

# DRAFT RNR SECTOR ELEVENTH PLAN (2013-2018)



## VOLUME II PROGRAM & BUDGET DETAILS

Ministry of Agriculture and Forests  
April 2013

## Programme Summary

### 1. Programme Title: National Field Crop Commodity Development Program

Field crop constitutes rice, maize, wheat, barley, millet, buckwheat, grain legumes and oil seeds which are the major food commodities and contribute significantly to food and nutrition security both at the household and national level. Under the National Field Crop Commodity Development, following commodity development program will be undertaken.

- a. *Rice Development Program*
- b. *Maize Development Program*
- c. *Other Cereals Development Program*
- d. *Oil seeds and Legumes*

### 2. Link to NKRA

- i. Sustained Economic Growth
- ii. Poverty reduced & MDG Plus achieved
- iii. Full employment
- iv. Needs of vulnerable group addressed
- v. Climate neutral / Green & Climate resilient development
- vi. Integrated water utilization and management

### 3. Contribution to SKRA

- i. Enhance food and nutrition security
- ii. Generate additional employment opportunities and increase mean annual rural household cash income
- iii. Accelerate RNR growth through commercial farming of agriculture, livestock and forestry enterprises
- iv. Enhance conservation of plant and animal genetic resources and natural heritage sites
- v. Enhanced sustainable forest, land, water and biodiversity resource management
- vi. Enhance efficiency and effectiveness of RNR Sector service delivery

### 4. Plan Target (Baseline) Targets

Outcome	Outcome Indicator	Unit	(Baseline)/Targets
Increase field crops production enhancing self sufficiency and income	Increased rice production	MT/annum	(71571) 91735
	Increased maize production	MT/annum	(61869) 70408
	Increased other cereal production	MT/annum	(13489) 25190
	Increased oil seeds and gain legumes	MT/annum	(5764) 7000
	Decrease cereal imports	%	(32) 25
	Increase field crop under organic	Acres	(na)/2000

	production/management		
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5. **Total Cost (Nu. In Millions)**

The commodity development strategy adopted by the Department in the 10<sup>th</sup> Plan will be continued. The commodity approach to research and development is expected to bring in the required focus and emphasis. In order to realize the targets set for each commodity development program, strengthening of existing central programs and institutes in terms of human resources and technical capacity will be critical. Disaggregated budget outlays for commodity development and support services are presented below.

<b>Commodity Development Program</b>	<b>Current</b>	<b>Capital</b>	<b>Total</b>
Rice development program	41.5	2726	2767.5
Maize development program	51	36	87
Other cereal development program	12	14	26
Oil seeds and legumes development program	17	15	32
<i>Support Services</i>	957.5	2486.5	3444
<b>Grand Total</b>	1078.9	5277.45	6356.35

6. Source of Funding:

The possible sources of funding are MAGIP, EU – ASSP, Rural Livelihood Project (World Bank), EU – Global Climate Alliance, other donor funds, RGoB and through PPP models.

7. Start and End Date: July 2013 to June, 2018

8. Status of Readiness

The Department has already prepared following documents to support the implementation of the 11<sup>th</sup> FYP activities and programs.

- ✓ Arable agriculture strategy for the 11<sup>th</sup> FYP
- ✓ Arable agriculture research strategy for the 11<sup>th</sup> FYP
- ✓ Commodity Strategy for rice, maize, other cereals, legumes and oil seeds

The Department will also be developing Agriculture and Horticulture Development Policy and subsequent policy implementation guidelines.

### ***A. Programme Justification***

Rice, maize, wheat, barley, millet, buckwheat, grain legumes and oil seeds contributes to the overall **food basket**. Of the cereals crop, rice and maize are the major crops. In 2010, the area under rice and maize cultivation constituted 56375 acres and 61476 acres respectively. The combined area under wheat, barley, millet and buckwheat during the same reporting period is stood at 24177 acres. The domestic production of cereals is able to meet 66% of the county's total requirement. While the import of maize, millet, buckwheat and barley are minimal, country imports significant volume of rice. The country is able to meet only 48% of rice and 47% wheat from domestic production (DoA 2010 and Trade Statistics 2010).

Domestic production of pulses (rajma beans, soybeans and mungbeans) is able to meet 62.95% of the total demand. However, the country is deficit in vegetable oils by more than 90% (DoA, 2010, Trade Statistics, 2010).

#### ***Rice Development***

Rice is the most important cereal crop and also has cultural, traditional and environmental significance. Owing to the constraints related to irrigation water and shortages of labor, the production is limited. In the 11<sup>th</sup> FYP, major emphases will be on irrigation and water management through rehabilitation and construction of irrigation channels to increase area under assured irrigation. The Department will also make available appropriate farm machineries to mechanize the cultivation of paddy through FSSU and hiring services. In keeping with the vision of the RGoB to pursue "Green Economy" and to adapt to emerging climate change challenges, integrated plant nutrient management and soil fertility management will be pursued through the demonstration and incorporation of green manuring and breeding and of biotic and abiotic stress tolerant varieties. Integrated pest management system will also be continued and pursued, especially to manage rice blast and leaf roll. To boost rice production, commercialization of rice farming will be taken up through farmers' group and private sector participation in potential dzongkhags such as Samtse, Sarpang, Samdrup Jongkhar, Wangdi – Punakha valley and Paro.

#### ***Maize Development***

Under the dryland farming system, maize is the major crop cultivated in 11 Dzongkhags. It also constitutes staple food crop for the farmers of East, Central and South Bhutan. Key challenges facing maize production is the persistence of GLS and TLB diseases which is the result of poor seed replacements by farmers. The focus in the 11<sup>th</sup> FYP is to increase seed replacement ratio of GLS and TLB disease tolerant varieties. The production of clean seeds through strengthening of Community Seed Based Program, Registered Seed Growers and National Seed Centre will also be pursued.

Quality Protein Maize variety which has higher content of *lysine* and *tryptophan* will also be promoted. This is expected to increase the intake of protein among the rural population.

To meet the demand for the growing industry needs (in feed mill and brewery), research and promotion of short duration maize and hybrid maize will also be pursued as pre-rice crop especially in Southern Dzongkhags.

To maintain the productivity of dryland farming system and to make the agriculture sustainable, Sustainable Land Management Technology (SLM) will be pursued as part of integrated plant nutrient management options for farmers.

Among the field crops, maize cultivation comes under recurrent threat from vertebrate pests, especially the wild boar. Promotion of animal repellent such as electric and solar fencing devices will be implemented under cost sharing mechanisms. The technology is also expected to help in intensifying crop cultivation as these technology can also be used to control animals such as cattle and equine population which are largely left stray in winter.

#### ***Other Cereal Development***

Other Cereals mainly includes wheat, buckwheat, millet and barley which are grown in smaller scale but have regional specificity and significance to household food security. Characterization of improvement of both introduced and local germplasm of these commodities will be pursued and promoted in potential dzongkhags. Considering that the input use for these crops cultivation is also very minimal, development will be pursued under sustainable organic management system.

#### ***Grain Legumes and Oil Seeds***

Grain legumes such as rajma beans, muang beans and soybeans also have regional specificity and significance both to food and nutrition security and income. From the sustainable agriculture point, the legume crops are important as a source of nitrogen. Area expansion of these crops will be pursued and characterization of local germplasm will be also undertaken for productivity improvement. The production increase is also expected to meet the in-country demand for pulses for consumption and requirement for feed industry.

Oil Seeds development will also be pursued through the introduction and promotion of mustard, rapeseed and sunflower. Partnership with private sector will be also pursued for production, processing and marketing of oil seeds.

#### ***Support Services***

To successfully implement the commodity development program, the central program and regional programs needs to be strengthened including the Directorate.

**RDC Bhur:** Realizing the importance of research and development of subtropical agriculture, Royal Government of Bhutan upgraded Bhur Sub-centre to full Research and Development Program. However institutional capacity both in terms of infrastructures and human resources needs to be strengthened. New office building, farmers training facility, library and laboratory will be constructed to provided efficient research and development services.

While the centre will provide R & D services to all the sub-tropical crops, RDC Bhur will also be the lead institution for the research and development of *other cereals* and *legumes* including sub-tropical rice.

Bhur will also be the focal regional agency for the client Dzongkhags to avail developmental services that are required. It will also co-ordinate the development of the commodity program in the Dzongkhag.

**RDC Bajo:** RDC Bajo had been the leading institute for national field crop research and development. To further develop the efficiency of research and development services, the research facility will be upgraded and its Sub – Centres strengthened. RDC Bajo will also be the focal regional agency for the client Dzongkhags to avail developmental services that are required.

**National Plant Protection Centre (NPPC):** NPPC based in Semtokha is one of the important service centre. However the capacity to provide timely and accurate disease and pest diagnosis will be pursued through human resources development and strengthening of laboratory facility. The disease and pest outbreak forecasting system will also be strengthened by instituting *real time surveillance system* to provide reliable information to farmers to make decision. Regional services will also be strengthened to provide IPM services through RDCs.

**National Soil Service Centre (NSSC):** NSSC based in Semtokha is the leading service centre that had been leading development of sustainable land management technology and also providing diagnostic and analytical services related to soil nutrient. To enhance the efficiency of regional service delivery, RDCs will be strengthened to provide SLM, diagnostic and analytical services and to provide IPNM and SFM to the Dzongkhags.

**Agriculture Machinery Centre (AMC):** Farm mechanization is seen as one of the important services to farmers considering the shortages of labor. The Regional AMC will be strengthened to provide mechanization services to the client dzongkhags. Research and Development of appropriate technologies for **hill mechanization** will also be pursued.

**Directorate Services:** Under the Directorate there are three functional divisions namely Agriculture, Horticulture and Engineering. National Organic Program is also linked and subsumed under Agriculture Division. While the NOP shall provide co-ordination role with other departments to provide services for organic program in the country, agriculture commodity specific organic development will be taken up as part of commodity development.

To provide efficient directional services, construction of Directorate Office is proposed which will house all the functional division of the Department. It is also expected to enhance the utilization of human resources and co-ordination.

### B. Implementation Strategy:

Commodity development program will be implemented through the support of Seengrvicce Centres that is referred to as Central Programs. These are Research and Development Centre (Bajo, Bhur and Wengkhar), National Plant Protection Centre, National Soil Service Centre, Agriculture Machinery Centre, National Post Harvest Centre, National Seed Centre. The designated Commodity Co-ordinator will manage the overall implementation of commodity development plan with close co-ordination with the Service Centres and dzongkhag. With an objective to create a *Centre of Excellence* in the long run, and to also ensure that research agenda has relevance to development needs, commodity will be housed at RDC as per the following institutional arrangements, where commodity Co-ordinator will also be based. Since these institutes are regionally located, Commodity Institutions will be the nodal agency to co-ordinate with Central Programs and client dzongkhags in annual planning and implementation.

Sl.No	Commodity	Lead Institution
1	Rice, Wheat and Oil Seeds	RDC Bajo
2	Maize	RDC Wengkhar
3	Buckwheat, Millet and Legumes	RDC Bhur

In order to deliver the required services and co-ordination needs, it will be important to build the institutional capacity of these Central Programs.

### C. Risk Assessment: (indicate possible risks and how sector plans to overcome.)

#### 1. Possible Risk

- a. The global food crises and rupee shortages experienced in the 10<sup>th</sup> FYP have clearly indicated the need as well as the opportunity for investment in agriculture development. Inadequate fund allocation for actual agriculture growth or the lack of it will be the major risk in realizing the growth in the sector.
- b. Since large part of the country is located on the slopes with very limited fertile agriculture land in the valleys, loss of agriculture land to soil erosion, landslide and flash flood may affect agriculture production.
- c. The climate change impact exhibited in terms of extreme weather condition may perpetuate drought, flood etc. Such events may lead to outbreak and emergence of pest and diseases. Road blockages due to heavy rainfall and flood may also disconnect villages and Dzongkhags where service delivery on time can be seriously affected.
- d. Availability of cheap import opportunities of cereal grains and other field crops from across the border may also limit participation of private sector which is seen as important stakeholder for agriculture growth.
- e. Lack of support to central program in terms of human resource and technical resources (laboratory facility) to carry out efficient delivery of services may also hinder growth.

f. Lack of political and policy support will greatly hamper the growth.

**2. Risk Mitigation and Adaptation**

- a. The Department will develop Agriculture Development Policy and guidelines to provide necessary support framework
- b. Research, development and adoption of biotic and abiotic stress tolerant crop varieties will be continued
- c. Department will continually develop the human resources and technical resources of the Central Programs for efficient delivery of services



**1. Programme Title:** National Horticulture Commodity Development Program

**2. Link to NKRA**

- i. Sustained Economic Growth
- ii. Poverty reduced & MDG Plus achieved
- iii. Full employment
- iv. Needs of vulnerable group addressed
- v. Climate neutral / Green & Climate resilient development
- vi. Integrated water utilization and management

**3. Contribution to SKRAs**

- i. Enhance food and nutrition security
- ii. Generate additional employment opportunities and increase mean annual rural household cash income
- iii. Accelerate RNR sector growth through commercial farming and agriculture, livestock and forestry enterprises

**4. Plan Target (Baseline) ..... (Indicate target/s with baseline in bracket)**

Outcome	Outcome Indicators	Unit	Baseline	11th Plan Target
Increased horticulture crop production for enhancing nutrition and income	Increased vegetable production	MT/Annum	37,521	65,200 (74.00%)
	Increase citrus production	MT/Annum	44,993	51,273 (13.96%)
	Increased potato production	MT/Annum	44,014	70,000 (59.04%)
	Increased fruits and nuts production	MT/Annum	26,116	29,442 (13.00%)
	Increased MAPS production	MT/Annum	4,500	5,400 (20.00%)
	Increased mushroom production	MT/Annum	89	119.30 (34.00%)
	Reduced import of vegetables by 50%	MT/Annum	8,971	4,485 (50%)

**5. Total Cost (Nu. In Millions)**

Activity	Plan Outlay (Nu. in millions)		Total	Remarks
	Current	Capital		
Vegetables Development Program	103.4	538.65	642.05	Budget to be spent by 2 Divisions, 3 RDCs (Wengkar,
Citrus Development Program	42.1	97.2	139.3	
Potato Development Program	120	97.8	217.8	
MAPS Development Program	34.4	67.1	101.5	

Fruits & Nuts Development Program	48.4	49.75	98.15	Bajo & Bhur) and 7 Central Programs (NSC, AMC, NPHC, NSSC, NPPC, NOP & NMC)
Mushrooms Development Program	17.4	13.5	30.9	
Support service	479	135.9	614.9	
<b>Total for Horticulture Commodity Development Programme</b>	<b>844.7</b>	<b>999.9</b>	<b>1844.6</b>	

**6. Source of Funding ..... {RGoB/Donor (Name donor agency)/ Public Private Partnership/others (explain)}.**

- (a) RGoB (Current budget)
- (b) KRRI Utilization Plan V for Horticulture development (Fruits & Vegetables)
- (c) World Bank (Remote Rural Community Development Project for Citrus and Cardamom)
- (d) EU (RNR Sector Support Program for Vegetables)
- (e) ACIAR (Citrus Project in Citrus growing Dzongkhags)
- (f) JICA (HRDP in the East)
- (g) ADB (MAGIP in the East)

**7. Start and End Date:** July 2013 to June 2018

**8. Status of Readiness (Indicate status of preparedness – land, drawing/ designs, feasibility study etc.)**

The Department has already prepared the following documents to support the implementation of National Horticulture Commodity development Program in the 11<sup>th</sup> FYP:

- (a) Six commodity strategy documents are ready for implementation
- (b) Agriculture policy document (Final draft stage) which will guide horticulture development in the 11<sup>th</sup> FYP

**A. Programme Justification:** (Describe the problem programme expects to address; explain programmes contribution to the NKRA/SKRAs and KPIs based on four pillars of GNH; how cross-cutting themes have been mainstreamed – see Part 1 Section; and explain outsourcing, PPP, other funding mechanism explored.)

The demand for horticultural crops to meet nutrition, food and income requirement is growing in line with increasing population, urbanization and disposable incomes. The domestic production of horticultural crops especially vegetables is increasingly falling behind in meeting the demand. This is resulting in growing importation of these products and corresponding trade imbalances. This program envisages measures to revert this trend by strengthening the commodity chains with reference to the important commodities as such as vegetables, citrus, potato, fruits and nuts, spices, medicinal and aromatic plants, and mushrooms:

In line with the commodity development initiatives taken during the 10<sup>th</sup> Plan, the following commodity programmes will be continued with a greater emphasis on increasing the production for meeting domestic requirement and enhancing income through export.

- i. Vegetable Development Program
- ii. Citrus Development Program
- iii. Potato Development Program
- iv. Fruits and Nuts Development Program
- v. Medicinal, Aromatic Plants and Spice Program
- vi. Mushroom Program

There are good opportunities to increase production and to reduce post-production losses. The measures refer to increasing productivity, increasing area under cultivation and improving product handling and processing across the entire chain from the production through to the consumption stages. It will involve systematic widening of all technical, institutional/organizational and policy bottlenecks which prevent farmers from engaging in increasing productivity and expanding output of these commodities.

The measures include a comprehensive campaign designed to improve national self-sufficiency of these basic commodities to levels which should achieve 100% for vegetables by the end of the 11<sup>th</sup> FYP (2018). Significant domestic budget allocations and financial commitments of development partners are required to efficiently bring about this trend reversal. Funding is required for all interventions (infrastructures, inputs, services, storage, processing/value adding, marketing, capacity development, organization development, subsidies, and credit facilities). Similarly, private sector involvement is also to be encouraged in this process, in the context of the government's Public-Private Partnership (PPP) and Foreign Direct Investment (FDI) policies.

The commodity programs therefore focus on all necessary measures for the advancement of the productivity, competitiveness and output of the targeted crop value chains in support of enhanced national food and nutrition security. This proposed intervention pursues the continuation of the efforts made in the 10<sup>th</sup> FYP on horticultural cash crops, primarily for export (*e.g.* apple, citrus, nuts, coffee, seed potato, mushrooms).

*C. Implementation Strategy:* (Explain how the programme is going to be implemented to ensure timely completion and within the approved cost, coordination efforts with relevant stakeholders/partners to avoid overlaps and duplications and plan for manpower deployment.)

National horticultural commodity development programs will be implemented by the Dzongkhag / Geog Administrations supported by reliable, high quality and effective support service centres called as the central programmes under the Department of Agriculture. The overall coordination and monitoring of 6 horticulture commodity programs will be carried out by the commodity coordinators placed in the Horticulture Division and in the RDCs under the Department of Agriculture. The implementation of activities to enhance the production of commodities will be carried out by support service centres such as Research and Development Centres (Wengkhari, Bajo and Bhuri), Engineering Division (Irrigation & Farm road), National Plant Protection Centre, National Soil Service centre, National Mushroom centre, Agriculture Machinery centre, National Seed Centre, National Post harvest centre, National Organic Program, Geog and Dzongkhags Administration. PPD will support in securing the project funding. The detailed programme description is as follows:

**Vegetable Development Program:** The program will be pursued with greater momentum to increase the production volume. Farmers will be encouraged to move from subsistence to semi-commercial/commercial farming system. Of the >30 vegetables, focus will be given on 17 vegetables. Irrigation for paddy will be used for vegetables cultivation during winter as a relay crop. Different types of efficient water use technologies and the options to trap/channel rain/river water in potential areas (water harvesting) will be explored. Farmers will be encouraged to utilize existing fallow land and the potential investor for commercial farming will be given the opportunity to lease GRF. Emphasis will be given on promotion of small machineries to minimize labor shortage issue. Support will be given on capacity building at different levels including training of early school leavers with attractive incentive packages. Improved production technologies including seeds will be promoted. High capacity cold stores and improved small scale stores will be promoted to reduce post-production losses.

**Citrus Development Program:** Citrus has proven to be one of the most important high value cash crops in the country and there is an increasing demand of fresh citrus fruits worldwide especially mandarin and oranges in local and international markets. The favorable agro-climatic condition of Bhutan and the release of 2 citrus varieties (Wengkhar Tsalu 1 and 2) suitable for higher elevation ranging from 1300-1700 provide new opportunities for extending citrus production zones. However, citrus production in the main citrus production zones has been showing signs of decline that demands an adequate support for its long-term sustenance and rehabilitation of senile orchards. Focus in the 11<sup>th</sup> FYP will be on improving the productivity from 34 kg/tree to 40 kg/tree, rehabilitate 20% of the total declining citrus orchards and increase the area under grafted citrus seedlings by 10 percent.

**Potato Development Program:** The potato strategy will take a value chain approach and will address issues and propose intervention necessary for improving its efficiency. In order to achieve the set target for the 11<sup>th</sup> FYP, the public sector, development agencies and the private sector need to collaborate strongly. Investments in transports and other basic infrastructure (irrigation, collection depots, cold stores etc), regulation of trade, support for technology development and market exploration is required from the public side whereas from the private sector, greater linkages are needed to structure value chains, create scale effects and explore post harvest processing and marketing opportunities. In line with the strategies proposed, some key interventions will be carried out which would improve production, processing and marketing of the commodity. The interventions are to institute an efficient seed production system, reduce wild-life problem, address issues on major pests and diseases, improve soil fertility and management, improve extension services, reduce post harvest losses and enhance marketing.

**Fruits and Nuts Development Program:** Of the >21 different fruits and nuts, the focus will be given on 8 commodities viz. Apple, Arecanut, Walnut, Passion fruit, Banana, Mango, Pear & Persimmon in the 11<sup>th</sup> FYP. Commercialization of these cash crops will be vigorously promoted. The development program will be carried out in potential production belt with the adoption of impact-oriented participatory community (focus village / geogs) approach. Capacity building at various level to improve the existing poor quality fruits and nuts will be pursued. The availability of superior quality planting materials will be improved by strengthening NSC and Private nursery growers. Provision of grant or low interest loan for entrepreneur development in the area of private nursery, contract farming and value addition will be recommended. Contract farming

through the public-private partnership approach and appropriate cost sharing mechanism will be encouraged. Promotion of farmers groups and cooperatives, improved transportation and storages and promotion of semi-processing unit or small cottage processing will be pursued.

**Medicinal, Aromatic Plants and Spices Development Program:** The popularity of traditional medicine and the strong foothold it has in the country have given rise to a pressing demand for medicinal plant resources, thereby raising issues on sustainability and conservation. The overall objectives of the program are to conserve medicinal and aromatic plants resources, initiate sustainable utilization, alleviate poverty, improve health and create economic opportunity. To achieve the objectives, the program will focus on the following: initiate domestication and cultivation of important medicinal plant species, facilitate the availability of quality materials to the traditional medicine services and external markets including market exploration, ensure conservation of medicinal plants resources by way of developing sustainable management practices and strengthen the organizational capacity of the medicinal plants program through enhanced human capital at all levels including conservation, collection, production, processing and marketing.

**Mushroom Development Program:** The focus of the program in the 11<sup>th</sup> FYP will be to enhance production (both cultivation and wild collection) and marketing of mushrooms. For cultivation, the program will concentrate on increasing the production of Shiitake and Oyster mushrooms. For wild collection, the program will focus on sustainable harvesting and marketing of Matsutake, Chanterelle, Exidia (Sewshing shamong), Wild shitake and Wild oyster. The major activities in the 11<sup>th</sup> FYP will be as follows: establishment of additional quality spawn production units, promotion of mushroom cultivation in OGTP geogs and potential locations adopting focus village approach, promotion of commercial enterprise development, exploration of domestic and export markets, documentation of wild mushrooms, enhancement of linkages with relevant stakeholders both within and outside Bhutan, exploration of truffle collection and cultivation and enhancement of access to relevant information and guides:

D. *Risk Assessment:* (indicate possible risks and how sector plans to overcome.)

- a. Climate change risk (extreme weather conditions (drought, frost, flood, etc); pest and disease epidemics, break down of crop resistance to pest, diseases and other abiotic and biotic stress, etc)  
“Strengthen climate smart research and development activities”
- b. Funding risks (Inadequate RGoB funding support, limited donor projects, etc) includes lack of access to credits for investments.  
“Budget allocation based on program priority, secure donar projects for priority programs, create user-friendly credit facilities”
- c. HR risk (Inadequate numbers, inadequate professionals, Negative attitude/energy, etc)
- d. Private engagement risk (Lack of cooperation and interest from private agencies / individuals, unwillingness to invest in RNR commodity programs – PPP models)  
“Attractive idevelopment support (technical, inputs, infrastructures)”

- e. Marketing related risks: (demand and supply not matching - surpluses production not finding good markets, deficits,)  
“Market led production”

1. **Program Title:** Forest Governance and management through science based and participatory approach.

2. **Link to NKRA:**

- Good governance
- Full employment
- Sustainable management and utilization of natural resources
- Food secure and sustainable
- Poverty reduced and MDG achieved
- Carbon neutral/Green Climate resilient development

3. **Link to SKRAs:**

- Enhanced sustainable forest, land, water and biodiversity resource management
- Enhance plant and animal genetics resources and natural heritage sites
- Generate additional employment opportunities and increase mean rural household cash income
- Enhance efficiency and effectiveness of RNR service delivery
- Enhance food and nutrition security

4. **Plan Target (Baseline)**

Result (Outcome/ Output)	Weight	Indicator	Unit	Baseline	11th Plan Target
Good governance and management of forest strengthened through science based and participatory approach to deliver effective services		Participation of local communities and institutions in forest management and conservation increased	%	28	50
		REDD+ mainstreamed		No	Yes
		Experimental or observatory plots in different ecological zones established	Number	0	10
		Forest Protection & service delivery improved	Rating	Medium	High

5. **Total Cost (Nu. In Millions):** The total budget outlay for the 11<sup>th</sup> FYP for the third program is: ( initial estimate) **Nu. 2139.19**

**Current: 400.90**

**Capital: 1738.29**

6. Source of Funding: RGoB, Donors and PPP

7. **Start and End date:** July, 2012 –June, 2018

## 8. Status of Readiness:

For implementing the 11<sup>th</sup> Five Year Plan activities under this program, the status of readiness are:

- For implementing the activities under this program, the following strategies are already in place and new strategies would be developed if required.
  - ❖ The National Forest Policy, 2011
  - ❖ Non-Wood Forest Product Management Strategy
  - ❖ Community Forest Management Strategy
- **Human resources:** Department of Forests and Park Services will use its existing staff for the purpose of implementing the activities. However, for implementing few activities related to climate change, research etc, certain trainings at all level (central and field level) might be required. For better implementing the 11<sup>th</sup> Five Year Plan, the regular transfer of staff with experienced and training needs to discouraged.
- **Infrastructure:** For certain activities in the 11<sup>th</sup> Five Year Plan, existing infrastructure can be used, but for certain new programs and plans, new infrastructure will required.
- **Funding:** In terms of funding for the activities in the 11<sup>th</sup> Five Year Plan, most of funds would be from RGoB. At the same time, DoFPS is also looking for funding from external donors in the form of grant and also on cost sharing basis. Few of activities under the 11<sup>th</sup> FYP have already secured funding from external donor.

### A. Programme Justification:

As in the past five year plans, the current program would be contributing in fulfilling the national GNH philosophy and its four pillars: i) Promotion of equitable and sustainable socioeconomic development, ii) Preservation and promotion of cultural values, iii) Conservation of the natural environment, and iv) Good governance.

In the current 11<sup>th</sup> Five Year Plan (2013-2018) of Department of Forests and Park Services, this program would be placing a strong emphasis on strengthening forest governance and management through participatory and science based approach to deliver effective services. The program would be looking to address the following issues:

- Balancing conservation with sustainable utilization
- Supporting decentralization and devolution through empowerment of local communities to manage their local forests
- Improvement of forest governance leading to improved forest conditions and the equitable distribution of benefits
- Underpinning all aspects of forest planning and management with the application of good science i.e. by applying the best available scientific knowledge to all aspects of forest resources management



- Making explicit attempts to bridge the research-management gaps
- Improvement in the delivery of forestry related services and increasing forest protection

## **B. Implementation Strategy**

The sustainable management and utilization of land, water, forest and biodiversity resources is critical to achieve food and nutritional security for current generation without compromising the availability of those resources for future generations. Their sustainable use is also integral to mitigating risk arising from the degradation of land and forests for climate change.

The Department of Forests and Park Services will be focusing on key strategies based on the National Forest Policy, 2011 for implementing the 11<sup>th</sup> Five Year Plan. Some of the key strategies/goals would be:

- Strengthening the rights, responsibilities and capacities of local communities to regulate access and sustainable use of forest resources through decentralization and devolution of management authority from central government to local communities and promote good governance
- Manage forests based on the principles of good governance to ensure transparency, accountability, participation, empowerment and equity and benefit sharing
- Carry out research to generate knowledge, information and technology to support policy implementation and development including integration of climate change issues through dedicated research programme
- Capacity building of all stakeholders for successful implementation of activities

In addition to above, DoFPS will closely liaise with key agencies, primarily the line departments under the Ministry of Agriculture and Forest and various national and international NGOs. Given, that a major thrust of the implementation of 11<sup>th</sup> Five Year Plan lie with respective field offices, the department will also closely liaise with different Dzongkhag offices and their sector offices.

## **C. Risk Assessment:**

### **Possible risks and key assumptions area as follows:**

- Environmental protection remains a priority for the Bhutan Government;
- Bhutanese economy continue to grow and will remain supportive of the sector initiatives by provisioning adequate resources in achieving the 11<sup>th</sup> 5 year Plan targets;
- The ongoing process will produce adequate result in understanding the impact of climate change in turn ensuring that there is a serious respond to the threat of climate change to biodiversity conservation.
- The ongoing process of progressive reforms to governance, rule of law and public perception (willingness to accept) and participation continue.

- The international community remains committed to conserving biodiversity and supporting Bhutan in its effort to conserve biodiversity and other nature based resources

**1. Program Title:** Sustainable management of forest landscapes and conservation of biodiversity

**2. Link to NKRA:**

- Sustainable management and utilization of natural resources
- Integrated water utilization and management
- Food secure and sustainable
- Poverty reduced and MDG achieved
- Carbon neutral/Green Climate resilient development
- Historical, cultural property and Bhutanese identity promoted and preserved

**3. Link to SKRAs:**

- Enhanced sustainable forest, land, water and biodiversity resource management
- Enhance plant and animal genetics resources and natural heritage sites
- Generate additional employment opportunities and increase mean rural household cash income

**4. Plan Target (Baseline)**

**Program 2:** Sustainable management of forest landscapes and conservation of biodiversity

**Outcome Table:**

Result (Outcome)	Weight	Indicator	Unit	Baseline	11th Plan Target
Sustainable management of forest landscapes and biodiversity conservation enhanced to improve ecosystem services, natural habitats and maintain species persistence		Landscapes brought under Integrated Water Resource Management Plan	No	2	11
		Conservation plans for Endangered and Endemic Species developed	No	1	5
		Forest Areas of Natural, Historical or Cultural significance identified and established as Heritage Sites	No	0	9

**5. Total Cost (Nu. In Millions): 360.8**

Capital: Nu 95.8

Current: Nu. 265

**6. Source of Funding:** RGoB, Donors, Loan and PPP

**7. Start and End date:** July, 2013 –June, 2018

**8. Status of Readiness:**

The activities for the watershed management are based on the need assessment done for the critical watersheds across the country.

With regard to the proposed plans for the protected areas are the prioritized activities submitted by the respective management based on their conservation management plans. Most of the activities are the continuation of what they have been implementing as of now as per their mandate and none of them are alien to the management. The activities to be implemented by the central offices are the ones the country has committed to the international organizations and these cannot be compromised from implementation. Recreational and ecotourism activities are also the ones identified by the respective Dzongkhangs, field offices and by the central agency based on the need identified various stakeholders.

In order to implement these programs, the implementing agencies will be guided by the mandates vested to their offices and by the existing regulations and strategies in the Ministry.

- **Human resources:** Department of Forests and Park Services will use its existing staffs for the purpose of implementing the activities. However, for implementing few activities beyond the department's capacity will require specific capacity building. The human resource gap in implementing the planned activities if any will be justified and be proposed for the inclusion into the 11 FYP HRD master plan.
- **Infrastructure:** Field offices and central offices are equipped with the basic infrastructure to carry out the planned activities but some of them require additional facilities for replace the one which are non functional and for strengthening the delivery of the services to the communities.
- **Funding:** Majority of the 11<sup>th</sup> Five Year Plan's programs will be RGoB funded but we would propose the donors for support for many of the conservation activities. Some small activities have already secured fund from donors and loans.

**D. Programme Justification:**

With increasing pace for developmental activities across the country, the natural resources are placed under severe pressure. There have been cases which forces the need to initiate the developmental activities inside protected area and critical watershed landscapes. If such

activities are given way over the conservation initiatives inside the protected areas and critical watershed landscapes, the foreseen threats will not take long time to invade and erase all the natural resources inclusive of biodiversity.

In the long run, mismanagement of the biodiversity resources will lead to the imbalance in the naturally existing ecosystem and rehabilitation of such disturbed natural system will be equivalent to impossible task threatening one of the pillars of GNH. We may also confront a time, where our biodiversity resources may face the threats from extinction as we are endowed with many endemic and endangered wild fauna and flora due to its location in the Eastern Himalayas; a biodiversity hotspot.

The program has been designed to balance the conservation and livelihood needs of the communities living inside PAs and critical watershed landscapes. The activities are oriented to support communities by introducing the basic developmental needs in their far flung rural areas so that we can garner their support for our conservation initiatives. This would in the long run benefit the communities themselves but they need to be convinced with our promising initiatives. These initiatives will be backed by surveys and studies as planned.

Protected areas in Bhutan have been considered are water towers for our big hydro power projects and the source for the clean drinking water. The watershed areas need to be protected in order to have continuous and maintained volume of water flow as this is the only cheap natural resource that generates the huge revenue for the country.

Some of the community based programs like ecotourism under this outcome will help generate the additional income for their household and also giving opportunity for the unemployed youth for to be engaged in providing services to the visiting tourists in their localities.

The program all together fulfills the objective of the 11 FYP; “Self-reliance through inclusive green socio-economic development”.

## **E. Implementation Strategy**

The activities under this program will be implemented by the field offices such as protected areas, territorial divisions and Dzongkhag sectors. The central office will render the technical assistance as demanded by them and will also bring in the resources to address the resource gap in implementing the planned activities. Cross sectoral programs, plans and issues will take on board the relevant stakeholders and work together for the fruitful outputs at the completion of the plan. Field offices have been given the authority to implement most of the activities in accordance with the approved budget and will not face the problem of not completing the approved activities in time.

Monitoring the evaluation is the important step to assess the performance of the implementing agencies and this would be carried out as per the requirement.

### **Risk Assessment:**

**Climate Change:** Climate change is one of the most serious issues in sustainable forest management and biodiversity conservation. Sudden outbreak of pest and disease may reduce the productivity of the growing stock and also change the composition of the biodiversity of certain

areas. The change in weather pattern is also foreseen to lead to migration of species to higher altitude or lower altitudes.

The ongoing process will produce adequate result in understanding the impact of climate change in turn ensuring that there is a serious need to respond to the threat of climate change to biodiversity conservation.

**Human Resources:** Lack of specialized human resource for attending the recent emerging issues in the country. Our foresters will need to be trained for the specialized needs and then be empowered to respond to varying situation in the field ranging from basic sociological surveys, as a passage of conveying government's developmental plans and interventions to the communities and for having to attend lots of illegal activities inside the country and beyond the borders. The field staffs really need a boost at times to motivate to render their services to all these urgent activities and having to cover more than half of the country's geographical areas. (51.41% is under PAs).

**Local Government:** Communities being the recipient of the services, they have to accept that the interventions brought in by civil servants are for their good cause. We have to make them our partners in implementing those planned activities and in the end see a positive result in their livelihood. The program would very much take into consideration the real situation on ground with the communities and move towards the expected output at the end of the plan period.

**Funding:** The huge risk imbedded in this program is for the funding for implementing this planned program. All the activities require enough fund and human resource to reach the goal. If funds are not secured from the government and donors, the entire planned document will be jeopardized altogether.

**1. Programme Title:** Sustainable Management of Government Reserve Forests (GRF)

**2. Link to NKRA:**

- Sustainable management and utilization of natural resources
- Integrated water utilization and management
- Promotion of equitable and sustainable socioeconomic development
- Indigenous wisdom, arts and crafts promoted for rural livelihood
- Need of vulnerable groups addressed
- Food secure and sustainable
- Good governance
- Poverty reduced and MDG achieved

**3. Contribution to SKRA**

- Enhanced sustainable forest, land, water and biodiversity resource management
- Enhance plant and animal genetics resources and natural heritage sites
- Generate additional employment opportunities and increase mean rural household cash income
- Enhance efficiency and effectiveness of RNR service delivery
- Enhance food and nutrition security

- Accelerate RNR sector growth through commercial farming and agriculture , Livestock and forestry enterprise

#### 4. Plan Target (Baseline)

Program One: Sustainable Management of Government Reserve Forests

Outcome Table:

Result (Outcome/ Output)	Weight	Indicator	Unit	Baseline	11th Plan Target
Improved management of GRF for sustainable production of economic goods and services to reduce poverty		Forest area under sustainable management increased	Ha	184610.67	218541.96
		Areas under afforestation and reforestation increased	Ha	24404	26658
		Proportion of Nature Based Tourists increased through Nature Recreation and Community Based Ecotourism	%	19	35
		Proportion of Wood recovery increased by using upgraded technology in forest based enterprises	%	59-64	70-75
		Income from sale of forest products from CF & NWFP groups increased	Nu. Per household(annually)	2000	4000

#### 5. Total Cost (Nu. in Millions): 395.42

Current: 173.59

Capital: 221.83

#### 6. Source of Funding: RGoB, Donors and PPP

7. Start and End Date: July 2013-June 2018

#### 8. Status of Readiness Policy:

This program; Sustainable Management of Government Reserve Forests and the activities are prepared keeping in line with the National Forest Policy of 2012. Several other strategy documents are in place to support and guide the implementation of activities effectively.

Every management plan in the GRF Land is prepared in accordance with the Forest Management Code of Bhutan, 2004 and there are also other guidelines and roadmaps to guide proper implementation of planned activities.

Areas for forest management units are identified through Forest Resources Potential Assessment which was carried out by the Department. Vigorous field truthing were carried (reconnaissance surveys, inventory, demarcation etc.) before the areas are declared as a FMU/WS. Community forests are declared through a series of exercises based on the local needs.

The up-gradation of existing wood based industries is crucial to minimize wastage. This has been initiated in collaboration with the Natural Resources Development Corporation Ltd (NRDCL) and Association of Wood Based Industries (AWBI) of Bhutan.

The Biking Trail around Thimphu City to demarcate the forest boundary is felt to very important and it has been initiated by the Department with the help of other collaborating agencies (Thimphu City Corporation, Department of Agriculture, Tourism Council of Bhutan etc.).

**A. Human Resources:** Most of the activities are to be carried out at the field level. Most of the field offices are not adequately staffed. Department will have to manage the manpower in a best possible ways for successful implementation of the 11<sup>th</sup> FYP. At the central level, the seven functional divisions will be responsible for facilitating the implementation of the activities and also to support the field offices technically.

**B. Programme Justification**

With the constitutional mandate of maintaining a minimum of 60 % forest covers for all times to come and increasing demand for timber, it has become very important for the Department to maintain a balance between conservation and economic development. Hence, the concept of sustainable forest management plays a crucial role in fulfilling and maintaining a balance.

While Forest Management Units (FMUs) & Working Schemes (WS) cater to the demand of timber for domestic and commercial purpose, the community forest and Non wood forest produce management groups also help in uplifting the living standards of the rural people through sale of forest produce and non-wood forest produce from their managed area.

The Programme will contribute in fulfilling the mandate of the 11th Five Year Plan (2013-2018).

It places a strong emphasis on self sufficiency and self reliance through inclusive green socio-economic development. Improvement in rural livelihoods and poverty reduction with particular emphasis on addressing multi-dimensional poverty, income inequalities, malnutrition and growing urban poverty will also be addressed by this programme. As in the past five year plans, the Renewable Natural Resources (RNR) sector would be playing a vital role to fulfill this national GNH philosophy and its four pillars:

- i. Promotion of equitable and sustainable socioeconomic development,
- ii. Preservation and promotion of cultural values,
- iii. Conservation of the natural environment, and
- iv. Good governance.

**C. Implementation Strategy:**

The implementation of all the activities will be carried out in coherence with the National Forest Policy of 2012. The Department has developed various strategies, road maps and documents for carrying out the planned activities/programs. The implementation of the activities area to be carried out by the field divisions (Territorial Divisions, Parks, Dzongkhag Forestry Sector) in collaboration with other relevant stakeholders. It is the responsibility of the respective head of the agencies to implement the activities.

Since most of the activities are co-ordinated by the central level, it is the responsibilities of the central agencies to see all the activities in the field are going on well technically and on time. Monitoring and evaluation of the field works are to be carried out quarterly/as and when needed. Technical backstopping the field offices are to be provided by the functional divisions.

The concerned division shall closely liaise with other relevant stakeholders information sharing are to be encouraged.

**D. Risk Assessment:**

**Human Resources:** With just handful of forestry officials actually involved in monitoring and implementation of forestry activities, the Department is currently faced with acute shortage of forestry professionals despite regular recruitment at various levels.

**Funding:** The planned forestry activities are normally funded through RGoB. The progress of such activities is determined by the availability of fund on time. With the limited fund, the Department is continuously looking for new avenues for collaborations with other agencies both within and outside the country.

**Local Government:** Empowering the rural communities to sustainably manage the natural resources is the key to successful management of the environment. The Department is currently focusing its plan towards gaining more support from the general public.

**Climate Change:** The eastern Himalayas being a fragile mountainous ecosystem, the impact of climate change is likely to pose serious threat to the broad spectrum of biodiversity and its landscape.

**Program Title: National Livestock Commodity Development Programme**

**A. Programme Summary**

The National Livestock Commodity Development Programme for the 11<sup>th</sup> FYP comprises of focused and targeted approach towards commodity development through; Dairy Development Programme, Poultry Development Programme, Piggery Development Programme, Fishery Development Programme and other minor commodity development Programmes (honey, chevon). The overall aspirations of achieving the commodity development targets will also require enhancing the service delivery. Among the priorities identified also include, where possible, adaptation measures towards climate change impacts and the promotion of alternative energy sources, and mainstreaming draught power to diversify rural income towards enhancing a green economy. On the overall, these will contribute to food and nutrition security and RNR sector growth through increased domestic production of targeted commodities and its availability at affordable prices thereby promoting self-sufficiency and self-reliance with climate-smart practices wherever possible.

**1. Programme Title: National Livestock Commodity Development Programme**

**2. Link to NKRA**

- Promotion of equitable and sustainable socioeconomic development.

**3. Contribution to SKRAs:**

- Enhance Sustainable Rural Livelihood and Reduce Poverty;
- Accelerate RNR sector growth through commercial farms;
- Promote sustainable management and utilization of natural resources.



#### 4. Plan Targets (Baselines in brackets)

Outcome	Outcome indicator	Units	Target 2018 (Baseline)
Enhanced self-sufficiency of livestock products	Increased Annual Milk Production	MT	34000 (28579)
	Increased Annual Egg production	Nos. (in Mil.)	42 (22)
	Increased Annual Meat Production(Pork, Chicken, Chevon, and Fish)	MT	2003 (1091)
	Increased Annual Honey Production	MT	27 (15)
Promoted green livestock farming practices to adapt/mitigate climate change	Increased no. of farms under stall feeding	No.	10000 (3360)
	Increased no. of integrated livestock bio-gas unit	Nos.	2500 (130)
	Promoted drought resistant fodder crop and pasture varieties	No.	4 (2)
Enhanced efficiency of livestock service delivery for increased production	Research projects taken up and technology released	Nos.	54 (11)
	Increased acreage of improved pasture and winter fodder to support individual, group and commercial farmer	Acres	26677 (16628)
	Reduced incidences of pandemic and epidemics diseases in regions	Nos.	15 (26)

#### 5. Total Cost (Nu in millions):

	Current	Capital	Total
Total Budget Outlay for National Livestock Commodity Development Programme	1741.93	2199.5	3941.32

#### 6. Source of Funding: RGOB/Donors

#### 7. Start and End Date: July 2013 to June 2018

**8. Status of readiness:** The Department of Livestock started the 11<sup>th</sup> FYP planning process with the preparation for the “Livestock Conference 2012” which was convened 2<sup>nd</sup> week of February, 2012. Throughout the process, the Department undertook around 10 independent consultations in line with available guidelines and other supervisions from the ministry. These consultations

involved combinations of different levels of planning; central, regional, Dzongkhags. The process considered the following aspects:

- Readiness with regard to infrastructure: the Department found out that major infrastructures required for provisioning enhanced services in the 11<sup>th</sup> FYP are ready, with most establishments of these being completed in the 10<sup>th</sup> FYP;
- Readiness with regard to HRD: the Department through various consultations undertook extensive review its capacity. In this aspect, it was found that the demand for services in the 11<sup>th</sup> FYP will grow substantially, and similarly in the 10<sup>th</sup> FYP also the demand for services far outweighed the available capacity with the Department. As such, the DoL has prepared a HRD strengthening proposal considering the growing demand for services in the Dzongkhags, Central Units, and the Department. On the overall, the Department will be strengthening its HR capacity through the implementation of the 11<sup>th</sup> FYP;
- Readiness with regard to institution: a series of consultations were undertaken to strengthen the institution to address the needs of changing priorities of interventions for livestock development. The priorities for considerations under institutional arrangements were the implementation modality of the ABSD in the 10<sup>th</sup> FYP, and the need to promote ownership, responsibility, and accountability for implementation of programmes under the ABSD mode for the 11<sup>th</sup> FYP. Through this, the Department has readied a re-alignment proposal for embarking on the 11<sup>th</sup> FYP, with salient features that addresses; ownership for commodity development, reduction of unnecessary administrative burden in various institutions, re-defining livestock programme interventions to enhance service delivery, smooth implementation of the Government Performance Management System, streamlining information flow and reporting and monitoring mechanism.

## **B. Programme Justification**

To achieve the national goal of food self-sufficiency and self-reliance, the Department of Livestock has the daunting task to increase domestic animal-based food production to meet needs of the growing population, curtail imports, and contribute to national socio-economic development.

In order to fulfill the task and translate strategies into actions and overcome organizational deficiencies and other limitations realized in the 10th FYP, the Department of Livestock has to move towards livestock commodities development mode in the 11th FYP. This invariably requires re-organization/re-grouping to form commodity based focal agencies/centres for priority commodities: Dairy, Poultry, Piggery & Fisheries to push forth the commodity development programme and make them viable livestock enterprises.

Hence, present National Livestock Breeding Programme, Yusipang will be upgraded to National Dairy Development Centre (NDDC) and all dairy input farms will be affiliated to it. Similarly, National Poultry Breeding Centre, Sarpang will be upgraded to National Poultry Development Centre with allied poultry input farms., National Pig Breeding Centre, Gelephu will be upgraded to National Piggery Development Centre with allied piggery input farms, National Warm Water Fish Culture Centre will be upgraded to National Aquaculture Centre and the National Cold Water Fishery Centre to National Riverine and Lake Fisheries Center. This realignment is to institutionalize commodity development with enhanced focus, ownership, accountability and

efficiency to improve service delivery for realization of projected targets, including smooth implementation of Good Governance initiatives such as the Government Performance Management System.

Optimum returns from investments through enhanced commodity production would be achieved only if efficient livestock support services (such as a good veterinary, animal nutrition and research services) are delivered. Besides, regional livestock services are needed to provide technical backstopping to the designate client Dzongkhags in the areas of animal health, animal breeding, feed and fodder and any other livestock related interventions, to ensure that programme implementers at Dzongkhag level have the expertise to provide optimum support to farmers.

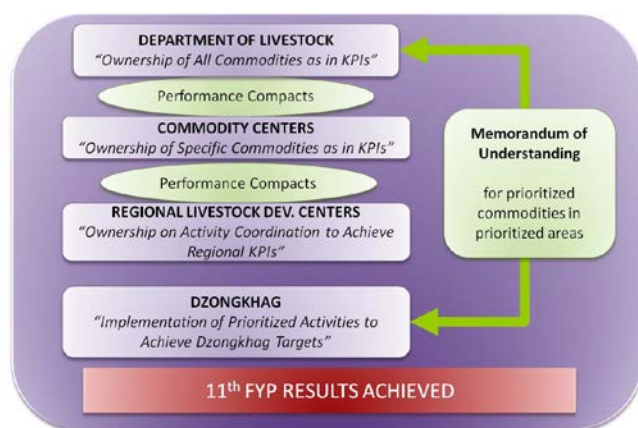
In the context of emerging global, regional, and national impacts of climate change, and the need to have adequate mitigation measures at the local level (rural communities), increased focus on income source and livelihood diversification is necessary. These can only be enhanced through provisioning of adequate importance towards implementing climate-smart activities at the national level. Therefore, animal energy (draft power and biogas utilization) must be promoted with clear focus and higher priority without oversight in the effort towards increased commodity production. This would provide the basis for increased resilience of communities towards adverse environmental impacts from climate change, economic crisis, and increased demand from declining fossil fuel and fuel wood sources. Further, such initiatives like biogas, can also contribute towards enhanced agriculture production (including organic) through utilization of manure.

### **C. Implementation Strategy**

- Institute and strengthen National Commodity and service centers for Dairy, Poultry, Piggery, Fishery and implement commodity development plans identifying production belts/areas, setting achievable production targets, developing mechanism to coordinate and provide technology and services
- Pursue pro-poor livestock development initiatives through demand-responsive interventions to enable the vulnerable sections of Bhutanese society to contain poverty and hunger
- Conduct value chain analysis of livestock commodities produced by marginal farmers and its scope for profitable production and post-harvest management
- Encourage investments in commercial livestock farming (dairy, piggery, fishery, and poultry, chevon )
- Explore possibilities of horizontal and vertical integration of mega farms to small producers
- Institute improved services delivery system through timely supply of inputs and services
- Encourage and foster formation of groups/cooperatives to empower farmers at grassroots level to consolidate production, processing, and marketing for increased viability
- Standardize technology transfer process through development of uniform and appropriate farmers training curriculum for each commodity

- Pursue Public-Private Partnership (PPP) including FDI for all commodities- dairy, poultry, piggery and fishery and services
- Improve animal energy resources for draft power through import of quality breeds
- Promote recreation, pack and riding pony for tourism industry
- Provide Technical Assistance to transfer know-how, experience and information available on the use of animal energy sources (biogas).

The framework mechanism for implementation of 11<sup>th</sup> FYP DoL programme is represented in the following figure:



#### D. Risk Assessment

##### *Availability of land for improved pasture for dairy commodity development*

With only 8% of the country's land available for agriculture, shortage of land is foreseen as one of the potential risk to enhance fodder availability to accelerate dairy development and land availability for commercial scale livestock farming.

##### *Adequate and skilled staff*

In order that the plan turns into actions, adequate human resources have always been a major bottle-neck. Development of sectoral Human Resource Development Plan, recruitment and training of appropriate human resources based on needs assessment is desirable.

##### *Availability of funds*

Major part of the funds is from RGoB, possibilities of grants from donor agencies will be explored.

**E. Programme Result Matrix: Table 1**

Outcome	Outcome indicator	Units	Baseline	11th Plan Target
Enhanced self-sufficiency of livestock products	Increased Annual Milk Production	MT	28,579	34,000
	Increased Annual Egg production	Nos. (in Mil.)	22	42
	Increased Annual Meat Production(Pork, Chicken, Chevon, and Fish)	MT	1,091	2,003
	Increased Annual Honey Production	MT	15	27
Promoted green livestock farming practices to mitigate climate change	Increased no. of farms under stall feeding	No.	3360	10000
	Increased no. of integrated livestock bio-gas unit	No.	130	2500
	Promoted drought resistant fodder varieties	No.	2	4
Enhanced efficiency of livestock service delivery for increased production	Research projects taken up and technology released	Nos.	11	54
	Increased acreage of improved pasture and winter fodder to support individual, group and commercial farmer	Acres	16,628	26,677

**F: Programme Activities: Table 2**

Output	Wt. (%)	Output Indicator	Unit	Base line	Targ et	Activity	Activity Start Date	En d Date	Lead Implementing Agency	Collabo rating Agencies
Enhance milk production		Improved Cattle Population	Nos.	16,425	26,725	Breed improvement, infrastructure and capacity	13-Jul	18-Jun	NDDC	DAMC, Dz. & RLDC, NOP (DoA)

						development for organized dairy farms				
Enhance egg & chicken production		Improved Poultry Population	No s.	86,665	1,961,768	Breed improvement, infrastructure and capacity development for organized poultry farms	13-Jul	18-Jun	NPDC	DAMC, Dz. & RLDC
Increase pork production		Improved Pig Population	No s.	7,821	10,543	Breed improvement, infrastructure and capacity development for organized piggery farms	13-Jul	18-Jun	NPiDC	DAMC, Dz. & RLDC
Increase chevon mutton production		Goat & Sheep Population	No s.	55,833	56,083	Breed improvement, infrastructure and capacity development for goat and sheep farming	13-Jul	18-Jun	RDC	DAMC, Dz. & RLDC
Increase aquacul		Fingerling distribu	No s.	688,078	1,453,099	Breed improvement,	13-Jul	18-Jun	NCA	DAMC, Dz. & RLDC

ture product ion		tion for aquaculture				infrastructure and capacity development for organized aquaculture farms		n		
Increased utilization of riverine & lake fisheries		Community managed capture & recreational fisheries	No s.	2	21	Promote Community riverine fisheries	20-13	20-18	NCRLF	DoFPs, Dz. & RLDC, Hydropower Projects, DoE, NEC, NOP (DoA)
Increase honey production		Bee colonies established in improved hives	No s.	600	1,045	Supply improved hives and provide technology and skills	13-Jul	18-Jun	RDC	Dz. & RLDC, NOP (DoA)
Gainful employment in livestock enterprises		People employed (direct employment, & Group Exe. Members)	No s.	200	600	Establishment of functional cooperatives & commercial livestock ventures	13-Jul	18-Jun	RLDC	DAMC, Dz., Central Units, & DoL
Increase no. of farms under		Farms established under stall	No s.	3360	10000	Breed improvement, infrastructure	13-Jul	18-Jun	NDDC	DAMC, Dz., Central Units, & DoL

stall feeding		farming				and capacity development for organized dairy farms				
Increased no. of integrated livestock bio-gas unit		Energy harness ed from Bio-gas	No s.	130	2500	Installation of biogas plants and skill development	13-Jul	18 - Jun	NCAE	Dz. & AMC, NOP (DoA), DRE (MoEA)
Promoted drought resistant fodder varieties		Fodder varieties promoted	No .	2	4	Identification and promotion of drought resistant fodder varieties	13-Jul	18 - Jun	NCAN	CoRRB, RDC, Dzo. & RLDC
Research projects taken up and technology released		Research projects completed and & technologies released	No s.	11	54	Conduct research in priority areas for livestock development	13-Jul	18 - Jun	RDC	CoRRB, Dz. & RLDC
Increased acreage of improved pasture and winter fodder for animals		Pasture developed	Ac res	16,628	26,677	Develop pasture and winter fodder at farmers field (individual, groups and commer	13-Jul	18 - Jun	NCAN	Dz. & RLDC, NOP (DoA)



						cial farmers) and provide other support services				
Enhanced livestock product development and distribution services for priority products	Products developed and value added	No.s.	0	4	Development of secondary livestock food products	13-Jul	18-Jun	RDC	BAFRA, NPHC (DoA) & Commodity Centres	
	Preservation and distribution infrastructure established	No.s.	0	4	Promotion of preservation and distribution infrastructure for livestock products	13-Jul	18-Jun	RDC	BAFRA, NPHC (DoA) & Commodity Centres	

**G: Programme Outlay Summary: Table 3**

Activities	Plan Outlay (Nu. In Millions)		Funding Type (RGoB/Loan/PPP)	Funding Agency (RGoB/Donor)	Funding Status (Committed/Pipeline/Not Identified)	Remarks
	Current	Capital				
Breed improvement, infrastructure and capacity development for organized dairy farms	498.320	836.850	RGoB	RGoB/Donor	Pipeline	PPP will be encouraged, organic products in feasible areas
Breed improve	582.100	190.500	RGoB	RGoB/Donor	Pipeline	PPP will be

ment, infrastructure and capacity development for organized poultry farms						encouraged
Breed improvement, infrastructure and capacity development for organized piggery farms	215.000	442.451	RGoB	RGoB/Donor	Pipeline	PPP will be encouraged
Breed improvement, infrastructure and capacity development for goat and sheep farming	12.000	24.880	RGoB	RGoB/Donor	Pipeline	PPP will be encouraged
Breed improvement, infrastructure and capacity development for organized aquaculture farms	60.160	48.600	RGoB	RGoB/Donor	Pipeline	PPP will be encouraged
Promote Community riverine	30.498	132.100	RGoB	RGoB/Donor	Pipeline	Some capital will be sourced

fisheries						from DoFPS, organic products from feasible areas
Supply improved hives and provide technology and skills	0.000	6.490	RGoB	RGoB/Donor	Pipeline	Organic products encouraged
Breed improve ment, infrastructure and capacity development in potential areas for animal power	15.000	35.750	RGoB	RGoB/Donor	Pipeline	Support will be sought from TCB & NBC
Installation of biogas plants and skill development	5.000	87.500	RGoB	RGoB/Donor	Pipeline	Some capital will be sourced from DRE (MoEA)
Develop pasture and winter fodder at farmers field (individual, groups and commercial farmers)	60.000	316.580	RGoB	RGoB/Donor	Pipeline	Compliance encouraged for rangeland management practices for organic production

and provide other support services						
Conduct research in priority areas for livestock development	177.000	35.750	RGoB	RGoB/Donor	Pipeline	
Development of secondary livestock food products	2.000	5.000	RGoB	RGoB/Donor	Pipeline	Some of the capital budget will be used to strengthen the NPHC
Promotion of preservation and distribution infrastructure for livestock products	2.000	10.000	RGoB	RGoB/Donor	Pipeline	
Institutional Support to Department of Livestock	82.850	26.940	RGoB	RGoB/Donor	Pipeline	
<b>Total cost (Nu. Millions)</b>	<b>3,138.540</b>	<b>3,038.449</b>				

**H: Monitoring and Evaluation Plan: Table 4**

Results (Outcome/ Output)	Indicator	Unit	Baseline	11th Plan Target	Data Source	Reporting Frequency	Reporting Responsibility	Reporting to
Enhanced self sufficiency of livestock products	Annual Milk Production	MT	28,579	34,000	Annual Report	Annual	NDDC	DoL/PPD
	Annual Egg production	No s. (in Mil.)	22	42	Annual Report	Annual	NPDC	DoL/PPD
	Annual Meat Production (Pork, chevon/Chicken)	MT	1,091	2,003	Annual Report	Annual	NPDC/NPiDC/NCA/NCRLF	DoL/PPD
	Annual Honey Production	MT	15	27	Annual Report	Annual	RDC	DoL/PPD
Enhanced milk, egg, meat and honey prodn	Improved Cattle Population	No s.	16,425	26,725	Annual Report	Annual	NDDC	DoL/PPD
	Improved Poultry Population	No s.	86,665	1,961,768	Annual Report	Annual	NPDC	DoL/PPD
	Improved Pig Population	No s.	7,821	10,543	Annual Report	Annual	NPiDC	DoL/PPD
	Goat & Sheep Population	No s.	55,833	56,083	Annual Report	Annual	RDC	DoL/PPD
	Fingerling distribution	No s.	688,078	1,453,099	Annual Report	Annual	NCA	DoL/PPD
	Community managed	No s.	2	21	Annual Report	Annual	NCRLF	DoL/PPD

	capture & recreational fisheries				ort			
	Bee colonies established in improved hives	No s.	600	1,045	Annual Report	Annual	RDC	DoL/PPD
Increased no. of farms under stall feeding	Farms established under stall farming	No s.	3360	10000	Annual Report	Annual	NDDC	DoL/PPD
Increased no. of integrated livestock bio-gas unit	Energy harnessed from Bio-gas	No s.	130	2500	Annual Report	Annual	NCAE	DoL/PPD
Promoted drought resistant fodder varieties	Fodder varieties promoted	No .	2	4	Annual Report	Annual	NCAN	DoL/PPD
Promoted diversification of natural/organic livestock products (Yak/Honey/capture fisheries)	Livestock natural product diversified	No .	0	5	Annual Report	Annual	NCAE, NDDC	DoL/PPD
Enhanced efficiency of livestock service delivery	Increased research projects taken up and technology released	No s.	11	54	Annual Report	Annual	RDC	DoL/PPD
	Disease contingency plans disease	No s.	2	10	Annual Report	Annual	NCAH	DoL/PPD

	informati on system and disease focal point setup							
	Increased improved pasture and winter fodder to support individual , group and commerci al farmer	Ac res	16,6 28	26,67 7	Ann ual Rep ort	Ann ual	NCAN	DoL/ PPD
	Reduced incidence s of pandemic and epidemics diseases in regions	No s.	26	15	Ann ual Rep ort	Ann ual	RLDCs	DoL/ PPD
Research projects taken up and technology released	Research projects complete d and technolog ies released	No s.	11	54	Ann ual Rep ort	Ann ual	RDC	DoL/ PPD
Disease contingenc y plans, system & disease focal point setup	Continge ncy plan develope d	No s.	2	10	Ann ual Rep ort	Ann ual	NCAH	DoL/ PPD
Increased acreage of improved pasture and winter	Improved pasture develope d	Ac res	16,6 28	26,67 7	Ann ual Rep ort	Ann ual	NCAN	DoL/ PPD

fodder for animals								
Reduced incidences of pandemic and epidemics diseases in regions	Disease outbreak incidences	No s.	2,615	15	Annual Report	Annual	RLDCs	DoL/PPD
Enhanced livestock product development and distribution services for priority products	Products developed and value added	No s.	0	4	Annual Report	Annual	RDC	DoL/PPD
	Preservation and distribution infrastructure established	No s.	0	4	Annual Report	Annual	RDC	DoL/PPD
Gainful employment in livestock enterprises	People employed (direct employment, & Group Exe. Members)	No s.	200	600	Annual Report	Annual	RLDC	DAM C, Dz., Central Units, & DoL



## Programme Profile for the National Veterinary Services Program

### A. Programme Summary

Veterinary services play a vital role in the livestock development initiatives in the country. Optimum returns from investment in commodity focused programs for enhanced milk, pork & egg production would be achieved if a good veterinary service is delivered. With increase in the exotic livestock breeds, the animal population is also becoming increasingly susceptible to diseases. This is further compounded by increasing threats of transboundary animal diseases such as Avian Influenza, Foot and Mouth Disease, Anthrax, Rabies etc. with liberalization of trade across the globe for which we need a more responsive veterinary service. Such a situation demands for more professional approach to disease prevention and control including effective preparedness and rapid response plans. The stage of development also demands more and more quality clinical service for the pet and utility animals. Therefore, there is a need to have a separate program for the veterinary services in order to support the overall mandate of the department of livestock.

#### 1. Program Title: National Veterinary Services Program

#### 2. Link to NKRA

- Promotion of equitable and sustainable socioeconomic development

#### 3. Contribution to SKRA

- *Enhance Food and Nutrition Security*
- *Enhance efficiency & effectiveness of RNR service delivery*

#### 4. Plan target (Baseline in brackets)

Outcome	Outcome Indicator	Unit	Baseline	11th Plan Target
1. Reduced incidence of animal diseases through effective veterinary services	1. Risk based disease surveillance and control program established	Nos	3	15
	2. Established and enhanced veterinary clinical, laboratory, and research service facilities	Nos	792	1307
	3. Reduced incidences of pandemic and epidemic diseases in the region	Nos.	26	15

**5. Total cost (Nu in millions): Current: 508.68M, Capital: 515.30M, total = 1023.98M**

National Veterinary Services Program	508.68	515.30	1023.98
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**6. Source of funding: RGoB/Donors**

7. **Start and End Date:** 1 July 2013 to 30 June 2018

**B. Programme Justification**

Veterinary services form an integral and inseparable part of the overall livestock production system in any environment. In order for an animal to express its genetic potential of high output, it is essential that the animal is free of production limiting diseases, both infectious and non-infectious diseases. Therefore veterinary services play a vital role in the livestock development initiatives in the country. Optimum returns from the investment in commodity focused programs for enhanced milk, pork & egg production would be achieved if a good veterinary service is delivered.

With exotic livestock breeds (cattle, poultry, pigs, horse, sheep and goats), the vulnerability to both endemic as well as exotic diseases keep increasing. Owing to the increased globalisation (free trade) and also due to the long and open border with our neighbouring countries, the risk of incursion of exotic diseases via transboundary movement of live animals and animal products is real. The current livestock management practices of free grazing (backyard) and long distance seasonal migration also pose significant risks to the occurrence and spread of diseases across the country.

Over the last few years there has been a rapid increase in the livestock production activities especially in the poultry sector with setting up of numerous backyard, semi- and commercial poultry farms. This has put greater demands for provision of timely and effective veterinary services including vaccination, treatment, and disease control activities.

The stage of development also demands more quality clinical service for the pet and utility animals. There is also an increasing concern about the rapid increase in the population of free-roaming dogs and other animals especially in the urban areas and the issue of *Tshethar* (mercy animals) vis-a-vis animal welfare.

The above situation therefore calls for enhanced intervention from the veterinary services to provide adequate support for the successful implementation of the commodity programs. The veterinary services program should have the capacity and the means to prevent incursion of exotic diseases into the country and be able to effectively manage the endemic diseases so as to ensure that the animals remain productive. There is a need to use more professional approach to disease prevention and control including effective preparedness and rapid response plans. The veterinary services program should be the guardian of animal welfare in the country and should use scientific and humane means to manage the issues related to animal population and other issues.

Therefore, for the success of the livestock production activities, it is crucial that the veterinary services program be also strengthened to face emerging challenges and priorities.

### **C. Implementation strategy**

The following strategies will be pursued in order to achieve the plan targets for the veterinary services program for the 11<sup>th</sup> FYP.

#### **1. Institute Risk based disease surveillance and control program**

Scientific evidences will be used to plan and implement disease prevention and control programs. Focussed commodity approaches will be used by instituting disease focal units for important diseases. Disease contingency plans will be developed for major livestock diseases so that there is coherent approach at all levels. Strengthening the Epidemiology Unit in disease information and database management besides its capabilities in performing all disease surveys and risk analysis is also crucial for proper decision making in developing disease prevention and control plans. Strengthening of the national disease prevention and control units with appropriate manpower and facilities will go a long way in instituting a more effective and efficient disease prevention and control programme. The laboratory information system will be strengthened to ensure proper data management and analysis.

#### **2. Strengthen Laboratory Diagnostic Capacity and veterinary clinical services**

Advanced laboratory diagnostic techniques such as virus isolation and tissue culture facilities will be initiated at NCAH to build up capacity for diagnosis of emerging diseases. Similarly advanced diagnostic tests such as ELISA and PCR will be initiated in the RLDCs for effective and timely diagnosis of diseases at the field level. Sufficient veterinarians with advanced training in laboratory technology or graduates in laboratory technology will be placed in the laboratories to undertake the actual diagnostic works supported by sufficient technicians. Diagnosis is the key to successful treatment or for planning of disease prevention and control programmes. It is crucial that we not only have the appropriate facilities and test protocols in place but competent personnel also so that the results obtained are accurate and reliable.

In the 11<sup>th</sup> plan, emphasis will be given on provision of effective veterinary clinical services to cater to the emerging needs of the livestock industry. Standard treatment guidelines and treatment and monitoring packages will be made for each livestock condition and disease for uniformity and efficiency. City veterinary hospitals will be constructed in the border towns to cater to the needs of the urban consumers as well as to strengthen the disease surveillance aspects for infectious diseases. Subject matter specialists will be trained on clinical subjects such as veterinary medicine, surgery and obstetrics.

#### **3. Strengthen drugs and vaccine delivery mechanisms including public-private-partnerships**

Institutional and structural rearrangements will be made with additional staffing to strengthen the procurement and supply of veterinary drugs and vaccines in the country. In order to ensure sustainability, cost recovery schemes will be initiated in the urban areas where companion animals are in sizeable numbers. Public private partnership will be initiated and strengthened through facilitation of establishment of private veterinary pharmacies in the livestock priority areas. Cold chain maintenance of vaccines will be strengthened through establishment of regional vaccine banks and posting of trained refrigeration technicians in the RLDCs.

#### **4. Strengthen Institutional and Human Resource Capacity**

A new state-of-the-art Veterinary hospital will be constructed at Chubachu Thimphu to cater for the referral clinical services for whole country. A new NCAH complex will be built to house the additional offices/units required for the animal health programmes. Three new city veterinary hospitals will be established at Gelephu, Samdrup Jongkhar and Phuentsholing to strengthen clinical services in the major urban areas. Similarly satellite veterinary laboratories will be set up at strategic places at the border areas to rapidly implement disease prevention and control activities for the transboundary diseases.

About 40 new laboratory technicians will be trained to further strengthen the laboratory diagnostic services.

Around 500 staff will be trained in livestock health management aspects including subjects on clinical medicine/surgery/obstetrics, basic laboratory sampling, epidemiology, preventive medicine, essential veterinary drug programme, and livestock database management.

With the advancement of laboratory diagnostic technology, it is essential to have a fully trained lab technologist at NCAH and in all Regional Livestock Development Centres to spearhead the lab diagnostic technologies in these centres.

Since NCAH is the apex body on animal health, specialists in specific subjects are required to meet the emerging needs of the livestock industry such as poultry, piggery and dairy. It is also essential to have specialists in clinical medicine, surgery, and obstetrics to cater to the health care of the companion and valuable animals in the city and commercial farms. The newly appointed veterinarians who are already posted in Dzongkhag Veterinary Hospitals will be sent for Masters course in relevant subjects as per emerging needs and priorities.

There is acute shortage of refrigeration technicians in the country as a result of which the cold chain maintenance in the field is quite poor. This in turn has led to vaccination failure due to difficulties in storage of vaccines in the field. Therefore, in order to ensure effective cold chain maintenance for vaccines and medicines in the field, it is proposed to train and post one refrigeration technician in each RLDC.

Given the tremendous increase in poultry industry over the last few years, the demand for health care in this industry has been overwhelming. Therefore, it is crucial to have the expertise, especially in poultry disease diagnosis and management in all the four regions to cater to the needs of the poultry farmers/industries. It is also essential to develop expertise in the diagnosis and management of aquatic (fish) and wild life diseases.

#### **5. Create enabling environment through legislative and policy support**

The veterinary services policy document will be finalised and adopted for all policy directives related to veterinary activities in the country. The veterinary council act will also be proposed and adopted to further strengthen the veterinary service delivery in the country.

**D. Risk Assessment**

*1. Program implementation*

As the actual implementation of most of the veterinary services will be done by the RLDCs and the Dzongkhags/farms, the success of the plan will largely depend on the effectiveness of its implementation at the field level.

*2. Budget, staffing and institutional setup*

The success of the plans is also very much depended on the availability of adequate staff and funds at various levels of animal health institutions. It is essential to post appropriate staff at various levels for effective delivery of animal health services.

*3. Transboundary diseases*

The probability of incursion of transboundary and emerging diseases and pathogens through the long and open border in the south is high given the extensive system of livestock farming currently practiced in the country. Due to the existence of free trade across the border the risk for disease incursion will also be a threat and impede the success of the veterinary services program in the country

**E. Program Result Matrix**

**Table 1. Program Outcome**

<b>Outcome</b>	<b>Outcome Indicator</b>	<b>Unit</b>	<b>Baseline</b>	<b>11th Plan Target</b>
Reduced incidence of animal diseases through effective veterinary services	Risk based disease surveillance and control program established	Nos	3	15
	Established and enhanced veterinary clinical, laboratory, and research service facilities	Nos	792	1307
	Reduced incidences of pandemic and epidemic diseases in the region	Nos.	26	15



**1. Programme Title:** Agriculture Marketing Development Programme

**2. Link to NKRAs:**

- Sustained economic growth,
- Poverty + Reduced/MDG + Achieved,
- Food Secure & sustainable ,
- Full Employment,
- Indigenous wisdom, arts and crafts promoted for sustainable rural livelihood, Carbon neutral/ Green & climate resilient development
- Sustainable management and utilization of natural resources,
- Improved public service delivery

**3. Contribution to SKRAs:**

- Generate additional employment opportunities and increased mean rural household cash income
- Accelerate RNR Growth Through commercial farming of Agriculture, Livestock and Forestry Enterprises

**4. Outcome level Planned Target and baseline (description annexure 1):**

Outcome	Outcome Indicators	Unit	Baseline	11th Plan Target
Enhanced Employment opportunities and income through RNR products marketing	Increased employment generated through commercial farming (contact farming, PPP and FDI)	Nos	2723	4397
	Increased rural household cash income through sale of RNR products	Nu (million)/annum	2038	4280
	Increased value of exports	Nu (million)/annum	1007	2000
	Increased rural household cash income through sale of RNR products	Nu (million)/annum	2038	4280
	Increased value of exports	Nu (million)/annum	1007	2000

**5. Total cost (Nu):** 410 millions Capital excluding current costs.

**6. Source of funding:** RNR-SSP/RGoB/MAGIP

**7. Start date and end date:** 1<sup>st</sup> July, 2013 to 30 June 2018

**8. Status of Readiness:** Ready to implement most programmes. However, as the programme progresses particularly in view of commercialization through contact farming concepts, and providing timely market information and intelligence, staff recruitment and replacement is felt imperative (currently 9 staff on contact basis till early 2013).

**B: Programme Justification:**

It is imperative that rural farming gradually shift from subsistence to commercial farming in order to realize the food security, income and employment generation objectives to

enhance the rural livelihood through income generation. Commercialization necessitates proper marketing systems in place. The volume and quality of products is another element that would be required for commercial marketing to take place. Therefore the Agricultural Marketing and Cooperative Programme has to play a major role in developing domestic marketing systems as well as explore and develop export market linkages. Providing market information, intelligence and forecasting to growers, entrepreneurs and middlemen is crucial in decision making at the field level to avoid glut in the market, plan accordingly and implement market-led production. Therefore the concepts of promoting commercial farming through contact farming and farmers groups and cooperatives, which are also the mandates of DAMC are crucial to RNR development in fulfilling the objectives. In view of the scattered settlement, fragmented and marginal land holdings, difficult terrain and low investment capacity of farming communities, formation of farmers groups and cooperatives would play a crucial role to address quality, quantity and marketing capacity along the whole chain. Marketing, being cross sectoral in nature requires a separate program in itself to cater to and support the marketing needs of the various RNR products. While the technical Departments can focus on production, quality and product development aspects, these products need to be fully supported with marketing services and therefore an agricultural marketing program is required to cater to these needs.

### **C. Implementing Strategy**

In order to achieve the objectives and goals of the RNR agricultural marketing programme, the following strategies and areas will be prioritized and pursued in collaboration with the technical departments. Departmentwise commodity focal persons will be further strengthened in line with the Departments' priorities to cater to the Marketing needs effectively. DAMC will work in close collaboration with the NPHC in particular. Besides the regional office in Mongar wherein the needs of the 6 eastern dzongkhags are met, staff will be placed at two more places in the Central region and at Phuntsholing to decentralize activities at the regional level.

Focus will be more on developing and facilitating linkages and networking between the major markets and the producers/middlemen and or contact farming (market-led), upgradation of market information systems, conducting market studies and relaying the information to the Departments, trial marketing, providing basic market infrastructure, and promotion of farmer groups and cooperatives.

### **D. Risk Assessment and or challenges and how to overcome them**

#### *a. Terrain and accessibility*

Bhutan is one of the most rugged and mountainous one in the world making accessibility and therefore marketing challenging. The country is divided into three distinct physiographic regions on the basis of altitude and corresponding rainfall and temperatures. The southern foothills range in altitude from less than 100 meters to about 2,000 meters and comprise the Siwalik Hills, together with a narrow belt of flat plains along the Indian border. Access to roads and therefore market destinations is a challenge. Bhutan's rugged landscape presents a huge challenge for commercial production and transportation of farm produce.



Strategy to overcome: Building of farm roads to high productivity potential areas would serve to reduce this constraint while commercializing farming

*b. Market Size*

The population is small and scattered which makes marketing challenging as demand is small and there is no economy of scale in production, collection or distribution. 69% of the population lives in rural areas and the country is least urbanized.

Exploring for additional export markets and developing them through concepts such as contact farming would be required to overcome this scenario. Market-led production based on existing markets and the demand situation in major domestic markets such as schools, institutes will be one of the strategies adopted.

*c. Production*

While Bhutan's wide agro-ecology presents vast opportunities for the production and marketing of sub-tropical and temperate crops, this potential has yet to be fully exploited for a variety of reasons, some of which may be attributed to nature and other factors beyond our control.

Under crop failures, due to natural calamities, crop insurance system may be appropriate for major crops.

*d) Income Level*

The level and purchasing power is low which in terms does not lead to increased consumption function. Therefore, multiplier economic growth does not take place.

*e) Market competition*

Given the low volume and quality of production, the product price competition with international markets particularly for export may have to face competition. Cheaper imports may be another challenge for domestic markets.

**Annexure 1. Planned Target and baseline description:**

*a) Improved coverage of market information systems developed and functional*

Currently the coverage of market information systems through the internet is at 10 principal markets. The coverage is required in all the 20 Dzongkhags and therefore DAMC's target is set at 20 by the end of the plan.

*b) Market infrastructure:*

Baseline for market infrastructure includes the total market infrastructure renovated/upgraded (6), Nos of sales counters (10), collection sheds (4), market sheds constructed (11), roadside vendor sheds (10) and market sheds renovated (6) totaling to 47 structures which is a cumulative achievement for the 9<sup>th</sup> and 10<sup>th</sup> Plan period supported by Erstwhile AMS and DAMC. The cumulative target at the end of 11<sup>th</sup> plan is 139 market infrastructure including all the above new structures and maintenance. Planned target for infrastructure has been based on tentative targets received from 11 Dzongkhags received so far except for maintenance of sheds. The cumulative targets for

road side vendor sheds is 28, Urban market sheds is 21, sales counter is 15, collection sheds is 65, renovation of existing market sheds is 10 therefore totaling to 139 cumulative structures at the end of 11<sup>th</sup> plan. Renovation of 1 auction yard at Phuntsholing also foreseen to improve the auctioning facilities run by FCB.

*c) Domestic markets explored:*

DAMC has so far in the past one year linked three major markets viz: 2 schools and 1 megaproject to farmer groups for RNR products and plans to develop marketing channels between other major markets such as hydropower megaprojects, schools, dratsangs, armed forces, major urban markets and farmer groups/cooperatives and middlemen. The target set is 13.

*d) International market linkages explored and established:*

Basis for export market are: the major markets for our produce is India and Bangladesh for potato, mandarin, medicinal and aromatic plants and vegetables. DAMC will explore for additional markets in other South Asian countries such as Singapore, Japan and Thailand for various RNR products. The target set is therefore 5 in the plan

*e) Facilitation of commercial farming enterprises through FDI, contact farming and PPP models.*

The number of Contact farming initiatives being implemented is 4 as of this plan preparation which includes Hazelnut, coffee, seed potato and oilseeds initiatives. The target set for such mode of farming is 14 by the end of 11<sup>th</sup> plan. Therefore MoU signing on such mode of farming is also 14.

*f) Promotion and supporting of contact farming, PPP, FDI and commercial enterprises*

Support to contact farming initiatives by way of providing technical support, marketing equipments, capacity building will be rendered to help kickstart and sustain in the initial process. The target set is 14 with baseline of 4.

**Output level baselines and targets**

*i) MoU signed*

So far MoU has been signed with 6 companies ie with Tatachemicals on seed potato, Anubhav on artemesia and Stevia, Samden on coffee and Seabuckthorn, Oils seeds with Jigme Trading and green tea with farmers of Samcholing geog in Trongsa

*ii)CoC established*

One Community owned company will be piloted on the concept of an Indian company FabIndia on production and marketing of organic RNR products wherein farmers, craftsmen would be shareholders

*iii)Number of households under contact farming:*

The current households involved in hazelnut is 920, 143 in coffee, and 100 for seed potato production thereby totaling to 1164 households. Target is kept modest at 5000.

*iv) Area under contact farming:*

Currently there are 931 Acres under Hazelnut Production in 5 eastern dzongkhags, 45 acres under Coffee plantation in Sipsu, Samtse and 60 Acres under seed potato production in Bumthang totaling to 1036 acres under contact farming

*v) Improved market research information:*

Currently no major studies have been conducted and in terms of information dissemination we have two modes through which information is disseminated i.e. through the agrimarket website and toll free IVR through mobile. Market research, diagnostic studies and value chain studies will be an integral part which is targeted at 12 in the plan

*vi) RNR marketing policy in place:*

In the absence of a strategy and policy document on both RNR marketing and Cooperatives, 2 policy and strategy documents will be developed in the plan period

*vii) Enhanced linkages with international cooperatives and marketing institutions*

Institutional linkages has been targeted from 0 to 2 in the plan period

**1. Programme Title:** Cooperatives Development Programme

**2. Link to NKRAs:**

- Sustained economic growth,
- Poverty + Reduced/MDG + Achieved,
- Food Secure & sustainable ,
- Full Employment,
- Needs of Vulnerable Group addressed,
  
- Sustainable management and utilization of natural resources,
- Improved public service delivery

**3. Contribution to SKRAs:**

- Generate additional employment opportunities and increase mean rural household cash income
- Accelerate RNR Growth through commercial farming of Agriculture, Livestock and Forestry Enterprises

**4. Outcome level Planned Target and baseline:**

Outcome/output	Indicator	Unit	Baseline	Target
Enhanced income and employment through FGs/Coops	Increased employment generated through Farmers groups/Coops/OSFS	Nos	385	1175
	Increase in income generated through Farmers Group and Cooperative enterprises	Nu. (million)	2	25

*a) Employment baseline and target*

Baseline for employment generated through the FG/Coops is based on 125 registered FGs/Coops. At the end of 10<sup>th</sup> plan each of these groups/cooperatives generated 3 numbers of employment, and 10 OSFS generating 10 employments, therefore totaling to 385.

The 11<sup>th</sup> plan is targeted to register additional 250 FG/coop and establish 40 OSFS which will generate 790 employments. Therefore target is set at 1175 (baseline 385 + 790)

*b) Income baseline and target*

Based on the reports of few of the registered Coops indicating their financial progress during the time of 11<sup>th</sup> plan preparation, the sum of Nu. 2 million was indicated as their income generated. This very financial figure is used as the baseline. During the 11<sup>th</sup> plan, 250 FGs/Coops are planned to be registered, each of which is expected to at least generate average annual income of Nu 100,000. At the end of 11<sup>th</sup> plan total income generated would  $100,000 \times 250 = 25$  million which is set as the target.

Commented [TY1]: Is this an approximate?

*b) Registered FGs/Coops baseline and target*

At the end of 10<sup>th</sup> plan 125 nos of FGs/Coops will be registered and thus used as the baseline of registered farmers groups and cooperatives. The 11<sup>th</sup> plan targets to register 250 (50 each annually) more during the period which if achieved will sum up to 375. This figure is used as the target for the 11<sup>th</sup> plan.

*d) OSFS baseline and target.*

At the end of 10<sup>th</sup> FYP, 10 one stop farmers shop (OSFS) will be established and thus used as the baseline. 40 additional OSFS is targeted to be established in various Dzongkhags and Gewogs where the farming input services are in need and where farmers groups and cooperatives require them as their market outlet. As such by the end of 11<sup>th</sup> plan we will have 50 OSFS which is the target set in this plan.

*e) Cooperative infrastructure baseline and target*

As we enhance the scale of production through farmers groups and cooperatives, there is a need to put in place the market outlets for their products. No such outlets are available at the start of 11<sup>th</sup> plan and as such the baseline is zero. The Cooperative Development Program will pursue to establish one cooperative shop to showcase the cooperative product and one Cooperative House to cater the marketing and training services for the farmers groups and cooperatives. Therefore, by the end of 11<sup>th</sup> plan, the program is targeting to establish two cooperative infrastructures

**5. Total cost (Nu):** 150.5 millions inclusive of current costs.

**6. Source of funding:** RNR-SSP/RGoB

**7. Start date and end date:** 1<sup>st</sup> July, 2013 to 30 June 2018

**8. Status of Readiness:** Ready to implement most programmes given the adequate budget and HR. Currently the Cooperative development Program is being pursued by only 5 regular and 2 contract staff. The institution of Cooperative Development Fund (CDF) needs policy approval and identification of interested donors.

**B: Programme Justification:**

The mandate to implement the Cooperative Act of Bhutan is entrusted to the Department of Agricultural Marketing and Cooperatives. The state policy recognizes the development of cooperatives as strong pillars of private sector, which will contribute to socio-economic development. Therefore, given the important role of this program in the overall development goal of the country, this program is being pursued as one of the 30<sup>th</sup> programs of the Ministry of Agriculture and Forests.

The sustainable development and promotion of Farmers' Groups and Cooperatives will not only help in supporting the agriculture marketing program but also contribute in income and employment generation besides other social merits of groups and cooperatives.

In the 11<sup>th</sup> plan, the Farmers' Groups and Cooperatives are envisioned to play a significant role in supporting Agriculture Marketing Program. This has been further accentuated with the recent economic scenario where the role of Farmers' Groups and Cooperatives has been further necessitated especially in supplying fresh vegetables to the

Commented [TY2]:

Bhutanese consumers. Even otherwise, given the small scale of farm management and small volume of production, the formation of groups and cooperatives have been envisioned to support agricultural marketing through joint shipment of products to gain economies of scale thereby increasing the income of the farmers. In addition, these institutions are also expected to contribute to generating employment opportunities. In fact these institutions are expected to improve the overall livelihoods of our people and the farmers in particular.

The groups and cooperatives will also contribute in agriculture commercialization program of other technical departments. For instance, the rice commercialization program of DoA, dairy & poultry commercial farming of DoL and sustainable utilization of NWFPs of DoFPS will be supported through Farmers' Group and Cooperative enterprises. Another important aspect of groups and cooperatives is the ease in providing focused guidance and services by our Extension Workers thereby contributing to efficient and effective extension service delivery.

With such a vision, the Cooperative Development Program will contribute directly towards achieving the four of the sixteen Sectoral Key Result Areas (SKRAs) of the MoAF; a) *Generated self Employment opportunities*, b) *Increased rural household cash income*, c) *Promotion of Agriculture, livestock and Forestry commercial enterprises* and d) *Service Delivery enhanced*.

Ultimately the “Cooperative Development Program” will play a vital role in addressing the issue of volume, quality and marketing in realizing the objective of food sufficiency and income generation. The promotion of farmers groups and cooperatives will certainly build empowered and resilient farming communities.

### **C. Implementing Strategy**

In the 11<sup>th</sup> Plan, the cooperative development program will be pursued more vigorously in supporting the implementation of the commodity wise programs of the various technical departments through the regulation and promotion of farmers groups and cooperative formation. In support to commodity programs, the Cooperative Development Program will be implemented through the following strategies in collaboration with the relevant stakeholder (s):

1. Imparting awareness programs on Farmers' Groups and Cooperatives to all the stakeholders
2. Capacity building of groups and cooperatives
3. Facilitate the improved delivery of credit services through institution of Cooperative Development Fund
4. By providing business plan support and other supports such as equipments and inputs supply
5. By linking groups and cooperatives with markets both domestic and export
6. Seeking policy guidance and support from the Cooperative Task Force Members (TFM). The TFM are represented from all stakeholders
7. Regulating Cooperative Rules and Regulations

## 8. Exploring financial support from the donor agencies

### **D. Risk Assessment and or challenges and how to overcome them**

Following key risks are assessed and strategized to overcome.

#### *a) Capacity of rural communities*

The general capacity of the farming communities towards cooperative business is fairly a new concept and introducing and promoting such new concept might pose some challenge and take longer time than expected to yield the intended output. Further, farmers group and cooperative formation is a volunteerism and the community has the ultimate say on whether to form farmers groups and cooperatives or not.

*Strategy to overcome: Vigorous awareness program on farmers groups and cooperatives will be pursued to educate and convince the importance and benefits of forming farmers groups and cooperatives. Various capacity building modules will be imparted to farmers groups and cooperatives after their formation at RDTC.*

#### *b) Lack of assured market*

Lack of assured market for the large scale products of farmers groups and cooperatives might impede the business of farmers groups and cooperatives. Lack of assured market is very often the reason for not producing more than the household requirements.

*Strategy to overcome: Linking of farmers groups and cooperatives' product to the potential markets such as the messes of schools, hydro-projects, army, hospital and monastic institutions will be pursued. Exhibition and trade fair of farmers groups and cooperatives' product will also be organized.*

#### *c) Financial capacity*

Given the weak financial capacity and credit services of the farming communities, any business ventures are restricted to small scale only. Same situation apply to the farmers groups and cooperatives to implement cooperative enterprises, which may hamper the achievements of the target set foremployment and income generation by the farmers group and cooperatives.

*Strategy to overcome: The Cooperative Development Program will pursue to institute the Cooperative development Fund (CDF) during the 11<sup>th</sup> plan to cater the financial services requirement of the farmers groups and cooperatives. A grant to partially support business plans of farmers groups and cooperatives will also be sought from the government or donor agencies.*

**Planned Target and baseline description:**

a) *Increased employment generated through Farmers groups/Coops/OSFS, Contact farming, PPP, FDI*

**Target: 5464; Baseline (3061)**

Baseline for employment generated through the FG/Coops is based on 125 registered FGs/Coops. At the end of 10<sup>th</sup> plan each of these groups/cooperatives generated 3 numbers of employment, and 10 OSFS generating 10 employments, therefore totaling to 385.

The 11<sup>th</sup> plan is targeted to register additional 250 FG/coop and 40 OSFS which at the end of the 11<sup>th</sup> plan we will have 375 FG/Coops and 50 OSFS. Therefore target is set at 1175 (baseline 385 + 790)

Target for 11<sup>th</sup> plan is to increase number of household to a total of 2000 households cumulative. Therefore, number of new households targeted is 837 households which will generate employment of  $(837 \times 2) = 1674$  numbers. Therefore the total employment targeted through FG/Coops and Contact farming is  $(3061+790+1674) = 5525$

b) *Increase in income generated through Farmers Group and Cooperative enterprises*

Based on the reports of few of the registered Coops indicating their financial progress during the time of 11<sup>th</sup> plan preparation, the sum of Nu. 1.9 million was indicated as their income generated. This very financial figure is used as the baseline. During the 11<sup>th</sup> plan 250 FGs/Coops are planned to be registered, each of which is expected to at least generate average annual income of Nu 50,000. At the end of 11<sup>th</sup> plan total income generated would  $50,000 \times 250 = 12.50$  million which is set as the target.

c) *Increase in rural household cash income through sale of RNR products*

Based on the RNR census 2009, the baseline rural household income for farmers from sale of RNR products every year is Nu 2,038 millions. Through both production and marketing efforts, the target is expected to more than double the income figure to about Nu 4,280 millions per year.

d) *Increased value of exports.*

The efforts of all the technical departments together with the Cooperatives and Marketing department, the value of exports of RNR products is expected to increase from 1007 to Nu 2000 millions annually.

e) *Domestic markets explored:*

**Commented [TY3]:** How did u arrive at this baseline. The baseline fig for employment from FG/ Cooperatives was 385 (mentioned earlier)

**Commented [TY4]:** Repetition

**Commented [TY5]:** Rephrase. Not clear on what hh is to be increased? Could be increase total no. of hhs under contact farming to a total of 2000 hhs from baselinefigure..

**Commented [TY6]:** Might need to mention as a foot note on why '2' is being used

**Commented [TY7]:** Wrong figure. not clear on where the 729 comes from, should be 790.

**Commented [TY8]:** 1.9 or 2 million. Repetation again ...n not clear

**Commented [TY9]:** Is it 2038 or 2.038?????????



DAMC has so far in the past one year linked three major markets viz: 2 schools and 1 megaproject to farmer groups for RNR products and has plans to develop 10 additional marketing channels between other major markets such as hydropower megaprojects, schools, dratshangs, armed forces, major urban markets and farmer groups/cooperatives and middlemen. The cumulative target set is 13.

*f) International markets explored:*

India and Bangladesh has been the major international markets for our produce i.e, potato, mandarin, medicinal and aromatic plants and vegetables . DAMC will explore for additional markets in other South Asian countries such as Singapore, Japan and Thailand for various RNR products. The target set is therefore 5 in the plan

*g) Increased nos of commercial farming established through FDI, contact farming and PPP models.*

The number of Contact farming initiatives being implemented is 4 as of this plan preparation which includes Hazelnut, coffee, seed potato and oilseeds initiatives. The target set for such mode of farming is 14 by the end of 11<sup>th</sup> plan and subsequently MoU signing on such mode of farming is also 14.

*h) Promotion and supporting of contact farming, PPP, FDI and commercial enterprises*

Support to contact farming initiatives by way of providing technical support, marketing equipments, capacity building will be rendered to help kick start and sustain the enterprise in the initial process. The target set is 14 with baseline of 4.

*i) CoC established*

One Community owned company will be piloted on the concept of an Indian company FabIndia on production and marketing of RNR products wherein farmers, craftsmen would be shareholders

*j) Market infrastructure:*

Baseline for market infrastructure includes the total market infrastructure renovated/upgraded (6), Nos of sales counters (10), collection sheds (4), market sheds constructed (11), roadside vendor sheds (10) and market sheds renovated (6) totaling to 47 structures which is a cumulative achievement for the 9<sup>th</sup> and 10<sup>th</sup> Plan period supported by erstwhile AMS and DAMC. The cumulative target at the end of 11<sup>th</sup> plan is 139 market infrastructure including all the above new structures and maintenance. Planned target for infrastructure except for maintenance of sheds has been based on tentative targets of 11 Dzongkhags received so far. The cumulative targets for road side vendor sheds is 28, Urban market sheds is 21, sales counter is 15, collection sheds is 65, renovation of existing market sheds is 10 therefore totaling to 139 cumulative structures at the end of 11<sup>th</sup> plan. Renovation of 1 auction yard at Phuntsholing is also foreseen to improve the auctioning facilities run by FCB.

In addition, there will be **one Cooperative House** which will house the Department as well as a National Cooperative shop which can serve as one stop service providing

Commented [TY10]:

facilities to Farmer groups/Cooperatives. In addition, 2 cooperative shops will be constructed at the Dzongkhag level.

OSFS is also a major infrastructure that would enable cooperatives and farmer groups to sell farm inputs as well as serve as sales counter for their produce. The current number of OSFS is 8 and planned target is 50.

*k) Improved market information:*

Currently no major studies have been conducted and in terms of information dissemination, information is disseminated through two modes- the agrimarket website and toll free IVR through mobile. Market research, diagnostic studies and value chain studies will be an integral part and thus a target of 12 has been set in the plan

*l) RNR marketing and cooperatives policy in place:*

In the absence of a strategy and policy document on both RNR marketing and Cooperatives, 2 policy and strategy documents will be developed during the plan period

*m) Commercial enterprise owned and operated by FG/Coops*

The baseline of commercial enterprises owned and operated by FGs/Cooperatives is 110 while the target is set at 375 registered groups and Cooperatives

*n) Time taken for registration of Farmers Group and Cooperatives decreased*

During the plan period, the Department through the introduction of online registration system aims to reduce the registration process for farmers groups and cooperatives to 5 days from the existing timeframe of 10-15 days.

*o) Enhanced linkages with international cooperatives institutions*

Institutional linkages has been targeted from 0 to 5 in the plan period

1. Program title: **Research & Extension Services Program**
2. Link to NKRA : The program is expected to contribute to six of the 14 NKRA in 11<sup>th</sup> FYP. They are: -

- Self reliant and inclusive economy
- Full Employment
- A carbon neutral and climate resilient development
- Environment/ Eco- friendly development
- Sustainable and Efficient use of natural resources
- A performance driven public sector

3. Contribution to SKRAs : The program is linked to 4 SKRAs

- Enhance food & nutrition security
- Generate additional employment opportunities & increase mean annual rural HH cash income
- Accelerate RNR sector growth through commercial farming & Agri, liv, forestry enterprises
- Enhanced sustainable forest , land, water & bio-diversity resource mgt

**4. Plan target (baseline: Refer to table below)**

Outcome	Outcome indicators	Baseline	Overall 11 <sup>th</sup> FYP target
Research and extension service delivery strengthened	No of technologies available for use by the farmers	76	236
	% farmers adopting technologies	30	80

5. **Total cost ( Nu 56.20 M) Recurrent 18.25 M/ Capital 37.95M [excluding salaries & other maintenance cost]**

6. **Source of funding:** The fund for the program will be sourced mainly from RGoB. However, some funds are expected to come from the universities/ research organizations/donors , as result of collaborations on with the institutions abroad { e.g. FAO, EUSSP, Chubu University-Japan, CIRAD-France,, Hazelnut/Coffee ventures etc.

- i. **Start and end date:** 1<sup>st</sup> July 2013 to 30<sup>th</sup> June 2018

**ii. Status of Readiness:**

The Council for Renewable Natural Resources Research of Bhutan (CoRRB), as an apex body, is responsible for research coordination with various agencies under the Ministry of Agriculture and Forests. CoRRB has established competent research structures and technical committees to plan and coordinate quality research and innovation for supporting social, economic and environmental sustainability. With the establishment of Research Information Management System (RIMS), CoRRB is prepared to further enhance the capacity in RNR research coordination including the conduct of impact study and policy analysis.

*A. Program justification:*

In July 2009, re-structuring of CoRRB has aligned RNR Research program with the respective Departments and Research and Development Centres (RDCs) were entrusted to undertake research. CoRRB secretariat is mandated to screen RNR research proposals for relevance and quality control. The main task of CoRRB secretariat is to monitor research programs and evaluate RNR research technologies through impact studies/reviews in order to recommend the changes and adjustments in RNR policies and programs.

Despite recording tremendous growth in the RNR sector, the country still imports huge quantity of food stuff. The pressure on natural resources is ever increasing while attempting to increase food production for enhancing food sufficiency. Whether RNR research and extension programs and activities have made any difference on food production and conservation of natural resources; their impacts have not been evaluated so far. This justifies the formulation of the RNR Research & Extension Services Program, under CoRRB that will aim to co-ordinate and consolidate the reviews and studies conducted and the extension programs implemented, under various Departments/agencies in the 11<sup>th</sup> FYP. The outputs of this program are expected to result into enhancing food production and sustainable management of natural resources while also improving the extension service delivery to farmers.

*Implementation strategy:*

The following processes need to be considered to bring about efficient implementation of the program:-

- ⇒ Build up appropriate research agenda through consultation and considering all relevant NKRA, SKRA & KPIs. The agenda setting should also consider the OGTP, area/crop potential and marketability
- ⇒ Provide adequate resource support to research centres to conduct research

- ⇒ Generate and enhance appropriate technology release to increase productivity and management of RNR sector and deploy appropriate adoption management techniques
- ⇒ Consider land expansion, market, irrigation, mechanization and consolidation of agriculture production areas
- ⇒ Conduct adoption / impact studies and come up with viable solutions
- ⇒ Collate feedbacks from various stakeholders of MoAF to respond to various needs and issues

**B. Risk management:**

**a. Financial Resources constraint**

- i. With the rupee crunch it is feared Bhutan will face an economic crisis which would have far reaching implications. Therefore with the present situation there will be shortage of budget to implement many programs.
- ii. There will be need to source budget from potential donors, conduct research through FDI initiatives and even outsource programs at a reasonable fee. Such arrangement may affect timely conduct of research and carrying of all planned activities

**b. Lack of collaborators**

- i. There could be lack of collaborators in implementing the research activities along with impact and adoption studies.
- ii. To address the issue of lack of collaborators we could create awareness among various stakeholders through a consultative process. We could also try and make the whole research process an attractive venture by working on the ownership modality through we could give due credit to the stakeholders involved.

**Table 1: Program result matrix: Research & Extension Services Program**

Program contribution to SKRA: Enhanced food & nutrition security, Generate additional employment opportunities & increase mean annual rural HH cash income, Accelerate RNR sector growth through commercial farming & Agriculture, livestock, forestry enterprises and Enhanced sustainable forest , land, water & bio-diversity resource management

Outcome	Wt %	Outcome indicators	Baseline	Overall 11 <sup>th</sup> FYP target
Research and extension service	75	No of technologies available for use by the farmers	76	236

<b>delivery strengthened</b>				
		% farmers adopting technologies	30	80

**Table 3: Program outlay summary**

The Program outlay summary shall be based in order of priority indicated in table 2

Activity	Plan outlay (Nu. In miln)		Funding type (grant / loan / PPP)	Funding agency (RGoB/donor)	Funding status (committed/pipeline/ not identified)	Remarks
	Rec	Cap	Grant	RGoB	Pipeline	
Conduct annual RNR Research, planning & review meetings to set research agenda	2.100	0	Grant	RGoB	Pipeline	
Conduct Scientific & Technical Committee meetings	0.300	0	Grant	RGoB	Pipeline	
Identify & implement collaborative research	0.250	10.000	Grant	RGoB/EU/FAO	Pipeline	
Conduct RNR research conferences	1.500	0	Grant	RGoB	Pipeline	
Conduct strategic & policy research	0.300	10.000	Grant	RGoB	Pipeline	
Conduct Research on Emerging RNR issues	0.750	2.000	Grant	RGoB	Pipeline	
Conduct Council meetings	0.200	0	Grant	RGoB	Pipeline	
Establish and maintain database on research activities, inventory of technologies and human resources.	0.200	1.500	Grant	RGoB	Pipeline	
Conduct CoRRB Lectures and Seminars	0.200	0	Grant	RGoB	Pipeline	
Conduct panel discussion on BBS	0.500	0	Grant	RGoB	Pipeline	
Publication of RNR Journals	1.000	0	Grant	RGoB	Pipeline	
Publication of RNR policy briefs /annual reports	0.750	0	Grant	RGoB	Pipeline	

Activity	Plan outlay (Nu. In miln)		Funding type (grant / loan / PPP)	Funding agency (RGoB/donor)	Funding status (committed/pipeline/ not identified)	Remarks
Collation, formalization and publication of RNR technology compendium	0.500	0.800	Grant	RGoB	Pipeline	
Establish and maintain repository of MoAF publications	0.250	0.800	Grant	RGoB	Pipeline	
Organize JEB meetings	0.150	0	Grant	RGoB	Pipeline	
Identify international institutions and sign MoU to enhance linkages	0.500	2.000	Grant	RGoB	Pipeline	
Identify national institutions and sign MoU to enhance linkages	0.100	0	Grant	RGoB	Pipeline	
Participation in international seminars and conferences	0	3.000	Grant	RGoB	Pipeline	
Membership to international research organizations/ associations/ forums	0.500	1.000	Grant	RGoB	Pipeline	
Screen RNR technologies through TRC	0.250	0	Grant	RGoB	Pipeline	
Conduct monitoring and evaluation of research	0.500	0	Grant	RGoB	Pipeline	
Conduct analysis on RNR online feedback system	0.250	0	Grant	RGoB	Pipeline	
Conduct adoption/ impact studies	1.500	2.500	Grant	RGoB	Pipeline	
Draft RNR Research Act	0.100	0.300	Grant	RGoB	Pipeline	
Conduct baseline survey on extension service delivery	0.250	1.250	Grant	RGoB	Pipeline	
Conduct ECC meetings	0.250	0.350	Grant	RGoB	Pipeline	
Conduct National Seed Board meetings	0.250	0.500	Grant	RGoB	Pipeline	
Process RNR innovations and IPR issues	0	0.300	Grant	RGoB	Pipeline	
Subscribe to international journals	2.500	0	Grant	RGoB	Pipeline	

Activity	Plan outlay (Nu. In miln)		Funding type (grant / loan / PPP)	Funding agency (RGoB/donor)	Funding status (committed/pipeline/ not identified)	Remarks
and forums						
Institute accreditation/ award system for researchers	0.500	0	Grant	RGoB	Pipeline	
Conduct socio-economic research	1.000	1.000	Grant	RGoB	Pipeline	
Provide biometric services to improve quality and quantity of research papers	0.250	0	Grant	RGoB	Pipeline	
Prepare PPP strategy and guideline for RNR sector	0.100	0.250	Grant	RGoB	Pipeline	
Initiate commercial PPP farming ventures	0.150	0.150	Grant	RGoB	Pipeline	
Institutionalize, mobilize and manage research fund	0.250	0	Grant	RGoB	Pipeline	
Conduct seminar on allocation & disbursement of research fund	0.100	0.250	Grant	RGoB	Pipeline	
<b>Sub-Total 1</b>	<b>18.25</b>	<b>37.95</b>				

**Table 4: Monitoring & evaluation plan**

The 11<sup>th</sup> plan target shall be broken into quarterly, semi-annual & annual targets, where relevant, during budget finalization for the following year

Result (outcome / output)	Indicator	Baseline	11 <sup>th</sup> Plan target	Data Source	Reporting Frequency	Reporting responsibility	Reporting to
A. Research and extension service delivery strengthened	No of technologies available for use by the farmers	76	236	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	% farmers adopting technologies	30	80	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
1) <b>Research agenda setting</b>	No. of research	6	12	CoRRB secretariat	½ yrly	CoRRB secretariat	CoRRB secretariat



Result (outcome / output)	Indicator	Baseline	11 <sup>th</sup> Plan target	Data Source	Reporting Frequency	Reporting responsibility	Reporting to
coordinated	plans in place			iat		Divs	iat
	No of consultative meetings conducted	10	1+5+5+5+baseline=26	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>2) Policy / strategic research coordinated &amp; conducted</b>	No of policy/ strategic research conducted	1	11	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of emerging research conducted	1	11	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of Council meetings conducted	5	15	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>3) Research information/ results managed &amp; disseminated</b>	No of research databases established and maintained	0	2	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of RNR journals published	5	10	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>4) Research linkages established</b>	No of MoUs signed	8	14	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of membership	3	8	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>5) Research system monitored and evaluated</b>	No of M&E / feedback reports	3	13	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of technologies screened	22	40	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No. of adoption/ impact	1	11	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat

Result (outcome / output)	Indicator	Baseline	11 <sup>th</sup> Plan target	Data Source	Reporting Frequency	Reporting responsibility	Reporting to
	studies						
<b>6) RNR research &amp; extension policies, programs &amp; strategies streamlined</b>	No of policies reviewed / Act drafted	0	3	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of baseline surveys conducted	0	1	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of meetings held	8	18	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>7) Research HR capacity strengthened</b>	No of trainings conducted	10	20	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of HRD plans formulated	0	1	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of subscriptions	0	3	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>8) Socio-economic research services provided to Departments/agencies</b>	No of socio-economic study reports	2	6	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
	No of articles in RNR Journal	8-12 per annum	15-20 per annum	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>9) PPPs initiated &amp; formalized</b>	No of PPP ventures formalized	4	9	CoRRB secretariat	½ yrly	CoRRB secretariat Divs	CoRRB secretariat
<b>10) Research budget allocation &amp; disbursement system streamlined</b>	Budget allocation & disbursement system in place	0	1	CoRRB secretariat	Qtrly	CoRRB secretariat Divs	CoRRB secretariat

**Table 5: Stakeholder analysis**

<b>Stakeholders</b>	<b>Role</b>
PPD	Resource mobilization; overall plan coordination
DoA/DoL/DAMC/DoFPS/BAFRA	Plan implementers; clients to receive advice
RNRRDCs/Central Programs/UWICE	Technology generators / collaborators
CNR/NSB/CBS	Data sharing; research collaborators
FAO/WFP/BTFC/ICIMOD/EUSSP	Funding partners
Farmers	Main beneficiaries / clients
MoFA	International linkage
Regional / international research institutions	Scientists / knowledge exchange

1. Program title: ***School Agriculture Program***
2. Link to NKRA : The program is expected to contribute to three of the 14 NKRA's in 11<sup>th</sup> FYP, which are: -

- Self reliant and inclusive economy
- Full Employment
- Environment/ Eco- friendly development

7. Contribution to SKRAs : The program is linked to 3 SKRAs

- Enhance food & nutrition security
- Generate additional employment opportunities & increase mean annual rural HH cash income
- Accelerate RNR sector growth through commercial farming & Agri, liv, forestry enterprises

**8. Plan target (baseline: Refer to table below)**

Outcome	Outcome indicators	Baseline	Overall 11 <sup>th</sup> FYP target
Interest in farming among youths as livelihood option enhanced	% of school graduates taking up farming as a full time livelihood	0	15
	% contribution to food consumption in schools	20	30

**9. Total cost**

- Current: = 9.83 Million
- Capital: = 23 Million

**10. Source of funding**

The fund for the program will be sourced mainly from RGoB. However, some funds are expected to come from WFP, FAO, Thailand (Royal Princes Project) etc.

- iii. **Start and end date:** 1<sup>st</sup> July 2013 to 30<sup>th</sup> June 2018.

**iv. Status of Readiness:**

The School Agriculture Program (SAP) has been operating for more than five years now. The implementation modalities and institutions are thus in place to take up activity in the 11<sup>th</sup> plan.

Fund from donor is committed based on the proposal. The standard drawings of infrastructures like piggery, poultry and compost sheds are made ready for technical clearance.

**A. Program justification:**

The SAP attempts to contribute in attaining to the socio economic development of our future citizens with sound entrepreneurial knowledge. With the increasing need of nutritionally balanced food for the school youths and withdrawal of WFP feeding program by 2018, SAP will play a pivotal role in contributing to the food and nutrition security of school students and maintaining same level of enrollment, particularly in rural communities of Bhutan.

The program will also prepare the school youths for self employment, taking up commercial farming, which would reduce the employment pressure to the government.

In the recent survey done by IMS, 49% of the respondents reported that SAP offers a great opportunity in school feeding and nutrition, especially in schools with boarding facilities.

**C. Implementation strategy:**

The SAP is centrally coordinated by two agencies viz, CoRRB, MoAF and DSE, MoE with clear mandates. The proposals for support in SAP are submitted with technical recommendation from Dzongkhag RNR sector heads. The fund for the infrastructure development is directly released to Dzongkhags for implementation. However the one time input support is centrally coordinated by SAP unit in CoRRB. The monitoring and evaluation is jointly undertaken with the concern Dzongkhags representatives and an annual progress report is produced. Technical support to school is provided through geog RNR centers. The focal agriculture teacher (FAT) selected from each of selected school is trained on basics of integrated farming concepts and refresher trainings are provided from time to time. At school level the activities are carried out by a group of students called School Agriculture club members, who are also provided with merit certificates and RNR medals for the two best students annually.

Agriculture farming has always been perceived as the most unattractive profession by the younger generation. Therefore, the program has kept some provisions to attract some genuinely interested students on farming. In the 11<sup>th</sup> FYP, SAP certificating system will

be institutionalized which will help students in entering tertiary education at CNR, UWICE and other RNR institutions. An elective subject on Agriculture and food security has been worked out to be included in the regular school curriculum, at Middle and Higher secondary schools. A merit based scholarship scheme is also being worked out, competitive basis, to students of SAP assisted schools.

**D. Risk management:** (indicate possible risks and how sector plans to overcome)

- With the resource crunch foreseen there will be shortage of RGoB budget to implement some of the activities.
- There will be need to source budget from potential donors.
- iii. Conflicts with academic schedule: The FATs are overloaded with other academic activities and get very less time to implement SAP. Provision of placing CNR graduates as FAT would solve the problem.
- iv. Land encroachment of agriculture land: A clear and long term plan of school is mandatory. A clear policy from MoE is required.

**Table 1: Program result matrix** : School Agriculture Program

Outcome	Outcome indicators	Baseline	Overall 11 <sup>th</sup> FYP target
Interest in farming among youths as livelihood option enhanced	% of school graduates taking up farming as a full time livelihood	0	15
	% contribution to food consumption in schools	20	30

**Table 2: Program result matrix**

Note: Program outputs to achieve the outcomes listed in table 1 shall be listed in order of priority along with activities to achieve the output

Output	Wt %	output indicator	Baseline	Target (cumulative with baseline)	Activity	Act: start date	Act: end date	Lead implementing agency	Collaborating agencies
School Agri Program enhanced	100	No of schools under SAP	200	300	1) Train Community leaders to link with SAP and input supply	Jul 2013	Jun 2018	CoRRB secretariat	Dzs/Schools
		No of	150	300	2) Support	Jul	Jun	CoRRB	DSE /

Output	Wt %	output indicator	Baseline	Target (cumulative with baseline)	Activity	Act: start date	Act: end date	Lead implementing agency	Collaborating agencies
		FAT trained			vegetables and livestock production activities	2013	2018	secretariat	Schools
		No. of educated youth trained to take up agriculture	0	100	3) Develop training modules on Nutrition education	Jul 2013	Jun 2018	CoRRB secretariat	RDCs/ DSE / Schools
		No of awareness campaigns organized	0	5	4) Prepare calendar and leaflets for awareness on SAP	Jul 2013	Jun 2018	CoRRB secretariat	DSE
					5) Develop a guideline and implement accreditation of SAP	Jul 2013	Jun 2018	CoRRB secretariat	DSE
					6) Organize awareness campaigns, literary activities	Jul 2013	Jun 2018	CoRRB secretariat	DSE / ICS / WFP / FAO
					7) Linking community to schools (F2S)	Jul 2013	Jun 2018	CoRRB secretariat	DSE / WFP / FAO
					8) Operationalize agriculture subject in class IX - XII	Jul 2013	Jun 2018	CoRRB secretariat	DSE / FAO

**Table 3: Program outlay summary**

The Program outlay summary shall be based in order of priority indicated in table 2

Activity	Plan outlay (Nu. In miln)		Funding type (grant / loan / PPP)	Funding agency (RGoB/donor)	Funding status (committed/pipeline/ not identified)	Remarks
	Rec	Cap	Grant	RGoB	Pipeline	
1) Train Community leaders to link with SAP and input supply	3.200	0	Grant	RGoB/donor	Pipeline	RGoB / WFP 50:50
2) Support vegetables and livestock production activities	3.000	10.000	Grant	RGoB/donor	Pipeline	RGoB / WFP 50:50
3) Develop training modules on Nutrition education	0.600	1.000	Grant	RGoB/donor	Pipeline	RGoB / WFP 50:50
4) Prepare calendar and leaflets for awareness on SAP	1.000	0	Grant	RGoB/donor	Pipeline	RGoB / WFP 50:50
5) Develop a guideline and implement accreditation of SAP	0.080	0	Grant	RGoB/donor	Pipeline	RGoB / WFP 50:50
6) Organize awareness campaigns, literary activities	1.200	0	Grant	RGoB/donor	Pipeline	RgoB / WFP 50:50
7) Linking community to schools (F2S)	0.500	12.000	Grant	Donor	Pipeline	FAO
8) Operationalize agriculture subject in class IX – XII	0.250	0	Grant	RGoB	Pipeline	RgoB
<b>Sub-Total 2</b>	<b>9.83</b>	<b>23</b>				

**Table 4: Monitoring & evaluation plan**

The 11<sup>th</sup> plan target shall be broken into quarterly, semi-annual & annual targets, where relevant, during budget finalization for the following year

Result (outcome / output)	Indicator	Baseline	11 <sup>th</sup> Plan target	Data Source	Reporting Frequency	Reporting responsibility	Reporting to
<b>Interest in farming among youths as livelihood option enhanced</b>	% of school graduates taking up farming as a full time livelihood	0	15	SAP review report	Annually	SAP	CoRRB Director & DSE MoE
	% contribution to food consumption in schools	20	30		Annually	SAP	CoRRB Director & DSE MoE
<b>1) School</b>	No of	200	300	FAO	Annually	SAP	CoRRB



Result (outcome / output)	Indicator	Baseline	11 <sup>th</sup> Plan target	Data Source	Reporting Frequency	Reporting responsibility	Reporting to
Agri Program enhanced	schools under SAP			proposal with SAP			Director & DSE MoE
	No of FAT trained	150	300	10 <sup>th</sup> FYP SAP review report	Annually	SAP	CoRRB Director & DSE MoE
	No. of educated youth trained to take up agriculture	0	100	SAP	Annually	SAP	CoRRB Director & DSE MoE
	No of awareness campaigns organized	0	5		Annually	SAP	CoRRB Director & DSE MoE

**Table 5: Stakeholder list**

Stakeholders	Role
PPD	Resource mobilization; overall plan coordination
DoA/DoL/DAMC/DoFPS/BAFRA	Plan implementers; clients to receive advice
RNRDRCs/Central Programs/UWICE	Technology generators / collaborators
CNR/NSB/CBS	Data sharing; research collaborators
FAO/WFP/BTFC/ICIMOD	Funding partners
Farmers	Main beneficiaries / clients
DoSE, MoE	Program implementation partner
MoFA	International linkage
Regional / international research institutions	Scientists / knowledge exchange

**1. Program title: National Bio-security and Food Safety Program**

**2. Link to NKRA**

- a. Food secure and sustainable
- b. Sustainable management and utilization of natural resources
- c. Green climate resilient development
- d. Safe society
- e. Improve public service delivery

**3. Contribution to SKRAs:**

- a. Enhanced food and nutrition security
- b. Accelerate RNR sector growth through commercial farming, agriculture, livestock, and forestry enterprise
- c. Enhanced conservation of plant and animal genetic resources and natural heritage sites
- d. Enhanced sustainable forest, land, water and biodiversity resource management
- e. Enhanced efficiency and effectiveness of RNR service delivery

**4. Plan Targets (Baselines in brackets)-**

<b>Outcome</b>	<b>Outcome Indicators</b>	<b>Unit</b>	<b>11th Plan Target(baseline in bracket)</b>
<b>Outcome 1: National biosecurity/biosafety enhanced</b>	1. Proportion of known exotic pests and diseases prevalent in neighboring countries/world prevented from entry into the country.	%	100 (80) – animals 100 (na) - plants
	2. Proportion of transgenic plants/animals/their products (GMO/LMO) prevented from entry into the country.	%	100 (na)
<b>Outcome 2: Wholesome Food Safety and Quality Assurance enhanced</b>	1. No. of HACCP/ISO certified establishments increased	Nos.	11 (6)
	2. Mandatory labeling of imported food commodities	%	100 (0)

**Baseline and Target justification:**

**Outcome 1:**

Indicator 1:

World Organization for Animal Health and International Plant Protection Convention have lists of diseases and pests prevalent in many countries around the world. Considering those diseases and pests which have not been recorded in Bhutan in the past 10 years as exotic, a baseline was calculated and fixed at 80% because Bird Flu, PPR, PRRS etc. which were exotic till some years back gained entry into the country and are no more exotic. With the increase and improvement in quarantine facilities, human resource, technical know-how and regular risk assessment carried out, we are targeting at 100% prevention of such diseases by the end of 11 FYP.

Indicator 2:

BAFRA does not have the required capability and facilities to detect GMO/LMO at the moment. However, the laboratory capacity is being developed at National Food Testing Laboratory (NFTL) through Biosafety project along with training of laboratory officials. Besides, legal instruments are also being developed. Once such facilities are in place and human resource developed, we are targeting at 100% prevention of GM plant/animals entering the country through legal means.

**Outcome 2:**

Indicator 1

Currently there are six food business operators which have been certified with HACCP/ISO food safety management systems. In the 11th FYP, five more food business operators will have such food safety management system in place

Indicator 2

Efforts put in by BAFRA to implement mandatory labeling of imported foods items so far have been in vain due to opposition from various stakeholders. Once this labeling issue is resolved, all the imported food items will have required labeling.

**5. Total outlay (Nu in millions):**

	<b>Current</b>	<b>Capital</b>	<b>Total</b>
<b>Total Budget</b>	<b>464.24</b>	<b>224</b>	<b>688.24</b>

**6. Source of Funding:** RGOB/Donors

**7. Start and End Date:** July 2013 to June 2018

**8. Status of readiness:**

The BAFRA has coverage of almost the entire country with offices located in 20 Dzongkhags. However, only six Dzongkhags have proper office space. It needs land for construction of such offices in the Dzongkhags and in strategic locations. It also needs land for construction of a quarantine station in Phuentsholing.

## **B. Program Justification**

BAFRA is mandated to carry out the following activities, hence justifies its programme.

- a. Implement RNR related legal instruments such as the Plant Quarantine Act, Seed Act, Pesticide Act, Livestock Act, Food Act, National Biosafety Framework, Forest and Nature Conservation Act, Biodiversity Act and their secondary and tertiary legislations.
- b. Implement sanitary, phyto-sanitary and zoo-sanitary measures effectively to protect the health and life of humans, plants and animals including the environment from risks of entry, establishment and spread of exotic pests and diseases.
- c. Functions as the National Food Inspectorate since 2003. It ensures that food is of quality and safe for human consumption.
- d. Regulate and promote the quality of agriculture inputs (seeds, agro-chemicals, livestock, veterinary biological, etc) and products including foods
- e. Facilitates development of agro-based industries, trade and increased market access in the global market through standardization and implementation of quality assurance system
- f. Function as the National Competent Authority to implement the National Biosafety Framework of the Kingdom of Bhutan 2006 as per the Cartagena Protocol on Biosafety to ensure safe transfer, handling and use of Living modified Organisms (LMOs), Genetically Modified Organisms (GMOs) and their products.
- g. Function as the Focal Points for International Organizations viz., IPPC (International Plant Protection Convention), CAC (Codex Alimentarius Commission), the National Enquiry Point for WTO-SPS Agreement (World Trade Organization-Sanitary and Phytosanitary Agreement) and as the competent authority for Biosecurity of Bhutan.
- h. Conduct relevant research aimed at improving regulatory measures related to food safety and protection of health and life of plants and animals, and environment.

As the programme is designed to protect agriculture crops, livestock and the environment from exotic pests, diseases and genetically modified organisms as well as ensuring available foods are safe for consumption, it would contribute to realizing five of the sixteen National Key Result Areas (NKRAs) and five of the six Sectoral Key Result Areas (SKRAs), thus contributing to all the four pillars of the Gross National Happiness, the country's development philosophy. The cross-cutting themes in the program like capacity development, infrastructure development and e-governance have been taken care under the activity to strengthening of the system. The maximum part of the fund is from RGOB. However, certain part of the budget especially in areas of capacity development

and procurements related to GMOs/LMOs will be met from National Biosafety Framework Project, while long term HRD will be from external funding sources.

### **C. Implementation Strategy**

- a. Strengthen capacity in risk assessment and management as a foundation of biosecurity and food safety measures
- b. Strengthen regulatory and analytical human resources through recruitment and training programme
- c. Infrastructure development in strategic locations to maximize efficiency of bio-security measures
- d. Create wide public awareness on their roles and stakes in bio-security and food safety activities through educational activities and awareness programmes
- e. Develop and implement e-governance system (G2C, G2B, G2G) to improve efficiency of public service delivery, reduce administrative workload and reduce paper usage, and enhance record keeping for analysis, traceability and improvement of regulatory services
- f. Consolidate legislations required for bio-security and food safety

### **D. Risk Assessment**

1. Non-availability of land in some Dzongkhag for construction of quarantine station (Phuentsholing and Samdrupjongkhar), biological pits and Dzongkhag offices required for efficient implementation of the bio-security measures. Since, bio-security is a national concern, this issue needs to be discussed at national level and land be provided on a priority basis.
2. Staff shortage and non-availability of the skilled human resource have always been the bottleneck for BAFRA in the implementation of its mandates. Human resource development plan through recruitment and training of existing staff, encouraging existing staff to specialize in their respective areas will be given top priority.
3. Lack of funds for containment operation of random incidences of pest and disease epidemics (eg. Bird Flu/Citrus Greening). In the past, BAFRA had to use funds from other budget heads as we could not receive sufficient budget appraised to the Government for such random epidemics which hampered other activities. Bio-security preparedness fund scheme need to be established for readily available budget in times of emergency. Or budget allocation for these unforeseen emergencies needs to be maintained by the Ministry of Finance which can be released when required.
4. Resistance from the stakeholders including consumers to bio-security and food safety regulatory measures is expected. Focus on creating vigorous public awareness on their roles and stakes in bio-security and food safety activities through educational activities and programmes

**1. Programme Title:** *Information and Communication Technology Support*

**2. Link to NKRA:** *Improved public service delivery*

**3. Contribution to SKRA.....**

- *Accelerate RNR sector growth through dissemination of new technology*
- *Enhanced efficiency and effectiveness of RNR service delivery*

**5. Total Cost (Nu. In Millions)**

- **93.5 Millions**

**4. Source of Funding**

- **RGoB**

**5. Start and End Date**

- **2013 - 2017**

**B. Programme Justification:**

Information and Communication Services (ICS) is established as a non-departmental agency under the Ministry of Agriculture and Forests. It is entrusted with the mandate to disseminate RNR Information, Education and Communication (IEC) components through the use of modern ICT services, audio-video materials and print publications. Furthermore, ICS renders its support to various stakeholders under the Ministry through the utilization of IEC and ICT services in fulfilling their respective mandates.

In line with the government's policy of an ICT enabled Bhutanese society; the government has recognized the potential of ICT in delivering citizen services more efficiency and effectively. Therefore, ICS, being the ICT stronghold of the Ministry of Agriculture and Forests, has the responsibility to contribute towards materializing the government's vision with emphasis on the development and implementation of ICT enabled RNR services.

An RNR Sectorial ICT Master Plan has been drafted in line with the Bhutan eGovernment Master Plan 2012 to help ICS guide the Ministry's ICT development. The Master Plan outlines the three basic strategic directions (Establishing a RNR Knowledge Management System, Establishing ICT Enabled RNR Service Access Channels, and Strengthening ICT Infrastructure and Capacity at Gewogs) and various activities which will help in improving the effectiveness and efficiency of RNR staffs and RNR service delivery. Some of the major activities for the eleventh five year plan (11FYP) will be the establishment of online collaboration system, document management system, video-conferencing facility, connection of regional research centers and sub-centers to the Druk Research and Education Network (DrukREN), improving ICT capacity and infrastructure at gewogs.

Besides the implementation of RNR ICT Master Plan, ICS will also spearhead the usage of government-wide systems like Office Procedure Automation (OPA). Training and raising awareness of the use of G2C services and other applications will also be carried out. ICS will also implement safe data back up with the Thimphu TechPark. This will be done to ensure safe keeping of all official data of the Ministry as a whole, in the event of disasters and other calamities.

In addition, ICS strive to increase public awareness and understanding of the Ministry's activities, outputs and achievements through various media, such as print, audio, video and websites reaching out to the mass audience.

The Information & Communication Services contributes directly to two SKRAs [refer section 3] and one of fourteen NKRAAs [refer section 2]. Our country is still importing huge quantities of Agricultural products. Hence, our contribution towards the SKRAs relating to *Accelerate RNR sector growth through dissemination of new agriculture technologies and Enhanced efficiency and effectiveness of RNR service delivery through audio, video, print and online via website* can have huge impact on RNR sector growth. ICS plays crucial role in enabling the dissemination of right technologies in right time, which can be made possible by making available such technologies generated in various departments, agencies, research centres through various Information, Education and Communication materials to the ultimate clientele vis-à-vis extension agents and farmers.

Since ICS also has crosscutting mandates with all departments and agencies of the Ministry, ICS will also implements all communication components that comes with the projects, donor-based, and other regular activities with all departments and agencies of the Ministry.

### **C. Implementation Strategy:**

- Initiate production of more appropriate and improved print and publication materials considering all relevant NKRAAs, SKRAs & KPIs.
- Produce appropriate and better Audio visual materials considering all relevant NKRAAs, SKRAs & KPIs.
- Provide adequate information and communication technology support services such as G2C, OPA and ICT master plan implementation.
- Provide enhanced ICT services to increase productivity and for adoption of management techniques.
- Increase internet bandwidth of the Ministry to ensure faster connectivity, which will save time as well as enhance ICT services.
- Provide teleconferencing facilities to enable increased flow of information between the head quarter and other major central and field offices.
- Provide wireless internet connection to all gewog RNR centres to enable easy access to information and technologies.

- Collect feedbacks from various departments and agencies & be responsive to various needs and issues within and beyond the Ministry

These are pursued through various mechanisms catering to the grassroots' great need of information.

**Risk management:**

Lack of collaborators

- ICS have been doing consultative meetings with the stakeholders/focal person of the department to address the issues which is of not much success. Lack of support from the collaborators could be addressed through process of more consultations.
- Lacks of budget – Since ICS has no donor/projects components, all the programs implementations are supported through RGoB funding. This limits the availability of the funds.
- ICS will implement all communication and publication budgets with all departments and agencies. Hence, ICS need to work in close collaboration with all departments and agencies

**D. Programme Activities:**

- Development of Information Education & Communication (IEC) materials
- Enhance RNR ICT services



1. **Program Title:** Biodiversity Conservation and Sustainable utilization

2. **Link to NKRA:**

3. **Contribution to SKRA:**

- a. Enhance food and nutrition security
- b. Generate additional employment opportunities and increase mean annual rural household cash income
- c. Enhance conservation of plant and animal genetic resources and natural heritage sites
- d. Enhanced sustainable forest, land, water and biodiversity resource management
- e. Enhance efficiency and effectiveness of RNR Sector service delivery

4. Plan Target (Baseline)----- (Indicate target(s) with baseline in brackets)

	<b>Outcome</b>	<b>Weight (%)</b>	<b>Outcome indicator</b>	<b>Unit</b>	<b>Baseline</b>	<b>11th Plan Target</b>	<b>Remarks</b>
1	Conservation and sustainable utilization of biodiversity enhanced		Increase diversity of biological resources conserved <i>ex-situ</i>	Species	439	855	Nos. Of species conserved at PGR gene bank, AnGR genebank and living collection.
			Status of agro-biodiversity maintained on-farm	No. Of varieties/breeds cultivated/reared	13	16	Assuming that unsustainable use would lead to extinction of varieties/breeds or if conservation is not promoted, it would also lead to loss of diversity

		Increase in revenue from sustainable use of biodiversity through bioprospecting and other sustainable use initiatives (BRD/BG figures)	Nu.in million	0.700	2.00	Income from Bioprospecting program, RBGS and any other income through sustainable use promoted by NBC
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### Description of the baseline and plan target

#### Outcome indicator baseline:

- I. Baseline for outcome indicator “Increase diversity of biological resources conserved *ex-situ*” is based on the number for species of crops, domestic animals and wild flora conserved at the genebanks and Botanical garden.
- II. Baseline for outcome indicator “Status of agro-biodiversity maintained on-farm” is based on rough estimates of traditional varieties of crops and local breeds of domestic animals maintained on-farm currently.
- I. The baseline for revenue generated from sustainable use of biodiversity is based on the income generated through the Access and Benefit sharing agreement currently under implementation.

#### Outcome target

- I. Out-come target one is based on the plan to collect additional species of traditional crops, native breeds of domestic animals, significant wild animals species and wild flora to be conserved *ex situ*.
- II. Outcome target two is based on the plan to continue maintaining current diversity of crops and animals on-farm and to promote three additional land races of crops in *on farm* conservation.
- III. Target for income earned through sustainable use of biodiversity is based on the assumption that we would be able to enter into additional ABS agreements with national and international companies in bioprospecting program and also that we would be able to expand commercialization of native ornamental plants through botanical garden income generation initiatives.

### 5. Total Cost (Nu. In Million)

Current: 78.95  
Capital: 107.15  
**Total: 186.100**

**6. Source of Funding:**

7. ITPGRFA , Bioversity International, BUCAP, BTFEC, FAO, etc.

8. **Start and end date:** July 2013 to June, 2018

9. **Status of readiness:** (Indicate status of preparedness- land, drawing/designs/feasibility study, etc)

- a. Land- NBC does not see land to be an issue as any proposed infrastructure development will be within NBC's property.
- b. Drawing/design- Centre has the basic concepts of the infrastructure proposed, however no drawings and designs are prepared as funds have to be secured first. This would also need technical assistance from designers, architects and engineers, which is beyond the technical expertise of the centre.
- c. Feasibility study- Most of the proposed activities of the centre are based on gap analysis of the centre's current activities in fulfilling the conservation and sustainable utilization goals, funding possibility and human resource availability. Required technical expertise is assumed to be developed as part of program implementation. Therefore, most of the proposed outputs and outcomes are found feasible to be achieved. Some activities which might need feasibility study to substantiate assumption are those highly technical activities such as development of *in vitro* facility; embryo and DNA conservation facilities, while establishing duplicate conservation facility need to take account of cost-benefit analysis.

**B: Program Justification:** (Describe the problem program expects to address; explain program contribution to the NKRA/SKRAs and KPIs based on four pillars of GNH; how cross cutting themes have been mainstreamed- see part 1 section; and explain outsourcing, PPP (Public Private Partnership), other funding mechanism explored)

**Conservation of environment is one of the pillars of GNH.** Environment has many components; biodiversity is one of the major components as biodiversity is the "basis for all ecosystem services". National Biodiversity Center being an agency established to coordinate biodiversity conservation and sustainable use programs in the country, it would continue to promote biodiversity conservation through both *ex situ* and on-farm (*in situ*) conservation programs and ensure that genetic diversity is captured before it is lost forever in order to harness it for food security, enhanced livelihoods and to build resilience of communities to climate change.

**Biodiversity is an important resource base for socio-economic development of the country.** The Centre recognizes the gap in sustainable use component of the biodiversity. Thus, in the 11<sup>th</sup> FYP, Centre aims to promote sustainable use of biodiversity through strengthening of bio-prospecting and ABS mechanism, and other means such as value addition and marketing of products of traditional crop and animal breed, promotion of native flora utilization, etc, thereby making contributions to socio-economic development pillar of GNH.

The erosion of traditional knowledge and traditional crop varieties and domestic animal breeds are some of the potential threats and impediment to preservation and promotion of culture. Documentation of Traditional Knowledge associated with biological resources is done with the primary objective to use this knowledge in bio-discovery and bio-prospecting; the primary objective for conservation of traditional crop varieties and breeds are to maintain the broad genetic base as insurance against future uncertainties; however, both these programs also has the potential and objectives to contribute towards **preservation and promotion of culture.**

The effective management of and access to biodiversity information underpins research, decision-making, policy advice and monitoring of biodiversity conservation and effectiveness of conservation measures. It is also widely acknowledged that impediments to information access represent the most significant obstacle to informed policy decisions and general appreciation of the value of biodiversity information. Therefore, strengthening biodiversity information system would be another major focus of the centre in the 11<sup>th</sup> FYP period. This program is thus expected to contribute to **environmental conservation and good governance pillars of GNH.**

**Lack of effective coordination mechanism amongst** different stakeholders involved in biodiversity conservation and sustainable use has created a “delink” between the national biodiversity action plan (a national guiding document in biodiversity conservation and sustainable use programs of the country) and the agency-specific plans. This has resulted in either duplication of efforts or negligence of some important components of the action plan. The lack of institutionalized coordination mechanism has also resulted in **“uncoordinated” status reporting to the regional and international conventions, in particular Convention on Biological Diversity.** Therefore, in line with the mandate of the centre, the centre would also focus on strengthening its coordination role through setting up of coordination mechanism and up-gradation of the Centre in consonant with mandates. This is also expected to support **environmental conservation and good governance pillars of GNH.**

In short, within the biodiversity conservation and sustainable use program, the centre’s focus for the 11<sup>th</sup> Five year plan would be to address the gaps in the current biodiversity conservation and management strategies and strengthen the sustainable use component initiated in the 10<sup>th</sup> FYP. The summarized areas of focus are:

- To increase national resilience to changing climate through focused *ex situ* and *in situ* conservation /research
- To educate and increase public awareness on the importance of biodiversity conservation and sustainable use
- To strengthen the sustainable utilization of biological resources through high-end research (bioprospecting and strengthening national capacities) and ensure benefits that can be ploughed back into conservation and sustainable use programs
- To strengthen information on biodiversity and access to it.

- To strengthen the Centre and its coordination role through institutional mechanisms especially in terms of evaluating and monitoring the BAP, meeting international obligations etc amongst biodiversity stakeholders.

**Funding:**

Other than the expenses for day to day operation and maintenance of the regular programs, NBC proposes to proactively source donors for all proposed activities. For most of the proposed activities for the 11<sup>th</sup> FYP, donors are either already identified or under active exploration.

**C: Implementation strategy:** (Explain how the program is going to be implemented to ensure timely completion and within approved cost, coordination efforts with relevant stakeholders/partners to avoid overlaps and duplications and plan for man power deployment.

The mandate to implement *ex situ* conservation of biodiversity rests with NBC alone, thus the *ex situ* conservation activities would be implemented directly by NBC in collaboration with other agencies like DoA, DoL and DoFPS.

The mandate to implement *in situ* conservation of wild biodiversity lies primarily with DoFPS, therefore, NBC will contribute to this component in the capacity of an active collaborator only.

The *in situ* conservation of domestic biodiversity would be implemented on farmer's fields and farms, where other agencies such as DoA, DoL, DAMC, Dzongkhags and the local communities would have stake. In this regard, NBC would take the role of lead agency to coordinate and source funding while actual implementation of the activities would be done through these agencies.

Sustainable use program proposed by NBC is largely from bio-prospecting perspective, which has been mandated to the centre alone. Therefore, it would be led and directly implemented by the centre. However, collaboration from agencies such as DoFPS, BAFRA, MoH (Menjong Sorig Pharmaceutical), DAMC, etc would be sought through active engagement of these agencies wherever necessary.

The program to strengthen the biodiversity information and access to it would need complete support from the various primary data generators as NBC does not generate all the biodiversity data. In this regard, NBC being a national focal agency on biodiversity information would take the role of a lead agency to source fund and coordinate while all other agencies which are the primary data providers would implement relevant activities.

The program to strengthen institutional capacity through institutionalization of a mechanism to evaluate and monitor the implementation of Biodiversity Action Plan is seen as potential mechanism to enhance coordination of activities amongst stakeholders of biodiversity conservation and sustainable use program. This would however, require up gradation of the Centre to a level equivalent to Directorate.

D: *Risk Assessment:* (indicate possible risks and how sector plans to overcome)

Possible risks-

- Risk of not getting donor funding.
- Inadequate of human resource and technical expertise.
- Lack of support from collaborators
- Lack of policy support/policy change

Plans to overcome potential risks:

- Source multiple donors.
- Source alternative means- international volunteers and *pro bono* expertise where ever possible.
- Actively engage collaborators through whole process of activity/project planning to implementation.
- Awareness raising and education

1. Programme Title: **National Organic Development Programme**
2. Link to NKRA (List the NKRA programme expected to contribute from the 16 NKRA)
  1. Sustain economic growth
  2. Poverty reduced and MDG plus achieved
  3. Secure and sustained
  4. Full employment
  5. Needs of vulnerable groups addressed
  7. Indigenous wisdom, arts and crafts promoted for sustainable rural livelihood
  8. Carbon neutral/green and climate resilient development
  9. Sustainable utilization and management of natural resources
  10. Integrated water utilization and management
  11. Improve disaster resilience and management mainstreamed
  13. Democracy and governance strengthened
  14. Gender friendly environment for women's participation
  15. Corruption reduced
3. Contribution to SKRA
  - a) Enhanced food and nutrition security
  - b) Generate employment opportunities
  - c) Increase mean rural annual income
  - d) Accelerate RNR sector growth through commercial farming and agriculture, livestock and forestry enterprise
  - e) Enhanced sustainable forest land and water and biodiversity resources
  - f) Promotion and conservation of culture (traditional farming)
  - g) Enhanced efficiency and effectiveness of service delivery (information, education, certification)
4. Plan Target (Baseline) 5000 acres (2069 acres) cultivated crops and 50,000 acres (38558 acres) under wild collection
5. Total Cost: **229.7** Million (Nu. In Millions Capital: **75.7** Mill; Current: **154.0** Mill)
6. Source of Funding - RGoB
7. Start and End Date 2013-2018
8. Status of Readiness
  - Currently NOP is mainly implementing the activities guided by the National Framework of Organic Farming in Bhutan, in absence of a national policy on organic

- Strategic Action Plan for development of organic farming is ready, based on which the 11<sup>th</sup> Plan was developed
- Master plan for organic development will be ready soon (final draft). The master plan has been developed as an expansion of the 11<sup>th</sup> Plan with additional assessment and recommendation for phase-wise transition to organic over next 15-20 years
- NOP- Coordination office in place, housed under the NPPC office block on temporary arrangement with minimum skeletal staff strength to coordinate the program.
- Implementation through line agencies is weak and needs strengthening, through dedicated coordinators for different sectors at national and regional level.
- There is a need for regional presence of organic program in order to be able to achieve national goals

**B. Programme Justification: (Include the vision/mission for MP)**

The National Organic Programme (NOP) is currently operating as a commodity program under the Agriculture Division, (DoA). In order to give more impetus to the organic programme across all RNR sectors in the 11<sup>th</sup> Plan and beyond and to achieve the national goals as outlined in the National Framework for Organic Farming in Bhutan (2007), there is a need to upgrade NOP to a full scale programme under the Department of Agriculture. Besides the new focus on green economy and carbon neutral development policies, the government has given greater attention to promote organic farming as the mainstream farming system in Bhutan. The vision and mission outlined in the Organic Master Plan will only be achieved with the program being given more significance at the national level in the 11<sup>th</sup> Plan backed by equivalent resource allocation. Organizational restructuring of NOP as a full scale program under DoA and corresponding resource allotment will ensure development of organic programs under all RNR sectors (Agriculture, Livestock and Forest) including certification/regulatory systems and marketing in the long run. NOP as a full program under DoA with dedicated coordinators for different sectors (mainly Livestock and Forest) to coordinate organic development programs in respective sectors will ensure greater participation of parent departments in growth of organic sector at national level. NOP under such organizational arrangement will operate as a coordination body at national level. NOP will function as a common resource pool for technical information, advocacy, education, marketing, research coordination and technical support to organic quality assurance system for organic sector development. The development of organic sector would contribute to the realization of GNH, EDP, and poverty alleviation and food security visions of the government at household level in the *11<sup>th</sup> Plan* and beyond.



The National Organic Development Programme will be implemented following an approach which is designed to give appropriate support to for different need groups or areas to bring focus and impact as shown in the table below:

**Organic Programme approach for focus**

Category 1	Naturally organic, remote areas, areas within National Parks, high altitude areas	For conservation of area/ watershed, household nutritional needs and food basket security. Developing integrated self reliant farming systems. Many NWFPs and highland products may be covered within this category
Category 2	Selected areas selected products linked to potential markets in local proximity	Production for local markets and building towards surplus production for market orientation. Farmer groups organized to produce for mainly local markets, e.g. hotels, resorts, public kitchens. Local Organic guarantee with Bhutan Organic logo for domestic market
Category 3	Any area suitable for production, any products identified as suitable for production for assured market	Contract growing or commercial scale production targeting export markets, may be certified by or through BAFRA in addition to Bhutan Organic.

**Implementation strategies across all RNR sectors (Agriculture, Livestock and Forest)**

1. Promote organic farming for food security and poverty alleviation in resources poor areas with little access to external inputs and markets in remote areas.
2. Maximize potentials for organic products for cash income in areas close to markets and have advantage for market oriented production
3. Research, Advocacy and awareness, education of producers, public, consumers and buyers to boost organic sector growth by supporting the whole value chain
4. Plant and animal health management and development of phase wise replacement strategy of synthetic chemicals in Bhutan
5. Input replacement for conversion to organic farming for soil fertility management, and animal feed and fodder development
6. Appropriate equipment and machinery for Bhutanese farming systems to enhance production and reduce farming costs/labour
7. To enhance the collective production, processing and marketing for organic growers by supporting common business platform

8. To provide a system of regulation and framework for organic trading and administration for the sector

### **Planning process and Field implementation**

This programme will be coordinated and facilitated by the National Organic Programme for linkage of the value chain for organic produce from all RNR sectors. However, the implementation of activities will be carried out through the technical sectors/agencies at national and regional level. The National Organic Programme shall ensure implementation of the activities through line agencies to achieve production targets through technical support, resource mobilization and information management systems. NOP Programme in collaboration with BAFRA and other service centres will ensure implementation of the organic quality assurance/certification systems.

### **D. Risk Assessment:**

1. Having an National Organic Policy will determine the growth and development of organic sector in the future
2. Priority and vision of the government towards organic sectors will have direct bearing on the implementation of the planned activities
3. Resource (finance and human) allocation in terms of institutional development and activity implementation will directly affect the output/outcome of the program
4. Coordination within and among the line agencies including private sector will have impact on organic production and market growth.
5. Establishment of a rigorous organic assurance/certification system and market development will take time and may not pick up immediately.
6. Effective research and development in organic technologies will be critical in transition to organic

### **Programme Profile Format**

#### *A. Programme Summary*

1. Programme Title: Rural Development Training
2. Link to NKRA
  - NKRA 1. Sustained economic growth
  - NKRA 2. Reduced poverty
  - NKRA 3. Food secure and sustainable
  - NKRA 5. Full employment
3. Contribution to SKRA
  - SKRA 1. Enhanced food and nutrition security
  - SKRA 2. Generate additional employment opportunities and increase mean annual rural household cash income
  - SKRA 3. Accelerate RNR sector growth through commercial farming and agriculture, livestock and forestry enterprises

#### 4. Outcome level Planned Target and baseline:

Sl. No.	Outcome	Outcome Indicators	Unit	Baseline	11th Plan Target
1	Enhanced capacity of youths; farmers; EAs and Institutional Development (cooperatives/group)	▪ youth, women and farmers trained	Nos	2162	3212
		▪ Extension officials trained	Nos	22	522
		▪ Teachers and students trained	Nos	241	660

4. Plan Target:

5. Total Cost (Nu. In Millions) capital (59.22 m Nu/current (50 m Nu)

6. Source of Funding: HELVETAS Swiss Inter-cooperation (HSI)/RGoB

The recurrent cost will be borne by RGoB while the capital cost (training) till 2014 is committed by HELVETAS Swiss Inter-cooperation.

7. Start and End Date: 2013 to 2018

8. Status of Readiness: Ready since this is an ongoing priority program with self employment focus with committed fund and program support from HSI till 31/12/2014.

#### B. Programme Justification:

To take advantage of the opportunities provide by the Economic Development Policy of Bhutan and ABSD, the farmers need to form groups and cooperatives to create economies of scale by bulking their products for marketing. The Department of Agriculture Marketing and Cooperatives was established to support the formation and growth of farmers groups and cooperatives to promote production and marketing of farm produces. The latest inventory of informal farmers groups published by DAMC shows 754 groups (227 agriculture sector related, 177 livestock related and 350 forestry related).

The Department of Agriculture Marketing and Cooperatives (DAMC) plans to formalize and support 500 farmers' groups which are focusing on renewable natural resources (RNR) based activities and 100 groups focusing on non-RNR based activities by the end of 2013. The DAMC foresees capacity development at all levels as critical for successful functioning of these groups. The capacity development requirement of DAMC as per their plan is to train 11610 participants who are involved in agriculture marketing and farmers groups and cooperatives development till 2013.

While market chain and value chain concepts and approaches were widely discussed, these are not actually implemented in the field situation. While DAMC advocates the use of the market and value chain approaches, RLP is piloting the approaches during the implementation of phase III project. Therefore, all the stakeholders will require sufficient knowledge and skills on market and value chain approaches to implement them in field. This is a great opportunity for RDTC to offer this capacity building services to DAMC and RLP in particular.

#### C. Implementation Strategy:

The programme will be implemented as a national mandate from the Rural Development Training Centre based at Zhemgang. The relevant stakeholders will thoroughly be engaged in the formulation of training plans to make the training relevant to all the stakeholders. They will be consulted for need assessments and development of training modules.

Dzongkhag extensions through Dzongkhag Administration will be the main partners in the implementation of the programme. Farmers groups and cooperatives will be the focus of the programme both for management and specialized production trainings. While long duration training that required special facilities will be conducted at the RDT centre, short and management training will be conducted at decentralized locations across the country to facilitate maximum participation especially the women participants.

*D. Risk Assessment:* (indicate possible risks and how sector plans to overcome.)

There is strong urban pull for the rural youths to move to urban centres which means the targeted population of the programme may not be available as planned. Moreover the support system for the trained youth is lacking presently which means the skills acquired may not be utilised fully. The centre will attempt to make farming attractive by means of diversification, mechanization and providing decentralized training, creating interface between financer, promoter and youth. Advocacy on farming as employment opportunity will be revamped. In terms of production support the centre will focus on capacity building of farmers' groups and cooperatives as the production scale presently is disaggregated.

1. Programme Title: Rural Development Training

2. Link to NKRA

NKRA 1. Sustained economic growth

NKRA 2. Reduced poverty

NKRA 3. Food secure and sustainable

NKRA 5. Full employment

3. Contribution to SKRA

SKRA 1. Enhanced food and nutrition security

SKRA 2. Generate additional employment opportunities and increase mean annual rural household cash income

SKRA 3. Accelerate RNR sector growth through commercial farming and agriculture, livestock and forestry enterprises

#### 4. Outcome level Planned Target and baseline:

Sl. No.	Outcome	Outcome Indicators	Unit	Baseline	11th Plan Target
1	Enhanced capacity of youths; farmers; EAs and Institutional Development (cooperatives/group)	▪ youth, women and farmers trained	Nos	2162	3212
		▪ Extension officials trained	Nos	22	522
		▪ Teachers and students trained	Nos	241	660

4. Plan Target:

5. Total Cost (Nu. In Millions) capital (59.22 m Nu/current (50 m Nu)

6. Source of Funding: HELVETAS Swiss Inter-cooperation (HSI)/RGoB

The recurrent cost will be borne by RGoB while the capital cost (training) till 2014 is committed by HELVETAS Swiss Inter-cooperation.

7. Start and End Date: 2013 to 2018

8. Status of Readiness: Ready since this is an ongoing priority program with self employment focus with committed fund and program support from HSI till 31/12/2014.

#### B. Programme Justification:

To take advantage of the opportunities provide by the Economic Development Policy of Bhutan and ABSD, the farmers need to form groups and cooperatives to create economies of scale by bulking their products for marketing. The Department of Agriculture Marketing and Cooperatives was established to support the formation and growth of farmers groups and cooperatives to promote production and marketing of farm produces. The latest inventory of informal farmers groups published by DAMC shows 754 groups (227 agriculture sector related, 177 livestock related and 350 forestry related).

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While market chain and value chain concepts and approaches were widely discussed, these are not actually implemented in the field situation. While DAMC advocates the use of the market and value chain approaches, RLP is piloting the approaches during the implementation of phase III project. Therefore, all the stakeholders will require sufficient knowledge and skills on market and value chain approaches to implement them in field. This is a great opportunity for RDTC to offer this capacity building services to DAMC and RLP in particular.

*C. Implementation Strategy:*

The programme will be implemented as a national mandate from the Rural Development Training Centre based at Zhemgang. The relevant stakeholders will thoroughly be engaged in the formulation of training plans to make the training relevant to all the stakeholders. They will be consulted for need assessments and development of training modules.

Dzongkhag extensions through Dzongkhag Administration will be the main partners in the implementation of the programme. Farmers groups and cooperatives will be the focus of the programme both for management and specialized production trainings. While long duration training that required special facilities will be conducted at the RDT centre, short and management training will be conducted at decentralized locations across the country to facilitate maximum participation especially the women participants.

*D. Risk Assessment: (indicate possible risks and how sector plans to overcome.)*

There is strong urban pull for the rural youths to move to urban centres which means the targeted population of the programme may not be available as planned. Moreover the support system for the trained youth is lacking presently which means the skills acquired may not be utilised fully. The centre will attempt to make farming attractive by means of diversification, mechanization and providing decentralized training, creating interface between financier, promoter and youth. Advocacy on farming as employment opportunity will be revamped. In terms of production support the centre will focus on capacity building of farmers' groups and cooperatives as the production scale presently is disaggregated.

**Programme Title: Policy Planning and Coordination Programme**

**3. Contribution to SKRA**

1. Enhance food and nutrition Security
2. Generate additional employment opportunities and increase mean annual rural household cash income
3. Accelerate RNR sector growth through commercial farming and agriculture, livestock and forestry enterprises
4. Enhance conservation of plant and animal genetic resource and natural heritage sites
5. Enhanced sustainable forest, land, water and biodiversity resource management
6. Enhanced efficiency and effectiveness of RNR service delivery

**Plan Targets (Baselines in brackets)**

<b>TABLE 1: Programme Result Matrix</b>						
<b>Sl. No.</b>	<b>Outcome</b>	<b>Weight (%)</b>	<b>Outcome Indicators</b>	<b>Unit</b>	<b>Baseline</b>	<b>11th Plan Target</b>
1	11 <sup>th</sup> FYP Targets of the MoAF realized		Increased Annual Performance rating	%	NA	90
2			Percent improvement in annual budget delivery( actual annual expenditure against the revised annual budget)	%	83	100

**4. Total Cost (Nu. In Millions)**

238.85 million

**5. Source of Funding**

RGOB/Donor

**7. Status of Readiness**

In terms of Human resource and capacity there is a team of experienced staff within the secretariat, through the implementation of the 11<sup>th</sup> plan the human resource capacity will further be strengthened. The Secretariat already has well established linkages with possible donor agencies for investment in the 11<sup>th</sup> FYP. However, the readiness of this programme will also be dependent on the readiness of the implementation of the programmes of the departments and agencies.

**B. Programme Justification:**

The Policy and Planning and coordination programme will play a central role in providing strategic direction and creating an enabling environment for the RNR sector through sound

policy and planning, effective coordination, legislative services, administration, financial, human resource management and development. This is to create a strong intra sector linkage between the various departments and agencies of the Ministry and also to have a good coordination with external agencies.

This programme will cut across the RNR sectors and will play an important role in coordination and harmonization of the plans and programs for the 11<sup>th</sup> plan. Hence, it will contribute to all the NRAs, SKRAs KPIs and outcomes that have been identified. Incorporation of the gender information into the RNR statistical system will further strengthen the information management system and also mainstream gender for future planning. The Ministry is also taking on board a number of new initiatives that not only concerns the Ministry but also reflects the interests and expertise of MoAF. Some initiatives such as climate smart agriculture, disaster risk management would have to be given due importance in the 11<sup>th</sup> plan and will be mainstreamed into the plans and programs of the departments and agencies.

### **C. Implementation Strategy:**

The programme will support overall planning and management of the investment programmes; liaison with the donor agencies for mobilizing funds and with the other ministries in the government for clearing programmes and projects.

The programme will also provide strategic interventions in coordination, collection, management and dissemination of RNR information, both statistical and spatial. In the 11<sup>th</sup> plan, to facilitate the realization of the overall SKRAs and the outcomes of the departments and agencies, new policies and acts will be drafted as well as amendments on policies will be carried out; strategies and guidelines will also be developed.

To further enhance the achievement of the goals of the 11<sup>th</sup> plan, the human resource development master plan, research and development programmes, service delivery, monitoring and evaluation will be strengthened and improved.

The Government Performance Management System will be adopted from the 11<sup>th</sup> plan and will be used as a physical and financial progress monitoring system for the planned programmes of the RNR Sector. The performance of the RNR sector over the 11<sup>th</sup> plan period will be measured as per the new system with the average performance targeted to be above 90%. PPD and AFD will also be involved in reviewing expenditure returns as a means of monitoring the implementation of the Departmental programmes and projects through quarterly budget meetings. The meetings will also be expected to bring up all issues related to budgets and ensure that the planned programmes are implemented and completed on time. Unlike the previous plans the 11<sup>th</sup> plan, reviews and monitoring will be conducted at shorter intervals which will ensure coordination among relevant stakeholders and also proper resource utilization.

### **D. Risk Assessment:**

1. Lack of Human Resources
  - Lack of human resources could be one of the major hurdles during the implementation of the 11<sup>th</sup> plan. The human resource development master plan could streamline the human resource requirement and development in the various sectors.
2. Funding delay



- Funding delay would lead to delay in implementation of activities hence leading to the overall outcome of the Ministry. Improved coordination and enhancing the capacity of the relevant finance officials would enable them to meet the specific procedural requirements on time.