

CO-ORDINATION AND INTEGRATED STRATEGIES FOR

THE DEVELOPMENT OF HORTICULTURE IN NEPAL

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ABSTRACT

As we come closer to the twenty first century, it has been realized that we have to make greater efforts to feed the increasing number of hungry people particularly in the least developed countries. In this perspective, Nepal is not an exception and better strategic planning and effective programme implementation have become the challenging tasks for the planners, development practitioners, professionals and bureaucrats. It has been realized that horticulture development can contribute largely to raise the income of the farmers, meet the food deficits to some extent and finally provide a major share in the national economy. For this, better co-ordination, co-operation and linkages within and between organizations involved in horticulture development and integrated strategies of management are utmost necessary. In this context, literatures have been reviewed and institutions/organizations have been identified to develop co-ordination.

It has been tried to illustrate some of the basic frameworks of integrated strategies for the development in general and horticulture development in particular. Environmental, economic and socio-political aspects of successful management processes have been presented based on the three wheel approaches. In the present context of horticulture development in Nepal, a set of recommendations have been made for developing better and effective co-ordination, co-operation and linkages within the organization and among the organizations related to horticulture development.

INTRODUCTION

In just about two years from now we are entering into the twenty first century with many great challenges ahead. The challenges which we acquired in the twentieth century itself are hunger, malnutrition, underfeeding, deteriorating environment, depletion of natural resources and most importantly population explosion.

These are the common characteristics of the least and under developed countries in the world and Nepal is a member of the group of least developed nations. The root causes of all these challenges are slow growth rate, limited resources, limited opportunities, low literacy, corruption, instability in the leadership of politicians, conflicts among the communal groups, trade deficits with developed countries, etc. All these alarming situations are going to continue in the next century in the least developed countries. In spite of having all these alarming situations in the socio-economic-political fronts in the country we are still optimistic of having better life in the years to come. We have chosen horticulture as our profession in which a strong feeling of professionalism is required if we have to act as successful professional horticulturists. Horticulturists have

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to play crucially important roles to speed up the production growth rate of the country. It has been already realized that horticulture is the most important but also most neglected sector in the country which can contribute greater share to the national economy. At present, in one hand, government is not serious in under-taking research and development activities in horticulture to the extent it is needed. On the other hand, the attention of many NGOs, INGOs and donors is diverted towards horticulture based income raising activities. And most recently, their thrust is on horticultural crops particularly on off-season vegetable production and marketing. There is a distinct shift in the direction of foreign aid that is from government to NGOs (Bongartz et al., 1994). In this respect, the success or failure of such programs depends on how strongly they are technology based. They are now seeking supports from horticulturists in many areas. However, they are still in isolation as there is no such mechanism to bring all the actors in a common forum who are involved in horticulture development. In this situation a mechanism should be developed to have better co-ordination, co-operation and linkages between and among all the institutions, organizations and projects involved in horticultural development.

Review of the Agricultural and Horticultural Activities in Nepal

Nepal is a predominantly agricultural country where about 81 percent of its population are engaged in agriculture contributing about 41 percent of total GDP. Major part of the cultivated land in Nepal is used for food grain production. The productivity of the cereals has been in decreasing trend in the past years leading to food deficit in many districts. The proportion of population under absolute poverty line increased from 40 percent in 1977 to more than 49 percent in 1996.

Realizing the above facts, the natural endowment of Nepal suggests to switch on to horticultural development by applying better and appropriate technologies, management skills and better cultivation practices. It is a known fact that most of the horticultural crops alone can give much more return than any other cereal counterparts in the hills of Nepal. The marginal lands in the hills could be judiciously used for fruit and plantation crop production, which can provide employment opportunities, better environment, and more income to the rural poor and can reduce migration from hills to the plains. Even some of the horticultural crops such as roots and tubers can be used as staple food.

In the past there was a national slogan that high mountains be prioritized for livestock, mid hills for horticulture and plains for cereals. Even with all these realities horticulture was not given priority to play an important role in the national economy. However, in recent years horticulture is being considered as one of the important enterprises to improve the economic status of the farmers.

Despite all efforts to enhance the horticulture development through exploitation of its potentialities the production could not be increased in the desired quantity and a large quantity of national demand is met through the import. It may be mainly due to the increased population and increased awareness of nutritional values of horticultural crops and thus increased demand in consumption of fruits and vegetables in recent years. However, the programmes could not extend as expected even with its 20 Years Horticultural Development Plan (Pac Mar Inc., 1991) and priority given through Agriculture Perspective Plan (APROSC and JMA, Inc., 1995). All these remained only in the paper. Recently, government has formulated the demand driven and markets led production program to enhance the rural economy. Such programmes will be implemented in the potential pockets for potential horticultural crops such as citrus in the

mid hills, apple and dry fruits in the high hills, mango and other tropical fruits in the plains, off season vegetable and vegetable seeds in some of the suitable areas.

Such commercial production programmes can be successful if integrated with marketing infrastructure, processing facilities, transportation network, packaging, grading after harvest and soil management, plant protection management, irrigation facilities and better institutional set up for the development.

Development is the positive change in the social economy. It is not possible unless there is a strong co-ordination between government organizations (GOs), non-government organizations (NGOs) and private sectors. Co-ordination is one of the vital aspects of success for the programmes. It needs co-ordination among its sister organizations, for instance, co-ordination within the departments and ministries, co-ordination among industries, traders, farmers, researchers etc. People's participation in the context of privatization is to be considered in the co-ordination process.

Horticulturists working in the districts or farms or any other organizations should act as development managers not simply as subject matter specialists. They should have the comprehensive understanding of the development perspective of the country. This is needed because almost 90 percent of the population live in the rural area where farmers are illiterate. In this situation technology or technical alone cannot work effectively. For this, integrated strategies of development have to be formulated and applied through the participation of the farmers at the grassroots level.

HORTICULTURE DEVELOPMENT IN NEPAL

Fruits, vegetables and potatoes are grown in Nepal since time immemorial in the homestead and kitchen garden. Only very recently it has gained popularity, due to changing food habit, education on nutrition, development of tourism industry and increased population. However, the history of horticulture development in Nepal dates back to 1937 AD. For the first time in 1955, horticulture section was established under the Department of Agriculture. Many farms and stations for horticulture were set up in the sixties. Department of Horticulture was formed in 1967 and remained functional until 1972. Due priority to horticultural crops were given during this period and real development of horticulture gained momentum. In the same year all the departments were dismantled and amalgamated into the Department of Agriculture. It was the starting point of misfortune for all the horticulturists and manpower working in the related fields of horticulture and ultimately a disaster to the rural poor farmers of the country. In the same year four national level institutions in horticulture such as Fruit Development Division, Vegetable Development Division, National Citrus Development Programme and National Potato Development Programme were established under the department of Agriculture. In 1982 again the importance of horticulture was realized and a position for Deputy Director General (DDG) was created in the department of Agriculture and the horticulture programme was reinforced headed by DDG. Even an assistant minister for Horticulture in the Ministry of Agriculture was appointed in 1989/90 to take care of the policies on horticultural development.

In 1990, at the dawn of democracy a separate department of Horticulture was re-established and started development work with zeal and enthusiasm and separate district offices were set up at 26 districts and the programme was to expand gradually in all the remaining districts of the country. However, the life of this department was very short and it was amalgamated into the Department of Agriculture under the concept of one umbrella system. In spite of the fact that horticulture sector has significant contribution in the national economy and horticulture development should take

momentum in the development process of the country the institutional set up of the horticulture was further aggravated in 1994 when crucially important national commodity programmes of citrus and potato were down sized into small almost non-functional sections. Citrus and potato are two major crops prioritized even by APP.

In the Sixth Five-Year Plan (1980-85) efforts to develop horticulture crops in the hills and peri-urban areas were made although cereals were given top priority in agriculture. Similar efforts were made during the Seventh Five-Year Plan (1985-90) also. Emphasis was given to some of the main fruits such as apple, citrus, mango, banana, and papaya and off season vegetables and vegetable seeds. In the Eighth Five-Year Plan (1992-97), national priority was given to agricultural intensification of cash crops, horticultural crops and livestock. To meet the demand of urban population, reduction in import and export promotion vegetables, apples, citrus, mango, potato was given priority as special crops similar to previous plan periods.

Considering the need of horticultural development in Nepal, His majesty's Government of Nepal (HMG/N) has given due attention to increase the production and productivity of fruits, vegetables and potato along the accessible roads and peri-urban areas with the following objectives:

1. To increase the production of horticultural crops in order to raise the nutritional status of rural people.
2. To increase production and productivity of horticultural crops in order to raise the economic status of the farmers.
3. To generate and increase the productive employment opportunities to the rural population.
4. To achieve self-sufficiency and substitute the imports to save foreign exchange and promote exports.

From the end of the Fifth Five-Year Plan (1979-80) to the end of the Eighth Five-Year Plan (1992-97) the place of horticultural production has been in increasing trend which is shown in Table 1 (MOA, 1993-94).

Table 1 clearly indicates the increase in area and production of all the horticultural commodities in all the plan period but specifically in the 7th and 8th plan period when government realized the importance of horticulture development in Nepalese economy. The production increased 275,000 mt. of fruits, 528,000 mt. of vegetables and 279,000 mt. of potato respectively which is almost of double but area increase is considerably very less. Similarly, the per capita production at the end of 8th plan was 43.19 kg. The development and growth were slow and these could not reach up to the desired level.

So far, there are various constraints in the development processes during the past plan periods. Some of them are listed below.

1. Lack of horticultural statistics.
2. Long gestational period of fruit crops and high investments required for the horticultural crop production.
3. Lack of organized market and post harvest management.
4. Nutritional and economic ignorance of the rural people.
5. Difficult terrain and adverse environmental conditions in specific locations.
6. Lack of proper manpower and budget allocation in the districts and central level for horticulture.

7. Lack of coordinated and integrated approach service delivery systems in providing production inputs, credit and technology.
8. Lack of harmony between research and development programmes.
9. Lack of sufficient number of mid level trained manpower and funneling of all the services and technologies through such manpower. In 8th plan period the horticultural programme were supposed to be concentrated in the pockets for market led and demand driven commercial production programme. To implement successfully such programmes need specific subject matter oriented field staff whereas we have JT/JTAs who are generalist and are the messengers for the technologies provided by many divisions/sectors. How these poorly trained and less qualified persons like our JT/JTAs are able to transfer technologies from all sectors?
10. Lack of physical facilities such as roads, market, cold store etc.
11. Lack of institutional development. Organizational instability also hampered the development process. Therefore, there is an urgent need of a stable and sound institution of horticulture in order to function properly and play pivotal role in the national economy.

In view of the problems and constraints during last plan periods and considering the utmost importance of horticulture to raise the income status of Nepalese farmers HMG/N has prioritized the horticultural crops in agriculture sector for ninth plan period (1997/98-2002/03). The success of this plan depends on the commitments, willingness and dedication of horticulturists, planners and technocrats, and other organizations concerned with horticulture of the country and after all the politicians. Some of the policies proposed for the ninth plan periods are given below (FDD, 1997).

1. The priority programmes of horticulture will be implemented along the periphery of roads, near urban areas and in the irrigated areas. The commercial production programmes will be implemented in the agro-climatically-suitable areas. These crops production programmes will be market led and demand oriented.
2. The crops for import substitute and export promotion will be selected and cultivated in the identified areas.
3. Private sectors will be encouraged for source seed production. Potato seed production programme will be carried out in all 75 districts. Natural cold storage in high hills and cold storage in Terai will be encouraged.
4. Service centers will be strengthened and skilled manpower will be posted in the pocket areas for technology transfer.
5. Better co-ordination between NARC and DOA will be maintained for the generation of new technologies and their dissemination.
6. Inputs and credit will be made available easily in the production site. The technical personnel who work in the field will be delegated with adequate authority.
7. Subsidies for commercial production programme will be made available for farmers and private entrepreneurs in the needy areas. Horticultural extension, production and market management will be extended through agricultural groups of farmers.
8. Reliable database will be established in all the levels.
9. Manpower will be placed in Regional level for better monitoring and evaluation of field level horticultural development activities.

10. Participation of women will be encouraged in all the committees organized for market enterprise, processing, wholesale market etc.
11. Agricultural roads, short distance ropeway, irrigation, collection, centers, cellar stores, multi chambered cold storage will be made available on the basis of priority.
12. Post harvest management will be strengthened in reducing the post harvest losses.

CO-ORDINATION

1. Co-ordination with GOs, NGOs and research organizations:- Better development in economic and social front can be achieved through the co-ordinated approach among all the related organizations and concerted efforts are needed to co-ordinate for mutual benefits. Close relationship could be maintained among GOs, NGOs private entrepreneurs, farmers, and co-operative sectors for horticultural industry. Central Food Research Laboratory (CFRL) should be co-ordinated for better processing technology, which is the prime important in reducing the post harvest losses. It is necessary that in case of technology generation and dissemination process not only strong co-ordination with NARC is needed but also co-operation and linkages are also necessary in horticulture. Till now due priority has not been given by NARC in horticulture research, which ultimately has forced the farmers to depend on many absolute and limited technologies generated in the past. It indicates that as a result of this there will be crisis in horticulture technology in the near future.

2. Co-ordination with credit, finance and input institutions:- Agriculture Development Bank/Nepal (ADB/N), other commercial and private banks and NGOs have the policy to invest on the horticulture sectors and are investing with some subsidy provisions. This provision has been well defined in the policy of ADB/N and other commercial banks. However, the farmers are not encouraged with this policy due to much cumbersome procedures of receiving loan. Horticulturists and District Agriculture Development Officers can play significant role in reducing the cumbersome process through better co-ordination and linkages with these banks. The banks provide loan for fruits and vegetables production, nursery development, post harvest handling etc. AIC provides input such as fertilizers, pesticides, fungicides and tools. There should be understanding and co-ordination among these agencies and the horticultural institutes.

3. Co-ordination with irrigation technology and management institutions:- Ministries of Water Resources and the Department of Irrigation also have significant role in horticulture development. Without irrigation we cannot imagine to grow high value crops like vegetables. Low cost irrigation programmes affordable by small farmers such as the Treadle Pumps in Terai and Drip Irrigation Systems in the hills play significant role in providing water for irrigation of high value crops such as vegetables and fruits. Co-ordination is necessary between the horticulture development programmes and the organization that implement such low cost irrigation technologies.

4. Co-ordination with road planning and construction institutions :- Rural roads for transporting the perishable produce within limited time are another aspects to be included in the horticulture development programme. Therefore, horticulture development programmes should have a close co-ordination with Department of Roads and other donor agencies that implement farm to market road projects in the concept of green road. At present, rural road (green road) projects are operating in several districts

in the country through the support of GTZ, HELVETAS, ADB/Manila and other donor agencies. With the re-instatement of the democracy in the country the District Development Committee (DDC) receives funds directly from the central government in the name of Village Self-reliance Development Fund (VSDF) or Build Our Village Ourselves (BOVO). Whatever, may be the name of the fund which differs with change in the government systems the amount of annual budget is Rs. 500,000.00 per Village Development Committee (VDC) and significant amount of this budget has been used for rural road construction in many districts. A strong co-ordination between DDC/VDC and DOA has been realized in the context of complementary programmes to be developed and implemented together.

5. Co-ordination with environment and forestry institutions :- The Forest Act 1989 has classified the forest areas into five different types such as national forest, community forest, leasehold forest and religious forest and private forest. This forest act has made provision to hand over the forest to the community who uses that forest (Kafle, 1995). With this provision a large number of forests have been already handed over to the community in the country. There is a provision of using such community forestland and leasehold forestland to bring under fruits, plantation and spice crops. There is a tremendous scope of horticulture development on the community and leasehold forestry programme through community approach. However, without a strong partnership between Department of Forest and Department of Agriculture such potentiality may not be fully exploited. Although, the importance of horticulture development in the community forestland has been realized by the Department of Forest, the technical support part missing there. In this context DOA has to play lead role in co-ordination with DOF.

CO-ORDINATION WITH DONOR AGENCIES AND INGOS

A number of donor assisted projects for example Market Access for Rural Development (MARD) Project in mid western development region, Small Market Infrastructure Development Project (FAO), Horticulture Development Project (JICA), Seed Sector Support Project (ODA) are also encouraged in high value cash crops and other horticultural crops (FES, 1997). There are several NGOs/INGOs also engaged in horticulture development in Nepal. The International Development Enterprises (IDE)/ Nepal is implementing low cost and simple micro-irrigation programmes for small farmers such as Treadle Pump in Terai and Drip Irrigation Systems in mid hills of Nepal. These agencies and projects, therefore, should be well co-ordinated in order to implement the activities in complement to each other avoiding duplication in activities and resources.

1. Co-ordination with private sectors :- In the present context of rural development one of the approaches of providing services to the rural people are through the provision of both 'service delivery system' and 'service access system'. In most of the case the GOs are working with the principle of service delivery system. It means the representatives of GOs are service providers to the rural farmers. However, it has been seen that GOs have been effective in providing services to the farmers near the district headquarters and along the accessible roads. Due to several reasons their delivery system is not effective in the remote areas. One of the main reasons being that the rural people in the remote areas is not aware of the existent of the service providers in the district. On the other hand, many NGOs are working in the remote areas with the philosophy that the farmers should be made aware of the existence of such agents and farmers themselves should be empowered to access services by themselves where the

government agents are not effective. However, it has been observed that the farmers opt to receive services from the private sectors rather than through GOs. For example: hundreds of agro-vet centers are effectively providing services of inputs such as seeds, chemicals, veterinary medicines, equipment, tools, etc. if not technology. In this scenario of private sector service access making available to the farmers horticultural institutions have to play greater role in developing co-ordination and linkages with private sector.

In the past few years we were hearing some success stories of a number of co-operatives managed by farmers themselves in many parts of the country, of course, motivated by the NGOs functioning effectively in marketing of their farm produces particularly fresh vegetables. There is also a tremendous scope of co-ordination with such private co-operatives.

A few food-processing industries have been set up in the past few years in the country. These industries will not be sustainable and profitable unless there is regular and quality supply of raw materials such as fruits and vegetables. Horticultural institutions and horticulturists themselves can play effective role in developing linkages between producers and food processors.

2. Co-ordination with academic institutions:- The Institute of Agriculture and Animal Science (IAAS) campus in Rampur together with satellite campuses at Bhairahawa and Lamjung is responsible for producing mid and high level trained manpower in the country. However, some institutes under Council for Technical Education and Vocational Training (CTEVT) are also producing low level trained manpower in the field of agriculture. There is need to have strong co-ordination with these academics for revising curriculum in the changing context of development perspectives in Nepal. Since the development concepts change with the passage of time, the curriculum should be made more relevant to the agricultural development of Nepal.

To have better co-ordination for horticulture development in Nepal horticultural sub-sector should take a lead role in preparation of whole set of programmes. In order to increase the production of horticultural crops rural roads, irrigation facilities, market facilities, plant protection etc should be included in the programmes. Then monitoring and co-ordination system to implement all sectoral programs should be developed within the horticulture sector and linking unit should be formed in the concerned agencies.

INTEGRATED STRATEGIES OF HORTICULTURE DEVELOPMENT

History of Integrated Development Approaches in Nepal :- The concept of integrated approach of rural development is not new in the history of development of Nepal. In the past, many integrated rural development projects (IRDPs) were implemented in the country. Unfortunately, at present we are not able to hear the success story of any of the IRDP in Nepal. Agriculture used to be one of the sectors among many other sectors included in the IRDP (GDP/GTZ, 1997). There may be a number of reasons for the unsuccess of such IRDPs. But in reality we can generalize a few reasons hereunder. Firstly, in the context of a country like ours where majority of the rural farmers are illiterate, live in a simple life style and are straight forward in their behavior, the integrated concept of development became a more and more complex making the illiterate rural mass confused rather than understand its concepts and philosophy. Secondly, there was a lack of farmers' participation in the development activities not feeling of 'our project' but feeling of 'their project'. During that time most of the infrastructures were built directly by the contractors belonging to the rich group with more grip under the political interests rather than farmers participation. This in fact has

led to the lack of feeling of ownership of rural people towards the infrastructures created by these projects. Thirdly, there was a lack of bottom up approach in planning and implementation of the IRDPs.

With the un-success/less success of such IRDPs, the donor agencies were more interested in implementing sectoral projects such as health, agriculture, seed, community forestry, etc. At the present context of IRDPs few donor agencies such as GTZ, SNV, HELVETAS and EEU/Gulmi-Argkhanchi Rural Development Project (GARDEP) are still implementing such integrated rural development projects in Nepal. But now these projects have completely different principles, philosophy and approaches that the main approaches being implementation pluralism (involvement of GOs, NGOs and private sectors together) with direct involvement of people in the grassroots level in the main stream of development.

Likewise, some donors such as USAID and IDFD/ODA have started sectoral projects such as MARD and Seed Sector Support Project in which many GOs, NGOs, INGOs and private sector are involved in implementing the activities. The main advantages of implementation pluralism is the pooling of expertise and developing co-ordination and linkages between and among these agencies involved in the development tasks. For example: NGOs and INGOs have the comparative advantage of effective and sustainable social mobilization at the grassroots level. These are the organizations who represent even the remote parts of the country where the government actually is absent and these are the organizations where resources are available and judiciously used. On the other hand, GOs have the pool of expert manpower as subject matter specialists at least at the district headquarters level. Their infrastructure network exist in the districts and regions at least at the minimum required level. They are the policy implementers and act as facilitators in implementing the activities in co-ordination with other agencies. Private sectors have the advantages of better service with better profits. They are playing the role of facilitators in micro-enterprise development in the rural areas and they are themselves entrepreneurs.

Horticulturist as Development Manager :- In the country like Nepal, where it is needless to over emphasize the importance of horticultural crops as the potential commodities which can substantially contribute to the national economy, horticulturists have the major roles to play in the development perspective in establishing co-ordination and linkages with development practitioners of other fields. But somehow, unless the available horticulturists of the country do not act as development managers in their specialized fields the speed of horticultural development may not be accelerated as we have seen in the past decades. In the past decades the concerted efforts of horticultural development were made mostly through single discipline approach. Horticulture was neither integrated with other discipline nor other aspects of development were taken into consideration by the horticulturists. If ever it was integrated in some of the IRDPs the role of horticulturists was minimized. Horticulturists did not act as development managers rather they acted as subject matter specialists. The so called development managers such as bureaucrats, economists, sociologists, anthropologists and other development practitioners included horticulture as a unit of their area of development rather than horticulturist acting as development manager.

Here, our opinion is that if horticulture development has to take place in the country the horticulturists have to play a definite lead role of development managers not only as a technical person or technology promoters but also as technology marketers, hortocrats, horto-socio-economist and what not. In this context, it may be relevant to give some examples of basic understanding of the tasks of development managers. With the

understanding of the comprehensive role of development managers they have to play a crucial roles of horticulture development. The following paragraphs will explain the integrated aspects of development roles of a manager.

The development manager has the delicate task of propelling balanced growth, riding on the three wheels of the environmental, economic and socio-political development vehicle (Morato Jr., 1989). He must follow a holistic approach that would bring these three development wheels together in an integrated intervention strategy. Otherwise, the vehicle would not move towards the designated destination. It is imperative, therefore, to sketch out a framework or a model by which the development manager can integrate the various components needed to attain balanced growth. We discuss below the major components of these three wheels of development set out in a framework.

Environmental Development Process

Environment development involves the management of a geographic area, the industries and sectors operating in that area, and development agencies intervening to promote the growth, productivity and quality of life in that area. The geographic area can be a country, a region, a district or even a Village Development Committee (VDC) depending upon the scope defined by the development agency involved in its management. Industry or sector can refer to enterprise and institution with common or inter-related products or services such as vegetable/fruit processing industry. Agency can mean government line agency, NGO, INGO or private sector or even a political body that is involved in the task of development (Figure 1).

This environmental development process seeks to synchronize area, industry/sector and agency management to effect policies, programmes and projects that would increase geographical and industrial/sectoral productivity while making sure that the agency becomes an effective catalyst in that process. The manager of the development should situate himself in the vortex of the environmental drama that seeks to determine where the three environmental forces of development interface and how he should intervene at these interface points.

1. Area and agency interface :- The interface between the development agency and the area earmarked for development is the effective management of area resources by the agency for the purpose of harnessing, utilizing and controlling these resources. This interface is supported by the creation of area or local administrative mechanisms.

2. Agency and industry/sector interface :- The linkage between the development agency and industry/sector is the mobilization or build up of industrial/sectoral capabilities and the promulgation of industry/sectoral incentives and regulations. This linkage is forged by the creation of industry/sector authorities and associations.

3. Area and industry / sector interface :- The interaction between the development agency and industry/sector and area happens at various levels starting from the tapping of area resources by the industry/sector (for example: land, labor, savings, natural resources, infrastructure, etc.), translating these tapped resources into industry investments (for example: capital, buildings, machinery and equipment, technology, materials and laborers imported from other areas), and creation of backward (supply) and forward (market) linkages to other geographic and industrial/sectoral entities. This area and industry/sector interaction is best manifested by the creation of enterprises or institutions.

Real environmental development is the process of optimizing the use of area, industry/sector and agency resources to bring each area, industry or agency to a higher level of productivity and a better quality being.

ECONOMIC DEVELOPMENT PROCESS

The economic development process involves the conversion of resources into investments, investments into goods and services, goods and services into income, and income back into resources or benefits distributed to intended beneficiaries (Figure 2).

1. The multiplication process :- Choosing the appropriate resources, the most capable institutions and the more effective intervention mechanisms with high multiplicative potentials can maximize the conversion of resources into investment. This means that the development catalyst should stimulate one of several high-multiplier-effect modes:

- harness untapped, almost zero cost factors of production
- leverage scarce resources through other institutions
- focus on critical inputs of production, marketing or finance

The example for harnessing untapped or almost zero factor of production is applicable in case of small farmers in vegetable production and marketing in many areas of the country. Before they opt this opportunity, their family laborer was not fully employed and also they had no opportunity cost or other utility of their laborer during certain times of the day and certain times of the year. Hence, a large untapped laborer resources are being multiplied several folds by the development managers without disrupting the social and economic life pattern of the small farmers' community.

Leveraging, or using resources other than one's own, is another multiplicative activity. This is best exemplified by the projects of some NGOs to multiply its funds by not directly lending them to farmers' association but by conducting the funds through a guarantee scheme and bank financing programme. The NGO guarantee mechanism has motivated Nepal Rastra Bank or other commercial banks to lend more amount of money to the small farmers.

Concentrating on critical inputs of production, marketing or finance rather than trying to secure all or most inputs is another good means of multiplying. For one, it is less capital intensive vis-a-vis the outputs desired since there is a focus on inputs deployed. For another, it is more pragmatic especially since development managers are often confronted with scarce resources. For example: water is a critical input of production. It becomes quite expensive and time taking for developing the conventional irrigation canals and dams. However, with the adoption of low cost and simple irrigation technology individual farmers can own treadle pump in Terai and drip irrigation in the hills for irrigating small plot of his land. It has been found that there is a 100 percent recovery of investment in one season of crop production if the farmer opts for high value crops such as vegetables.

2. The subtraction process :- The production of goods and services emanate from investment made by the development agencies involved (GOs, NGOs, business firms, people's organizations). These investment come in the form of land, buildings, laborer, machinery and equipment and funds (which are the investment "hardware") and in the form of education, training, systems development and technology dissemination (which are the investment "software"). These goods and services have to be brought to

the market. A subtraction process happens here as middlemen and distribution channels are employed for the purpose of delivering the goods and services to the market.

This is a subtraction process because there is literally a deduction in potential income. This income deduction occurs through the payment of commission to the market brokers and middlemen or through profit margins foregone or given up to the itinerant buyers and sellers who collect the goods ex-farm. The collected products may eventually be priced double or triple the amount purchased from the farmers or manufacturers. Clearly, the net effect is to subtract these profit margins and commission from the producers' full income potentials.

3. The addition process :- As the production units sell their goods and services to the market, there are revenues realized. If these revenues exceed the cost of production, profits are obtained and values are added to the economy. This is clearly addition process that should happen if the economic development process is to be considered a success. In fact the excess profits or values generated must be enough to accomplish two purposes: one is to plow back of extra profits or values to the resource base of the production unit; and the other is to distribute this excess to the intended beneficiaries of the economic development process. These beneficiaries include all the economic and social "investors" who contributed the various factors of production (land, laborer, machinery and equipment, capital, technology, talents, etc.).

4. The division process :- In the distribution of benefits, there is a sharing of the profits or value added. This is the division aspect in the economic development process. Without division there is no real development because the fruits of development do not accrue to and is not enjoyed by the people. The more equitable the distribution of benefits is, the extensive is the economic development process.

To summarize economic development process is one of resource mobilization and the multiplication of these resources. It is one of generating investments through these resources, which the investment yield goods and services for delivery to the market place. This delivery however, entails the subtraction of income through the market infrastructure or channels utilized by the production units. Upon reaching the market place, sales are realized and profits are earned. Economic development is, thus, ultimately one of adding values, which either gets plowed back to resource base or divided among the intended beneficiaries and "investors". The objective of economic development is prosperity and equity. This has been illustrated in figure 2.

Socio - Political Development Process

Human infrastructure and institution building is the objective of the socio-political development process. It is a social process because it concerns individuals relating to one another within an organization and groups interacting with other groups and the environment they live in. It is a political process because it involves the dynamics of influencing, government and empowering people. Both social and political dimensions deal with the art and science of people management. Hence the socio-political development process must encompass the totality of the human being, his mind, body and spirit. It must embrace the totality of people's institutions, their ideology, organization and values.

There are three facets of ideology, organization and values in the process of socio-political development process. How these three facets interface each other are mentioned below (Figure 3).

1. **Ideology :-** Ideology is a set of ideas, theories, doctrines and beliefs that are formulated to attain a vision for the individual and the society. This vision abstracts an ideal state or nature of things. Ideology directly addresses the mind or the mental faculties of a person or a group. Ideology comes in various forms. It may be a model, which idealizes "self-sustaining community that builds upon its own skills and capabilities". For some development agencies, idyllic models of societal behavior and structures are ideological tenets.

2. **Organization :-** Organization is the physical aggrupation of individuals for general or specific purposes. It is a group of human beings, which may either, have a collective or an individuals person orientation or both in mind. It has a collective orientation when the organization has overriding group interests to attain or maintain. It has an individual orientation when the organization primarily exists to benefit the individual members of the group.

3. **Values :-** Societies or individuals possess deep-seated convictions about how they and other people should behave. They set up standards or norms of behavior that are supposed to guide the actuation of people. These convictions and norms are called value systems, which are the rudders that define attitudes. Values can come from long standing traditional practices, customs and mores passed on from generation to generation. Or they may be brought about by the application of pressure on societies or groups. Such presser points may be built up by external aggressors, internal inciters, or collectively agreed upon censures. Examples of this are: war which may impose discipline, frugality and solidarity amongst the attacked; charismatic leaders who rally the people to take values of non-violence, patience and persistence; laws and constitutions which dictate the moral parameters of societal behavior. Values can be harnessed to motivate people, especially if they are consistent with the group's ideology and perpetuated strongly by the organization's control mechanisms.

Figure 3 illustrates how ideology, organization and values interface in the socio-political development process. Ideology interfaces with the organization (or the society) through education (sometimes called indoctrination) and training which build the organization's capabilities. It is an abstraction process because the vision, ideas, theories, doctrines and beliefs of the organization are abstracted into a comprehensive set of educational processes, materials, tools and techniques for organization's mental assimilation. The mind and body are made one through education.

Integrated Strategy Development Model

The three wheels of the development vehicles, which are the environmental, economic and socio-political growth processes must be integrated to form a holistic strategy (Figure 4). The development manager must ensure that this triangulation produces a whole grater than the sum of its parts. This can only happen when the people, their environment and their well being are cared for each step of the way. Environmental productivity must be accompanied by an improvement in quality of that environment. Hence, the environment is not depleted for the sake of productivity if it would cause hardship for the people of today and the children of tomorrow. Economic prosperity must not sacrifice social and economic equity. Otherwise, the chasm between the haves and the have-nots widens and cracks the oneness of the people. Socio-political maturity must be achieved without breaking down the society into fragmented units that destroy one another. Unity of purpose, of effort and action accelerates the maturation process. And the ultimate maturity is complete oneness.

RECOMMENDATIONS

1. **Co-ordination in General :-** Co-ordination is a must in horticultural development since it involves not only the horticultural institutes in the country but also many other organizations and institutions who practice horticulture development as well as are potential customers of horticulture development in the country. However, co-ordination must not be understood as a controlling mechanism as understood by many bureaucrats and technocrats. Strong co-ordination within the department, ministry, divisions and district and regional level institutions should exist where horticulturists have greater role to play as successful co-ordinators. Within the line ministry and department/divisions also co-operation and linkages should be developed in sharing of resources and implementing the program in complementary to each other.

The line Ministry and/or the line department/divisions should take lead role to develop co-ordination with other line ministries, departments or donor agencies or INGOs and national level NGOs. However, there is a strong feeling that the district level manpower charged with horticultural development in the district should have the responsibility of developing co-ordination with district level line agencies, local NGOs, district level donors and private sectors and they should never forget to establish forward and backward information flow (to the higher level institutions and back) systems. In doing so, a lot of administrative procedures could be minimized and timely action could be taken in the district, in the region and also in particular locality.

2. **Horticulturist as a Development Manager :-** In the present context most of the horticulturists in Nepal are acting as subject matter specialists except few working under NARC. They act as specialists since they are trained in that way. However, with respect to the changing perspectives in the fields of development it is better to understand the concepts of management. They should be successful development managers with leading role in program implementation who can successfully act a good co-ordinator too.

3. **Infrastructure Development :-** The basic requirements of horticulture development are the infrastructure related to it such as rural roads, irrigation, food processing industries, seed processing plants, markets, electricity, etc. There is a need to develop general consciousness of the people involved in this sector to provide support to horticulture development in the country through providing information on the greater share of GDP from horticultural sector. There is a need to prepare a master plan for infrastructure development for horticulture in the concept of APP, which provides broad guidelines. In many cases the agencies/organizations other than DOA/MOA are responsible for infrastructure development in the country. In such situation better co-ordination is needed with other organizations.

4. **Organizations and Institutions :-** It has been already discussed above that horticultural development in Nepal has experienced many ups and downs in the context of organizational or institutional development. In the past few years not only the horticulturists and other technocrats have understood the crucial role of horticulture in the national economy but many others representing INGOs, NGOs, donors, private sector, industry and ultimately the farmers have realized and are emphasizing to implement horticultural development activities in the country. In many areas farmers have been aware of the economic benefits of horticultural crops and they want to access the services delivered through service providers. In this present critical situation an autonomous horticultural research and development institution must be set up as early

as possible to meet the need and demand of the rural poor otherwise the conditions of the poor may be further aggravated. This probably may result into creation of mass poverty in rural areas and Nepal will be known in the world not by the name of Mount Everest but as the poorest country in the world. An effective organization is necessary for better co-ordination and co-operation in the perspective of horticulture development in Nepal.

5. **Integrated Strategy of Horticultural Development :-** As discussed earlier the integrated strategy of horticultural development has been a must in the present context of development concepts. Horticulturists have to play crucial role in several fields of development. Looking into the socio-economic conditions and level of education of the rural farmers horticulture alone cannot go as a single discipline development model. It has to be integrated with the environmental, economic and socio-political aspects of development.

6. **Information Systems and Database on Horticulture :-** In the past several decades we have been implementing horticulture development programs as specified in the Five-Year Plans. However, still we are lacking with trustworthy statistics on horticulture. At this age of advanced information technology it is not difficult to establish a reliable database on horticulture and information systems. The present statistics on horticulture which we are using in planning and report preparation may not be so reliable as there are many questions which we ourselves cannot answer. At this stage we are in urgent need to establish an efficient information flow systems and a database on horticulture so that the planner, experts, and we the horticulturists could make proper use of it. Most importantly, for better co-ordination and co-operation with other development agencies reliable database and effective information flow is very necessary.

7. **Manpower Development :-** Although the horticultural development institutions within the DOA and MOA have been down sized and a number of staff cutting down is taking place in the vested interest of the non-horticulturist bureaucrats/technocrats, the demand of horticulturists is increasing in the country. This is not an artificial demand as in the case of overseas employment rather a real demand of the country, private sectors, NGOs/INGOs, donors and after all the demand for the farmers' service. There is a trend of diminishing of trained manpower in the GOs, as the technocrats of such organizations are not serious on losing them. It is likely to happen a manpower crisis in horticulture sector in the future if strong steps are not taken to retain the existing ones and if recruiting the new ones and cadre of manpower building is not implemented immediately within the government sector. At this point we cannot even think of developing good co-ordination, co-operation and linkages with other agencies related to horticulture development in the country without capable and adequate manpower. If manpower development and recruitment programs are not immediately implemented GO sector has to implement horticultural development programs without horticulturists in the organizations.

As the past trend shows the rate of flow of trained horticultural manpower from the GO to the private and NGOs and donors will be rapid in the future if the horticulturists are not motivated somehow in the future.

8. **Motivation of Professionals :-** Motivation is what makes people do things and getting people to do willingly and well those things, which have to be done. It has been stated that positive motivation occurs when people give to a request and

motivation ceases when people are compelled to surrender to a demand (Simpson, 1989). In the context of Nepal there is no such system to motivate the professionals at least in the government sectors. This has seriously affected in case of creating good environments for good co-ordination between and among development institutions. Unless, there are motivations at different levels in different institutions we cannot expect better co-ordination, co-operation and linkages.

Table 1. Scenario of Horticulture Development in different plan period in Nepal

S. N.	Description	End of 5 th FYP (1979-80)	End of 6 th FYP (1984-85)	% increase over 5 th FYP	End of 7 th FYP (1989-90)	% increase	End of 8 th FYP (1996-97)	% increase	Remark
1.	Fruits Area (ha.) Production (mt.)	42077 275000	51176 343204	21.60 24.80	63123 461743	23.35 34.54	63500 428200	0.60	
2.	Vegetables Area (ha.) Production (mt.)	96000 528000	138000 743000	43.75 40.70	140500 970200	1.80 30.51	145000 1350000	3.20 39.75	
3.	Potato Area (ha.) Production (mt.)	51000 279000	58400 409000	14.50 47.10	59000 521425	2.39 27.40	108000 928800	83.05 78.13	
4.	Per capita Production Fruits Vegetable Potato	18.33 37.80 18.50	20.56 45.50 21.50		24.27 50.90 30.38		20.49 64.62 44.46		
		24.88	30.19		35.18		43.19		

Source: MOA, FDD

* Ministry of Agriculture, Agriculture Statistics Division (1993/94) has curtailed about 25% of the area and production figure of fruits crops because of the mortality of the trees in old orchard, mango timbers used for furniture and replacement short period crops banana and pineapples.

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