, enforce rules for its application, pay for it and dispose of unused portions. The kinds of social organization, the patterns of power, decision-making, conflict and cooperation which people create and maintain for the social control of water intimately affects the productivity of its use. Attempting to comprehend physical and agronomic problems of irrigation without probing into the surrounding social organization and webs is like attempting to understand deficiencies in plant growth without reference to the conditions of climate. When water moves efficiently from rivers, through network of canals, to plant root zones, it is because people have effectively organized a decision system of enforcing technically sound rules for pursuing the collective interest. Defects in the delivery and application of irrigation water are typically associated with deficiencies in social organization.

Thus, Freeman and Lowdermilk emphasize that it is through people's organized effort that water is acquired and distributed and conflict resolved. They conclude that the success of effective delivery and operation of irrigation water entirely depends upon the effective irrigation organization. Korten (1982:6) shares this observation:

Local associations are capable of mobilizing significant amounts of labor on a long-term basis for maintaining the system; allocating water in close responsiveness to crop needs, resolving local conflicts over water, and coordinating cropping schedules to maximize the productivity of available water. When effective, these local groups have significant advantages over bureaucratic management, their ultimate knowledge of local needs for both water distribution and system maintenance; they can use social pressure to enforce rules and they place the cost of operation and maintenance on those who benefit

from the system, avoiding a perennial drain on government resources.

Similarly, Martin (1986) claims that an organization is essential in irrigation resource management because it is the organization that controls farmers' behavior and physical system. He (1986:15) states:

Farmer-managed irrigation systems, which are dependent for their operation and maintenance on the contribution of resources from many people and which allocate and distribute water to many farmers' fields, require some organization for their management, though it need not be formal. In the Hills of Nepal, farmer-managed irrigation systems, having developed in response to varying local conditions, exhibit a diversity of organizational forms and principles....

Vlachos (1972:14) also holds the view that although water supply and water quality themselves are vital in any discussion of resource mobilization, a key element will be the specific mechanics of organizational structures which will determine and secure volume of water supply, ensure adequate distribution operations and meet local water use demands or goals.

In the present study, irrigation is conceived as an adaptation wherein hydrological, engineering, agricultural, economic and organizational elements are present. In turn, irrigation organization is understood as a local farmer's association capable of mobilizing material and labour resources for irrigation system construction and maintenance, allocating rights to water use and distributing water among the farmers and resolving conflicts arising from water sharing.

4. Irrigation Organization of the Study Locale

The amount of work involved in operating an indigenous irrigation system requires an organization. In the research site, the initial organizational need was strongly felt by the three Brahmin notables from among the then 45 households in 1952 A.D. But the initial irrigation organization was a more or less informal group constituted by the three initiators. Since water was not acquired for irrigation at the very outset, the other 42 households were not initially considered as formal members of the irrigation association. When the canal construction work was fully completed and water was readily available for irrigating the farms, a meeting of the households was called by these three Brahmin notables in order to establish a formal

irrigation organization for the continuous operation of the irrigation system. All 45 households came to attend the meeting.

The main objective of the meeting was to form a formal irrigation organization which involved all the 45 households as its formal general members. Having formed an organization, the initial *ad hoc* irrigation committee constituted by the three Brahmin notables was dissolved. By October 1953, the formal irrigation organization consisted of nine executive members with the following designations: Chairman, Vice-Chairman, Secretary and other six members. Three executive committee members were selected from each upstream, midstream and downstream.

The Chairman presided all organization meetings, played a key role in settling disputes and instructed the Secretary to maintain all the labour contribution and financial records. The Vice-chairman did these tasks in the absence of the Chairman. In turn, the six other members helped these officials in discharging their duties.

At the close of field work (October 1988), the formal irrigation organization had 90 household heads as general members. Landholding was used as the basis for general membership and all members had to be the cultivators or tillers of the land. The irrigation organization, locally known as *Sinchai Sangathan* was governed by the rules and regulations prepared in 1953 by the formal irrigation organization after the canal was duly constructed. The selection criteria of the nine officials were as follows:

- (1) The officials to be selected ought to possess a leadership capacity to mobilize cash, labour and other material resources when needed for construction and system maintenance activities. The leadership capacity was judged by the villagers from the role played by these officials in the village.
- (2) The Secretary had to be capable of maintaining records regarding irrigation fees, fine collection and the attendance of the participants in canal construction and maintenance activities.
- (3) The officials had to be capable of collecting compensation (such as fines) from non-participatory irrigation users during canal construction and system maintenance periods.
- (4) The officials had to be impartial during the conflict resolution process.
- (5) The officials should not be corrupt in the eyes of the general members.

In turn, the selection process of the nine executive members of the formal irrigation organization went as follows: Traditionally, all general members of the irrigation system assembled twice a year for routinary maintenance activities. During this period, the general members assessed the performance of irrigation organization officials in discharging their duties. If an official was found not to comply with the five criteria laid down above, the general members proceeded to discuss ways to reorganize the existing association. A general member stood in front of the assembly and nominated a person as a potential official. This same general member then asked other farmers whether the proposed candidate was acceptable or unacceptable to them. When the majority accepted the nomination, the proposed candidate sat as an official. If any proposed candidate was unanimously opposed, then another person was nominated until the selection process was fully completed. The official's tenure lasted for a period of six months but could continue so long as the official discharged his duties well, an assessment which was made by general members in a separate meeting.

The duties of the officials of the irrigation organization were as follows: (i) effectively mobilize resources such as cash, labour and material resources for the necessary construction and maintenance activities; (ii) properly maintain the organizational records regarding income and expenditures; (iii) strictly collect fines from farmers whose absence during system maintenance activity was intentional (i.e. excused); (iv) effectively resolve conflicts arising from water stealing; (v) actively deal with external agencies who can supply needed resources for the rehabilitation of the existing canal; (vi) promptly communicate information regarding canal damage to all the general members for an emergency maintenance activity; and (vii) appoint the water distributor and instruct him to make regular check-ups of the canal and the rotational distribution of water as fixed by the organization.

The officials of the irrigation organization were not remunerated as their job was voluntary. But when found corrupt, they were dismissed from the position during a general members' assembly. As in the selection process, the majority decision was followed. Almost all key informants reported that the irrigation organization, though sometimes full of minor disagreements, has been successful in fulfilling its responsibilities. The following sections

illustrate, *inter alia*, how the officials and general members contributed to make the organization fulfill its five functions.

5. Functions of Irrigation Organization

The principal functions of the irrigation organization of the study locale as elsewhere, are resource mobilization, water acquisition, water allocation and distribution, system maintenance and conflict resolution. These five functions have been elaborately discussed below along with a brief conceptual exposition of each of them.

5.1 Resource Mobilization

Uphoff (1986) notes that resource mobilization is the most visible organizational activity in irrigation management particularly for canal construction, maintenance and rehabilitation. Labour is the resource most extensively mobilized, though money and materials are also important. Similarly, information can also be used as another major available resource. In discussing the importance of local resource mobilization, U. Pradhan (1988:19) writes:

Resource mobilization is a process by which an individual or a group is able to secure individual or collective control over the resources needed for individual or collective action. Major concerns would therefore be the resources already controlled prior to the mobilization efforts, the process or mechanism of pooling the resources, and supplementary resources provided by outsiders. One can think of resources as being tangible or intangible, for example money, physical materials, leadership or information. For an irrigation system, water, land, money, capital, skilled and unskilled labour, organization, leadership, and information would be mobilized internally and others externally.

U. Pradhan (1988) further points out that labour is usually mobilized for irrigation canal structuring and its subsequent maintenance in most indigenous irrigation systems. In most cases, the basis of labour contribution would be the size of landholding.

Resource mobilization is one of the most important functions of the irrigation organization since it is only through the effective mobilization of cash, labour, and material resources that an irrigation system can develop and be sustained for a long period of time.

Farmers of the research site practiced considerable internal resource mobilization during canal construction. For routine as well as emergency maintenance activities, the following internal resources were mobilized: (i) household labour; (ii) fees representing the service charge for water distribution; (iii) fines imposed on farmers who were absent during system construction and maintenance activities; (iv) fines imposed on water thieves; (v) local construction implements or local technology for canal construction and maintenance activities and (vi) dissemination of information regarding water acquisition, resource mobilization, water distribution, system maintenance and conflict resolution activities.

Every household was expected to contribute labour on the basis of the size of its irrigated land holding. The greater the size of the irrigated land holding, the greater the labour contribution. Usually, the amount of repair work needed to be done was estimated by irrigation organization officials before the start of actual repair. Each household was then asked to contribute labour as fixed by the organization on the basis of the household's command area of irrigation. There was thus a direct relationship between the amount of irrigated landholding and the amount of labour contribution.

The irrigation fees were also collected on the basis of the size of the irrigated land holding. The general formula was: if one *ropani* of land was irrigated by the irrigation system, the beneficiary farmer had to pay one and a half *mana* of wheat and the same amount of rice from the paddy field that was to be given to the water distributor who also worked as a watchman or, in local parlance, the *sepo*.

If the *sepo* was not remunerated after the crop harvest, then the defaulter might be debarred from using water next time. The final decision rested on the consensual decision of the irrigation organization members. This made defaulting a rare occurrence since it resulted in the deprivation of water use which, as a consequence, had adverse effects on the cropping system of the farmers.

Since the start of canal construction, both human and financial resources were actively mobilized twice a year for routine and emergency maintenance. In these activities, the irrigation organization always recorded the members' attendance for construction and repair work.

The irrigation organization also fixed the amount of fines relative to the daily wage rate in the village. The general formula was: if a farmer was absent during the construction or repair work of the

irrigation system, he was asked to pay the equivalent of a day's wage. But if the farmer refused to work or defaulted on the payment of the fines imposed by the irrigation organization, he was denied the right of water use in the field. Water thieves were also fined and the collected amount was given to the damaged party.

The Secretary of the irrigation organization collected or received payments from the water users. He also kept the money of the organization and made records of financial transactions. If he was found to have misused the money, he would be dismissed from his post and publicly pressured to return whatever amount of money was misused. The most commonly used public pressure was the denial of water use in the field.

Uphoff (1986) claims that information can also be considered as a resource in the analysis of an irrigation system. Decisions made about water acquisition, human and financial resource mobilization, system maintenance and conflict occurrence and the like are expected to be immediately conveyed to the general members, i.e., the beneficiary farmers of the organization of the irrigation system. In the research site, communication of information helped to achieve coordination in the various functions of the organization. For instance, if there was an urgent need to mobilize labour or a major repair in the canal, the need was quickly relayed to all the concerned persons by a *sepo* who was ordered to do so by the officials of the irrigation organization.

5.2 Water Acquisition

Uphoff (1986:29) defines water acquisition as "a process of acquiring water from the surface or subsurface sources or by creating and operating physical structures like dams, weirs or by actions to obtain for users some share of an existing supply." To achieve this, beneficiary farmers of the indigenous irrigation system must center their attention on the design, construction, operation and maintenance of water acquisition activities.

Yoder et al. (1986) hold the notion that farmers have to construct a temporary diversion structure in order to capture the available water. During the dry season, they have to capture all the available water to irrigate the farmland and during the wet season, the temporary diversion structure should be such that will allow superfluous water to pass through it. Water acquisition activity is extremely difficult work in the hill side of Nepal as it entails a tremendous amount of both financial and human labour investments.

The fragile and temporary diversion structure of the canal in Dhaita was designed in 1952 and first constructed in 1953 in order to acquire water from the Ashikhola, a local river. The structure was made up of stones, mud, bushes and shrubs collected from the surrounding forest. Since 1953, the local farmers had always been alert to any reconditioning work needed in the diversion structure. As reported by the key informants, the diversion structure was timely repaired when it was damaged by flood during the rainy season to maintain a regular flow of water from the source to the command area. Both head-end and tail-end farmers worked together in the construction and maintenance of both the diversion structure and the canal.

The canal is seven kilometers long and there had been no extension of it since it was constructed in 1953. The canal had to cross twelve non-perennial rivulets locally known as *Kholchas*. Farmers had constructed the water course in these *Kholchas* by building a small stone wall with the use of mud and by amassing large quantities of shrubs and bushes from the neighboring forest. Both the width and depth of the canal, on the average, was three feet.

Once the main canal reached the command area, it was divided by the farmers into several branches to irrigate their crop lands. The branches from the main canal were dug by the farmers themselves so that water could be conveniently divided into different plots of land.

Some farmers were initially hesitant to participate in the water acquisition activity. They initially thought that it was almost impossible to acquire water from the river because the canal had to pass through many cliffs, steep slopes and landslide-prone hill sides. They also thought that investment in canal construction was a waste of resources. But when the canal was half-constructed, the reluctant farmers became optimistic about the possible irrigation system and contributed both labour and financial resource to the construction of irrigation system. Thus, village cooperation, though arriving belatedly, played an instrumental role in the completion of the canal.

5.3 Water Allocation and Distribution

Uphoff (1986:29) defines the allocation of water as "the assignment of rights to users to determine who shall have access to water." Likewise, he defines distribution as "the apportionment of water brought from the source among users at certain places, in certain

amounts and at certain times." In elaborating the notion of water allocation and distribution, Yoder et al. (1986:6) observe:

... The terms "allocation and distribution" are used interchangeably in much of the irrigation literature, but they have different meanings, and the distinction between them is important in the farmer-managed systems... "Allocation" refers to entitlement to water from an irrigation system and principle or basis by which water rights are shared among the irrigators. Water "allocation" identifies the fields or farmers that have access to water from the system and the amount or duration of the water delivery to each. Water "distribution" refers to the physical delivery of water to the fields. The actual distribution may or may not be in accordance with the allocation scheme, depending on the effectiveness of the organization and physical structures.

Water allocation, in the context of the research site, refers to the farmers' entitlement to water from an irrigation system. Water right was given to those farmers who had contributed labour, cash and kind to the construction, operation and maintenance activities of the canal. One did not claim the right to water use unless one had contributed to the irrigation system. Thus, non-members were strictly prohibited to use the water obtained from the irrigation system. In Dhaitar, only the 90 household-members had access to water use.

In Dhaitar, too, water rights could be transferred, i.e., sold and bought under the water allocation principle. Key informants reported, for instance, that if a particular household did not need water when its turn came, it had the option to sell its water share to other households who still needed water for irrigation. When this occurred, both parties sat to discuss the price of selling the water share and later compromised on a particular price. The water share seller would be paid either in cash or kind. And the water share buyer could use water in his field until the turn of water seller ended for that particular rotation. Since the irrigation organization had not fixed the price of the share sale and it was usually decided between share-selling and share-buying parties. Key informants reported, however, that sale of water share took place only occasionally.

Water distribution is the actual physical delivery of water to the fields. In the Dhaitar canal, the irrigation organization followed

the system of employing two water distributors/watchmen, locally known as the *sepoys*, to handle this task. A *sepoys* served the system for six months, that is, one *sepoys* served from January to June and then another *sepoys* from July to December. Each one was appointed and then re-appointed by the irrigation organization on a rotational basis. The duties of the *sepoys* were as follows: (i) be watchful of the water at all times during the day and night to prevent water stealing; (ii) if water is stolen during the turn of another farmer, warn the water thief not to disregard the distributional rules. If the thief refused to obey, the *sepoys* had to inform this incident to the irrigation officials for necessary action; (iii) repair minor holes in the canal; (iv) prevent cattle from walking along the canal and (v) turn water to the users' fields on the rotational schedule fixed by the executive officials of irrigation organization.

The *sepoys* was remunerated after the crop harvest. He was always paid in kind, either in rice or wheat, depending upon the seasonality of crop planted. The amount paid to *sepoys* was fixed by a general formula as follows: if one *ropani* of land was irrigated by the irrigation system, the beneficiary farmer had to pay one and a half *mana* of grains to the *sepoys*.

The *sepoys* was always watchful of the canal in all seasons. Water discipline was strictly maintained during the period of water shortage. For example, planting schedules were maintained during the dry season. Usually the upstream farmers were the first ones to irrigate their crop lands followed by midstream and downstream farmers. Planting schedules were fixed by the irrigation organization.

5.4 System Maintenance

System maintenance is the repairing and cleaning of the canal for regular and efficient water acquisition, distribution and removal. Maintenance activities were usually done before and during the monsoon season. Both routine and emergency maintenance activities were performed by the farmers themselves. Every year, different varieties of grass grew in the canal and obstructed the flow of water. The rainfall during the wet season also broke the canal. Hence, regular upkeep of the canal was done by the farmers who used the irrigation system. Since the irrigation system was built by the farmers who felt a sense of ownership toward it, they did not delay in its maintenance.

In the research site, routine maintenance took place in May and October every year. Maintenance work done in the second week

of May was for paddy plantation. Maintenance activity during the second week of October was for winter crops, particularly wheat and such vegetables as potato, garlic, onions, cabbage and cauliflower. Each maintenance task lasted from 12 to 15 days, depending upon the amount of repair work required. The time and household labour contribution for system maintenance were fixed in 1953 and handed down to the present time; they are referred to as the "local traditions." These "local traditions" were kept by the farmers using the irrigation facility.

Information regarding emergency maintenance was relayed to the irrigation organization by the *sepo*y who served as the watchdog of the canal. Once the *sepo*y passed the information to the association, the Secretary disseminated the message to all irrigation system users along with the fixed times and dates for emergency repair.

Every household using the irrigation facility contributed labour to maintenance activities. Before each maintenance activity began, the organization estimated how much labour was required for routine or emergency repair. Each household was then required to contribute labour on the basis of the amount of land to be irrigated by the canal. Every year, therefore, the amount of labour varied depending upon the nature of maintenance activities. To ensure compliance of labour contribution, the irrigation association checked the farmers' attendance during maintenance work. The association's Secretary, in turn, kept the records of farmers' labour contribution. This local tradition had been practiced since the formation of the irrigation system, and is still followed at present.

If a farmer did not contribute a day's labour for system maintenance, he would pay the prevailing equivalent amount of money to the irrigation organization. The amount was given to farmers who contributed more than the required amount of labour to system maintenance. Sometimes, money was also collected from the farmers in order to buy such tools as spades, hammers, shovels or knives, all of which would belong to the organization. Refusal to contribute labour to system maintenance resulted in the denial of the water use for irrigation.

5.5 Conflict Resolution

Many social science researchers also stress the conflicts inherent in irrigation systems as well as the mechanisms for the resolution of these conflicts. B. Pradhan (1982) claims that water sharing faces problems and disputes because farmers in the head

generally take as much water as they need at the cost of the tail-enders. Though the disputes sometimes get serious and violent, farmers have themselves developed social mechanisms for their resolution. Isles describes the factionalism found in irrigation systems. He (1981:150) observes:

Irrigation systems service people whose interests conflict depending on the location of their farms in relation to the source of water. These groups are "upstream farmers" often times referred to as "problem farmers" and the "downstream farmers" who are sometimes called "farmers with problems." Uniting these two groups in association is not an easy task under such conditions. All upstream, midstream and downstream farmers should create a chance to talk as a group, so that greater appreciation of each other's problem can be generated and factionalism can be minimized.

In turn, De Los Reyes (1980) deals with the causes of irrigation conflict. She claims that many disagreements among farmers in indigenous irrigation system stem from its physical layout when the system depends on a single source. In elaborating the causes of disagreements, she (1980:59) observes:

The head-end farmers usually get adequate irrigation while the tail-end fields frequently receive less water or, because of the poor drainage conditions in the lower section of the system, the downstream farms became flooded when the upstream cultivators release water from the fields. These conditions frequently lead to disagreement between upstream and downstream farmers.

Water sharing is replete with problems and conflicts as every farmer tends to maximize his benefit at the cost of others. The following were among the main causes of conflicts in water sharing among farmers in the research site: (i) the use of more water during the dry season by upstream farmers at the cost of midstream and downstream farmers; (ii) the release of excess water by upstream farmers in the midstream and downstream fields which, in turn, eroded the top fertile soil and destroyed the planted crops; (iii) nocturnal water stealing of other farmers and the use of this water in one's own

field and (iv) non-participation in canal construction and maintenance by potential beneficiaries of irrigation.

Of these, nocturnal water stealing occurring monthly during the dry season was the most common offense despite the watchfulness of the *sepoys*. Though farmers were aware of the theft and tried to be vigilant during the nights, they could not maintain their vigilance regularly.

Water conflicts were resolved by the farmers themselves in several ways as follows: (i) farmers caught stealing water were, at times, physically punished (beaten) by the damaged party; (ii) in general, however, water thieves were fined and the collected amount was given to the damaged party. The amount of the fine depended on the nature of damage caused by water stealing and the compromise reached between the conflicting parties; (iii) frequently, water thieves were denied the use of water for one or several turns (depending upon the nature of the damage of the crops by water theft); the frequency was decided by officials of the irrigation organization; (iv) the upstream farmers who used more water during the dry season at the cost of midstream and downstream farmers were first issued a warning by the irrigation organization.

If they continued to ignore the warning, they were denied the use of water for a period of time specified by the irrigation organization; (v) if the upstream farmers intentionally released excess water in the fields of midstream and downstream farmers and thereby caused crop damage, they were required to pay a fine to the damaged party. The amount of the fine depended on the nature of crop damage, and (vi) farmers who were reluctant to contribute labour and financial resource to irrigation system construction and maintenance were denied water use to irrigate fields.

All these social mechanisms developed by the irrigation organization had so far been successful in resolving water conflicts. The traditional adjudication process appeared more effective and functional than legalistic ones.

The traditional process occurred in the following way. When conflict occurred between or among the farmers using the irrigation facility, the incident was immediately reported by the affected party/ies to the Chairman of the irrigation organization. The Chairman immediately ordered the *sepoys* to communicate this incident to the eight other executive members. All nine executive members then assembled in the house of the chairman and faced the conflicting

parties. In this meeting, the conflicting parties reported their side of the problem. After the hearing, the officials of the irrigation organization met separately to judge the case. The decision was usually a unanimous one. When there were differences of opinion among executive members, the majority view was held as the final decision. The decision was always accepted by the conflicting parties since there would be no other ways to deviate from it. Out-migration would be one way out but is not feasible strategy. Noncompliance with the decision of the organization would be another way out but at the risk of a strict penalty i.e., denial of the right to water use for several turns which would adversely affect the crops in the field.

Sometimes, factions would appear in the irrigation organization particularly between the upstream and downstream farmers. This would usually happen during the dry season when every farmer in the upstream area would want to use more water at the cost of downstream farmers. When this happens, the executive members from the downstream would put more pressure on the executive members from the upstream area and suggest immediate penalties for upstream farmers who would be found violating the water distributional rules.

By the large, the officials of the irrigation organization played an instrumental role in resolving conflict cases. So far, water conflicts had not been forwarded to the formal courts for resolution. This was because the organization members themselves served as effective legislators and enforcers of the rules and regulations.

6. Conclusions

The overall objective of this paper is to gain an understanding of the functions of the organization in the indigenous irrigation system. Based on the data, the following conclusions can be drawn:

- (i) Given the desire to articulate the felt needs of prospective farmer beneficiaries, an irrigation development program can be successfully maintained through the farmer's own initiative. In the system studied, it was the local farmers who felt the need for water to irrigate their farm lands and to augment the regular production of crops. To meet this need, they themselves got organized to acquire water for irrigation.
- (ii) The existence of a rural association is a must in mobilizing village resources for an irrigation development program. In the present study, the irrigation association came into being to mobilize cash, labour and materials for water acquisition and

maintenance activities and by doing so guarantee a regular flow of water.

- (iii) The farmers' sense of ownership towards an irrigation development program, another crucial element in building effective irrigation organizations, arises only if farmers have personally contributed to the irrigation system construction and maintenance. In the present study, farmers could claim the right for water use because they themselves contributed time, labour and money to system construction and devised their own strategies for water use and conflict-resolution.
- (iv) Related to the above, democratic and egalitarian procedures for rural resource management are of paramount importance. This study has shown, for instance, that it was the local farmers themselves who set the selection criteria for choosing irrigation organization officials and the ones who would dismiss officials who failed to perform their duties according to these set criteria. The water resource that the farmers were entitled to use was more or less equitably distributed among the system members. These democratic and egalitarian procedures were possible because the farmers' sense of ownership towards this particular irrigation development program has been duly maintained.
- (v) In a successful irrigation system, organizational social mechanism for conflict management becomes more effective than those set by formal state laws. The irrigation system studied effectively sanctioned defaulters and water thieves through fines or the cancellation of their right to water use for a specified period of time. More importantly, the conflicting parties were brought together to agree on the penalties imposed upon them.

By and large, the present study has shown that the farmers' own initiative in the formation and maintenance of local irrigation organization led to the success of the irrigation development program in Dhaitar. Moreover, given the opportunity to maintain their sense of ownership towards the irrigation system, farmers were able to employ democratic practices in handling organizational matters and work out egalitarian procedures to distribute scarce water resource.

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AN ANALYSIS OF THE RURAL POVERTY FROM PEOPLE'S PERSPECTIVES : A Case Study From Amarpur VDC of Panchthar District

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This article focuses on the rural poverty from the people's perspectives. It emphasises on understanding poverty in the context which usually implies trying to discover how people view their own situations and how they solve their problems. This research article incorporates the views, expressions and analyses of rural poor on poverty in terms of their economic and socio-cultural context. As the research is about the analysis of micro-level situation, methods used in this research are the combination of both participatory and anthropological tools. Participatory tools were used to reflect the situations of the poor people from their own analyses as these tools provide a basis to elicit their situations. Similarly, anthropological tools give better insight into the situation of the people (Bernerd, 1991). This paper is based on the Chambers' (1983) deprivation theory. He defines the causes of rural inequity inter-linking five clusters, i.e. powerlessness, poverty, physical weakness, isolation and vulnerability. Together, they form the deprivation trap. The deprivation trap is valid at household level.

Poverty is a major problem in Nepal. Of the total population, about 49 percent are below poverty line (NPC, 1992). Poverty has affected the large number of people in general and rural people in particular. Number of poor people are increasing due to stagnant growth in the economy, increased population pressure and increased unemployment (Blaikie et.al. 1982).

There is a plenty of literature on poverty and poverty alleviation. Past literatures focused on different aspects of poverty.

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ICIMOD (1993) stated that the close inter-linkages between limited resource base, rapid population growth, environmental degradation, low level of social development and wide spread poverty pre-present a complex development challenge which shows that poor people are bad for the environment and more poor people are worse. Family size and dependency ratio are higher in the Hills than in the Terai. This means that the size of poor Nepalese family is bigger than that of non-poor families (Bhandari et.al, 1986).

The relative concentration of children in poor families means that the children of Nepal are proportionately more exposed than adults to the disadvantages of poverty including limited access to food, education, health services and sanitation. At the same time, they are more vulnerable than adults to the consequences of poverty (World Bank, 1991). The ratio of total household members to earning households members shows some unusual pattern. Usually, a higher dependency ratio characterizes the poor families (Karki, 1996).

Land has been considered as one of the sources of wealth, status and power. Generation of social inequality in the rural areas is due to unequal distribution of land (Bhandari, et.al., 1986). The national living standard survey (NLSS) (1996) reported that there are 40.13 percent small farmers operating less than 0.5 ha. of land and distribution of small farmers are more in the Hills (0.89) with national average of 1.09 ha.

Different cultural factors are responsible for influencing socio-economic life of the people. Foote et.al (1996) reported that a funeral can debilitate the economy of a family for years. The vicious debt cycle has created an increasing trend of debt which often leads to land loss, and inevitably to food deficiency. The other severe hardship they experience in the celebration of festivals such as Dasain. The other dimensions of persisting poverty are due to existing socio-cultural values. Present socio-economic structure is built on oppression and exploitation of people they want to preserve the present structure because it gives them prestige and wealth (Dahal, 1987).

Levels of education is one of the major determinants of the socio-economic condition of the people. NLSS, (1996) reported that only 38 percent of the population consisting of 52.15 % for males and 24.35 %

for females, are literate. Literacy rates are higher in urban areas (64 %) than in rural areas (36 %).

Past literatures on poverty which are based upon secondary data with extensive coverage and limiting the concept of poverty into economic and physical indicators interpreted the concept of poverty with their own indicators. In such studies, poor people responded what was asked to them with prefixed indicators of poverty. In the economic analysis of poverty, it is very difficult to measure poverty because basic needs of people vary from society to society and culture to culture (Heralambus, 1997).

The Study Area

Amarpur is one of the VDCs of the Panchthar district. The study area is bordered by Tharpu VDC in the east, Tamor river in the west north, Kabeli river in the north and Subhang VDC in the south. The study area is fifty kilometers far from the district headquarters of Panchthar district. Meechi highway passes through the study area. Kabeli and Tamor are two perennial rivers which flow along low elevation. The major local markets are Amarpur, Bhalu Chok, Singapur and Kabeli.

Methodology of the Study

Ward number 1, 3, 5, 8 and 9 of Amarpur VDC were selected on the basis of criteria such as remoteness from the roadhead, insufficiency of food yields, lack of school and water supply facilities, lack of implementation of development activities in the past and ecosystemic fragility and vulnerability (such as frequent occurrence of landslide). In these five wards, there are 522 households of different ethnic and caste groups. All households were selected for the general study. After well-being ranking, only the households of the poor were selected for indepth study. Well-being ranking, focus group discussion, key informant interview and observation were the major tools for data collection.

Population Distribution of the Sample Wards

There were 522 households with 3361 population. According to the study, 1685 male and 1676 female population is distributed in the sample wards. Ward no. five had the minimum number of households and ward no. nine was biggest both in the number of households and population. Average family size and sex ratio of male and female population was found to be 6.43 and 100.53, respectively. Distribution of

households by ethnicity indicated that Bahun and Chhetry are the dominant caste groups in the study area (42.14 %). The second largest group is Tamang (19.81 %) followed by Limbu (13.83 %), Rai (7.65 %), Newar (5.35 %), Majhi (4.94 %), Kami (2.91 %), Damai (1.67 %), Magar (1.01 %) and Jogi (0.78 %), respectively (see Table 1).

Table 1 : Population Distribution of the Study Area on the Basis of Caste and Ethnicity

Caste/ethnicity	Total HHs	Male	Female	Total Population	%	Family size
Bahun/Chhetry	221	708	708	1416	42.13	6.40
Tamang	109	327	339	666	19.81	6.11
Limbu	70	228	237	465	13.83	6.6
Rai	41	128	129	257	7.65	6.28
Newar	27	93	87	180	5.35	6.66
Majhi	21	93	73	166	4.94	7.90
Kami	15	49	49	98	2.91	6.53
Damai	8	28	28	56	1.67	7.00
Magar	5	19	15	34	1.01	6.8
Jogi	5	12	11	23	0.78	4.6
Total	522	1685	1676	3361	100	6.43

Source : PRA, 1997.

Classification of the Households by Poor Rank

In order to identify the rural poor in the present study, the households of different wards were categorized into different socio-economic strata. Well-being ranking was done in group meetings with the participation of males and females. The number of categories varied from one ward to another. In some cases, the village people made up to ten categories while defining the well-being at the household level. After categorizing the households, the participants provided the characteristics of the households in each category. Common indicators used by the community for well-being ranking are food availability from their own production, job at foreign army, number of cattle, type of house, pension, social prestige, family security and the presence and absence of male in the home. On the basis of indicators of well-being ranking and other supplementing information found during the study, all households of the clusters are classified into four major ranks. Rank A, B, C and D are termed as very rich, rich, poor and very poor, respectively. There are not very

rich households (Rank 'A') in Majhi, Kami, Damai, Magar and Jogi community (see Table 2).

Table 2 : Population Distribution of the Rural Poor Households on the Basis of Caste/Ethnicity

S. N.	Caste/ethnicity group	Rank 'A' very Rich	Rank 'B' Rich	A+B	Rank 'C' Poor	Rank 'D' very poor	C+D	Total HHs
1	Bahun/Chhetry	50	62	112	72	37	109	221
2	Tamang	13	35	48	33	28	61	109
3	Limbu	17	31	48	8	14	22	70
4	Rai	6	19	25	8	8	16	41
5	Newar	6	10	16	6	5	11	27
6	Majhi	-	3	3	6	12	18	21
7	Kami	-	3	3	2	10	12	15
8	Damai	-	1	1	2	5	7	8
9	Magar	-	-	-	-	5	5	5
D	Jogi	-	-	-	-	5	5	5
Total		92	164	256	137	129	266	522
Percentage		17.62	31.42	49.04	26.24	24.72	50.95	100

Source : PRA, 1997.

(1) Very Rich Households

These are very influential personalities of the society with good social respect. Many of very rich households are active in politics. Many of them have either job in the foreign army or have retired from the army. They have enough land in the village and also grow cash crops like cardamom. Most of them have land in Terai. They sell food-grains in the village. Many rural poor have to depend on them for food and work. Size of livestock is bigger than other groups. They have either improved cow or buffaloes. They have bigger and better houses than others. Some of them have domestic servants also. They have access to higher education. Such households constitute 17.62 percent to the total number of the households in the study area.

(2) Rich Households

This group is relatively well off and has fixed sources of income from either cash or kind. It has larger land size (From 16 to 40 ropani). Quality of the land is good and fertile which contributed to food availability for more than one year. Normally, they do not borrow loan for daily necessary activities. These households constitute 31.42 % of the total households. In this, study very rich and rich households are categorized as well off households.

(3) Poor Households

These households have better position than the very poor households and are deprived than the well off households. They have own land with small size ranging from 5 to 15 ropanis. The quality of land is not that good. Food sufficiency is for five to eight months. Some of them are in service in low position. Sometimes they also get involved in wage labor within the village. Some of them have access to local high school. These households constitute 26.24 % of the total households.

(4) Very Poor Households

Very poor households are characterized by miserable socio-economic condition (Pokharel, 1999). Food sufficiency is for less than four months from their own production. They have either small land size of less than 4 ropanis or have no land. These households are keeping young animals or other's animals on shared basis. Their source of income is in farm or off farm farming. Few of them cultivate others' land on the basis of share-cropping. These households comprise 24.72 percent of the total households. In this study, both poor and very poor households are categorized under rural poor households.

Basic Features of the Rural Poor**(a) Poverty**

Focus group discussion, key informant interview, case study and observation were basic techniques to understand the extent of the people's poverty. In this study, poverty is defined in terms of food sufficiency. Chambers (1983) states that poverty contributes to physical weakness through the lack of food, small bodies, malnutrition leading to low immune response to infection and inability to reach or pay for health services, to isolation due to inability to pay for schooling cost, to look for work, to vulnerability through lack of assets to pay large expenses or to meet contingencies, and to powerlessness because lack of wealth goes with low status, the poor have no voice. The field evidences supported that the rural poor spent their substantial amount of time in search of food. To cope with the problem they adopted different strategies as sale of assets, pulling children out of school, wage labour activities, etc.

(b) Physical Weakness

Chambers (1983) noted that the physical weakness of a household contributes to poverty in several ways : through the low productivity of weak labor, through an inability to cultivate larger areas or to work longer hours, through the cultivation of larger areas or working longer hours, through the lower wages paid, through withdrawal or weakening of labor through sickness. In the study area, some of the ethnic/caste groups had large family size in comparison to the district and national level average family size. But the average family size of the rural poor was not as high as well off of the study areas. However, existing production from land could not fulfill the food demand of the rural poor households throughout the year. All family members depended on wage labour of the household head. Hence, the average family size could be considered a high one in terms of production.

(c) Powerlessness

Many rural poor households were dependent economically upon the local well off households. Such kind of dependency gave the rural poor households a subordinate position in society. They could not express independent opinion against the money lender. They have to spend a substantial amount of time to seek loan. Chambers (1983) views that it reinforces physical weakness, because time and energy have to be devoted to acquiring for access, because labor obligations to patrons reduce labor availability for household production or other earnings.

(d) Isolation

The poor households of the study area live in different socio-cultural and geographical situations. Not all the rural poor are remote from communication, services and market centres. Some of them concentrate on the roadhead of Mechi highway. However, they occupy marginal land. Some of them live in vulnerable places such as Apegounda, Phedappa and Jorpani of the study area. These settlements are either along steep slopes or the landslide prone areas. Comparatively, wards 8 and 9 of the study area are less accessible from the roadhead.

(e) Vulnerability

The rural poor have not enough land, no sufficient production and no employment opportunities. As a coping strategy they sell

assets or live without meals or have half one meal for a few days. In this regards, Chambers (1983) mentioned that vulnerability relates to poverty through the sale of mortgage of productive assets, to physical because to handle contingencies, time and energy have to be substituted for many, to isolation through withdrawal whether spatial or social following shocks and contingencies and to powerlessness through the dependence on patrons to which it gives rise.

Survival Strategies of the Rural Poor Households

The food sufficiency of the rural poor comprises the agricultural and livestock production for their own consumption and partial source of income is sale of lentils, citrus fruits, etc. All of the rural poor do not produce enough food from own land as well as others' land to meet household demand see (Table : 3). It reveals that 51.50 percent households have sufficient food for only 6-8 months. Another 23.31 % households have food for 1-4 months only. A slightly more than 15 percent households have food scarcity throughout the year and the remaining 10.15 percent have food sufficiency for four to six months. It was reported that food deficit households derive the supplementary income from wage labor, portering, loan from local money lenders, seasonal migration, etc.

Table 3 Food Sufficiency of the Rural Poor HHs

Food Sufficiency	Total HHs	Percentage
Zero month	40	15.04
1-4 months	62	23.31
4-6 months	27	10.15
6-8 months	137	51.50
Total	266	100

Source : PRA, 1997.

During the field visit, discussions were made on coping strategies adopted by the rural poor households during the time of hardship or food deficit period. It was noticed that the rural poor households adopted different occupations to meet their food requirement which are described below.

(1) Wage Labour

Table 3 reveals that none of the rural poor households have sufficient food through agricultural production in the study areas. They earn their living through agricultural wage labor or other wage labor. Masonry, carpentry, ploughing, digging, and sawing are the major types of wage labor opportunities in the study area. It was

reported that a large number of wage labourers are employed within or outside of the study area during monsoon season. Similarly, the households of the rural poor get labour opportunity during the cardamom harvesting time. Occasionally, the poor households get labour opportunities along the Mechi highway to clear the landslide debris. It was reported that both males and females are involved in agricultural wage labour. In addition, the male members are involved in outside the village wage labour also. The wage rates of the study area varied for males and females. Males receive Rs. 25 per day whereas females receive only Rs. 12 to 15 a day. If a male gets ploughing job, he earns Rs. 30/- with one time meal a day.

(2) Seasonal Migration

Another coping strategy of the rural poor is seasonal migration. Insufficient land, poor crop yields, and rural indebtedness are the notable reasons for the seasonal migration of the study area. Economic hardship is the main reason for periodic migration. There are also several evidences of drought and flood causing for seasonal migration. In the beginning, such migration is temporary and after some times either the migrants came back or settle down at the new place permanently. A few people from the rural poor households are going to Sikkim as well as Nagaland also. In the months of July/August, the rural poor migrate to Sikkim. After earning some cash income, they return to their villages and repay loans or take back their land given to use for others on mortgage basis. One can earn Rs. 4000 to 5000 during the migration period. Some of the members of the rural poor households migrate to Arabian countries also. It was reported that those who went to Arab had mortgaged their own land and ornament for travelling. In this case, the debtors paid Rs. 100 percent interest to local money lenders when they come back from Arab. A key informant in the study area reported that one family could not pay on his return. This completely ruined his family.

(3) Loan Borrowing

Almost all of the households of the rural poor fall in debt. Borrowing loan is the common way to solve economic crisis in their daily life. The majority of the households have the thinking that when some unforeseen events happen, they have to further contact local money lenders to get money just like they buy in food deficit period. If crops failed due to natural calamities and unfavourable weather, the poorer households borrow grains or money from richer people in the

community. In such cases, the interest rate depended on the money lender's convenience. Thirty six to fifty percent interest rate was found during the field visit.

(4) Livestock Raising

To solve the crisis of small magnitude, poor rural households have the opinion that loan can be repaid by keeping animals on shared basis which gives some return after a few years. When people fall in debt either from crop damages due to hailstones, drought or others or if active members get sick who were supposed to earn money in such situations, the first remedy for them is to sell existing animals they have. To meet the financial requirements for the construction of houses and to observe social rites and rituals, the first option they have is to sell animals and chickens.

(5) Strategies in the Period of Stress

The common strategies for the period of stress are sale of assets, begging and relying on relatives, pulling children out of school, obtaining loan from the rich people, pursuing more wage labor activities. It was noticed that the target groups used yams, sweet potatoes, and pumpkins as night meal in the winter season to save food-grains for food stress months. During the period of stress, some of the rural poor live without meals or half meals for a few days.

Conclusions

More than fifty percent households of the study area are poor households. Rural people have own definition, indicators and analysis of the issue of poverty. Rural people categorized the households in terms of food availability. All of the rural poor do not produce enough food from their own land because of their possession of small land size and marginal land. The rural poor spent their substantial amount of time in search of food. Food deficit households derive the supplementary income from wage labour and seasonal migration, and take loans from local money lenders. Most of the households of the rural area fall in debt. Many of the rural poor economically depend upon the local well off households. Such kind of dependency gives the rural poor households a subordinate position in society. Because of high level of dependency on well off households the rural poor cannot articulate independent voice in the presence of the well off. The average family size of the rural poor is high in terms of production. All of them are not living in remote area. However, most of them occupy marginal land and some of them live in vulnerable places.

Notes

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ENVIRONMENTAL POLLUTION AND AWARENESS IN POKHARA CITY : A Sociological Perspective

Dr. Biswo Kalyan Parajuli*

1. Introduction

Environment itself is very vague, complex and broad in its meaning. Therefore, in its definition, it reflects the interest, perspectives and motives of the users. Timothy O' Riordom (1978) and Sinha (1988) wrote that the environment is to be all the things to all men. Environmental realm does not exist separate from human actions, needs and aspirations. Environment, in its quality, is one of the very significant characteristics of growing urban areas. Development of urban areas has made a significant impact on the ecological contest of their development. The definitions of environment are varied in nature. It consists of everything external to our individual, physiological and psychic organism. Human behavior is influenced by physical, biological and socio-cultural environment. The growth of urban areas is immensely influenced by the quality of natural environment of the places of inhabitation. We generally define environment for a given population of human being as the system of spatial and temporal regularity of non-human structure, which influences the biological and behavioral process of the population.

In fact, environment and urbanization are closely inter-linked, and the stage of urbanization can be identified through state of urban environment and vice-versa. Each urban region has natural environmental features and man-made alternations of that natural environment. The configuration of the natural environment and the manmade alterations of it may produce hazards such as air and water pollution, noise, fires, floods and landslides (Van Arsdol et al. 1964: 145), which are inimical to health and result in economic loss (Butler,

1976: 433). Environmental hazards can be determined in different ways. First, objective measurements may be made of hazards such as air pollution, noise and so forth. Second, it is quite another matter if one is concerned with the degree of public awareness of the hazards, since objective measures and public awareness may or may not match. Furthermore, man's attitude toward environmental conditions do change over time.

A. G. White argues that it is misleading rather helpful to distinguish between quality of natural environment and quality of social environment because what is commonly called natural environment has meaning in a social setting only in which preference are those of man interacting with man and nature. Here, we are not directly concerned with natural environment as such, but it is rather man-made problems and aspects of physical environment under human control which are significant from the point of view of Social Sciences. The natural environment in urban areas is transformed into an artificial environment in the name of development. The natural environment is transformed by human activities in the context of specific socio-cultural context. Therefore, environmental issues are basically socio-cultural issues and go far beyond their natural components.

Industrialization, technological advancement, population growth, migration, etc are bringing profound social and environmental changes in urban milieu. Lately, it has been realized that the quality of environment of urban areas is deteriorating fast. In the context of India, Delhi is stated to be second polluted city in the world, which was reflected by the death of one hundred people in 1988 in Delhi by epidemic of Cholera owing to the improper management of solid waste (Bhattacharaya : 1997). At the international level concerned with quality of environment associated with movement of Human Right has given rise to new environmental perspective, environmental legislation and organization at national and international level which are specifically devoted to preserve, protect and improve the quality of environment in developing areas. Almost all nations have been environmentally conscious, and have enacted a number of legislations, which reflect the growing concern of people with regard to quality of environment. Therefore, everywhere the urban environment, is becoming more complex. The UN Conference on the human environment, held in Stockholm in 1972, Rio Earth Summit 1991, and Habitat II Istanbul 1996 all have stressed the need to improve human

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living condition by improving environmental sanitation, i.e. protecting earth from pollution and better management of urban (human settlement) areas (Park & Park: 1990), (Raio Summit: 1991) (Habitat: 1996).

Herein, an attempt has been made to explore and analyze the prevailing environmental scenarios, garbage disposal systems, most polluted areas, as well as the perception of environmental pollution by urban dwellers of Pokhara Town.

2. Urban Environment in Nepal

Nepal is lagging far behind many countries in the field of environmental management and improvement, especially in urban areas. The genuine environmental problems of safe drinking water, pollution, sanitary disposal of human excrete and domestic garbage is yet to be resolved. Much of the environmental hazard in the urban area is the result of defective environmental policy, management and socio-cultural customs and practices in Nepal.

While urban population and urban localities have grown rapidly over the years., considerable changes have taken place in the urban landscape. These changes are more articulated over the last two decades. The land use competition is stiff in Nepalese cities. Over the years, hundreds of hectares of prime agricultural land have been encroached for urban uses. Likewise, a significant portion of public lands are also brought under urban use (Subedi: 1995). A study in Kathmandu and Lalitpur reported that between 1971-1981 about 40 percent and 27 percent of agricultural land were converted into urban complex, respectively (PADCO: 1989). Solid waste collection and its disposal are the major problems in the urban areas primarily in Kathmandu city. Waste left to decompose at open space, streets, corners and riverbanks has become a normal feature of urban landscape in Kathmandu. At least 42 percent of the households are recorded to disposing their waste in the open space and streets (EMA: 1992). The total solid waste generated from Kathmandu Valley is estimated to be 284 tons per day. A 16 percent of the total is industrial, commercial and institutional waste, and the rest 84 percent is domestic waste (ICIMOD: 1993). Total 213 tons waste is collected and 71 tons left to decompose in the street corners, open space and riverbanks. Therefore, Muttagi (1994) rightly comments the pollution problem in Nepal:

"Environmental pollution has become a serious problem in urban settlements in Nepal. The garbage heaps of Kathmandu which

rise in ugly mounds against the breath-taking beauty of the Himalayan ranges, tell a story-a story of blind, lopsided urban growth in one of the poorest countries in the South Asia. What is happening in Kathmandu is symptomatic of the growing urban characteristics across the developing world, but in Nepal it is more striking clearly, some things have gone terribly wrong in Nepal. Frequent outbreaks of hepatitis in Kathmandu city are just warning signals that the worst is yet to come in a local that just few decades ago, was one of the prettiest place in the world" (TCST; 1992: 4).

Urbanization thrives on the artificiality of environment and as a result, almost all-growing and big cities of world suffer from threat of environmental pollution from various sources. The air, water and earth gets gradually more polluted with the increasing level of urbanization in different countries.

3. Environmental Scenarios of Pokhara

Natural places have always attracted people because of its natural background. Pokhara has attracted growing number of people to select this place as permanent place of residence. The convenient and centre most location, development of infrastructure and beautiful surroundings while have made Pokhara a famous place of tourist attraction, is also susceptible to environmental degeneration.

Compared to Kathmandu environmental scenario of Pokhara city yet is not so terrible. Nevertheless, environmental pressure has greatly increased in Pokhara, especially along the built-up site, riverbanks, eastern bank of Phewa Lake, main market area between Bagar to Mahendrapool, Mahendrapool to Prithivi Chowk, Lake Side area, and Bus Park area. Rough road construction squatter, slummy, encroachment over natural resources, distress upon cultural-religious heritage is continuing due to unplanned and haphazard urbanization. In spite of the standard fixed for urban growth throughout the city, mainly in lake area uncontrolled construction and haphazard development activities have increased (NPC/IUCN: 1995). The rate of urbanization is increasing throughout the city, with some harmful effects on facilities, such as drinking water, roads, open space, drainage system and cultural heritage. Growing urbanization has also adversely affected amenities in the urban areas and tourist industries around the city, by creating noise pollution, water pollution, air pollution, narrowing the pathways and uncontrolled drainage. In short, there is a marked deterioration that is man made (PLCAP/IUCN: 1996).

The fast urbanization of Pokhara town has rapidly changed the lifestyle of people and the environment of the region. However, some areas in the city are less polluted than the capital city Kathmandu and other greater cities elsewhere. The growth of tourism and development of non-agricultural occupation, change in land use pattern in Pokhara especially around Phewa Lake area of city has rapidly changed the lifestyle of people and environment of the place. According to local people, the increase in hotel construction, business firms and other urban activities in Southern and Western part of lake are the cause of Lake Pollution, loss of bio-diversity and health hazards of the people.

Now a days there are changes in the urban ecosystem in many urban areas because of the concern for the environment in urban development. If the present trend continues in Pokhara City, the environmental problem will definitely jeopardize the local economy, health, culture and environment. So an integrated urban development approach is indispensable needed to sustainably manage the environmental resources and heritage. If further pitfall is to be avoided, certain measures should be taken immediately along with adequate futurist planning so that the quality of sustainable environment is maintained without any compromise with a quality of life of the residence. Hence, it is important to understand and analyze the environmental aspect of this growing town in Nepal.

4. The Methodology

In order to make an assessment of the universe, the investigator has depended upon household survey carried out by himself. The households were selected within core area of city in 15, out of 18 wards of Pokhara city. Of a total 10,800, about 2.5 percent households were selected as sample households for purpose of this study. Following a systematic random sampling process, every 40th household from the survey list was selected.

The investigator himself collected the information personally conducting interviews with the respondents selected. Observation method was also used as survey instrument. In addition to directly collecting information through interview and observation, secondary sources of information, i.e. books, journals and official reports were also used for the purpose of collecting information essential for the purpose of present study. The information collected was processed with the help of computer. The main outcome of this study is interpreted in simple descriptive as well as explanatory way as per

research design. Following assumptions were developed to analyze the empirical data :

- a. Environment of Pokhara is being more polluted because of developmental activities and population growth.
- b. Environmental awareness has been increased because of growing urbanization.
- c. Young and educated are more concerned on environmental pollution than old, non-educated.
- d. If people are not aware about their environment, they do not dump their household garbage in proper place.

5. Environmental Pollution

Since pollution emerges from all types of human activities, pollution is found in all settlements. All acts of pollution of environment are directly or indirectly related to human health and their well being (Krishna: 1987). The efforts to control pollution and thereby preserve the environment are worldwide but to a large extent it is more related to urban areas. Ever since man first appeared on the earth, he has been polluting his environment. He began to change his environment to control it, to dominate it for better and for worse (Haw Kinns: 1973). Shukla (1993) in her study writes to define pollution as :

"In simple common sense language, a pollution is anything which has a harmful effect on organisms or their environment. As being harmful and disease, carriers the environmental pollution can be classified into seven major categories : acids, toxic chemical elements, radioisotopes, organic living compound, heat, particulate and noise" (Shukla; 1993: 48).

Environmental pollution such as air, water, noise and solid waste has become a serious threat in big cities, urban centres and industrial areas. Liquid waste coming out from the disposal of various industries have caused health hazard, fument, nuisance, and air and water pollution problems to the people residing over there. Industrialization has resulted in highly toxic environment, leading to health hazard, air and water pollution. Innumerable common as well as chronic disease resulting from industrial environmental chemical waste, air pollution and water contaminates are always already existing in human society. The problem of ecological and environmental pollution is much serious in Kathmandu and other big cities than Pokhara. Most of the big cities in Nepal are unable to

maintain environmental and ecological status quo, which is not harmful for human beings, but even for cattle and aquatic animals.

The most scenic tourist city Pokhara has its own pollution problems because of lack of effective and appropriate town planning in the built up site (old city areas), congestion, over pollution and rapid urbanization (Parajuli and Sharma, 1996: 31). There is also the serious problem of pollution in Phewa Lake because of industrial, business and domestic activities. In besides its own population, Pokhara also has the problem of large number of tourists and visitors from different parts of the kingdom and the globe, which adds to the sanitary problems of the city and Phewa lake.

Environmental pollution is a common feature of modern developing society. So the attempt has been made to explore some of the perceptions of respondents regarding the environmental pollution, its sources, types measures to controlling pollution and they have been described and analysed below.

a. Perception about Pollution

A perception survey regarding the environmental pollution was conducted through questionnaire and the findings are presented hereunder.

Table 1: Perception about Town's Pollution

Perception	Frequencies	Percentage
Town is suffering from pollution	189	75.60
Town is not suffering from pollution	57	22.80
No response	4	1.60
All total	250	100.00

The table 1 reveals that the majority (75.60 percent) of the respondents have answered that the Pokhara is suffering from different types of pollution, but 22.80 percent have claimed that the city is not suffering from any pollution. Remaining 1.6 percent respondents were indifferent on this dilemma.

From the table above, it is apparently seen that larger proportion of respondents have felt pollution problem at Pokhara, which reflects the haphazard growth and ineffective town planning. In spite of this, the traditional habit and ignorance of the people is also

equally responsible for the same. The municipal as well as civic authorities are unable to manage limited civic amenities and resources to the increasing population owing to the inadequate urban amenities, haphazard growth, congestion, traditional habits and ignorance of people pollution has grown up as an inevitable problem.

Only 22.80 percentage of respondents have not felt problem of pollution. It indicates a fact that all parts of the city are not equally polluted, only highly urbanized areas like Bagar, Old market area of Bindabasini to Sangu Ku Kukh, Mahendrapool, Prithivi Chowk and Lakeside are more polluted than the rest; Some parts of the city are untouched by haphazard development activities. Therefore, these areas are relatively pollution free. In addition to this, the landscape and river drainage of Seti River can be considered as a natural gift to keep city's cleanliness.

b. Types of Pollution

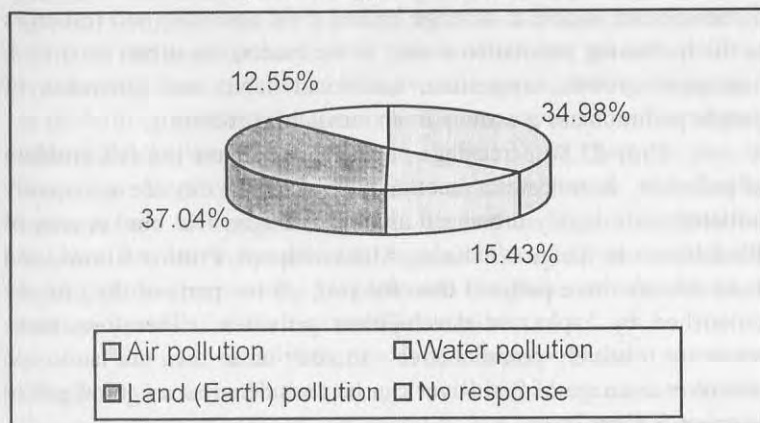
On the basis of aforementioned discussions and analysis, it is clear that pollution has grown as an urban problem in Pokhara. The present research work would, therefore, focus on types of pollution. Those respondents observing that "the Pokhara City is suffering from pollution" have given detail about the types of urban pollution. The types of pollution as stated by respondents have been shown in Table 2 (The respondents gave the multiple response).

Table 2 : Types of Pollution in Pokhara

Types	Frequency	Percent
Air pollution	170	34.98
Water pollution	75	15.43
Land (Earth) pollution	180	37.04
No response	61	12.55
Total	486	100.00%

Table above shows that earth, air and water pollution are significant types of pollution at Pokhara. Majority of (37.04 %) respondents have reported earth pollution followed by problems of air pollution (34.98%). Water pollution was reported only by 15.43 percent of the respondents. Remaining 12.55 percent respondents remained indifferent to this concern.

Figure 1 : Types of Pollution



On the basis of figure in Table 2, it is clear that earth pollution and air pollution have grown as significant problem at Pokhara. The problem of water pollution was less significant in comparison to other types of problem. The urban dwellers are getting safe drinking water. However, the major cause of water pollution in Pokhara is the apathy of the village people residing around the source of drinking water. When it is raining, they deliberately throw the garbage and rubbish to the street and pollute the road.

The increasing air and noise pollution is reflected by the dusty atmosphere and unhealthy smoke, gaseous and displeasing noise generated by the automobiles. People in and around the Bus Park, Prithivi Chowk, Mahendrapool, Lakeside and Bagar are encountering air and noise pollution created by automobiles and city crowd.

Rapid and haphazard developmental activity as well as steady growth of pollution has produced lots of industrial, commercial as well as domestic waste. In the absence of proper dumping site, waste materials are dumped at the bank of Seti River by municipal authority and it has polluted the river water. A significant amount of solid waste is left to decompose in the street corners and open space. Therefore, respondents have felt direct effect of waste materials to pollute the earth. On the whole, the pollution of city is also reflected by the growing number of hotels, small and cottage industrial units, business establishments as well as hospitals, which generate significant amount of waste materials, which no longer hold any value to the owners. Physically, these wastes are not only limited to solid but also liquid or

gaseous matters. These gaseous wastes released to the atmosphere, liquid into water body and the solid waste generally remain on the land which caused air, water and earth pollution, respectively.

c. Causes of Pollution

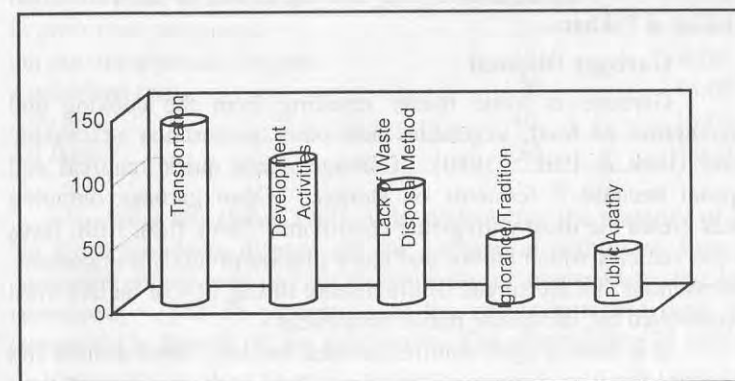
Further attempt has been made to analyze the causes of pollution at Pokhara City. The same respondents were asked to give the causes of pollution in city. Four hundred thirty responses were recorded from the respondents. The respondent's attitude toward sources of pollution has been presented in table 3.

Table 3 : Causes of Pollution in Pokhara

Causes	Frequencies	Percent
Vehicular Emmission	140	32.56
Development Activities	110	25.58
Lack of Waste Disposal Method	90	20.93
Ignorance/Tradition	50	11.63
Public Apathy	40	9.30
All total	430	100.00

According to table 3, out of 430, 140 or 32.56 percent people think that pollution is caused by means of transportation. Among the other major causes of environmental pollution, urban developmental activities, lack of waste disposal method and ignorance and traditional customs constitute 25.58 percent, 20.93 percent and 11.63 percent, respectively. Remaining 9.30 percent pollution was reported due to the public apathy of city dwellers.

Figure 2 : Causes of Pollution



On the basis of figure 2, it is evident that increasing number of automobiles is the major cause of pollution. Now days more than 1000 heavy vehicles, 2000 four wheelers (cars and taxis) and about 6000 two wheelers bikes move regularly on and around the city. These automobiles result in different types of harmful gaseous, which caused environment impure. The natural environment and biodiversity of the area have been badly affected by the development activities in and around Pokhara. For example, the tourism infrastructure road to Sarangkot Hill was the major cause to occur frequent landslides in the area.

Most of the settlements, houses and markets were built up without any proper and effective planning. There are very few open space and public parks in residential areas. The commercial rubbish is also not properly managed at the bazaars. Owing to the insufficient land at the back of their house. Most of the dwellers of market places dump their domestic waste either in the street or just in front of their house. Most of the dwellers of market places dump their domestic wastes either in the street or just in front of their houses. Meantime there is no proper waste disposal method. Some time development activities, ignorance of the public and their apathy coincide to the environmental pollution. There are no sufficient garbage containers in appropriate places. People throw their household garbage to the street and in the canal which pass through the market area. Ultimately, the street rubbish is swept away by the rainwater up to Phewa lake through Phirke Khola. Other garbage dropped into the canal is drained to the residential site as well as the agricultural land. Thus, the people's traditional habit, development activities, public apathy and loose administration of municipality are the causes of environmental pollution at Pokhara.

5. Garbage Disposal

Garbage is waste matter resulting from the cooking and consumption of food, vegetables and other preparation of organic matter (Park & Park : 1980). Garbage needs quick removal and disposal because it ferments on storage. Open garbage dumping places create the most unhygienic conditions. Since flies, fifth, feces are the vehicles which harbor and carry disease-producing organisms. It is essential that the spread of the disease through these factors must be controlled by, increasing public awareness.

It is usually seen that the business holders, hotel owners and individual families dispose of their household garbage either in their

own compound or in the street. Disposal of garbage is a matter of personal convenience rather than public sanitary consciousness. The city dwellers think that the sanitation outside the personal house is the responsibility of the government and the sweepers of the municipal corporation. At 250 places all over the city, there was a provision of cemented containers for throwing solid wastes and the people were using it regularly (SAIC: 1993). Because of limited manpower and resources of Municipal Corporation, there is lack of regular cleansing of the containers. On the other hand it is often seen that there is no such provision, but a traditional spot has developed around the bank of Seti River, Phirke Khola and in the irrigation canals, where all the garbage of the locality is dumped improperly. In some of the strategically set up cement-containers, open space, heap of solid waste may be seen decaying and emitting foul smell. Here houseflies, insects, cows and other stray animals buried in field and garbage. Regular or periodical cleaning of garbage and solid waste is hardly seen in larger part of Pokhara City. It is obvious that the local people and municipal authorities have not paid much attention to this matter. Because of the lopsided landscape, the rainwater cleans the city, and all the solid waste of city is drained into the Seti River.

Garbage is a harbinger of dirt, disease and dangerous element of environment sanitation. If not managed properly, it would be an acute urban problem. Keeping this in mind, an attempt has been made to find out the people's habits regarding garbage and solid waste disposal methods at Pokhara. The respondents were asked to specify the place of garbage disposal. The responses are presented in Table 4.

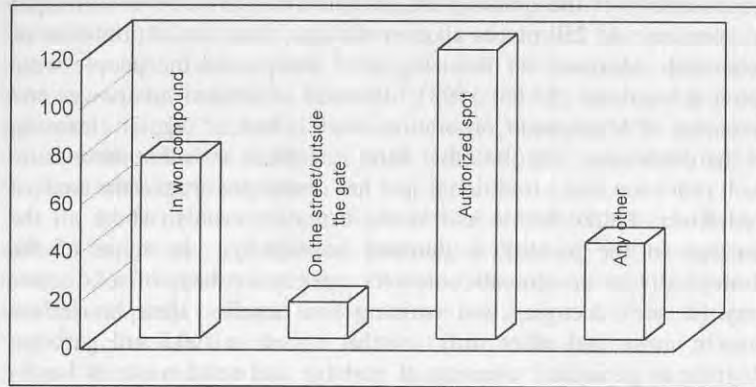
Table 4 : Place of Garbage Disposal in Pokhara

Place of Disposal	Frequency	Percent
In one's own compound	75	30.00
On the street/outside the gate	15	6.00
Authorized spot	120	48.00
Any other	40	16.00
All total	250	100.00

From the above Table, it is evident that the majority of (48 %) the respondents dispose off the garbage at authorized spot i.e. containers either provided by municipality or managed by the local community. The 30 percentage of the respondents use their own compound to dispose off the solid waste. Out of remaining 22 percent,

6 percent dispose off either on the street or just in front of their own houses 16 percent in other places such as riverbank.

Figure 3 : Place of Garbage Disposal



The above figure 3 reveals that majority of the respondents were following appropriate garbage disposal practices. Sixteen percent people were less particular and 6 percent of them were not particular about this aspect of environmental sanitation. Excepting downtown, almost all houses were attached to kitchen garden. Therefore, it is easy to dispose off solid wastes in their own compound, which is ultimately converted into compost manure to be reused for kitchen garden which is reflected by the 30 % of the respondents. Congested rented accommodation, small size of land possession and traditional habits and methods are the factors affecting the mismanagement of the garbage. The data also suggest that the people are trying to adopt urban habits. Majority of them use authorized places as well as containers set up by municipality. Only 6 percent respondents dispose off their garbage on the street. Therefore, it may be concluded that until present, the household garbage disposal system in Pokhara City is not a major factor of environmental pollution. But due to the increasing population and growing number of households, certain measures should be taken immediately. Otherwise, the adverse consequences of environmental pollution would subsequently affect the city planning and civic service and constructive activities.

7. More Polluted and Less Polluted Areas in Pokhara

Compared to rural area, every town has to accommodate a much wider range of different functions. There must be provision of houses, workplaces, industries, business establishments, transport systems, rest and recreation sites, supply of food, water, power and removal of human wastes. Sometimes, one element develops disproportionately at the expense of others, which creates problem in urban harmony, i.e., pollution. During the fieldwork, it was observed that the overcrowded Core City was more badly polluted than the interior part of Pokhara City. It is significant to note that most of the traditional resting place with Banayan and Pipal trees of the city were cut off and traditional and historical water tank (Pokhari) were fill-up in the name of modernization. These resting places and water tanks were built up to maintain environmental harmony. Now a days, the plantation seems to be very insignificant except in New-Rad, Ratnapuri and Shanti Ban.

A question about which part of the city is more polluted and which part of the city is less polluted (free from pollution) was asked to respondents. Almost all the respondents share the common version that most of the polluted areas contain in the western half of the city. The Bus Park, Lakeside, Srijana Chowk, Prithwihook, Nayabazar, Mahendrapool, Nalakomukh, Maheriya Tole, Bagbazar, Dhobigauda, Ramghat, Airport area etc. were reported to be relatively polluted areas in the town. Different factors were responsible to pollute these localities. The absence of slaughterhouses is the main cause of the pollution of Nalakomukh, Moheriatole and Bagar. Similarly, the Bus Park, Mayabazar, and the area near sport complex is becoming more polluted due to the automobile workshop, tyre, resoling, petroleum and heavy flow of traffic. Almost all the polluted areas of the city were badly affected by the trade refuse, including plastics, papers, glasses, straw and cardboard packing, decaying fruits, vegetables and other solid wastes generated from hospitals, offices, schools, industries, hotels, etc. The daily collection and transport of wastes to dumping site is not systematic in Pokhara. For safe management, urban waste, land fill is an urgent need at Pokhara, further more slaughter houses and vegetable market halls are essentially important in the city.

The outskirts of city such as wards 5, 13, 14, 15, 16, 17 and 18 which are relatively fresh and unaffected from so called development activities and human encroachment are less polluted. Except ward number 5 and 17, the rest of the wards are located in the

eastern half of the city. Batulechour-Lamachour (Ward 16), Tutunga (Ward 15), Majharipatan (Ward 14), Chhinedanda (Ward 18), Birauta-Chorepatan (Ward 17), Malepatan (Ward 5), Masbar (Ward 7), Nadipur (Ward 3), Archalbot-Maruwa (Ward 2) and Simpani (Ward 1) are reported as relatively pollution-free settlement sites of Pokhara town. The old village type localities around Pokhara city, which have been included now-a-days within the urban residential areas are relatively less polluted in terms of air, noise and earth pollution.

Parts of Batulechour, Lamachour, Deep, Simpani, Adhikaritole, Miruwa, Archalbot, Nadipur, Malepatan, Kulakodil, Nuwar, Parsyang, Baidam, Dhand, Simalchour, Bagaletole, Phulbari, Ramghat, Kundhar, Bhadra-Kali, Chauthe, Dhungeshanghu, Chinedanda, Tutunga, Birauta, etc. are the major localities which form the residential localities of the town. These residential localities are relatively free from environmental pollution. The low traffic flow absence of industrial and commercial activities, and presence of kitchen garden to dispose off solid wastes have equally contributed to the cleanliness of these localities. Some of the localities such as Tallodeep, Lampata, Nayagalli, Laligurashtole, etc. are also seem to be clean in terms of solid wastes. The dwellers of these area have managed their household refuse properly. It is obviously suggestive to public awareness increasing at Pokhara to keep it clean and healthy. In short, the whole urban environment of Pokhara is not so ugly, which generally comes in one's mind as a 'urban environment'. The most significant feature of urban environment in Pokhara is that one can not see such slum areas which are generally found in Delhi and other cities elsewhere.

7. Role of the Citizens to Improve the Environment

There is no doubt that environmental problems and pollution are the miscreation of the human beings. The misdeeds of human beings can be corrected bringing in civic sense and environmental awareness and sense of responsibility of the people. Therefore, an attempt has been made to acquire the solution for environmental improvement. Hence, respondents were asked to give their opinion regarding what role could citizen play in keeping Pokhara pollution free. The opinion of the respondents about role of the citizens has been presented in Table 5.

Table 5 : Role of the Citizens to Control the Pollution

Role of the citizens to improve the urban environment of Pokhara	Frequency	Percent
Make urban mass aware through environmental education	135	24.77
Dispose of garbage property	190	34.86
Obey law and order and maintain good discipline	90	16.51
Inform and cooperate the concerned authority to overcome the pollution problem	75	13.76
Preserve tradition and cultural heritage	55	10.10
All	545	100.00

The role of a responsible citizens is significant to control the pollution and improve the urban environment. The respondents have suggested different roles of citizen to keep Pokhara town relatively pollution free. The Table 5 indicates that the disposed garbage properly was the major expected role of 34.86 percent respondents. Making urban mass aware through environmental education was second largest (24.77 percent) role to improve the urban environment of Pokhara town. Similarly, obey law and order and maintain good discipline, and inform and cooperate the concerned authority to overcome the pollution problem received 16.51 percent and 13.76 percent, respectively. Remaining 10.10 percent suggestions were meant to preserve tradition and cultural heritage. It is apparently clear from the Table 5 that pollution of the city was caused by ignorance of the people. Because of their ignorance, city dwellers do not dispose off household garbage properly. On the basis of this reality most of the respondents (59.63 percent) were concerned toward public awareness and garbage disposal method to improve the environment of Pokhara.

Similarly, attempt has been made to measure the apathy of municipal authority regarding the protection of environment. The response was expected to the questions: how far municipal authority is concerned about protection of environment of Pokhara ? The respondents' attitude towards municipal authority's concern to protection of the environment has been presented in following Table 6.

Table 6 : Concern Municipal Authority to Protect the Environment

Attitude	Frequency	Percent
Very much concerned	8	3.20
Less concerned	88	35.20
Not concerned	90	36.00
Don't know	64	25.60
All	250	100.00

It is evident that the municipal authority was not duly concerned to protect the urban environment of town. Therefore, majority of the (36.00 percent) respondent feel that authority was not concerned. Other 35.20 percent feel that authority was less concerned and 25.60 percent of them were unable to give their opinion regarding this question. Only remaining 3.20 percent were satisfied with the effort of municipal authority regarding the environmental protection.

The apathy of concerned authority, i.e. municipality and town planning office are an obviously seen through the rough road, water logging, increasing squatter in inappropriate places, encroachment over natural resources, distress upon cultural-religious heritage, and so on. Municipal authority is not yet able to preserve the public land, open spaces, traditional resting place (Chautari) religious water tank (Pokhari), cultural, archeological and historical places, etc. Involvement of authority in destruction of open spaces, cutting Banyan and Pipal trees, garbage heap in the street corner, etc. reflect the apathy and negligence of the concerned authority to preserve the environment as well as to control the urban pollution. Hence, both the municipal authority and public should pay attention to preserve the environment and control the urban pollution in Pokhara.

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AN ANTHROPOLOGICAL PERSPECTIVE ON SHIFTING CULTIVATION : A Case Study of Khoriya Cultivation in the Arun Valley of Eastern Nepal

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Shifting cultivation, in general, is a system of farming in which fields are prepared by cutting down the natural vegetations, letting it dry and burning it off. This technique serves to clear the field and enrich the soil with nutrients from the ash. Shifting cultivation fields are generally used not more than two years at a time, after which the farmers move to a new area and repeat the same process.

The practice of shifting cultivation is accepted as an early stage of the agricultural evolution. This form of cultivation is still widely practised in different parts of the world. As this practice dates back to the earliest times, it is thus regarded as primitive and archaic, and thereby it is said to have 'survived longest' (Rolwey-Conewy 1984:85).

The shifting field agriculture is characterised by a rotation of fields rather than of crops, with short period of cropping alternating and long fallow period, and clearing by means of slash-and-burn. The practice of shifting cultivation is also referred to as slash-and-burn, swidden agriculture and, so on. In contemporary anthropological work, the term 'swidden' (An old English derivative of 'Swithen', meaning to singe or to burn the surface) has been revived to replace 'shifting cultivation' which connotes the nomadic nature of swidders.

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In Nepal, the shifting cultivation¹ has various local names, such as *Khoriya*, *bhasme*, *lhose*, *jhum*², and, so on. In this study, I have used the local term '*Khoriya*' and the general term 'shifting cultivation' interchangeably. In this article, I intend to review different approaches and perspectives to study the shifting cultivation. Finally, I would present some arguments as the major findings of my own field study (Dhakal 1999) in the Arun valley of eastern Nepal³.

The study, as I expect, will shed some light on how the shifting cultivation has been approached and studied. It further intends to enhance the way of understanding how possibly the practice of shifting cultivation might be approached in a particular context.

Background of the Study

Spencer (1966) observed that 'it is culture and cultural history, rather than physiography, which dictate the broad environmental location of shifting cultivation as a cropping system' (Spencer 1966:29). And many have argued and agreed upon that it is 'a special stage in the evolution from hunting and food gathering to sedentary farming' (Geertz 1974:15), hence, it is an 'ancient', 'primitive system', therefore a 'remnant of the past...' (Spencer 1966: 2,58, Found 1987: 2, Keesing & Strathern 1998: 89). Spencer further maintains that 'there are evidences to suggest that it spread progressively across almost the whole of southern and eastern Asia, Europe, and humid Africa in the early stage of settlement of these regions by agricultural folk' (1966: 4).

Although there is a long history of the practice of shifting cultivation, very little has been studied or explored in the anthropological context. Even up to the present, very little is known about the geographical range, characteristics, socio-cultural as well as ideological contexts, and diversity and dynamics of shifting cultivation. This is because the studies of shifting cultivation have

been limited to simple description of practices and its ecological consequences. There has been very little attempt to compare, analyse, and classify them.

In Nepal very few studies have been carried out with regard to the shifting cultivation (Shrestha 1989, Bajracharya et. al. 1993, Subedi 1994). These studies are basically concerned with the ecological and economic aspects of the shifting cultivation. These studies hardly look shifting cultivation as an integral part of social cultural practices with a cultural historical perspective. Therefore, efforts have yet to be made in order to understand shifting cultivation as a whole system of deriving a living from a particular environment

Shifting Cultivation and Evolution of Agriculture: An Overview

It is certainly not an easy task to trace its historical background. However, it is argued that this type of agriculture was the simplest form of agriculture and was practised by the earliest farmers. Today, such a different type of agricultural system can be observed throughout the globe in the tropical areas. The practice, however, varies greatly from place to place and from one group of people to another. Terry B. Grandstaff (1981) argues that the people who have used this form of cultivation for a long time have developed a highly rational system.

Generally, the practice of shifting cultivation is viewed as 'a technology that was practised in virtually every arable area of the earth during earlier historical periods but today survives as a major food-producing method only in tropical region' (Padoch & Vayda 1983:302). Some even view that in terms of land use pattern shifting cultivation evolved to circumvent major problems of tropical agriculture like soil erosion, low nutrient status and pest pressure (Spencer 1966). In defence of this line of logic, Subash-Chandran maintains that the brief period of utilisation, small size of the plots and far-reaching preservation of the original surface roughness and soil texture due to residual tree stumps, absence of levelling prevent intensive erosion (Subash Chandran 1998:675).

Geertz summarised the distinctive features of shifting cultivation as, i. it is practised on a very poor soils, ii. it represents an elementary agricultural technique which utilises no tool except the axe and the hoe, iii. it is marked by a low density of population, and, iv. it involves a low level of consumption (Geertz 1974:15).

This type of cultivation is thus associated with traditional societies of low population density in regions of low soil fertility, such

¹ In this article, the term shifting cultivation should not be understood as crop shifting, i.e. a different crop is cultivated each year on the same plot. The term should neither be taken as the settlement shifting as in the case of the nomads who keep on moving from one place to another and finding new cultivation areas along with the new settlement. The term shifting cultivation in this study refers to the way the permanent settlers use different plots each year on rotation basis for crop cultivation.

² Italicised words refer to Nepalese or local Sherpa terms. However, these terms are defined and explained in English as well, wherever they are used for the first time.

³ The fieldwork was carried out in the Mude of Num Village Development Committee of Sankhuwasabha district of Eastern Nepal. The data were basically used for my M Phil thesis submitted in the University of Bergen, Norway in May, 1999.

as the Amazon rainforest. Though recent theories have suggested that the system of shifting agriculture combined with hunting and gathering strategies may, in fact, permit much greater population densities and a greater degree of sedentarism and varying degree of intensification of labour input than was previously believed (Found 1987:3, Keesing & Strathern 1998:103).

However, shifting cultivators are considered to be one of the primary agents for transforming the forested landscape into cultivable and cultural one. Historically, therefore, shifting cultivation has been one of the processes transforming wild, forested landscape into cultural landscape.

In a strict epistemological sense, we can not understand the past except via our present knowledge of process and events operating in the present (Watson 1979:1). This does not mean that every trait that existed in the past must have an analogy in the present. Nevertheless, the study like this can provide a wider socio-cultural context to analyse and explain archaeological data from specific sites. In the similar manner, the study might be used as a case study to test the hypothetical explanation of processes and procedures thought to have occurred in specific prehistoric communities.

Shifting Cultivation and Ecological Issues

In ecological terms, shifting cultivation is said to be highly integrated into the natural tropical forest ecosystem (Seymour & Smith 1996:272). It has thus been described as a 'mimetic' system, with principles radically different from those of intensive agricultural strategies that act to transform totally the natural landscape. However, it is the only ecologically viable agricultural strategy to have been developed thus far on a large scale in the tropical rainforest or in similar ecological conditions. And, attempts to apply intensive agricultural techniques brought from other regions have generally been failures, resulting only in the destruction of the ecological balance of the natural rainforest (*Ibid*).

The recent ecological studies have started appreciating the resource management system of traditional societies (Cf. Subash Chandran 1998:689). Similarly, other numerous studies have shown that in many instances swiddening does neither exhaust soil nutrients nor leads to excessive erosion. Increasingly, new field studies suggest that the shifting cultivation is a way of farming particularly well suited to the conditions often characteristic of humid tropical areas: rather infertile soils, biotic stores of nutrients, intense competition of weed

species and attacks by pests and diseases and unavailability of animal manure as well as of chemical fertilisers and pesticides (Padoch & Viadya 1983:302).

Hence, the most distinctive positive characteristic feature of swidden agriculture is that it is integrated into the pre-existing natural ecosystem. It has been argued that the shifting cultivation practice maintains a state of dynamic equilibrium with the natural environment (Geertz 1974:16, Found 1987:13, Keesing & Strathern 1998:91). According to Geertz, 'any form of agriculture represents an effort to alter a given ecosystem in such a way as to increase the flow of energy to man, but a swidden through a canny imitation of it' (1974: 16). Thus, in most of the cases, shifting cultivation is usually a highly effective and balanced ecological adaptation. It merely alters the indigenous ecosystem, but on the other hand, efforts to introduce intensive agriculture in tropical forest have usually been disastrous. Ecological balance is crucially important in swidden agriculture.

Anthropological Perspectives on Shifting Cultivation

Shifting cultivation finds many expressions among different peoples. There is thus no single best way to classify shifting cultivation. It is practised from sea level to 4,000 m above the sea level elevation; in parts of south-eastern Tibet and the upper main land of Southeast Asia (Spencer 1966:13). Therefore, classification as well as other subsequent studies must be done in relation to the problem identified with each type.

From an anthropological perspective, however, two general points of view can be made. First, the normative view, which focuses on the negative aspects of shifting cultivation, i.e. low productivity, extensive lands requirement, and unwanted environmental effects.

And, second focuses on shifting cultivation as a rational response to the prevailing ecological and cultural and economic conditions (Sandburkt: n.d.). The two points of views need not be contradictory, as the first focuses on the desirability and rationality of shifting cultivation from society's view point, and the second focuses more on the rationality from the individual farmer's view.

On the basis of these viewpoints, there have been three distinct approaches applied to the study of shifting cultivation (Found 1987). They are ecological or environmental approach, cultural-historical approach, and, as a response to economic factors.

The first approach, i.e. the common ecological approach is based on the premise that shifting cultivation exists in a state of

balance with the natural environment (Found 1987:13). Some areas of Southeast Asia have experienced shifting cultivation as productive, practical and adaptive to the physical environment (Spencer 1966:20). Many studies with this approach (e.g. Found 1987, Keesing & Strathern 1998, Spencer 1966) have been pointed out both negative and positive consequences with regard to the production in relation to labour input and land requirement, and its impact on the ecology.

Anthropologists often study shifting cultivation with the cultural-historical viewpoint and relate shifting cultivation to types or stages of human culture. They point out that most shifting-cultivators use primitive tools, and that they belong to cultures that are otherwise primitive in a number of ways. Some view slash and burn agriculture more as an ancient practice, rooted in history, than a contemporary means of coping with the need to produce food (Found 1987:17-18).

It is possible, therefore, to explain the current extent and location of slash and burn agriculture through an analysis of their history and culture. And, such people who have a long experience of the cultivation will have the appropriate tools, the organisation and the knowledge needed to operate effectively over the long periods (Grandstaff 1981:28).

The third approach, i.e. economic analysis of shifting cultivation, on both levels the entire land economy or on the individual farmer/decision maker. Angelsen's economic model and case studies from Indonesia can be presented as a good example of economic analysis of shifting cultivation (see Angelsen: 1996). However, I would argue that a different but a combined approach could be appropriate to address the issue in question.

Researchers are of the opinion that agricultural encroachment by shifting cultivators occupies a central position in the debate on tropical deforestation. Shifting cultivators are often seen as the primary agents of tropical deforestation in developing countries; estimates of their share range as high as 45% (UNEP 1992) to 60% (Myers 1992) (c.f. Angelsen 1994:1). From 6.5 million ha. in 1964, the total forest area is estimated to have declined to around 5.5 million ha. in late 1980s. Thus, the current extent of shifting cultivation has been calculated to be about 8.3 percent of the tropical land area (Found 1987: 1). The practice is also increasing, by over one percent in land area per year, according to the FAO (Ibid.).

The higher rate of deforestation and degradation in Nepal is attributed to encroachment upon forested land for agriculture,

settlement and shifting cultivation. The deterioration of micro-biological conditions, surface runoff, ground water runoff and loss of soil fertility are said to be some of the obvious consequences of the slash-and-burn cultivation in Nepalese hills (Shrestha 1989:64).

Shifting cultivators are accused of the subsequent loss of biodiversity maintenance and carbon storage (Angelsen 1994:1). And, a general attitude prevails that burning is just an ill practice, which destroys organic matter on the land (Found 1987:3). The practice of shifting cultivation in Nepal is characterised by a highly labour intensive and land extensive form of cultivation. It is said to have been most detrimental to forest ecology and contributes to total extinction of a large number of biological species (Shrestha 1989:63).

But arguments presented by Eckholm (quoted by Grandstaff 1981) pointed out that in many areas of tropics "no alternative food production system to shifting cultivation has yet biologically and economically proven workable" (Grandstaff 1981:28).

The effects of shifting cultivation differ in accordance with the varying practices. The lack of knowledge of the characteristics of its several types has proved to be the principal obstacle in determining the extent of ecological problems caused by the shifting cultivation. Padoch and Vayda (1983) maintain that 'criticism of the traditional resource use patterns in tropics as wasteful and inefficient was predominant of the past, but in recent years there have been views to praise of the stability and conservativeness of these technologies. Such revised views of primitive man as conservator are not surprising and are at least partially justified. They reflect the realisation that traditional resource users usually allowed tropical forest to survive or at least to regenerate largely, whereas modern fossil fuel-using man is expected to destroy these forest within the next century' (301).

The specific form that a practice of shifting cultivation may exhibit within a given geographical or cultural province depends on the extent of available land, labour and capital; the local settlement pattern and the degree of political and social integration with the other segments of the larger society. A large number of such variables, more specifically agronomic variables, such as the kinds of principal crops raised, type of crop associations and succession, crop fallow time rotations, the dispersal of shifting cultivation, the presence of livestock, the use of specific tools and techniques including special methods of soil treatment, the vegetation cover of land cleared,

climate, soil conditions, and topography determine the types of shifting cultivation (Conklin 1961:27).

Shifting cultivation is nevertheless a response of the tribal people of the hill areas to the problem of erosion of fertile topsoil from steep slopes. This technique is perhaps more practical than actual ploughing and tilling on steep slopes, where any mechanical disturbances will result in washing away of the fertile top-soil. Besides it has also been experienced by downhill farmers, that the slash-and-burn practice on mountain-tops enriches their fields (Shrestha: 1989).

However, it is not an attempt to overlook the fact the greater the increase in population, the greater the demands for fuel, the desire to extend cultivation, cutting down forests. And to a little extent this particular type of agriculture is being used as a transitional step to opening up land that should rationally be brought under permanent cultivation.

Hence, it is evident that the study and analysis of the complex relation in shifting cultivation can profit greatly from a combined ethnographic and ecological approach. Therefore, it is appropriate to approach the topic through an ecologically-oriented investigation in an ethnographic context.

Major Findings of the Case Study: Some Discussions

In the following paragraphs, I will present some of the findings of my own study conducted in 1997-98 in the Arun Valley of Eastern Nepal (Cf. Dhakal 1999). The data were collected in three small settlements of Sherpas. On the basis of empirical evidences, I have tried to understand the shifting cultivation practice in a broader socio-cultural context of the Sherpas. In the course, of study certain observations appear prominent. These observations are, as they appear to me, of anthropological significance.

My intention to present these finding here, therefore, is to argue that shifting cultivation in Nepal, or any geographical area for that matter, should be studied in its particularity and specificity.

i. Limitation of Evolutionary Model of Agriculture

The crop cultivation could have entered into Nepal and consequently to the study area some 2000 years ago at least from two frontiers; from the southern plain and the northern border (See Dhakal 1999). The earliest stages of cultivation could have been shifting cultivation, which was followed by a more complex technology of cultivation known as the permanent cultivation.

As I have observed in the study area, there are a few cases of transforming the shifting cultivation land into the permanent cultivation land, which is not a common practice in the study area. On the other hand there are several cases of abandonment of once cultivated *bari* land, and is eventually used for *Khoriya* cultivation.

It is also possible that, as Rowley-Conwy (1984:89) argues for European case, slash-and-burn could be viewed as one of the series of technical solution to a particular problem, like, problems posed by their immediate ecology and so on, - not as a remnant from some once - universal stage of agriculture.

Thus, the farmers not necessarily shift from one particular type of cultivation practise to another in either way. The empirical evidences in the study area show that the shifting cultivation as well as the permanent type (rain-fed or and irrigated) of agriculture are practised simultaneously by the same cultivators.

ii. Shifting Cultivation is not Necessarily a Function of Population

Several anthropologists, for example, Boserup (1965 & 1981) and Geertz (1974) argue that the transition from shifting cultivation to the intensification of agriculture is brought about by the growing population pressure, technological development and non-human environment.

Even though, people have been practising shifting cultivation in a particular area for generations, they may adopt other means or strategies of coping to support their growing population over the course of time. Farmers incline towards cash crops, e.g. cardamom farming in the study area, they keep herds of sheep or cattle as their important economic activity and other seasonal wage labour and so on.

Thus, any particular farming community practising shifting cultivation may seek the other alternative to cope with their growing population. It is thus not necessarily true that they put more pressure on land, which ultimately compels them to abandon the shifting cultivation or turn the field into permanent or intensive cultivation field.

Empirical evidences do not seem to validate the predominant notion of unilinear advancement of agricultural development (Cf.. Boserup: 1965&1981, Geertz: 1974, Sherratt: 1994, Whittle: 1994, Renfrew & Bahn: 1993 etc). According to the prevalent unilinear evolutionary model, the shifting cultivation is eventually outmoded and replaced by the permanent cultivation, technically, technologically

and historically. The empirical evidences in my study seem to contradict with this model of explaining and understanding the development of agriculture.

iii. Two Types of Cultivation Systems not Necessarily Have to Have Two Exclusively Corresponding Social Forms

Geertz (1974) has pointed out that two types of agricultural systems, shifting and permanent are essentially related to two exclusively different forms of society. According to this approach, the communities practising shifting cultivation have primitive and elementary forms of technology and simple forms of social organisation. On the other hand, the communities with the permanent cultivation have the advanced form of technology and a complex form of social organisation. His studies tend to suggest that one form of society excludes the practice of the other type of cultivation, and vice versa.

It is evident in my study that the practice of these two different types of agriculture has been carried out by the same community at the same time. For instance, the same labour/ social institution, in particular the *parma* system, conduct the agricultural tasks for both the permanent and shifting cultivation.

iv. Abolition of Communal Rights Over Land and Declining of the Shifting Cultivation

The land tenure system in the area under study used to be a communal land, or *Kipat*. There used to be a common ownership over the land but individual ownership of the crops, until very recently. The government decided to abolish the communal right over the land in 1964 AD, and ultimately the law was implemented effectively in the study area only after the latest land survey which was concluded in 1995 AD, long time after its promulgation. According to the law, people could own only the limited amount of land.

For the people in the study area, there used to be communal ownership over the land, but the abolition of communal rights over the land made them limit their *Khoriya*. They think the land now may not be sufficient for the rotation for the shifting cultivation. Therefore, many of them have already reduced their *Khoriya* cultivation land. Thus, not due to the technological, economic or population factors, but due to the state-led land tenure policy which limited the farmers' right over the land, reduced the shifting cultivation in the study area.

v. Socio-cultural and Ritual Contexts of Shifting Cultivation

The evidences from the field show that shifting cultivation is not only an agro-economic activity or utilisation pattern of resources like forest and land, rather it is also closely integrated with the wider socio-cultural systems.

Hence the shifting cultivation practice is bound to cultural practices and beliefs. If we keep the cultural and social context aside, we cannot understand the shifting cultivation system fully. Here, I shall discuss some of the socio-cultural contexts of the shifting cultivation in general.

a. The Sherpa Time Scheme Corresponds to Shifting Cultivation Activities

According to the Sherpa time scheme, there is a cycle of twelve years period. And, there used to be a fallow period of twelve years corresponding to the twelve years cycle. Most of the elderly people even today recall their past events either connecting event with the shifting cultivation plots they had cleared in that particular year or simply associating the events with the animals that stands for that particular year.

The time scheme of the Sherpas also regulates certain activities in certain time period of the year. For examples, they are not allowed to clear their *Khoriya* plots during spring, because wood activities, there by, cutting and slashing, are not allowed in spring. Similarly, burning activities are prohibited in summer time. That means, they can neither clear, i.e. slashing and cutting, nor can they burn their *Khoriya* plots during spring and summer respectively. Thus for them activities are not only confined within space but also within time (cf. Dhakal 1999).

Thus, the phenomenon of shifting cultivation has remained as an integral part of their socio-cultural processes. As we observed that shifting cultivation also is regulated and ritualised by their own time schemes. *Khoriya* becomes the point of reference to other social and cultural as well as personal events. It is tempting to suggest that shifting cultivation is not merely an economic (food) production activity, but also generates, enhance and maintains the cultural knowledge.

b. *Khoriya Pooja*: Worshipping of Shifting Cultivation

The *Khoriya Pooja*⁴ (also called *Bali pooja*) is a major agricultural ritual among the Sherpas. When asked different men and women to explain these rituals, different persons explained it in different ways. However, a common explanation was - one has to be grateful towards the provider, the god of land. They explained that even if we toil hard to produce something, there has to be someone (the god) to reward our hard work and to protect the reward, the crops in this particular case. For them, there is only the *Lha*, the gods of land, who reward and guard their agricultural products. Therefore, they have to be thankful to the *Lha* in one or another ways.

Even though, I have limited my discussion to agricultural rituals, the other mundane activities of the Sherpas are also regulated and dictated by similar rituals and symbolism.

The ritual of *Khoriya Pooja* (or *Bali pooja*) also has other implications. For example, they think everyone regardless of sex and age, are equal. This ideology is well manifested in the ritual contexts of *Bali Pooja* (or *Khoriya Pooja*). All the members of the community, regardless of age and sex, will have equal share of contribution in the *pooja*, and are distributed equally whatever prepared on that day (Cf. Dhakal 1999). Thus, their egalitarian ideology not necessarily exists explicitly in the practise, but are preserved in symbolic level in the contexts of rituals.

Another noteworthy context of ritual with regard to the shifting cultivation is ritual of apology (Cf. Dhakal 1999). During the burning for the shifting cultivation, several animals and insects are killed by fire. The Sherpas, being Buddhist, have a profound belief that killing is an act of committing the sin. So, to get rid of such a sin, they offer butter lamps and ask for apology through a ritual of apology.

This observation to me is an indication of how the cultivation practice has been incorporated within their religious and cultural practices. This is just an example of how the people justify their acts with regard to shifting cultivation through the means of ritual of apology.

c. The Sacred and Secular: the Symbolic Constructions of Space

One major criterion for the site selection for the cultivation is based on cultural and religious practices of the people. For example, sacred groves and the place for *Khoriya Pooja* should not be brought under cultivation.

The sacred groves are considered to be absolutely sacred, utilisation of the area for other than religious purposes is not permitted. Whereas place for *Khoriya Pooja* is originally a non-sacred (secular) place. The place is turned into a sacred place during the *Pooja* or the ritual events.

The, ritual spaces appear to be in two categories, one absolute sacred place, which cannot be utilised for other normal activities, but religious rituals, e.g. sacred groves. Where as other spaces are provisionally defined as a ritual place, e.g. the area where *Khoriya Pooja* is performed.

From this, it can be suggested that the provisional sacred place can be both sacred or secular depending on whether the space is used for ritual performance. Thus a place is transgressed from sacred to secular or vice versa, through the religious experiences of the people or some specific ritual context. Therefore, a sacred place is more like a symbolically created space in a certain context in certain time.

Conclusion

The empirical evidences from the Arun Valley of Eastern Nepal indicate that the understanding and explaining of shifting cultivation as the primitive, elementary and earliest stage of agricultural evolution, which is surpassed by the permanent cultivation, is inadequate.

Likewise, the study suggests, (in the similar line of logic presented by Lansing: 1991, Spencer: 1966, Conklin: 1961) that shifting cultivation is not merely an agro-economic activity. It is an integral part of the socio-cultural processes of that particular

⁴ *Khoriya pooja* is performed in one of the "Budhabars" (Wednesdays) of month of *Asahdh* (June-July). For the Pooja the Lama (a Buddhist priest) decides the date and all the households of the settlements are informed well in advance. *Pooja* is performed in a open public place which is not cultivated, but can be used for other purposes. On the day of *pooja* all the members of the households are gathered together from early in the morning. For the *pooja* a sample of everything that is grown in ones own land is brought to offer to the *lha*, i.e. god of land. *Pooja* is performed with drinking, merry makings, and sometimes making contracts for the land for the *khoriya* for the following year and other community matters.

community, and its rationale and meanings are inseparably interwoven with the cultural and social practices.

However, it is not my intention to maintain that possible implications of the study can be generalised in all the contexts of the study of shifting cultivation. But, certainly to provoke the researchers to look at the different dimensions of shifting cultivation, who wish to carry out a similar study in the future.

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SOCIAL ENGINEERING APPROACH TO AIR QUALITY CHALLENGE : The Case of Kathmandu

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Toward the end of the millennium, Nepal did show a noticeable concern for environment and moved a few steps towards its improvement. Success does not come by introducing regulations and standards but on its compliance by the people. The whole process and approach may fail its purpose if government is not consistent upon its efforts and the very issue is not seriously taken up by the implementing authority or if its enforcement causes massive discomfort to the affected people. But if its merit is accepted by the people at large, it may even persuade the government to adopt and implement such a regulation.

Complete displacement of a particular type of vehicles from the Kathmandu Valley is a successful test case of social pressure for better environment where it was delayed and denied for a long time by the state authorities themselves. The air pollution control movement in Nepal did go though faced several ups and downs from the government and the practitioners. It did bring in the desired result when the social engineering aspect was duly honoured. The present paper presents the measures taken to mitigate the vehicular pollution and people's involvement therein.

Introduction

Until 1960, Kathmandu was a quiet and clean city. It was also one of the peaceful and beautiful cities of Asia. With the wake of industrialisation in the country, and establishment of a cement factory within the valley, it gradually got polluted. The increasing number of vehicles added to the pollution. The number of vehicles surged significantly in the later years.

Unregulated import of old and new vehicles including the *carnet* of the tourists, resulted in a wide mix of vehicles in the valley. The country has no limit on the life of old vehicles, while the growth rate of vehicles is one of the highest in the region. With very little negligible extension of the roadways in the valley, the traffic has been very slow. The city also introduced three-wheeler diesel vehicles (popular by Vikram, a brand) with very poor emission performance.

Government did impose a ban on registration of three-wheeler diesel vehicles. But the beginning on regulating vehicle emission began under an external pressure. Later it set standards for petrol and diesel engines. The non-compliance of standards would keep them off the Valley. Air quality has been a matter that attracted international public attention in 1994 with a feature entitled *Goodbye Sangrila* in the Newsweek that highlighted it as one of the most polluted cities.

But the government at times did get influenced by the business group. This resulted in relaxing the control. At one time, it even permitted running a few Vikrams *on trial* in the Pokhara township despite the protests of the local people.

Vehicular Pollution

The valley falls within the Bagmati Zone. According to the Zonal Transport Office vehicular population has increased from xx in 1990 to xx in 1998. The road network has remained at 341 km. Two wheelers have grown significantly in the past two years. New luxury buses are mostly registered in other zonal offices, mostly at Birgunj. As the long distance night buses have age restrictions, the old buses are later operated as day/city buses. There has been insignificant growth in the number of these public transport vehicles. The little addition over the years is mainly due to the transfer/ re-registration from other Zonal Transport Offices to the Bagmati Office.

There are 4,200 three-wheeler tempos, out of which 1200 are the diesel ones. On an average tempos travel 125 to 150 km a day. The diesel tempos ply on 42 routes, reaching the city interiors (1). The smaller vehicles are practically competing with the larger ones in nearly all routes.

The First Emission Standards

The government came up seriously to control vehicular pollution through a project sponsored by the UNDP in 1992. Tests were conducted on a number of vehicles with regard to their emission and improvement through repair and maintenance and other corrective

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measures. Based on the tests, a technical committee made recommendations for the vehicular emission standards made in 1994. The Environmental Protection Council, which is chaired by the Prime Minister, made an ambitious change over the limits of emissions. It accepted three percent Carbon Monoxide by volume for petrol engines, but prescribed stricter limit of 65 Hartridge Smoke Unit (HSU) for diesel engines in place of 75 HSU as suggested by the committee. The standards, that were applicable for all vehicles plying in the Kathmandu Valley, came into effect through a gazette notification on xx.

The project did not go long. But the notification was definitely a positive step towards curbing the vehicular pollution. The government decision to set stricter emission standards than those recommended by the technical personnel may be a reflection of its seriousness. The government did not want Nepal to be a dumping ground for the older vehicles. Nepalese standards were kept in par with that of India. The government had even banned the import of second-hand and "re-conditioned" vehicles older than five years.

The government, though legally should not have allowed running the sub-standard vehicles to ply on road, was not serious on implementing the legal provisions. In stead of the valley the movement of polluting vehicles was prohibited only in the confines of Singh Durbar, the central secretariat of His Majesty's Government.

There was a wide protest of the "impractical" standards. Smelling the lack of seriousness of the implementing agency, fewer vehicles turned up for emission tests. In the first two years, only 12,000 and 6,500 vehicles reported for the test. This was much below the vehicle population of the valley.

A New Beginning

A full-fledged Ministry of Population and Environment was formed in 1995. Environment Protection Act came two years later. But there are no limits prescribed to the polluting activities. Prevalent emission limits for vehicles were prescribed under a clause of the Transport Management Act, 1990.

The Ministry took up the vehicular pollution minimisation as its priority programme. It started with implementing the existing rules and regulations organised. It appealed people to help fight air pollution, by keeping the vehicles in fit conditions. It launched a vehicle-testing programme from June 5, 1996, coinciding with the World Environment Day. It invited people to voluntary appear for the test within a schedule for different categories of vehicles such as buses/minibuses, taxis, private

and tourist vehicles and the three-wheelers. The vehicles failing the tests were asked to repair their vehicles and re-appear for the test. It alerted the people in advance that the non-compliance to the standards might result in restrictive actions. It deliberately put the Vikrams in the last of the test schedule.

It made a novel beginning. The testing program was inaugurated with the emission testing of the Prime Minister's vehicles. The whole process was transparent, where press and people could watch the entire testing procedure including the readings of the test equipment. The transparent approach was widely accepted by the people. A record number of vehicles were tested. In a six-month period October 1996-March 1997, more than 16,000 vehicles came up for the test. The overall failure rate was 33 percent.

Meeting the emission standards and getting the "Green Sticker" of fitness became a matter of social prestige, specially for the richer section of the Nepalese society - the private vehicles owners. Almost all the Vikrams failed the emission test. It gave a great pleasure to the public who had been pointing at them as the polluting vehicles and were proved as the culprits. But a few of them managed to get the green stickers. The public pooh-poohed the Traffic Police for their hand in gloves in awarding the green stickers. It only proved that the Vikrams were owned directly or indirectly by the police personnel. At the pressure of the public cry against the greening of the Vikrams, these vehicles were re-tested and the green stickers were removed.

The Traffic Police also asked the Sajha Yatayat to come for the test. And when the organisation, boasting of being a semi-government organisation and close to the Ministry of Works and Transport, defied, the police detained it for the non-compliance.

Restriction Imposed

After six months of its introduction of the testing programme, it announced certain areas out of bounds for the vehicles not meeting the emission standards. At a later phase, other important areas were also covered.

The First Notice

The area restriction was imposed from Oct 1996, nearly four months after the emission test started. Ram Shah Path and Tribhuvan International Airport (TIA) Complex beyond the Ring Road was open for only "green sticker vehicles". The restriction notice was issued by the Department of Transport under the Ministry of Works and Transport.

Though the Ramshah Path stretch was a short stretch (of about 700m), it had a wide "basin". The "dirty" vehicles would not ply on the Bag Bazaar section, Dill Bazaar section and the Kamaladi section that wanted to use the Ram Shah Path. The restriction at the TIA was more for a welcome gesture to the international tourists.

The immediate effect of the restriction was that Vikram tempos could not move over these areas as all of them failed to meet the emission standards. A significant proportion of the petrol three-wheeler (the Bajaj tempos) too failed the tests.

The Second Ineffective Notice

Six months later, Durbar Marg and the New Road were declared the restricted areas. But a week earlier to its implementation, the restriction was suspended for carrying out "further studies".

The Third Notice

The third notice was brought out on the World Environment Day, 1998. It became effective from the first day of Ashadh, 2055 BS (June 16, 1998). It included the areas declared by the second notice that was later suspended. It restricted movement on major city roads, the New Road, the Durbar Marg, the Tri Devi Marg (opposite the SAARC secretariat), and the densely populated Indrachowk-Thamel section of the city, besides the three Durbar Squares in the three cities of the Kathmandu Valley.

The Administrative Inaction

At times, it has been questionable if at all the administrative machinery was serious on implementing the government decision.

The EV operators were asking for a route. They were denied for several months. They were not allowed to operate on the route, Vikrams were running. The Vikrams were, however, running competitively running on the same routes offered to buses and mini-buses. Being smaller vehicles, they would often pick up passengers from the larger vehicles. They were not assigned stands on the approved routes. The operators of EVs often complained that the traffic police did not allow them stand facilities and at times, the Vikram owners routed them out. But things gradually improved. In the newly developed stands by the Royal Nepal Airlines Corporation, where only the Vikrams and tourist buses were assigned stands, a section was later offered to the EVs.

The police delayed its implementation on the excuse that the sections needed sign posts. The demand was partly true. But as the people were well informed, the traffic police could have stopped their movements. At the worst case, the resistance would have been for a week

and gradually the vehicle owners would have learnt the restricted zone. While there were insufficient number of No Entry traffic signs during the first notification, restriction had been successfully regulated by the Traffic Police.

The Anti-Vikram Momentum

The notice to the effect came from the Ministry of Works & Transport. The entire homework was done and recommended by a committee co-ordinated by the Ministry Population and Environment. The committee had representations from the Department of Transport, Traffic Police, Federation of Nepal Chamber of Commerce and Industries, Nepal Chamber of Commerce, Federation of Nepal Transport Entrepreneurs, Nepal Oil Corporation etc. At important meetings, it sought representations from the Ministry of Tourism, Royal Nepal Academy of Science and Technology etc as well.

The Ministry of Population and Environment expressed its determination to expand its restrictive approach denying the acceptance of dirtier vehicles into the government premises and later at the non-government organisations. It was matching with the spirit of testing the government vehicles first. Government organisations such as the Ministry of Works and Transport at Babar Mahal, Ministry of Foreign Affairs at Maharajgunj, Ministry of Finance at Tripreshwor, Ministry of General Administration at Harihar Bhavan, Ministry of Education at Tri Devi Marg supported the Ministry of Population and Environment and extended the No Entry Zone beyond the Singh Durbar Complex, certain government agencies. Later, at the appeal of the Ministry of Population and Environment, other semi-government and constitutional bodies such as the Royal Nepal Airlines Corporation, Nepal Rastra Bank, Nepal Beema Sansthan, the Supreme Court, Department of Industries etc. denied entry to the polluting vehicles within their premises. The people fully co-operated the ministry.

Different non-governmental organisations (NGOs) in collaboration with several business organisations as well as the Ministry of Population and Environment conducted training programmes on vehicle testing techniques and regular maintenance practice and general talks and seminars. At such seminars, the audience frequently questioned the fairness in awarding the green stickers by the Traffic Police, which was solely assigned the task of carrying out the tests. The ministry personnel frankly admitted its limitations and appealed public co-operation against malpractice, if any, on the part of the testing authorities. The Traffic Police spokesmen also said the same when so charged.

In December 1998, while the government had announced going for the general election, it relaxed the restriction on three wheelers by inviting 500 new petrol three-wheelers. The invitation was made to fulfil the vacuum resulting from the phasing out of the Vikrams. The call was made before the government brought out any time specific plan of phasing out the very Vikrams. The Kathmandu Metropolitan City has been requesting the Department of Transport Management for such a plan. Though agreed for February/ March 1998, the government turned volte-face and decided to withhold any action until the general elections. Obviously, the government did not want to displease their voters: the transport operators and the commuters.

The notice to the effect appeared on His Majesty's Birthday Special issue of the government-owned paper for only one day against the normal practice of three insertions. By putting his application through English Weekly "A Citizen" demanded the Prime Minister to cancel the decision within three weeks. He passed the letter to the media. There was a big hue and cry against the "quiet" notice that had appeared without intergovernmental and public consultation. Similar protests appeared in nearly all the newspapers. The Prime Minister suspended the decision afterwards.

At times, like the first gazette notice on standards, which set an ambitious target with slack enforcement mechanism the implementing agencies, did show slackness at times. But they were always countered by the people. A *Watawaran Prati Sachet Samuha* (Group of the Environment Conscious) wrote to the Department of Transport and the Valley Traffic Police and pointed out the violation of the prohibited zone at a section of the Ram Shah Path (under the first notice) by allowing the Vikrams which did not bear the green sticker of fitness. When the concerned agencies did not react to the reminder of the violation, a group of about seventy persons (ranging from young children under 14 to the older citizens over 75) marched on the prohibited road on the National Democracy Day 1999 with a banners reminding that the road is a prohibited section. The roadside shopkeepers supported the move by agreeing to display the same information at their window panels.

The Vikram owners tried to convince that the EVs were more polluting than the Vikrams. The exaggerated the harms of lead in the lead-acid battery was a very dangerous substance.

A case was filed at the Supreme Court against the Department of Transport Management, Ministry of Works and Transport, Valley Traffic Police and the Ministry of Population and Environment. It

claimed that the concerned agencies had neglected the prevalent rules and regulations. The Vikrams are basically commercial vehicles, which are required to meet certain standards as prescribed under the regulations. One of the regulations required it qualify the laid standards every six months. How could the vehicles get the fitness certificate to permit it run beyond six months if they do not the norms?

Several newspapers, including *The Rising Nepal* published by a state-owned corporation, strongly pointed out the neglect on the part of Department of Transport Management and the Valley Traffic Police on enforcing the government decision.

At several interaction programmes organised by the Nepal Forum for Environment Journalists, Reporters Club, Martin Chautari etc, the concerned officials were cornered for the neglect.

The Explore Nepal conducted a series of interaction programme with the teachers and students of schools and colleges and people at different wards of the metropolitan city. The people were gradually aroused against the Vikrams. A group of the cinema artists also called for boycotting the Vikrams. The local residents of Chabahil, Maitidevi etc tried to stop the movement of the Vikrams. The Vikram owners even sought government protection for their movement. Sensing the aggressive people, the Department only said, the section of the road was not a prohibited one. In other words, they were helpless if the people ousted them off the road.

Specially due to the matters going to the Supreme Court, the government could hardly provide any logic for the violations of the existing regulations on meeting the government regulations. It was high time when government could announce a ban on the movement of the Vikrams.

The Fourth Notice

The fourth Notice came in July 1999 that announced a complete ban on the movement of three-wheeler diesel tempos within the Kathmandu Valley and later a complete ban on the import of two stroke two wheelers.

It may be the culmination of the vehicular pollution control movement started in the year 1996. During the period, the government had all the popular support for discouraging the movement of dirty vehicles. And naturally, the dirtiest should go out first. Encouraged by its success, the Ministry of Population and Environment is planning to remove the others too.

Revised Emission Standards

Six years later the Ministry of Population & Environment was asked by the Ministry of Works & Transport for review and revision of the standards. The technical Committee (headed by the author), the committee presented a recommendation within a week, as mandated. It suggested a short and long-term strategy.

Under the long-term strategy, it suggested the announcement of the revised standards for 2000 AD a year in advance. This would benefit the dealers and buyers of the new vehicles. A committee in the mean time should carry out at home study for the same. For the short term measure, the emission standards for diesel vehicles manufactured on or before 1994 would be 75 HSU (in place of 65 HSU) while for the petrol vehicles manufactured on 1980 or earlier, it was 4.5 percent CO. The relaxed limit for petrol engines also applied to the three-wheelers manufactures till 1991. Two wheelers were also required to meet the 4.5 percent emission standard. The committee also suggested introducing the standards to the Bagmati Zone rather than the valley and a phase-wise introduction of the restriction of movement of polluting vehicles.

The government accepted the recommendation for relaxed standards for older vehicles effective from Jan 15, 1998, but did not speak out the long term strategy neither did it start any work in this regard.

Government Seriousness

Attempt to curb vehicular emission has several political complications. Those at the seat of governance take decisions that may go for public welfare. The decision may sometimes be a part of indirect pressure from the international organisations. But it would risk go for certain welfare moves but branded as "unpopular" decisions that may displeasing its vote banks that may root them out. The assessment of the choice of the vote banks is itself a complicated question. At times it may be just a powerful lobby that has been utilised for acquiring the much-desired popular support.

It may not be purely incidental that the restrictions mentioned above were imposed when the country had a majority government. At one point in time, when there was a minority government in the country and a district level elections were close by, the government suspended its decision on expanding the restricted area a day before it had to be effective.

Autos are lifetime assets for an average owner. In absence of the regulation it can't be phased out. There are all kinds of vehicles on roads. Government, through a ministerial decision, had put a ban on the registration of three-wheeler petrol/diesel vehicles in the Kathmandu Valley effective from 1991. The transport administration is very much influenced by the private operators. These have syndicated in the number of vehicles operating on all routes, whether city services or the long distance ones. At times, they have pressurised the government for yielding to their demands by creating public inconvenience through resorting to *chakka jam* (suspension of all vehicles movements) or *Nepal Bundh* (closure of all business activities in the kingdom). Their stronghold in influencing the government decision could be very well understood when they unilaterally hiked the passenger fare up by 20 percent for just 10 percent rise in the price of diesel in 1997.

But by this time the people were fully aroused on environmental matters. They would not tolerate any concessions given to the polluting vehicles.

The Promotion Measures

Back in 1991, the government had decided to stop registration of any three-wheelers in the valley. But the restriction was relaxed for the three-wheeler Electric Vehicles (EVs) and later for three-wheelers running on Liquefied Petroleum Gas (LPG). The EVs are zero emission vehicles, for the LPG vehicles, though accepted as low emission vehicles, there should have been some emission standards prescribed. Custom duty and other taxes on the import of such vehicles or their component for local manufactures were significantly reduced. Rules restricting any change in the registered vehicles were relaxed for those changing to EVs.

A number of international agencies have come up with programmes that have directly or indirectly supported the activities aimed at promoting better air quality in the kingdom. The USAID sponsored Global Resources Institute (GRI) for three-wheeler electric vehicle program.

The Danish Agency for International Development (DANIDA) came up with a small fund for converting the diesel three-wheeler into EVs and some battery-charging stations. It also sponsored a monitoring program, which periodically tested air pollution as selected sites and informed the public about the level of pollution. Danish government provided a grant which could be used as revolving fund to facilitate conversion of Vikrams into EVs with a support of as much as 90 percent of the conversion cost at a nominal interest rate. The estimated cost of

converting a TW into EV is US\$ 4,290 (Rs 290,000) that includes two sets of battery.

People were willing to pay more for cleaner means of transport. According to a survey, more than 80 percent commuters prefer EVs if available and about 52 percent are willing to pay more for the service (2).

The Swiss Development and Co-operation (SDC) also provided a small grant to Pollution Control for Environment and Research (PCER), a local NGO consisting of graduate engineers, for carrying out studies on bringing down the emission level of such three-wheeler diesel vehicles. It concluded that the present Vikrams couldn't meet even the relaxed limit of 75 HSU.

A Japanese organisation came indirectly by supporting the Leaders Nepal. It conducted seminars and displayed simple devices that could show the level of air pollution. Leaders Nepal conducted periodic air quality tests on selected sections of the roads in Kathmandu. It also undertook awareness program in schools where, with simple kits provided from Japan, they could get a comparative picture of the amount of Total Suspended Particulate (TSP) and NO_x and SO_x content in air and rain water.

Asian Development Bank (ADB) offered a technical assistance on air quality as a component of the institutional strengthening programme to the Ministry of Population and Environment.

Nepal Electric Vehicles Industry (NEVI) and a number of business companies came up in the local assembly of EVs. These companies have already marketed more than 200 EVs.

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AN OBITUARY TO M.N. SRINIVAS

India's most distinguished social anthropologists Mysore Narasimhachar Srinivas, popularly known as M.N. Srinivas (born Nov. 16, 1916) died in Bangalore on November 30 from lung infection. He was 84.

M. N. Srinivas is widely recognized as one of the leading social anthropologists of India through his seminal work *Religion and Society among the Coorgs of South India (1952)*. It was regarded as a path-breaking study for several reasons, viz., it validated fieldwork as an essential methodology of the discipline of social anthropology. It offered a ground view that challenged the colonial notion of caste as a static and unchanging, and highlighted the fluid and dynamic essence of caste as a social institutions through the terms such as "Sanskritization", "dominant caste", "vertical (inter-caste) and horizontal (intra-caste) solidarity". Similarly, it rejected the idea of a rigid, pan-Indian caste system on the basis of empirical studies of the importance of the regional dimension of caste and the "little tradition" of Hinduism.

His other major works include *Marriage and Family in Mysore (1942)*, *The Remembered Village (1976)*, *Indian Society through personal Writings (1998)*, *Village, Caste, Gender and Method (1998)* etc.

Community of Sociologists and Anthropologists in Nepal also feels a great loss from his demise. He will be remembered long for his immense contribution in the study of caste system, which is of great relevance in the context of Nepal, too. Department of Sociology/Anthropology, Tribhuvan University extends the heart-felt condolence !

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