

# RESTRENGTHENING HORTICULTURE INSTITUTIONS IN ENHANCEMENT OF HORTICULTURE INDUSTRY IN NEPAL

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## ABSTRACT

Agriculture development in Nepal has passed through various models of development. In each model, horticulture and livestock sectors have got the priority. With a view to put agriculture into a high growth path, Agriculture Perspective Plan (APP) was implemented. However, it failed to relate the development activities with the institutions responsible to implement them. Though considered as a priority sector, government did not recognized horticulture at equal footing with livestock sector in terms of institutional development.

Horticulture development in Nepal has taken place as certain events rather than a regular process of development. It implies that such events must take place on regular basis if horticulture has to develop. In the detail analysis, it is also observed that such development events has occurred at such times when horticultural development have been supported by proper institutions. Hence, the potentiality of horticulture to support accelerating agricultural growth can be realized only if proper horticultural development institution also supports horticulture development. This may be possible if its own commodity development department leads horticulture development. The department must be complete in itself to carryout all horticulture development related activities and must be free from the problems of faculty-biased attitudes of the experts.

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# AGRICULTURE DEVELOPMENT IN NEPAL: A REVIEW

## Development Plans and Models of Development

In order to have a planned development in agriculture in Nepal, an agricultural office was established for the first time in the country in 1922. Its objective was to provide information on modern agriculture to the farmers. The extension of this program was supported by the vocational school established for the first time in 1932. The objectives of agricultural extension were to provide both education and service in the country. However, the scope and coverage of the program was so limited that only the then rulers (Rana dynasty) and their relatives, and some elite people around them drew advantage from it. In fact the real farmers in the rural areas could not even realize that there is a program so called agriculture development.

It was only in 1953, the village development program was implemented as a priority program, which was aimed to reach the rural farmers (Chitrakar, 1985). This was followed by a community development program during the First Five-year Plan (1956-61). This program was initiated through the concept of block development. Since the program was so confined in few blocks only and those blocks happened to be the group of already little advanced people, the program could not penetrate to the real farmers. As the agricultural productivity could not be increased in the rural areas, it resulted into forest encroachment in search of additional land to produce more food.

During the period of 1962 to 1970 (the Second and Third development plans), the agriculture development model was integrated rural development type as designed by the World Bank. The agencies involved worked more as an implementers of the programs coming from the Ministry rather than helping the rural farmers in solving their location specific production problems and thus to increase their productivity.

In 1972, country adopted commodity development approach. Under this approach (during the period of Fourth and Fifth Plans (1971-80)), different Commodity Development Programs were established at the national level at the capital, and the various programs were developed and implemented. These programs were found to tend to favor a monoculture and neglect development activities that require long gestation period, which in fact Nepal is bestowed with. In the period of Seventh Plan (1985-90), agriculture development program took political mood and the whole program was directed with a slogan of meeting the basic needs of the populace by the year 2000. The program by the name itself was very noble. But as the programs were formulated on the basis of table calculation at the center, and thus were far from reality. Hence, the programs could not accommodate the poor farmers.

When there was restoration of democracy in 1990, the idea of basic needs program was abandoned. Country celebrated a plan holiday for one year and started preparing for the Eighth Plan (1992-96), which took the consolidated approach of agricultural development. One window policy for the delivery of services merged all the departments and jumbled up agricultural development efforts. Government took the policy of privatizing farms. Though a post of Assistant Horticulture Development Officer was created in all 75 districts to promote horticulture, the importance of horticulture was, in fact, diluted under the rhetoric cereal crop dominant century-old extension system in the country.

Realizing the importance of transformation of traditional agriculture for overall economic growth, Agriculture Perspective Plan (APP) was formulated towards the end of the Eighth Plan to put the agriculture into a high growth path to achieve the objective of poverty alleviation. APP is a 20 years' agricultural development plan. The accelerated agricultural growth is aimed to contribute to achieve three dominant national objectives: eliminating poverty, enhancing the natural environment, and improving the condition of women. It has been claimed that APP has been specifically designed to increase the growth rate of agricultural production to 5 percent from the existing three percent per annum combined with the increase in the per capita growth of agricultural GDP from the current 0.5 percent to 3 percent. Likewise, at the end of the APP, per capita food production is expected to increase from the current 277 kg to 426 kg per annum and the percentage of people living below poverty line to decline to 14 percent from the current level of 42 percent (MOF, 1998:29).

However, the plan has failed to relate the development activities with the institutions responsible to implement them. Even the complementary inputs like fertilizer, irrigation, agricultural road and credit are not kept under one command, i.e., under one ministry to lead the plan. Even within the Ministry of Agriculture, though horticulture and livestock are considered as high value commodity sectors by APP, government has not recognized horticulture at equal footing with livestock sector in terms of institutional development.

## AGRICULTURE DEVELOPMENT IN THE NINTH FIVE-YEAR PLAN (1997/98 - 2001/02)

Even with some progress in the non-agricultural sectors in the economy in the past, there is still a high level of poverty (42%), unemployment (4.9%), and underemployment (47%) (NPC, 1998b:65). In the context of this reality, the Ninth Five-year Plan (1997/98 - 2001/02) opted the sole objective of poverty alleviation as recommended by APP such that in a 20 years' time the poverty will decline below 10 percent, unemployment below 3 percent and underemployment below 10 percent. The Ninth Plan also thus emphasized the high value commodities like horticulture and livestock as priority output and aimed to meet the following target.

**Table 1: Ninth Five-year Plan production target** (Base year 1996/97=100)

Description	Weight	Production in 1996/97 ('000 MT)	Production target for 2001/02 ('000 MT)	Percentage			
				Total	Annual average	Weighted growth	Annual growth
Food-crops	41.13					52.94	5.18
Cash crops	6.62					9.07	6.50
Pulses	2.17	224	300	133.93	6.02	2.91	6.04
Horticulture*	13.84					16.47	3.54
Fruits	7.04	428	500	116.82	3.16	8.22	
Vegetables	4.82	1350	1716	127.11	4.91	6.13	
Others	1.98	96	103	107.29	1.42	2.12	
<b>Crop-total</b>	<b>63.76</b>					<b>81.39</b>	<b>5.00</b>
Animal and animal products	35.78					47.56	
Fish	0.46	23	35	152.18	8.76	0.70	8.76
<b>Grand total</b>	<b>100</b>					<b>129.63</b>	<b>5.33</b>

\* Horticulture 16.96 [including potato (3.12)]

### Agriculture Development in the Periodic Plans

Despite the adoption of various development models and emphasis given in the periodic plans, the growth of agriculture in the country has remained far below the satisfactory level. Until the end of the Seventh Plan (1989/90) share of agriculture in the total GDP was more than 50 percent. In the real terms, the share was more than 50 percent also until 1990/91 (Table 2). Even if the share has declined below 50 percent then onwards, the share of agriculture is still higher if total GDP is broken down major industry-wise.

**Table 2: Gross domestic product (1974/75 - 1997/98)**

End of the plan period	Fiscal year	Real (1974/75 price)						Total value
		Agriculture			Non-agriculture			
		Value	Annual change (%)	Percent as of total	Value	Annual change (%)	Percent as of total	
Fourth	1974/75	11550	-	70	5021	-	30	16571
Fifth	1979/80	10933	-1.09	59	7673	8.85	41	18606

Sixth	1984/85	13174	3.80	56	10469	6.41	44	23643
Seventh	1989/90	16075	4.06	54	13797	5.68	46	29873
Interim	1991/92	16247	0.53	49	17020	11.07	51	33267
Eighth	1996/97	18828	2.99	45	23074	6.28	55	41902
Start of	1997/98	19035	1.10	44	23825	3.25	56	42859
Ninth								

*Source: computed from MOF, 1998*

## Production Trends

Food crop production has always been on top priority of the country in all the development plans. However, the average annual growth in food-grain production was only 2.29 percent (a rate below the population growth rate of 2.44 percent) in the period of 1975-98. The production technology has not improved significantly due to which the increase in the productivity has been only 0.47 percent. The large portion of the increased production has come from increased area under production, which increased by 1.82 percent. The increase in the production of paddy, the principal food crop, has been only 1.74 percent with increase in the productivity by 0.88 percent. As compared with the productivity of 4-6 MT per hectare in other Asian countries, the productivity level of 2.42 MT/ha in Nepal is very low. Farmers depend more on the monsoon rain, as the irrigation facility has been very limited (only 30 percent of the irrigable land has been covered by irrigation). Second reason accorded to the low production has been the low consumption of fertilizer due to inadequate coupled with untimely supply of fertilizer. Use of high yielding varieties require the other inputs be combined proportionately for it to perform as recommended otherwise up to certain lower levels of inputs use, the high yielding varieties perform poorer than the traditional varieties. This poses a threat to the agricultural development process that emphasis has to change from cereal to high value commodities like horticulture.

## SOME ANOMALIES FOR THE POOR PERFORMANCE OF AGRICULTURE

### NPC's Analysis

Among many reasons accorded to the poor growth of agriculture in the past, the Eighth Plan has pointed-out the following as the major ones (NPC 1992).

- Failure to expand resources and provide sustainability,
- Failure to take into account the peculiarities of hill agriculture,
- Lack of attention to preserving indigenous knowledge and values,
- Non-pragmatic projections of production inputs and an untimely supply and distribution of the targeted inputs,
- Adverse impact of economic stability owing to the non-judicious use of grants,
- Failure to make use of the existing infrastructures, and
- Scattering of limited scarce resources far and wide.

## **Fragile Organizational Structure**

One factor that seriously jeopardized the agricultural development process in Nepal was the frequent changes in the organizational structure of the Ministry of Agriculture and its machineries. A chronology of such fruitless effort is presented here.

Until 1966	Department of Agriculture under the Ministry of Agriculture.
1967	Creation of Five Departments (Crop, Livestock, Horticulture, Agricultural Marketing, Training and Extension).
1972	Amalgamation of all five departments into one.
1978	Splitting of the Department into Department of Agriculture, Agriculture Marketing, and Department of Livestock Health Services.
1985	Separation of research component and formation of national Agriculture Research and Services Center.
1990	Separation of the Department of Horticulture from the Department of Agriculture.
1992	Amalgamation of all four departments into one called as the Department of Agriculture Development and separation of the agricultural research as NEPAL Agriculture Research Council as independent organization from the Ministry of Agriculture.
1995	Splitting of the Department of Livestock Development from the Department of Agriculture Development.

Such frequent changes in the organizational structure kept the whole of the government machineries in the adjustment process only and could never concentrate in their work. Similarly, with each change in the organizational structure, there was a mass transfer of staff and the program heads according to the one that would fit the interest of the ruling group. This badly affected the stability of the program and most of the development programs got aborted.

The same was the effect in the field of research. As Stevens and Jabara (1988:302) have pointed out, a country needs to provide a high salary and political interference free environment to the agricultural scientists working in their respective fields for the development of appropriate technology. In the absence of such facilities, there is a poor technical backstopping and the country is still in the material transfer phase of the research.

## **Unsatisfactory Performance of Government Farms**

Of course, government farms were not established with a sole aim to generate higher revenues. One of the major objectives of such farms was to demonstrate the technology to the farmers, but the performance always remained so poor that farmers are, in most of the cases, not impressed by their performance and then raise a question whether their farms would also be like that if they adopt the recommended technology.

The poor performances of the farms are associated with the poor management of the farms. One important reason that could be accorded to the poor management is the inefficiency of the farm manager. It is wonderful in Nepal that no farm manager in any of the government farms has a

degree in farm management. A higher degree in farm management has not been recognized as an essential qualification for a person working in the farm as a farm manager and thus such degree holders do not get additional points as a higher degree for their promotions. This has discouraged the farm managers to take interest and acquire knowledge in the field of management. The result is obvious—the poor performance of the farms—the poor impression to the farmers—the poor performance of the rural economy.

### **Non-existence of the Recognition of Experts**

There are various scientists and extensionists working in various fields of agricultural development. Why cannot they be called the experts of the respective areas they are working-in? For example, the title of an expert working in citrus development is also Horticulture Development Officer as the one working in Mango, or pineapple, but is not called as citriculturist. Similarly, they are simply called as technical officers or S-1, S-2, S-3, and so forth in research, and development officers in development. This has given to the authorities a big room to manipulate the situation of rewards according to their choice leading to the peak of nepotism. Consequently, the real workers are always in shed—deprived of the rewards to their dedication and hard work. This has discouraged the development workers.

### **Wrong Notion of Faculty and Sub-faculty**

The faculty system has attracted the development workers to be more interested to the development of their respective faculties by creating opportunities for training, education and elevation of their status. It is a human nature and no one is to be blamed for this. But its significant effect to the nation cannot be forgotten. In the interest of faculty development, the commodity development program got set back. Actually, the service faculties like plant protection, soil testing, seed testing, marketing development, post harvest management, etc., are to support the commodity development programs like crops, fruits, vegetables, livestock, and so forth. Such services should go as the integral parts of the commodity development programs. Because of this faculty conflict and the personality clash among the development workers, the production program has suffered. All such service faculties should be virtually merged with the commodity development programs, and the experts within such programs—be they production agronomist, pathologists, economists, and so forth—should be treated for the development of the particular commodity and not for the field of work, as their faculty-biased attitude in the present system. Commodity faculties should be given the departmental status to assume the sole responsibility to develop the respective production program.

### **Low Investment in Human Capital**

Human capital or education partakes the most classic feature of capital formation. Input devoted in education produces its economic yield only over a long time in the future, but must be withdrawn from immediately consumable goods. Though the return is late, once produced, human capital continues to yield services over a considerable number of years, without waste of stock. It implies that education can reduce the cost of institutional and cultural change. In dynamic economic environments, literacy, calculating ability, and higher levels of education are complementary to the use of other resources, enabling more rapid response (Lockheed et al., 1980). They concluded from their study that four years of school education was associated with a mean increase of 9.5 percent in agricultural productivity in areas where a significant change in

agriculture was taking place; and 13 percent in areas where little change was taking place. Only 38 percent of the population of the age six years and older are reported to be literate in Nepal (CBS, 1996), which is even lower (36 percent) in the rural areas. In contrast to their higher percentage involvement (96% of the women labor force is engaged in agriculture), only 24 percent women are literate.

## **SOME ASPECTS AND ISSUES OF HORTICULTURE DEVELOPMENT**

### **Horticulture Development has taken place in the form of a Campaign**

One interesting fact that has been observed in Nepal is that horticulture development in this country has taken place when such programs were launched in the form of a campaign. Most of the mango production from Terai, some citrus production from eastern region, and production from orchards in the remote areas are the results of the horticulture campaign made when "Agriculture Year" was observed in the year 2032 (1975). Similarly, sweet oranges of Sindhuli and Ramechhap, mandarin oranges of Gorkha, Salyan and Deilekh are the results of the program run as a priority program when National Citrus Development Program got priority in the national development perspective.

In the vegetable sector as well, production from Dhading, Nuwakot, Sarlahi, Mahottari, Bara, Parsa, Dhankuta, Kaski, Syangja, Kailali, Dadeldhura, and so forth are the impact of special vegetable production program run by Vegetable Development Division among its least priority, general, and special production area development program.

Integrated sector development is required for the development of horticulture industry. Depending on the nature of the crop, only specific horticultural crops can be grown in special pockets. Hence, development of long gestation horticultural crops like most fruits requires development of road for transportation rather than developing such fruits along the developed road corridors. However, this has not gotten due attention in Nepal. The live example is seen in the case of Marpha and Jumla apples.

### **Impact of Government Farms in Horticultural Development** (Excerpted from Thapa et al, 2000)

Though the performance of horticulture farms have not been up to the mark, whatever has been achieved in horticultural production in Nepal that has been in the command area of the horticultural farms. The following examples suffice this fact.

- Vegetables coming from Sarlahi and Mahottari are contributions of Horticulture Farm Sarlahi; vegetables coming from Bara, Parsa, and Rautahat are contributions of Horticultural Unit, Parawanipur Farm.
- Vegetables coming from Dhunibesi area are contributions of Horticulture Farm Dhunibesi and Vegetable Seed Production Center Khumaltar.
- Mandarin and sweet oranges coming from Sindhuli and Ramechhap are contributions of Horticulture Farm Sindhuli.
- Apple fruit and apple and apricot brandy production in Mustang are contributions of Horticulture Farm Marpha. In fact, these activities have even alleviated to a great extent the problem of hill labor migration.



- Horticulture Farm Jumla and Humla have also significant contribution but due to the failure of the government to connect such production pockets by road has left the production unattended.
- Horticulture Farms Dhankuta and Pakhribas have prepared the base of vegetable production in Dhankuta and Tehrathum Districts from where there is an export of more than 100 million worth of vegetables to Siliguri and Calcutta markets of India.
- Similarly, there are many such production pockets developed elsewhere as well. Nevertheless, they are concentrated around one of the Horticulture Farms in the country.

These facts present that the expenses made on the government farms are justified by the tremendously increased income of the farmers. It clarifies that government efforts should focus not to privatize the farms to reduce public expenditure but to assign specific responsibilities to such farms and run them to render production services to the farmers. Such farms can function as the service and resource centers for the specific commodity and thus in the long run that area itself can develop into a growth center of that specific commodity.

### **Contradictory Government Policy and Actions**

APP is a growth strategy to trigger-off agricultural growth through increased production and its multiplier effect on non-agricultural sector. Horticulture and livestock developments have been recognized as the priority sectors. And, citrus and potato have been taken as priority horticultural commodities for both import substitution and export promotion.

Both citrus and potato development programs were given high priority and were led by national level program called as National Citrus Development Program and National Potato Development Program before the implementation of APP. The programs were headed by first class officers. However, with the implementation of APP, these two programs, though are under high priority, are kept just as one of the sections under Fruit Development and Vegetable Development Directorates. And, the programs are headed by second-class officers. High priority output is expected to be achieved by low priority institution by APP. There are several other examples of contradictory government policy and actions.

### **Agricultural Growth Center and Privatization of Farms**

Recently, Ministry of Agriculture and Cooperatives has opted the policy of developing agricultural growth center. Once an area is established as a growth center for the specific commodity, the development efforts will be concentrated in that center. The center may further expand depending on the nature and the scale of production. This center will serve as the objective of technology transfer and itself exhibits as a model of development for replication.

The growth center is planned in a way that it will be served by a resource and service centers. Foundation seeds and the saplings are supplied by the farms. Research and extension should go side by side in horticulture. In addition, anybody who is involved in horticultural extension needs to work for quite sometime in the farms to practice her/his theories. And, as training centers do not have farms for demonstration, horticultural training need to be conducted in the farms to be both effective and efficient.

However, in the government policy, horticultural farms under the Department of Agriculture are in the process of privatization. In the absence of horticultural farms, it is not possible to develop the horticultural growth centers. Hence, the policy of privatizing horticultural farms is contradictory to the policy of developing growth centers.

### **Unmatched Research Requirement and Personnel**

In the absence of stable institution to look after horticulture development, horticulture experts have remained scattered and their placement has not matched the country's requirement. For example, when NARC was created most of the trained manpower in horticulture (4 Ph.D.) remained with the DOA and no Ph.D. remained with the NARC. Country had to bear the additional cost to prepare another set of scientists in NARC. One of the reasons why that happened is that there was no incentive package announced in the beginning. Later on, everybody was promoted one level up in the NARC. Had this incentive been announced earlier, probably more suitable scientists would have remained with the NARC and country's investment to prepare such manpower would have been more fruitful.

### **No Search for the Optimization of the Impact of Government Farms**

There are several criteria to be evaluated before the establishment of horticultural farms. Once established, it is very expensive to revoke such farms. It is always desirable to monitor regularly and evaluate the performance frequently to improve the farms. There is no evidence, which could show such efforts being made by MOA. In lieu, as directed by the government, MOA also opted the policy of privatization of the government farms. In this line, MOA commissioned a study team in 1992. The team recommended privatizing eight farms (7 horticulture, 1 livestock) on the ground that the average annual revenue raised by these farms was Rs5000 to Rs73000 as compared with average annual expense of Rs313000 to Rs625000. In order to maintain the production of planting materials that these farms were producing, the team recommended leasing out these farms with certain terms and conditions. Among them, Horticulture Farm Rasuwa has been handed over to Royal Nepal Army, Horticulture Farm Kakani to Tourism, Horticulture Farm Dhunibesi to Sericulture Development Program. This effort has already affected the supply of planting materials whose returns could be realized in the long run.

Sheep Farm Chitlang, Horticulture Farms Janakpur and Panchkhal were leased out to the highest bidder. However, Sheep Farm Chitlang and Horticulture Farm Panchkhal have been returned already to the government by the leaseholders on the ground that the returns from the farms can be realized only in the long run and the immediate expenses can not be met by the revenue raised by the farms.

However, none of these farms have ever been studied as why their revenue status is so low? There has never been any effort made to improve the management of the farms. This is obvious to happen, as there is no proper institution to deal on these matters. Under the large management of the Department of Agriculture, importance of horticulture as envisaged here had remained diluted.

## Integrated Approach in Development

It is not only recommended in theory but also has been proven by empirical evidences that horticulture development needs integrated approach. Horticultural commodities cannot be grown everywhere and thus are specific to some particular pockets. Hence, production program should concentrate in those areas and such areas should be linked with other development efforts like irrigation development, construction of agricultural road, rural electrification, and so forth. This has not been given due attention by the development programs. Only recently, the agricultural road program has started but the program is under the command of the Ministry of Local Development. This is a positive step but in a wrong way. *The importance of agricultural road* should be viewed from the national perspective and not from local perspective. For example an agricultural road linking the apple production pockets of Marpha and Jumla will be contributing in the whole national development, but viewing it from local perspective, it may not be justifiable for the development of Marpha and Juma Districts only. Keeping the agricultural road development program under the Ministry of Local Development will not be able to view agricultural roads from national perspective as its objective by definition is local development, thus leaving the development potential unharnessed.

Integrated approach in development applies also in research and development as well. However, in the present context, research and extension program do not seem to complement each other. Most of the research programs seem to be formulated in isolation with extension, and likewise most of the extension programs seem to be formulated in isolation with research. Critically observing the annual planning and budgeting workshops being conducted by NARC, DOA and DLS can very easily verify this.

In addition, horticulture research in particular has been lagging far behind in the NARC. This will have some impact even on meeting the targets envisaged by APP. Furthermore, the priority sector recognized by APP—the citrus—has also not been prioritized by research program at the same footing. Astonishing fact here is that there is no such issue being raised at policy formulation level.

## **SOME ASPECTS NOT BEING COVERED BY HORTICULTURE DEVELOPMENT PROGRAMS**

1. Oftentimes, different horticultural farms were identified as suitable areas for the preservation of germplasms and generation of commodity specific technologies. For example, Horticulture Farm Dhunibesi was recognized suitable for the development of root crops, Horticulture Farm Panchkhal for spice crops, and so forth. Despite their potential for development, however, in the recent years, this importance had not only been neglected but also been uprooted by leasing-out such farms.
2. In the present context of WTO, the whole world is competing in the international market. In WTO's provisions, only patented works can be marketed and have to pay royalty for others' works. In this regard, Nepal also needs to have its horticultural crops and related indigenous knowledge and technologies registered. However, Nepal has not even started this. This objective can be very well achieved if the horticultural farms in the respective areas are assigned such responsibilities.
3. Role of private sector in processing industries is vital for the promotion of horticulture crop production. Processing industries need regular supply of raw materials. Such regular and assured supply of raw materials is possible only when there is production also targeted for the supply to the processing industries. Government policy does not seem to integrate all such sectors while designing horticulture development programs. Had the concept of growth center worked, the supply would have been guaranteed and the private sector processing industries would have come-up.
4. All producer farmers cannot become traders as well. Only few enterprising farmers can take up marketing activities as well. Due to this reason, most of the farmers are not able to fetch judicious price to their produce. Hence, some kind of enterprising attitude needs to be built among the producer-farmers such that they add some kind of value to their produce.
5. Though women's participation is more than 50 percent in production, their participation in development programs like research, training and extension programs has been less than 15 percent. Due to this reason, though horticulture has been recognized as high value commodity suitable for poverty alleviation, the development programs have not been formulated accordingly.

### **Horticulture Development vis-à-vis Institutional Development Pattern**

Chronology of concerted efforts made in the development of horticulture in Nepal shows that horticulture development has gotten impetus when emphasis was given to institutional development. From the above reviews of horticulture development, it has become evident that visible and significant development of horticulture has taken place when there were supporting institutions as well (chronology of institutional development for the promotion of horticulture is presented in Appendix 1). The obvious reason behind is that with the proper supporting institutions, the potentiality of development was better realized and the problems were better correctly identified.

## ALTERNATIVE MODEL FOR HORTICULTURE DEVELOPMENT

The present model of development and institutional arrangement for horticulture development (applies to other commodities as well) do not seem supportive to harness the potential of agriculture development in the country. The present model of one Agriculture Department and the system of various faculties have created a situation of unhealthy competition among the faculties. It is oftentimes observed these days that efforts are made to develop the faculties, which in fact do not add to production.

Development needs to have specialized experts from the group of generalists. This is achieved with the training and experiences of the experts. It implies that the higher the post one holds the higher should be one's academic, training and experience as well. That is his/her job should be more of specialized in nature. But in contrary to this fact, when one gets promoted to higher posts one becomes generalist from specialist. That is, the concept and, of course, the development requirement of generalist at the bottom line and the specialist at the top has inverted in Nepal putting the specialist at the bottom line and the generalist at the top.

In order to correct such mistake and avoid unhealthy competition, there should be commodity development departments such as department of agronomy, horticulture, fisheries, and so forth. The faculty system should be removed. The existing staff should be adjusted within the respective department as they are working for the development of that particular commodity under the present Department of Agriculture. The entry of officers should be managed in such a way that each department has all the required experts. All the experts should be named as development expert of the commodity such as horticulture development officer no matter whether the expert is pathologist, production agronomist, breeder, soil scientist, agricultural economist, extensionist, or so forth. There should be specified number of upper class posts but not specified as for any type of expert. Any expert working for horticulture development should be entitled to get promoted to that post provided s/he is competent.

Creating a system of retaining the relevant experts in the respective sectors themselves can further support it. This can be done if the provision of the specialist post in the Civil Service Act 2049 is activated. Nevertheless, this may require a lot of exercise before that can be realized.

A radical change should be brought in the system of horticulture research and extension. The present system of horticulture extension from an office stationed at the district headquarters cannot serve the people with their technical and material needs. The horticulture extension should be operated from the horticulture farms/stations/centers. To start with, the existing horticulture farms in the respective districts could be used as District Horticulture Development Office to run the horticulture extension programs. By doing so, the farmers who visit HDO will get not only technology, demonstration kits, planting materials but also will observe by him/herself the possible results on his/her field of the technology and the materials that s/he is bringing home. After having the impact of this new approach evaluated after few years, the approach may be replicated in the other districts as well where there are no horticulture farms at present.

## CONCLUSIONS AND RECOMMENDATIONS

Horticulture development in Nepal has taken place as certain events rather than a regular process of development. It implies that such events must take place on regular basis if horticulture has to develop. In the detail analysis, it is also observed that such development events has occurred at such times when horticultural development have been supported by proper institutions. Hence, the potentiality of horticulture to support accelerating agricultural growth can be realized only if proper horticultural development institution also supports horticulture development. This may be possible if its own commodity development department leads horticulture development. The department must be complete in itself to carryout all horticulture development related activities and must be free from the problems of faculty-biased attitudes of the experts.

## Appendix 1: Chronology of Institutional Support for Horticulture Development

- 1937 Establishment of fruit nurseries and orchards in Chhauni, Balaju and Godavari in Kathmandu valley
- 1948 Agricultural Farms at Kakani and Parwanipur
- 1951 Horticulture Farm Godawari
- 1955 Horticulture Section established under the Department of Agriculture
- 1960 Agricultural Stations Nepalgunj (with horticultural unit)  
Agriculture Station Tarahara (with horticultural unit)
- 1960 Horticulture Project under ICM (Indian Cooperative Mission)  
Establishment of School of Agriculture
- 1961 Horticulture Farm Pokhara  
Agriculture Center Dhankuta  
Establishment of Horticulture Research Station Kirtipur
- 1962 Horticulture Farm Daman  
Horticulture Farm Helambu  
Horticulture Farm Trishuli  
Horticulture Farm Baitadi
- 1963 Horticulture Farm Janakpur
- 1964 Horticulture Farm Yagyapuri
- 1967 Formation of Department of Horticulture  
Establishment of Horticulture Farm Jumla  
Horticulture Farm Mustang
- 1969 Horticulture Farm Palpa
- 1970 Agriculture Farm Rasuwa
- 1971 Horticulture Farm Humla
- 1972 Establishment of Fruit Development Division, Vegetable Development Division, National Citrus Development Program, National Potato Development Program under the DOA
- 1972 Establishment of Extensive Horticulture Center Nawalpur
- 1973 Vegetable Seed Production Center, Khumaltar
- 1974 Horticulture Farm Panchkhal  
Horticulture Farm Sindhuli
- 1975 Nucleus Potato Development Farm Nigale
- 1976 Agriculture Farm Nepalgunj (with horticulture unit)
- 1977 Horticulture Farm Solukhumbu  
Horticulture Farm Deilekh  
Ginger Research Farm Kapurkot  
Cardamom Development Center Fikkal  
Horticulture Farm Bonch
- 1977 Hill Agriculture Development Project supported to strengthen horticulture farms

- 1978 Vegetable Seed Production Center Rukum
- 1982 Post of a separate Deputy Director General (Horticulture and Fisheries) was created in the DOA
- 1982 Swiss funded FAO - Fresh Vegetable and Vegetable Seed Production Project
- 1985 Coffee Development Center Aanpchaaur
- 1985 JICA funded Horticulture Development Project at Kirtipur
- 1988-91 Post of Additional Secretary for Horticulture in MOA
- 1988-89 Assistant Minister for Horticulture
- 1989 Master Plan for Horticulture Development prepared
- 1989 Hill Fruit Development Project
- 1990 Reestablishment of Department of Horticulture
- 1990 Establishment of Horticulture Development Offices in 30 districts
- 1992 Amalgamation of all four departments into one called as the Department of Agriculture Development,  
Lowering down the status of Citrus and Potato Development programs from national level to sectional level under Fruits, and Vegetable Divisions  
Establishment of Spice Development Section  
Establishment of Tea and Coffee Development Section
- 1992 National Tea and Coffee Development Board
- 1995 Agricultural Perspective Plan prepared - horticulture on priority and apple, citrus, off-season vegetable and vegetable seed production as priority outputs.
- 1996 Fruit and Vegetable Market Development Project
- 1996 Nepal Tea Development Corporation
- 1996 Market Access for Rural Development Project
- 1999 Olive Development Project