5. PERFORMANCE OF PRIORITY APP OUTPUTS

5.1 Priority Output: Livestock

5.1.1 Implementation status of policy reforms

Livestock development is an integral and very vital component of Nepalese agriculture. It is well integrated with other components of the farming system and contributes significantly to overall growth of the agricultural sector. Animal development activities are conducted mainly within the private sector and are largely demand driven. Therefore, the sector's development depends much on the private sector and on the rate of growth of per capita income in the country. In the recent past, the subsector has grown only slightly due mainly to slow growth of per capita income. However, it has tremendous growth potentials provided that other sectors (e.g. crops and high value commodities) exhibit rapid growth and an expansion of per capita income. This has been well recognized by APP and, accordingly, the sector has been identified as a priority output sector.

The APP envisages few policy reforms for the livestock subsector and these are primarily directed towards creating a congenial environment for the private sector so as to boost efficiency. These comprise concerted efforts geared towards the realization of agricultural road and rural electrification targets. Other essential policy reforms prescribed by the plan include elimination of all subsidies on livestock processing and marketing, privatization of the Dairy Development Corporation (DDC) while letting it operate on equal footing with other dairy processing plants and removal of all legal and administrative restrictions that hinder free markets.

Progress in the implementation status of agricultural roads has so far been slow while the programme for rural electrification has yet to begin and gain momentum. Government efforts to privatize DDC have been marred by problems. The markets for of dairy products remain distorted thus resulting in seasonal gluts and shortages in milk and milk products. The government has removed legal restrictions on the slaughtering of females of permissible livestock species and on movement of livestock between districts.

5.1.2 Targeted growth

The APP expects the livestock sector's growth rate to accelerate from 2.9 percent in the initial five years before the plan (i.e. 1992 to 1995) to 6.1 percent in the last five-year period (Table 5.1). In terms of individual commodities, the document accords the highest priority to milk and meat production. In the initial stages, therefore, growth efforts are focused almost exclusively on milk animals, with an emphasis on animal nutrition, feed supplies, veterinary services and marketing. High priority is also given to poultry and goat production.

Table 5.1. Livestock growth rate and proportion of GDP by region, 1991/92 to 2014/15

Ecological belt	Livestock of GDP (%)		Livestock GDP growth rate (%)	
	1991/9	2014/15	1992-95	2009-15
Terai	38	35	2.8	5.8
Hills	53	55	2.9	6.2
Mountains	9	10	3.0	6.4
Total	100	100	2.9	6.1

Source: APP, 1995.

The Economic Survey of the Ministry of Finance (MOF) reports that the rate of growth in the production of milk and dairy products registered at 3.5 percent in 1997/98, the last year of the Eighth Plan period (Table 5.2). Similarly, the reported growth rates for meat and eggs stood at 3.7 percent and 4.6 percent, respectively. In translating the long-term APP strategy into periodic programmes, the Ninth Plan aims to increase the average annual growth rates of production of milk, meat and eggs to 5.56, 6.22 and 7.22 percent, respectively, by the year 2002, the last year of the plan period.

Table 5.2. Livestock production and growth projections of the Ninth Plan

	Production and growth rate/year		
	1996/97	2001/02	Growth rate (%)
Milk production (mt)	1 012	1 326	5.56
Meat production (mt)	174	235	6.22
Egg production (millions)	421	595	7.22

Source: Ninth Plan (1997-2002), NPC, 1998.

Table 5.3 presents the livestock population structure in Nepal. The livestock population constitutes more than 10 million heads of large animals and nearly eight million small animals. Cattle dominate the large animal population while goats outnumber other small animals. A comparison of population growth in the pre- and post-APP periods reveals that the cattle, sheep and duck populations declined after the implementation of the APP while the number of buffalo, pigs and fowl (i.e. poultry) continued to grow.

Table 5.3: Changes in livestock population structure

(In millions)

Period	Cattle	Buffalo	Sheep	Goat	Pigs	Fowl	Duck
1995/96	7.01	3.30	0.86	5.78	0.67	14.52	0.42
1996/97	7.02	3.36	0.87	5.92	0.72	15.58	0.42
1997/98	7.05	3.42	0.87	6.08	0.77	16.66	0.42
1998/99	7.03	3.47	0.86	6.20	0.83	17.8	0.42
1999/2000	7.02	3.52	0.85	6.33	0.87	18.62	0.43
2000/01	6.98	3.62	0.85	6.48	0.91	19.79	0.41
Growth (1996-97)	0.14	1.82	1.16	2.42	7.46	7.30	0.00
Growth (1996-2000/01)	-0.14	1.88	-0.58	2.29	6.03	6.16	-0.60

Source: SINA 2000/01, MOAC, 2002.

Table 5.3 also indicates that that farmers have started switching from to more productive animals in the post APP period. In absolute numbers, the number of cattle decreased by about 40 000 heads between 1996/97 and 2000/01 while that of buffalo, goats and pigs increased by 320 000 heads, 560 000 heads and 240 000 heads respectively. Similarly, the number of birds increased by over 4 million during the same period.

Livestock rearing is much more predominant in the hills than either the mountain or *Terai* regions (Table 5.4). In order to achieve its broad objective of regional balance, the APP aims for significantly higher growth rates in the hills and mountains. The plan targets per capita livestock GDP to grow from Rs 814 in the *Terai* in 1994/95 to Rs 1 268 in 2014/15, which is the end of the 20-year APP period. Correspondingly, per capita GDP in the hills and mountains is targeted to grow from Rs 1,254 to Rs 2,600.

Table 5.4: Livestock population structure by ecozones, 2001/02

(In thousands)

Area	Cattle	Buffalo	Sheep	Goat	Pigs	Fowl	Duck
Numbers							
Mountains	829	337	369	893	97	1 323	13
Hills	3 408	2 000	389	3 491	527	10 544	88
Terai	2 748	1 287	94	2 095	288	7 924	310
Nepal	6 985	3 624	852	6 479	912	19 791	411
Proportion							
Mountains	11.87	9.30	43.31	13.78	10.64	6.68	3.16
Hills	48.79	55.19	45.66	53.88	57.79	53.28	21.41
Terai	39.34	35.51	11.03	32.34	31.58	40.04	75.43
Nepal	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Source: SINA 2000/01, MOAC, 2002.

5.1.3 Implementation status of livestock development programmes

Major programmes prioritized under APP and reflected in the Ninth Plan (Section 3.3.4, Chapter 3) involve improvement of livestock breeds and nutrition and health of animals as well as the extension of the PPP through formation of farmers' groups. Table 5.5 provides a comparative assessment of the situation in the pre and post-APP periods while specific details on the achievements of the targets set by the Ninth Plan are presented in Appendix Table 21.

While artificial insemination under the breed improvement programme increased annually by about 9.2 percent in the post-APP period compared to the pre-APP period, the distribution of males of improved animal breeds increased by about 55.8 percent. These increments fell short of the target by about 31 percent in the case of artificial insemination but exceeded the target by about 11 percent in the case of improved animal distribution.

Under the animal nutrition programme, production and distribution of improved grass seeds declined by about 10 percent as against the plan's target of increasing production by about 27 percent. For fodder sapling production and distribution, however, annual achievement exceeded the goals of the Ninth Plan by about 34 percent.

Table 5.5: Achievements of APP priority livestock development programmes

Priority programme areas	Average situation		Change in post-APP over pre-APP period (%)	Change envisaged by the Ninth Plan (%)
	Pre-APP	Post-APP		
Breed improvement				
Artificial insemination	24 514	34 912	9.24	40.3
Bulls production/distribution	1 705	10 051	55.82	45.0
Animal nutrition				
Seed production/distribution (mt)	37	25	-9.79	26.6
Sapling distribution (in 000)	490	5 900	86.28	52.6
Livestock health improvement				
Vaccination (000 animals)*	5 434	8 555	12.01	40.3
Livestock group formation	1 034	5 454	51.57	41.1

Source: Compiled from MOAC Annual Reports.
* Also includes animals treated.

Under the health improvement programme, achievements in the area of preventive and control measures against major fatal diseases remained positive. While progress in vaccination fell short of what was planned by about 28 percent, achievements in terms of forming livestock groups exceeded annual targets by about 10 percent. Major reasons for the shortfalls in achievement of targets include lack of government capacity to provide adequate financial and human resources.

5.1.4 Investments in livestock sector

Government sector investment in the livestock sector increased from Rs 295 million per year in the pre-APP period (1996/97) to about Rs 537 million per year in the post-APP period, implying an average annual growth rate of about 22.8 percent. As shown in Table 5.6 (Appendix Table 22 provides further details), public sector investment growth in the post-APP period was highest in veterinary services (31.7 percent) followed by input supply (28.2 percent), which mostly comprise of expenditure on animal nutrition and breed improvement and extension and training (about 13 percent).

Table 5.6: Development expenditures in the livestock sector

Programme area	Average (Rs million)		Annual growth in post-APP period (%)
	Pre APP period	Post-APP period	
Extension and training	154.51	191.99	12.95
Input supply	16.60	26.06	28.21
Veterinary services	23.32	39.83	31.65
Total livestock dev. expenditure*	295.02	537.04	22.83
APP priority areas**	89.20	436.09	121.00

* Total Development Expenditure from Red Book.
****** CPRA estimate of APP proportions and post APP refers to first two years only.
Source: Red Book, MOF; CPRA, 1998 page 24.

Since the Ninth Plan does not provide annual and programme-specific details of planned development in the agriculture sector, it is not possible to compare these annual allocations with the targets. However, the Interim APP has projected a total investment of Rs 2 600 million in the livestock sector. The plan, with an investment of about Rs 427 million in the first year of the plan, has projected this figure to grow annually by about 10 percent to about Rs 622 million in the fifth year, which is the last year of the Ninth Plan (Interim APP-1997). Until the fourth year of the Ninth Plan, annual expenditure averaged at about Rs 537 million, which is close to the planned amount. Livestock sector expenditures on APP priorities, estimated at about Rs 89 million per year during the pre-APP period, rose to about Rs 436 million in the first two years of APP implantation, equivalent to an increase of about 121 percent annually. Although the average level of annual expenditure in the priority livestock sector remained slightly lower than the planned amount, there has been no added emphasis in terms of budgetary allocation at least in the first two years as evidenced by the decline in the proportion of the livestock sector budget allocated to the priority sectors from about 82.45 percent in the pre-APP period to about 81.2 percent in post-APP period[35].

[35] This is not significant because almost all livestock development activities fall under APP priority activity and therefore a significant increase in the annual budgetary allocation to the sector in the post APP period is the direct reflection of government commitment to APP implementation.

5.1.5 Implementation status of institutional reforms

No specific institutional reform programmes have been envisaged for the livestock sector in the Interim APP. It has however emphasized reorienting the NARC's priorities towards dairy and buffalo and animal nutrition based on fodder crops and breed improvement. Accordingly, the NARC has already initiated on a priority basis the Bovine Development Programme, the Pasture and Fodder Research Division and animal nutrition programmes in its research programmes. Likewise, it has emphasized administrative and legal changes within lending institutions such as the ADB/N and commercial banks to enable them to provide credit to the poor farmers and to women in particular. In line with this reform, lending portfolio of ADB/N has shifted with more weights currently given to the livestock sector. About 30 percent of the loans disbursed by ADB/N now goes to the livestock sector through the existing network.

With assistance from the Third Livestock Development Project, commercial banks are now implementing special programmes for the livestock sector along APP priorities and NGOs are being increasingly brought into the livestock development programmes. Necessary policy papers including operation guidelines for the promotion of veterinary services through the creation of a Rural Revolving Fund have been prepared and are operational. Likewise, necessary actions to privatize veterinary services via the establishment of veterinary clinics have been initiated.

5.1.6 Major problems and challenges

Five major problems confront livestock sector development in terms of APP targets. First, much needed credit facilities for poor farmers and tax waivers on livestock and livestock products are missing. This has affected the pace of commercialization of cattle farming, poultry farming and feed production. Second, progress has been slow in the livestock feed sector, compelling farmers to opt for traditional feeds such as straw and rice bran. Third, the limited capacity of the government to produce improved livestock breeds has rendered the sector dependent on foreign countries for improved breeds. Often, importing improved breeds from nearby countries is disallowed, as is the case with India, which bans the export of buffalo. Fourth, despite government's efforts to involve the private sector in the provision of livestock health services in rural areas, the level and quality of services rendered are inadequate and low. This problem coupled with ineffective livestock insurance services has made private investment in the livestock sector risky, thus affecting commercialization. Fifth, livestock extension and training services remain below the level required by commercialization. This is caused primarily by the lack of trained manpower. While increasing public sector investment to the level planned under the Interim APP period is an imperative, realigning livestock sector investments towards APP priorities is a major challenge.

5.2 Priority Output: High Value Crops

5.2.1 Implementation status of policies and priorities

Within the APP's broad strategy for rapid agricultural growth in the hills and mountains is the emphasis on the promotion of high value commodities via private sector participation, harnessing of scale economies through production of commodities in blocks and adoption of market led growth. Major policies advocated by the plan include creating an environment that allows the private sector to compete efficiently in processing and marketing of goods (e.g. full realization of APP priority goals in road maintenance and construction, which are expected to reduce transportation cost), enhancing the reliability of power supply and removing all legal and administrative restrictions that deter free movement of goods across the country. In other words, policy reforms envisaged relate to public sector actions that lead to minimize risk in the production, processing and marketing of high value commodities.

The government has already removed legal restrictions on free movement of goods across the country and reduced tariff rates on electricity on agroprocessing industries such as cold storage, but progress in terms of the status of agricultural roads has so far been slow. Efforts are underway to increase reliability of power supply.

5.2.2 Targeted growth

The APP has envisaged increasing per capita horticultural GDP in the hills and mountains from the 1994/95 level of Rs 430 to Rs 888 by the end of the plan period. In the *Terai* region, the corresponding GDP value os envisioned to increase from Rs 479 to Rs 780 (Table 5.7). While setting these targets, the APP explicitly mentions the problems involved in adopting high value crops (HVCs) encountered by majority of the farmers. Since HVCs are risky to produce and since the primary concern of the small farmer is to attain food security, most of them would be highly reluctant to make the necessary switch from production of food grains. In order to get around this problem, it would be necessary to adopt a policy to deal with risk aversion through research, infrastructure, strong support services and credit programmes.

Table 5.7: APP targeted growth in per capita horticultural GDP

Region	**Targeted per capita horticultural GDP (Rs)**				
	1994/95	**1999/00**	**2004/05**	**2009/10**	**2014/15**
Hills and mountains	430	488	586	716	888
Terai	479	512	579	666	780

Source: APP, 1995.

5.2.3 Implementation status of high value crops programmes

Fruits (specifically citruses and apples), vegetables (especially the off-season ones), vegetable seeds, sericulture and apiculture are the main agricultural commodities priortized as high value commodities by the APP and the Ninth Plan. For fruits, among the major programmes planned are the expansion of commercial orchards, establishment of nurseries and demonstrations through establishment and support of demonstration orchards. Table 5.8 presents the implementation status of priority citrus programmes with further details outlined in Appendix Table 23. In the first four years of APP implementation, the citrus programme has been expanded from 34 districts in the base year to 47 districts (41 districts average). Meanwhile, 273 new citrus pockets for commercial production has been selected (183 pockets average); 416 new farmers groups formed (139 average); 23 model management demonstration farms; and 21 private nurseries established and about 357 406 citrus saplings produced and distributed annually.

Table 5.8: Progress in the implementation of citrus in post-APP period

(Nos)

Activities	Pre-APP period	Post-APP period	Annual growth (%)
District covered	34	43	8.43
Commercial pockets selected	9.5	183	100.18
Farmers' groups formed	90.5	139	-100.00
Private nurseries established	9.5	18	27.29
Production and distribution of saplings/yr	300 733	357 406	-36.53
Model demo farm establishment	9	16	13.21

Source: Records of respective divisions/units of DOA, HMG/N.

Table 5.9 summarizes the implementation status of priority apple programmes with additional information presented in Appendix Table 24 . The apple programme has been expanded to 14 districts as of 2000/01. Three new districts have been included in the programme after APP implementation while 28 new apple pockets for commercial production of apple have been selected, 174 new farmers groups formed, 30 cellar and cold stores constructed and supported, 29 model management demonstration farms and 28 private nurseries established and about 694 000 apple saplings produced and distributed.

Table 5.9: Progress in the implementation of apple programmes

(Nos)

Activities	Pre-APP period	Post-APP period	Annual growth (%)
District covered	11	13.5	6.21
Commercial pockets selected	10	7	-5.43
Farmers' groups formed	19.5	43.5	23.45
Cellar and cold store supported	34.5	34	-9.64
Private nurseries established	3	7	31.61
Production and distribution of saplings/yr	52 113	173 574	19.37
Model demo farm establishment	9	22.5	24.68

Source: Records of respective divisions/units of DOA, HMG/N.

Table 5.10 presents the progress of implementation of commercial vegetable and vegetable seeds programmes with further details listed in Appendix Table 25. In the first four years of APP implementation, commercial vegetable cultivation has been expanded to 25 districts, off-season vegetable production to 14 districts and vegetable seed production to 6 districts for summer vegetables and 15 districts for winter vegetables. Meanwhile, 163 and 26 new pockets have been delineated for commercial vegetable and vegetable seed production, respectively, while 40 farmers' groups have been engaged in summer vegetable seed production and 75 farmers' groups in winter vegetable seed production. About 14 mt of nucleus and foundation seeds and about 480 mt of certified seeds have been produced and distributed in the first four years of APP implementation. Based on the statistics presented, efforts seem to be increasing in harnessing the production potential of selected pocket areas in the country for the production of high value vegetables and vegetable seeds.

Table 5.10: Progress in the implementation of commercial vegetable development programmes in the post-APP period

(Nos)

Activities	Situation during		Annual growth (%)
	Pre-APP period	Post-APP period	
District identified for:			
Commercial vegetable production	25	25	0.00
Off-season vegetable production	14	14	0.00
Vegetable seed production (summer)	6	6	0.00
Vegetable seed production (winter)	15	15	0.00
Pocket areas delineated:			
Commercial vegetable production	NA	112	32.54
Vegetable seed production (winter)	NA	20.5	27.59
Farmers' groups:			
Vegetable seed production (summer)	NA	40	NA
Vegetable seed production (winter)	NA	75	NA
Quantity of seed produced:			
Nucleus and foundation seeds	16	13.58	-4.42
Certified seeds	425	479.95	10.84

Source: Records of respective divisions/units of DOA, HMG/N.

Along with the programme of raising fruit and vegetable production to a commercial scale, the APP and the Ninth Plan have set a complementary programme for apiculture development. Major programme components are the selection of priority districts for apiculture developemnt, selection of commercial pockets within these districts, distribution of modern beehives and the establishment of resource centres. Implementation status of the apiculture programme in the first four years of APP implementation is presented in Table 5.11. Although apiculture is an ongoing programme of the government, it has been given added emphasis especially in the post-APP period. The programme has been expanded to cover 14 districts with the selection of 19 new pockets by 1999/2000. In the first three years of implementation, 491 additional modern beehives have been distributed and 10 additional resource centres established for farmers.

Table 5.11: Progress in the implementation of the apiculture programme

(Nos)

Activities	Situation during		Annual growth (%)
	Pre-APP period	Post-APP period	
Districts covered	0	14	NA
Commercial pockets selected	0	19	NA
Beehives distributed	1 605	491	(694)
Farmers' resource centres established	1	11	1 000

Source: Records of respective divisions/units of DOA, HMG/N.

Sericulture, particularly mulberry silk, is a priority commodity of the APP and forms part of its hill development strategy. Major components under the sericulture programme include gradual expansion of the enterprise in additional potential districts, establishment of clusters in selected districts to intensify silk production efforts, formation of farmers' groups in each of the selected clusters, distribution of quality mulberry saplings and silk worm eggs and production and distribution of silk worm eggs. Table 5.12 summarizes the implementation status of the sericulture programme in the first three years of the APP with further details in Appendix Table 26.

Table 5.12: Progress in the implementation of the sericulture programme

Activities	Average situation during		Annual growth (%)
	Pre-APP period	Pre-APP period	
Districts covered (No)	42	29	-26.89
Sericulture centres/clusters established (No)	NA	4	0.00
Farmer groups formed around clusters (No)	NA	71	31.15
Mulberry saplings distributed (000)	6 166	3 696	-8.64
Silkworm eggs produced (boxes)	2 563	3 012	25.83
Silk cocoons produced (mt/year)	29	24	0.31

Source: Records of respective divisions/units of DOA, HMG/N.

Although the programme covered 42 districts in the first four years of APP implementation, intensive sericulture development work has mainly been confined to 12 districts. Four clusters around the four sericulture development centres have been established providing intensive technical and marketing support, while 80 farmers' groups in the selected clusters have been formed and around 3 700 mulberry saplings distributed annually. About 3 000 boxes of silk worm eggs have also been produced and distributed annually[36].

5.2.4 Investment in high value crops[37]

Although the Ninth Plan has not provided a separate estimate for investments in agricultural subsectors, the Interim APP has projected an investment requirement of about Rs 861.5 million for prioritized HVCs and associated agribusiness over the five-year period. If distributed equally, this amounts to Rs 168 million per year. Table 5.13 presents the governments' development budget for HVCs (e.g. horticulture, mainly fruits, vegetables, vegetable seeds, sericulture and apiculture including marketing and storage support) with further details outlined in Appendix Table 27.

[36] In addition to local production, about 1 800 boxes of silkworm eggs were imported to meet demand. Local production capacity of the newly established silkworm production facility has not been able to meet the demand.

[37] Also includes public sector investment for the promotion of the agribusiness sector.

Table 5.13: Investments in high value crops

Programme areas	Average annual budget allocation (Rs million)		Annual Change (%)	APP target per annum (Rs million)	Percentage of budget provisioned
	Pre-APP period	Post-APP period			
Horticulture	81.9	71.2	(4.6)	48.7	146.3
Sericulture	42.0	30.3	(10.3)	62.0	48.9
Market support	36.7	49.6	10.5	51.2	96.8
Apiculture	4.2	0		6.0	
Total	164.9	151.1	(2.9)	167.9	90.0

Note: Figures in brackets indicate negative values

Source: Compiled from Red Books, MOF, HMG/N.

Analysis of the allocated budget shows that budget provisions declined by about 3 percent in the post APP-period compared to the pre-APP period. Except for market support, the average annual public sector investment in high value commodities declined in the first three years of APP implementation compared to the two years prior to APP implementation. However, the annual budget provisioned for the promotion of high value commodities increased from about Rs 131 million in the first year to Rs 143 million in the second and Rs 180 million in the third year (Appendix Table 27). This indicates that the progress in the achievement of investment targets in the HVCs sector has been gradual. Targets can possibly be met provided that the observed trend is maintained.

5.2.5 Implementation status of institutional reforms

A number of institutional reform programmes have been put forward by the APP. First, it proposes that a small HVC Unit be established within the MOAC to monitor programmes and activities with other ministries. For this purpose, a new Division of Agribusiness has already been created and is operational. Second, the plan also proposes creation of separate divisions within the DOA to deal specifically with citrus, apple, vegetables and vegetables seeds. Except for assigning the responsibility of citrus development to the Paripatle Farm in Dhankuta by designating it a citrus development centre, no efforts have so far been made affecting the other three commodities. Third, the plan suggests stationing one horticulture office, one planning officer and one plant protection officer in addition to an extension officer in each of the DADOs. So far, very few districts have planning, horticulture or plant protection officers. Fourth, the plan seeks to establish Agriculture Service Centres (ASCs) at the market assembly centre of the programme blocks to provide production and marketing extension services. However, existing ASCs have yet to be shifted to production blocks and no new ASCs have so far been established. Finally, the plan has envisaged forming an expert group in the DOA to exclusively support marketing and farmers' groups in the districts. No such group has been formed as yet. Currently, related divisions are providing the needed supports although not as a team.

5.2.6 Major problems and challenges

Increasing the pace of commercialization of high value commodities requires an integrated approach to production, post-harvest operations and marketing. Unless all the three sectors are dealt with simultaneously, isolated efforts in one sector not only leads to wastage of resources but also leaves serious doubt on the part of actors as to the success of the HVC programme. Despite considerable performance in the implementation of the HVC sector programme in the first three years of APP implementation, several constraints in the production, post-harvest operation and marketing still impede full-scale attainment of the APP vision.

In the production front, a number of constraints are apparent. First, development of production blocks remains weak in terms of their size as well as alignment along major highways. Unless sizable blocks are planned, the commercialization effort will not pay off as much as desired due to a lack of scale economies. Second, there are serious problems in targeting irrigation development for HVC promotion. So far, hardly any irrigation schemes have been planned and implemented as per the requirement of vegetable and fruit crops, as irrigation projects planned generally cater to cereal grain production[38]. Third, the DOA lacks specific focus on HVCs. As before, the DADO's focus on the programme is limited to paper without any significant effort made to allocate additional manpower or budget resources to any of the potential HVCs in the various districts. Fourth, farmers groups formed to take up commercial scale production of HVCs are typically weak in terms of possession of technical knowledge, skills in post-harvest operations and marketing management. Their capacity to manage production inputs in a package form and to link their production with markets is poor, requiring external support. In the post-harvest front, major constraints include poor systems of packaging, lack of a proper means of transportation and bad road conditions in addition to poor cold storage facilities. In the marketing front, meanwhile, these include a lack of timely market information systems both for domestic and export markets, lack of quality consciousness and poor transportation conditions. The major challenge to the attainment of the goals of the HVC programme is the need to address these issues properly and in a timely manner.

5.3 Priority Output: Agribusiness

5.3.1 Implementation status of policy reforms

Both the APP and the Ninth Plan have identified the private sector as playing the main role in the development of the agribusiness sector. In contrast, the role of the public sector has been limited to the formulation and implementation of policies considered crucial for the success of APP objectives. The APP's policy statement on the promotion of agribusiness sector thus emphasizes the creation of an environment conducive to private sector investment particularly in terms of market support services and infrastructure. This implies removal of market distortions via complete withdrawal of public sector

[38] Regardless of whether irrigation projects are planned for cereals or for other purposes, areas linked with road and markets get easily converted into vegetable pockets provided that efforts are made to package other essential inputs such as in the case of the Pokhara-Baglung Road where a local NGO-CRDC has been operating (Pradhan, 1998).

interventions in production, processing and marketing of agricultural commodities (inputs as well as outputs), a move aimed to provide adequate incentives to private investment.

The government has completely removed price subsidies on all types of fertilizers and withdrawn the subsidy on STWs and DTWs. Likewise, decisions have already been made to reform the AIC by splitting the corporation into two private companies dealing with fertilizer and seeds in parallel. Electricity tariffs on agro-industries such as cold storage has been reduced. Steps have also been taken to provide market access to potential areas and facilitate the commercialization of agriculture through the creation of the DOLIDAR. Government efforts to privatize other public sector entities engaged in the production, processing and marketing of agricultural products such as tea, milk, sugar and tobacco have yet to progress although government has already adopted policies for the free entry of private sector in these products.

5.3.2 Implementation status of agribusiness programmes[39]

Though the Ninth Plan does not explicitly mention agribusiness programmes except in a few policy and institutional reforms (Section 3.3.6), the Interim APP has nonetheless identified a set of programmes that complement agribusiness promotion together with programmes for the promotion of high value commodities. Specific public sector programmes recommended for the Interim APP period include improvements in cold storage and packaging facilities through a reduction in electricity rates and import tariffs on machinery and packaging material and provision of skills training to about 100 000 people for the promotion and enhancement of microenterprises and cottage and small scale industries. The plan also intends to conduct a market study to make the skills development training programme market oriented. Entrepreneurship and management skills development have been greatly emphasized, which has led to the target launching of an integrated rural entrepreneurship development programme to encourage 12 000 people in the rural areas to engage n business. Necessary extension services will also be arranged in the form of support services to cottage and small-scale enterprises.

To support the programme, the MOAC has already formed a high level Agribusiness Promotion Committee under the chairmanship of the Minister for Agriculture and Cooperatives and established an Agribusiness Promotion Division (APD) within the MOAC.[40] A number of cold storage facilities have been constructed and improved while skills development training has been provided. More specifically, the government has reduced the electricity tariff on cold storage as well as the import tax on cold storage and other machineries essential to agricultural processing and marketing.

5.3.3 Major problems and challenges

Apart from the general constraints faced by producers of high value commodities, major constraints faced by the agribusiness sector include the lack of an institutional framework and capacity to

[39] Investments in the agribusiness sector have been included under the HVC sector.

[40] This is against APP recommendation to establish an Agribusiness Promotion Division within the MOAC by bringing together the functions currently carried out by the Statistical Division of the MOAC and the Economic Analysis Division and Market Development Division of the DOA.

promote and support agribusiness on a continuous basis. The newly formed APD within the MOAC, for instance, lacks manpower and facilities. A dearth of adequate project development facilities both at the centre and in districts, the low level of managerial skills among prospective entrepreneurs and absence of training facilities are among the other constraints. Hence, a major challenge in the promotion of agribusiness subsector, which is vital for the successful implementation of HVC programme, lies in strengthening the APD both in the centre and outside to enable it to provide the required technical, managerial and financial assistance. However, the APD, created earlier as a separate division within MOAC, has now been merged with statistical division.

5.4 Priority Output: Forestry

5.4.1 Implementation status of APP forestry policy

Recognizing its huge potential and intimate interrelationship with the farming system, the APP has highlighted forestry as one of its priority output sectors. As a matter of policy, the plan has identified distinct and separate strategies for different physiographic regions of the country and has set four distinct forestry priority areas. The four APP forestry priority areas are, namely, community forestry, private and leasehold forestry, commercial management of forests and support services comprising training, research and development. For the hills and the mountains, the plan has emphasized community forestry throughout the belt together with private and leasehold forestry in suitable areas. For the *Terai*, commercial management has been emphasized in addition to private and leasehold forestry. Forestry support services have been emphasized both for the *Terai* region and the hills and the mountains. Other important elements of government's forestry policy are the continued emphasis on sustainable use of forest products through participatory management and legal reforms to resolve existing conflicts between different laws governing harvest, transport and sale of forest products from private, leasehold and community forests; reassessment of the contribution of the forestry sector to the national economy; and research to generate suitable technological packages.

Community forestry has continuously been emphasized since 1978. Private forests have been allowed since 1993 and are being encouraged. Degraded forests have been leased to small and landless farmers and institutions within the Ministry of Forest and Soil Conservation (MOFSC) have been streamlined to provide better support services. Necessary reforms in the Forest Act 1993 and Forest Policies 1995 have already been implemented[41].

[41] Reforms in the Forest Act 1993 include the following:

- Community Forest Users' Groups (CFUGs) are now required to spend a minimum of 25 percent of their incomes for development, conservation and management of the community forests and may spend the rest for other development activities;
- FUGs are now required to prepare operation plans for the management of their forests, prepare detailed inventory and report annual increments in forest area to the District Forest Office; and
- FUG members can now file complaints against any office bearer (if found guilty, the latter will be liable to punishment recommended by the act).

Similarly reforms in the 1995 Forest Policy include the items below:

- Based on the annual increment of forest, users can harvest the forest products annually, including the trees, to the extent not exceeding one percent of such increment.

5.4.2 Implementation status programmes[42]

In line with the policy, strategy and priorities of the APP, the Interim APP and the Ninth Plan have included a set of programmes to help develop the forestry sector. Programmes included are participatory management of forests; community and private forest development; commercial management forests in the *Terai*; national and leasehold forestry development programmes; soil and watershed conservation programmes with special focus on Siwaliks; reforms on rules, regulations and institutional arrangements; human resource development, and research on production, promotion and utilization of valuable timber.

Under community forestry development, government programmes include the formation of users' groups, forest management by the community, afforestation, post-formation support to users' groups, income-generating programmes and training, publicity and extension (Table 5.14). Implementation status of the community forestry programme has been summarized in Table 5.15 with further details by development regions and ecological zones presented in Appendix Table 28.

Table 5.14: Ninth Plan programme in community forestry

Activity	Target
• Formation of users' groups (no)	7 510
• Community forest management	As needed
• Afforestation (ha)	30 000
• Post formation support (no)	16 000
• Income-generating programmes	Feasible areas
• Training, publicity and extension	As needed

Source: Ninth Plan (1997-2002), NPC, 1998.

Table 5.15 presents details on changes in the status of community forestry situation in pre- and post-APP implementation period (see also Appendix Table 29). Until 1994/95, 7.7 percent of about 3 522 000 ha defined as potential area for community forestry development was handed over to the community. An average of 118 000 ha per year was handed over in the preceding two years defined as the pre-APP period. With the implementation of APP, this figure declined to about 76 000 ha per year in the post-APP period indicating a declining trend in the growth of community forestry in the country. This trend has been observed in all the three ecological belts.

Although the total potential forestry area handed over to communities increased to about 659 000 ha in 1998/99, the average annual growth rate in the area handed over declined by about 20 percent in the post-APP period compared to the pre-APP period. Given the commitment of the government in the implementation of APP priority, which also includes community forestry, this trend appears

- If the users have surplus products after meting their daily needs, they can sell these to buyers outside the FUG. In that case, 40 percent of the total revenue generated from the products will go to the government.
- Emphasis is laid on implementing the forest improvement program based on a block management system.

[42] Due to unavailability of data, assessment has been limited to years for which data were available.

disappointing. Considering that community forestry is a stated priority, progress has so far been modest. About 40 percent of the potential community forestry area has been handed over in the *Terai* region and, correspondingly, about 24 percent and 8 percent in the hills and mountains. The slow progress in the handover process in the mountains and hills is due to the low population density and the high potential area compared to the *Terai*.

Table 5.15: Situation of community forestry in Nepal, May 2000

	Cumulative 1994/95	Average situation		Change in post-APP period (%)	Cumulative 1998/99
		Pre-APP	Post-APP		
Potential CF area (000 ha)	3 522	3 522	3 522	NA	3 522
Area handed over (000 ha)	271	118	76	-19.75	659
Area handed over (%)	7.69	3.35	2.16	-19.75	18.71
Forest users' groups	4 255	1 511	886	-23.43	9 048
Total households (in 000)	3 329	3 329	3 329	NA	3 329
Households with CF access (in 000)	475	162	104	-19.87	1 007
Benefited households (%)	14.27	4.87	3.12	-19.87	30.25

Source: CPFD, Department of Forest May 2000 and CBS 1991.

In terms of peoples' access, the trend is just reverse. About 59 percent of people in the mountains have access to community forestry and only about 45 percent in the hills and 9 percent in the *Terai*. The declining annual growth rate in forestry area handed over during the post-APP period traces partly to the recent policy of government to increase its control on community forestry compared to the past and partly due to conversion of potential forest areas into conservation and buffer zone areas.

Considering the role that private forestry can play in poverty reduction and environmental protection by increasing fodder and fuel wood supply to households, APP has accorded high priority to private forestry development. However, the results have been far from encouraging. Private forestry was allowed in Nepal after its government announced the New Forest Policy in 1992. Following this move, private forestry began to gain development momentum; a total of 1 577 private woodlots covering an area of 1 451 hectares were registered by the end of fiscal year 1994/95 (Table 5.16 with regional details in Appendix Table 30).

Table 5.16: Evolution of private forests in Nepal

Region	Situation		Average situation		Annual change in two periods (%)
	1994/95	1998/9	1995-96	1997-98	
Situation of private woodlot (nos)					
Nepal	1 577	2 169	401.5	191	-31.0
Mountain	48	52	3	0.5	-59.2
Hills	344	398	30	24.5	-9.6
Terai	1 185	1 719	368.5	166	-32.9
Situation of private woodlot area (ha)					
Nepal	1 451.1	1 913.8	281.8	180.91	-19.9
Mountain	31.2	34.5	2.05	1.265	-21.4
Hills	576.9	627.6	27.44	23.185	-8.1
Terai	842.7	1 251.5	252.33	156.46	-21.3

Source: CPFD, May 2000.

The number and area covered by private woodlots numbered about 2 169 and 1 914 ha, respectively, by 1998/99 or over four years. Analysis of private forestry data for periods just before and after APP implementation reveals that the pace of private forestry development declined in the post-APP period compared to the pre-APP period. An average of about 402 woodlots covering an area of about 282 ha per year were registered in the pre-APP period. However, this figure dropped to 191 woodlots and 181 ha in the first two years of APP implementation indicating an annual decline in the growth rate (by 32 percent in the number of woodlots registered and by 20 percent in area covered).

A comparative analysis of private forestry development across the three ecological belts reveals a highly alarming situation in the *Terai*. The APP interim plan recommends increasing tree coverage in the *Terai* region to meet the daily needs of fuel wood and fodder to support the farming system. The need for this has emerged in light of the fact that most of the *Terai* forests have been brought under commercial management, which prevents farmers from collecting fodder from these areas. Yet, the growth rate of private forest in *Terai* has declined drastically from 15 percent during the pre-APP period to 5 percent in the post-APP period[43].

Among the five development regions with an increasing trend in both the number and area of coverage has been the western development region. The growth may be attributed to the intervention of the Third Livestock Development Project (TLDP) operating in this region, which aims to increase the productivity of livestock through fodder and pasture development. One of the major programmes of the TLDP is to encourage and support farmers in producing fodder in their private forest land. The main reasons for the declining growth rate of private forestry include a lack of clear policies and programmes for private forestry development in the Ninth Plan, weak public confidence in government policy and the reluctance of the District Forest Office (DFO) in providing required technical and administrative support to the private sector for private forestry promotion.

[43] These growth rates are derived using 1994/95 as the base year situation.

The APP emphasizes commercial management and exploitation of *Terai* forests with particular focus on management of the Sal forests through scientific and participatory management. Operational forest management plans have already been prepared for implementation in 16 *Terai* and two hill districts (Table 5.17)[44]. In order to implement these plans smoothly, the government has already undertaken a set of policy reforms. Important reforms include initiation of a block management system for forest improvement with local participation and arrangement for revenue sharing between the local bodies and the government (in a ratio of 25 percent to local bodies and 75 percent to the government).

Table 5.17: Districts selected for implementation of forest management plans by the Ninth Plan

Development region	Districts
Eastern	Ilam, Jhapa, Morang, Udayapur, Sunsari, Sarlahi
Central	Rauthat, Bara, Parsa, Makwanpur, Chitwan
Western	Nawalparasi, Rupandehi, Kaplivastu
Mid-western	Banke, Bardiya
Far Western	Kailali, Kanchanpur

Source: Chapagain et al (1999).

Leasehold forestry is another priority area under the APP and has also been duly recognized by the Ninth Plan. Although no quantitative details of the programme have yet been provided by either the Interim APP or the Ninth Plan for the expansion of leasehold forestry, implicit in the policy statement is the gradual expansion of the programme in the hills and combining the programme with commercial forest management in the *Terai* . The target is to increase the number of districts from just two prior to the APP implementation to 18 districts in the first five years.

Table 5.18 presents the implementation status of the programme with further details contained in Appendix Table 31. Leasehold forestry was initiated in 4 districts by 1994/95 while 157 groups were formed and about 885 ha of degraded forests leased out. The number of districts covered and groups formed and the forest area leased out rose to 10 districts, 1 306 groups and 5 553 ha, respectively, corresponding to an annual increase of 49 percent, 70 percent and 58 percent, respectively.

Table 5.18: Progress of leasehold forestry development

	Cumulative Situation		Average annual situation		Annual growth rate (%)
	1994/95	1998/99	Pre-APP	Post-APP	
Groups formed (no)	157	1 306	207	368	33.49
Area (ha)	885	5 553	875.94	1 458.13	29.02

Source: Annual Report, HLFFDP, 2000.

[44] Government's plan to implement the forest management plan was obstructed by the Federation of Community Forestry Users' Nepal which sought legal provisions to have continued access of the communities to forests in the *Terai*, inner *Terai* and Churia hills. This prompted government to reform policies enabling participatory management with arrangements made for the sharing of benefits between local bodies and the government.

Comparative analysis of progress reveals that average annual progress in the post-APP period has been significant compared to the pre-APP period. This is because the average number of groups formed and area leased out per year during the post APP period increased by about 33 percent and 29 percent, respectively. This progress was due to the implementation of the Hills Leasehold Forestry Project funded by the International Fund for Agriculture Development (IFAD).

Another APP priority programme in the forestry sector concerns soil conservation and watershed management as well as conservation farming. Major programme activities prioritized under the Ninth Plan include the development and expansion of sound land use practices, conservation farming for land productivity improvements, integrated watershed management by the soil and expansion of conservation services to cover all the 75 districts of Nepal.

Table 5.19 (and Appendix Table 32) shows how soil conservation service was expanded to 61 districts in the post APP period from the base year situation of 55 districts. Under land use development, an average of 38 subwatershed plans and 111 forest work plans were prepared in the first two years of APP implementation against 17 subwatershed plans and 110 forest plans prepared in the pre APP period. Annual achievements period in terms of the land productivity preservation programme were lower in the post-APP compared to the pre-APP period. Similarly, annual achievements in the post-APP period fell short of that in the pre-APP period. Lower annual achievements in the post APP period are partly due to the discrepancy in setting annual targets (lower targets in the year compared to previous year) and partly to lower achievements than targets set. Moreover, the extent to which APP priorities have been reflected in the annual programmes of the Ministry of Forest and Soil Conservation, in general, and the Department of Forest and the Department of Soil Conservation and Watershed Management is not clear.

Table 5.19: Implementation status of soil and watershed management programmes

Programme areas	Average situation		Annual Growth (%)
	1995-96	1997-98	
Districts covered (nos)	57	61	3.51
Land use development			
Preparation of subwatershed plan	17	38	61.76
Preparation of forest work plan	110	111	0.45
Land productivity preservation			
Cropland protection (ha)	284.5	226.5	-10.19
Horticulture (ha)	38.5	28	-13.64
Fodder/forage/grass plantation (ha)	57.5	17.5	-34.78
Degraded land reclamation (ha)	620	405.5	-17.30
Community soil conservation			
Water source conservation (nos)	90	99	5.00
Nursery establishment (nos)	29.5	25.5	-6.78
Training on conservation (nos)	4 687	4 088	-6.39

Source: Compiled from annual reports of the Department of Soil conservation and watershed management.

5.4.3 Investment in forestry programmes

The Interim APP has projected public sector development expenditure of Rs 2015 million for the first five years, equivalent to annual requirement of Rs 403 million annually. Table 5.20 summarizes government allocations in the forestry sector in the last six years. While the total budget allocation to the sector increased annually by about 9.7 percent during the period, development budget increased annually by only 3.8 percent implying a 14 percent increase in the regular budget. The sharp increase in regular expenditures traces to additional incentives provided to the Forest Rangers under the ministry beginning 1998.

Table 5.20: Expenditure patterns in the forestry sector

(Rs millions)

	Total expenditure	Development expenditure	
		Total	APP sector
1994/95	928	491	300
1995/96	1 095	556	325
1996/97	1 021	489	275
1997/98	1 099	534	313
1998/99	1 401	589	345
1999/2000	1 472	592	347

Source: Red Book and CEPRA, 1998.

The allocation pattern of development expenditure on APP priority forestry activities over the six-year period reveals that the budget allocated to APP priorities increased by only 2.9 percent, which is less than the increase in development expenditure. This clearly indicates the failure of government to properly recognize APP priorities in the forestry sector. Annual allocation in the first three years of APP implementation, which ranged between Rs 313 million and Rs 347 million, remained below the estimates of the interim APP (i.e. Rs 403 million annually).

In Table 5.21, a comparative analysis of the development budget allocated to APP priority areas in the pre- and post-APP implementation periods have been presented. Although the development budget allocated to two of the four APP priority areas (namely, community and private forestry and leasehold and commercial forestry) increased by around 2 percent in the post-APP period compared to the pre-APP period, the overall budget provisioned for APP priority forestry activities declined by about 0.2 percent in the post-APP period compared to the pre-APP period. The cutback was highest in research, extension and training (1.2 percent) and in soil conservation and watershed management subsectors (1.0 percent). Budgetary analysis based on limited data support the view that APP priorities are not well recognized within the forestry sector.

Table 5.21: Development budget before and after APP implementation by APP priority areas

APP Priority Area	Average Situation		Annual growth rate (%)
	Pre-APP	Post-APP	
Community and private forestry	85.2	87.4	1.71
Leasehold and commercial forestry	44.9	46.4	2.2
Soil conservation and watershed management	77.7	76.5	-1.0
Research, extension and training	191.4	187.9	-1.2
Total	399.2	398.2	-0.2

Note: (1) The pre-APP situation pertains to the average in 1995/96 and 1996/97 while the post-APP situation pertains to 1997/98. (2) Estimates of development budget against each activity are based on the proportion of total budget for development activities.
Source: Computed from CEPRA report, 1998.

5.4.4 Implementation status of institutional reforms

No major institutional reform programme has been envisaged by the APP for forestry because this aspect has been covered by the Master Plan for the Forestry Sector (MPFS), which is under implementation. The only new aspect covered by APP is the establishment of institutional linkage between the Forestry Research and Services Centre (FORESC) and the NARC in conducting research in agroforestry system. So far, no such institutional arrangement has been made and agroforestry research has remained the responsibility of FORESC without involvement of NARC.

5.4.5 Major problems and challenges

Community forestry has so far proved to be a remarkable success in Nepal. Its progress has been slow recently due to lengthy handover procedures and weak post formation and institutional support provided to forest users' groups (FUG). Efforts exerted by government and other groups working in community forestry have mostly concentrated on activities leading to handing over forest areas to the community with very little support and assistance to strengthen and empower users groups. This is due mainly to limited staff positions available as well as filled in the District Forest Offices (DFOs) and also the scarcity of facilities and lack of incentives to staff employees for proper monitoring of forestry activities. Another problem with community forestry at present is the gaps in policy. Present forest policy, for example, does not provide adequate authority to FUGs to penalize non-FUG offenders. It does not limit the forestry area and the number of households within FUGs. It also does not allow dissolution of FUGs based on their poor performance. The major challenge for government in making community forestry a successful means of forest management lies in strengthening DFOs in terms of additional staff and facilities as well as meeting the policy and legal gaps.

Poor extension facilities and reluctance of DFOs to register private forests are the major hurdles in the growth of private forestry. Also, people's dilemma towards current forest policy, which still provides enough incentives to the people to continue their dependence on national and community forests

for forest products, is a major problem hindering fast growth in private forestry. As such, the Ninth Plan does not have any specific policy or strategy on private forestry while the government's forestry department has yet to set programme targets for private forestry development. Instead, it is seen as a supportive programme of community forestry. Furthermore, inadequate social mobilization, absence of regular institutional and technical assistance by line agencies and lack of monitoring and evaluation systems constrain rapid growth and expansion of private forestry. The major challenge to the government in developing a strong private forestry thus lies in the formulation of an effective forestry policy and its implementation with proper institutional support.

In the leasehold forestry sector, the main problem involves the lengthy procedure for identification, selection and approval. The existing legal framework suits leasing of forest land to industries or institutions only. Legal provisions required for lease approval are very cumbersome, as applications must pass through long bureaucratic procedure starting (i.e. from getting community consensus at the village level to DFOs scrutiny to final approval by the MOFSC). Moreover, existing forest laws and rules are not clear and do not provide any format for the preparation of operational plans of leasehold forests nor has mention been made about renewal of operation plan. Acceptance or rejection of lease application by MOFSC depends upon the wishes of government officials in such absence of clear policy guidelines. In addition, inadequate social mobilization in forming leasehold groups, the absence of regular institutional and technical assistance by line agencies and lack of a monitoring and evaluation system have also led to ineffective implementation of these programmes. Poor understanding of the leasehold concept in the community and by programme staff combined with unnecessary political and social interference have further exacerbated the problem. Formulation of an appropriate policy and legal framework and the strengthening of DFOs and other related agencies such as the ADB/N and government livestock offices so that they can provide coordinated support are the major tasks of the government.

In the soil and water conservation sector, major problems again relate to legal provisions to support policies. Although there is a clear policy to involve local people in soil conservation activities, this has not been duly incorporated in the existing Soil and Watershed Conservation Act and Rules. As a result, conservation committees are registered in District Offices as NGOs. The District Soil Conservation Office has no control over the process and registration is often a time consuming process. Given that the concept of people's participation in soil conservation and watershed management is a new concept, inadequate social mobilization coupled with poor institutional and technical assistance are the major cause for bring people to the programme concept. Government thus needs to develop an appropriate legal framework to facilitate people's participation and provide technical assistance to local conservation committees.