

MAJOR PLANS, POLICIES AND STRATEGIES RELATED TO AGRO-ECOSYSTEM SERVICES

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The age of the modern agriculture in Nepal has been started with the establishment of Agriculture council and constructed Chandra Canal in 1937 with an attempt of institutionalizing development works in agriculture. However, desired changes were not

obtained and after the formation of the democratic political system in 1951 foreign aid and agencies started to play a major role in the formulation of national policies and planning. After the implementation of the First Five Year Plan in 1956, agriculture was identified as one of the top priority sectors for development. Despite of this, only after the Fifth Five Year plan (1975-80), agriculture has been given the top priority.

1. Constitution of Nepal, 2015 (2072)

Government of Nepal decided to transform Nepal into federal, democratic and republic country through a new constitution 2072. Following the election of all three levels, the Government has initiated the implementation of federalism through administrative restructuring and fiscal budgeting. After introduction of the new constitution in Nepal, the unitary country has been restructured into 7 provinces securing right and responsibilities of all citizens. These provinces have been divided mostly on the geographic, socio-cultural and unique perspective of agriculture development taking care of biodiversity conservation by minimizing the negative impacts of industrialization and physical development. Province 2 has mostly tropical climate, province 4 and 6 have largely temperate climate and are less diverse, while Provinces 1, 3, 5 and 7 have both temperate and tropical climates and more diverse in terms of agriculture crop production potentialities. These provinces will be interdependent to each other in terms of economic production, surplus in certain commodities and deficit in others, thus enjoying inter-dependency for inputs and product markets and also with proper institution supports for carrying out such agriculture activities at province level. Constitutionally agriculture is more state matters and it has also been the concurrent function of all central, state and local government. Thus, authority of agriculture extension lies with local and state while regulatory and policy strategies are through the central level.

2. National Agro-biodiversity Policy of Nepal, 2007 (2063)

The Agro-biodiversity Policy of Nepal has the vision to conserve and sustainable use of agricultural genetic resources/materials and associated traditional knowledge with the participation of concerned stakeholders for present and future generations. The policy recognizes agro-biodiversity as an integral component of biodiversity based on the spirit of international treaties / agreements and national initiatives in order to ensure social, economic and environmental benefits to the Nepalese people. Its objectives were-

- To enhance agricultural growth and ensure food security by conserving, promoting and sustainably using agro-biodiversity.
- To protect and promote the rights and welfare of the farming communities for their indigenous knowledge, skills and techniques (IKT).
- To develop options for a fair and equitable sharing of benefits arising from the access and use of agricultural genetic resources and materials.
- To create effective management, commercialization and use of agricultural genetic resources in the present context of exploiting local national and international markets and in international regulations on trade.
- To contribute in maintaining sustainable ecological balances (ecosystems services) over time.
- To promote the conservation and use of agro-biodiversity in the contexts of national seed, food quality and safety, and product marketing regulations

- To promote inter-ministerial, inter-sectoral consultation, problem identification and regulation development as far as agro-biodiversity is concerned.

3. National Agriculture Policy, 2004 (2061)

The National Agriculture Policy was formulated to create an enabling environment for agriculture-led rural development. It emphasizes competitiveness of agriculture sector encouraging farmers to go for commercial production. The policy aims at increasing productivity and promoting natural resources to utilize them in the interest of farmers. The long-term vision of the agriculture sector is to bring improvement in the living standards through sustainable agricultural development by transforming subsistence agricultural system into a commercial and competitive agricultural system. The policy emphasizes on increased agricultural production and productivity, making agriculture competitive in regional and world markets with commercial agriculture system, and conserving, promoting and utilizing natural resources, environment and bio-diversity. Its one of the weakness is draft of land use policy has been developed but not implemented.

4. Rangeland Policy, 2012 (2068)

The Rangeland Policy was formulated to contribute to livelihood improvement and food security of the people, reduce internal migration and minimize the effects of climate change in the high hills and mid hills regions where the livestock farming is the major source of livelihood of people. For providing clear direction for managing uncontrolled extraction or harvesting of rangeland resources, like herbs and NTFPs, preventing the declining rangeland productivity and biodiversity due to uncontrolled grazing, minimizing the effects of climate change and environmental degradation, evaluating their roles in carbon sequestration, and promoting indigenous knowledge, skills, technologies, this policy was formulated and implemented, inter alia, recognizes the Department of Livestock Services as the lead agency for rangeland management, considers rangelands as under constant and serious threats, which require urgent attention, envisages sustainable use and development of natural rangeland with a view to support livelihood of the local people and also about the development of livestock sector through sustained feed supply and grazing management.

5. National Land Use Policy, 2012 (2069)

To solve the situation of increasing fertile land fragmentation and unplanned urbanization this policy was formulated. The policy ensures the optimum use of land and control land fragmentation; establish a link between agricultural with industrial sectors, and encourage optimal use of land for agriculture. The policy categorizes the land into the seven categories as agricultural, forest, residential, commercial, public, industrial, and others for the first time in the country. It ensures that fertile land is used for farming only, and bars dealings in land allocated for agriculture; and establishes the Land Use Management Department, which have experts from agriculture, irrigation, environment, urban development and management sector.

6. Land Use Policy, 2015 (2072)

After the devastating earthquake in the year 2015, this policy was formulated to manage the settlements safely from the natural disaster. This realized the problem on the food security due to reduction of agriculture production and productivity because of increased use of fertile

land in unproductive purposes, most of lands under fallow and uncontrolled fragmentation. The soil erosion, floods, landslides and desertification due to the environmental pollution and climate change causing to loss of natural resources, environmental degradation and loss of biodiversity and forests are of serious concern. The objectives of this policy is to ensure the food security, increasing agricultural production and productivity through conservation and best utilization of agricultural land, and reducing climate change impacts, natural disaster, biodiversity and environmental conservation.

7. Climate Change Policy, 2011 (2067)

Nepal formulated targets-based Climate Change Policy in 2011 to address the adverse impacts of climate change, by considering climate justice, through the pursuit of environmental conservation, human development, and sustainable development all contributing toward a prosperous society. The main objectives of the policy is to improve the livelihood by mitigating the adverse impacts of climate change, adapting to it, adopting low carbon emission, socio-economic development path and promoting the support and cooperation as per the commitments at the national and international mechanism related to climate change. The policy considers the importance of the sectors that are vulnerable to climate change, enhance the climate adaptation and resilience capacity of local communities for optimum utilization of natural resources and their efficient management, adopt the low carbon development path by making socio-economic development to climate change friendly and resilient society. It emphasizes establishment of a semiautonomous climate change center to coordinate the programs and projects, develop the capacity for identifying the present and future impacts of climate change, quantifying the impacts, adapting measures to be safe from the risks and adverse impacts of climate change, and establish a separate Climate Change Fund for implementing programs related to climate adaptation and resilience, and low-carbon development, identifying risks, carrying out studies/research, and developing and utilizing technologies.

8. The Agriculture Perspective Plan, 1995-2015

The Agriculture Perspective Plan is the important document for agriculture development in Nepal. The main objectives of the APP were to accelerate the growth rate in agriculture through increased factor productivity and it was emphasized on the technology-based green revolution in agriculture ensuring regional balance. Agro-biodiversity conservation was officially first included in the text of the Tenth Plan (2002-2007) which recognized that biodiversity is closely linked to livelihood and economic development. The objectives of the APP on the agrobiodiversity conservation were-

- To accelerate the growth rate in agriculture through increased factor productivity;
- To alleviate poverty and achieve significant improvement in the standard of living through accelerated growth and expanded employment opportunities;
- To transform subsistence-based farming to commercial agriculture through diversification and widespread realization of comparative advantage;
- To expand opportunities for overall economic transformation by fulfilling the precondition of agricultural development; and

- To identify immediate, short-term and long-term strategies for implementation and provide clear guidelines for preparing periodic plans and future programs.

9. Agriculture Development Strategy, 2015-35

This report covers the overall strategy for Action Plan and Roadmap and a rationale based on the assessment of the current and past performance of the agricultural sector. The vision of the ADS are-

- Future trends affecting the agriculture sector in Nepal
- Agricultural transformation
- Agricultural labor force
- Change in diet
- Globalization and trade
- Outmigration
- Green technology and low carbon emissions
- Diversification
- Distribution systems
- Quality and safety
- Cost of energy
- Climate change, natural disaster and global crises management
- Degradation of natural resources
- Fiscal discipline

10. Strategic Framework on Nature Conservation for Sustainable Development (NCNSFSD) (2015-2030)

In 1980, the International Union for Conservation of Nature (IUCN) prepared and started implementing the World Conservation Strategy. Being a member state of IUCN, Nepal also formulated and enforced the National Conservation Strategy (NCS) in coordination with the National Planning Commission (NPC) in 1988. NCNSFSD is an umbrella strategy for conservation of nature covering biodiversity, forest, water, air, land, cultural heritage as continuation of NCS. It emphasizes nature conservation, sustainable use of natural resources and equitable distribution of their benefits; hence, it covers all other sectoral strategies related to nature conservation. The major dimensions among them are integrating environment conservation into physical infrastructure development and economic and social development programs, documenting biodiversity and indigenous knowledge and skills for conservation, promotion and sustainable use, promoting ecosystem services through scientific, inclusive and participatory management of forest heritage, establishing genetic and seed banks, and encouraging environment-friendly agricultural production.

11. National Biodiversity Strategy and Action Plan (NBSAP) 2014-2020

The Nepal National Biodiversity Strategy and Action Plan was designed to provide a strategic framework for the conservation and sustainable use of Nepal's biodiversity for enhancing local livelihoods and eco-friendly national development, and equitable sharing of the benefits

accrued from utilization of biological resources among all sections of the society. It is a multi-sectoral strategy and plan with national coverage and the country's response to its commitment under the Convention of Biological Diversity (CBD). The NBSAP highlights the importance of biodiversity for food security and nutrition and also seeks the improvement in management of protected areas, forest biodiversity outside protected areas, rangeland biodiversity, wetland biodiversity, agro-biodiversity, and mountain biodiversity.

12. National Farmer's Commission, 2017

The National Farmers' Commission (NFC) has been formed as per the executive Order in 2016 with an objective to ensure and protect rights of farmers in agriculture, food, land, social security and agro-biodiversity issued by the Government of Nepal (GoN) as envisioned by the Agriculture Development Strategy (2015-2035). The main goal of this commission is to develop agriculture as a dignified and attractive profession with the creation of peasants' rights friendly environment for guaranteeing peasants' rights by facilitating the implementation of their constitutionally assured rights in co-operation with the GoN, and concerned stakeholders. The peasants right is the access and right of producer farmers to resources and means of food and agricultural production, agricultural goods and natural resources, rights to food sovereignty, rights to agricultural production, market and market price, rights on indigenous and gained knowledge, skill and technology, indigenous crop varieties, seeds, breed, varieties and breeds developed by farmers, rights to research, subsidies, relief, insurance, extension services and facilities, and farmers social security, right of participation of farmers in policy making level, and right to social justice.

13. Irrigation Policy, 2016

The Irrigation Policy, 2060 has been drafted on the basis of the achievement and experience, towards implementation of Irrigation Policy, 2049 (First Amendment, 2053). The objectives of the Tenth Five Year plan and the principle was incorporated in the Water Resources Strategy. The major goal of the policy was to be able to provide year-round irrigation facility with effective utilization of existing resources, to develop institutional capacity of water users for sustainable management of existing systems and to improve potential of the technical human resources, water users and NGOs related to the development of irrigation sector. However, identification, zoning and declaration of irrigable areas for agricultural purpose are not initiated.

14. Forestry Sector Policy, 2000

Increase in the population has created higher pressure on the forest. To reduce the pressure on the Terai, the Churia hills and the Inner Terai forest, the policy provided explicit management options for the forests. It has also given recognition to the Agricultural Prospective Plan (APP), Master Plan for the Forestry Sector (MPFS), and the Nepal Environmental Policy and Action Plan (NEPAP), all of which pay special attention to the management forests in the hills and the Siwaliks. The National Biodiversity Action Plan provides a broad framework for developing a comprehensive work plan for forests, Protected Area System (PAS), wetlands, mountains and agriculture. During the Ninth Year Plan, the forestry sector policy was

formulated with an objective of agricultural growth and food production. The main objectives are to mobilize, conserve and manage forest resources to reduce the gap between demand and supply, create income-generating and employment opportunities for poor and marginal families, mobilize local people to enhance productivity and adopt proper land-use practices.

15. National Seed Policy, 2000

The government of Nepal formulated National Seed Policy considering seven aspects for the growth of seed industry-

- Variety development and maintenance
- Seed multiplication
- Quality control
- Increased involvement of private sector
- Seed supply
- Institutional strengthening and
- Biotechnology.

The National Seed Policy has the following objectives-

- Availing quality seeds of various crops in required quantity
- Promoting export by producing quality seeds
- Making seed business effective in existing world trade
- Conserving indigenous genetic resources and coordinating with concerned organizations to ensure national rights of the resources.

However, availability of quality seeds of different varieties of cereals and vegetable is still a main problem.

16. National Fertilizer Policy, 2002

The fertilizer policy is sub-component of the government's initiative namely the National Agriculture Policy as set out in the Agriculture Perspective Plan. The main aim of the National Fertilizer Policy is to support agricultural production by ensuring production, import and distribution of fertilizers. Eventually, the goal is to improve soil fertility which would result in improvement of the agricultural productivity and ultimately alleviate poverty. This policy aims at making sure that fertilizers are available, the process of fertilizer distribution remains effective, competitive and transparent, quality fertilizers are used and the Integrated Plan of Nutrients System maintained. However, fertilizer availability in terms of quality, quantity, and in time is not ensured, and pricing policy implemented by the government is contrary to the fertilizer policy.

17. National Standards of Organic Agriculture Production and Processing, 2007

As the relationship between agriculture and environment has been recognized, some policy statements to reduce detrimental effects of agriculture on environment have been undertaken ever since the Seventh Plan. The 10th Plan (NPC, 2003) and National Agricultural Policy (MOAC, 2004) have, for the first time, spelt out policy statements regarding promotion of organic farming in the country. The policy documents have adopted one of their objectives as

to conserve, promote and utilize natural resources, environment and biodiversity, which vaguely infers to a kind of state emphasis laid on development of organic agriculture. In this regard, the state has enacted National Standards of Organic Agriculture Production and Processing, 2064. This policy has the following objectives-

- Specifies land arrangement for organic production,
- Prohibits agro-chemicals contamination in crop production and product transfer and storage,
- Use of inorganic feeds, GMOs/LMOs and radioactive devices and burning of organic wastes,
- Limits the use of fertilizers, undecomposed and poultry manure and town-compost,
- Emphasizes using local-variety,
- Organic seed source and no chemical seed treatment technique,
- Avoids torturous raring of animals, fetal implantation, cloning and hormonal use in animal production
- Limits artificial insemination in livestock as well as fish production
- Protects farmers for fair remuneration from their produces, and employees, children, consumers and tribal groups for their rights
- Provides structural arrangements for organic certification and
- Recognizes private sectors as key stakeholders in designing policies and organic certification.

18. Prime Minister Agriculture Modernization Project (PM-AMP), 2016

Agriculture has been one of the promising sectors for poverty reduction. Since the formulation of fifth five year plan (1975-1980) to tenth five year plan (2000-2005), the priority for poverty reduction was given to agriculture through increasing productivity of the existing crops and diversified production of horticultural crops. Transformation of subsistence farming to more commercialized and diversified was through Agriculture Perspective Plan (1995-2015). However, the growth of agriculture sector was limited only to 2.9% during last decade. Therefore, Prime Minister Agriculture Modernization Project (PMAMP) was launched with the objective of specialized production and programs as a national resourced project in 2016. Then agriculture production programs were initiated based on the specific products area developing zones and super-zones of specific crops, thereby insuring food and nutritional security of the population, developing value chain of the produce, strengthening capacity of local organizations, supporting agriculture mechanization, focusing on climate smart agriculture, insuring the supply of major inputs, like fertilizer and seeds for increased productivity with marketing networks. All subsidies and incentives for the farmers can be provided channeling through the Provincial Government in all agriculture development activities.

19. Zero Hunger Challenge National Action Plan, 2016–2025

Nepal has undertaken Zero Hunger Challenge (ZHC) to end hunger, food insecurity and malnutrition by 2025 as a vision that invites all stakeholders for collective actions to create a

hunger less society in the country. It has been accepted as a strategy that would consolidate ongoing poverty and hunger eradication efforts of all the national and international development partners working within the country. It intends to make best use of available resources for both currently targeted and new programs that are identified as necessary for filling the gaps in eradicating hunger in a sustainable manner.

The ZHC initiative emphasizes on addressing the issue of food insecurity and malnutrition and improvement for sustainable agriculture and food systems to overcome hunger and malnutrition. Recognizing their interconnected causes for poverty and hunger, they intend to address the underlying factors responsible for poverty, hunger and malnutrition.

20. The Local Government Operation Act (LGOA), 2017

This act recognizes the importance of involving local residents and interested parties in agriculture development. The LGOA authorizes the Gaunpalika/Rural Municipalities and Nagarpalika/Urban Municipalities to conduct the following functions:

- Formulation of policies, laws, standards, and plans related to agriculture and livestock development and their implementation, monitoring, and evaluation.
- Communicating information related to the marketing of agriculture and livestock products, infrastructure building for periodic markets, construction of small irrigation canals, conducting capacity development programs for farmers through training activities.
- Control of natural hazards and epidemics related to agriculture and livestock.
- Conservation of agriculture land and bio-diversity.
- Facilitation of loans for livestock insurance.
- Construction of roads for agriculture.

21. Agri-Business Promotion Policy, 2006

The policy aims to promote market oriented competitive agro products and internal and external markets for sustainable agricultural development and assure food security in the nation. But its main weakness are that commercial production areas, organic production areas, and export oriented production areas not initiated.

22. Agriculture Bio-diversity Policy, 2007

The Agriculture Bio-diversity Policy aims to protect, promote and utilize biodiversity for sustainable agricultural development and assure food security in the country. However, scientific documentation of diversified bio-resources is at limited level in the country.

23. National Forestry Policy, 2018

The policy aims to build the green economy, creates employment opportunities, supports tourism, increase carbon reservation, increasing the biodiversity (wildlife and flora) and water reservoirs through the sustainable forest management.

24. National Climate Change Policy, 2019 (2076)

Climate change have been directly experienced in forest and biodiversity, energy, human health, tourism, habitation, infrastructure development as well as in the areas of livelihood,

while there has been a huge loss of lives and property due to climate induced disasters such as flood, landslide, and windstorm and wild fire every year. Against this backdrop, this National Climate Change Policy, 2019 has been introduced with the objective of providing policy guidance to various levels and thematic areas towards developing a resilient society by reducing the risk of climate change impacts. Following are the objectives of the policy:-

- (a) To enhance climate change adaptation capacity of persons, families, groups and communities vulnerable to, and at risk of, climate change;
- (b) To build resilience of ecosystems that are at risk of adverse impacts of climate change;
- (c) To promote green economy by adopting the concept of low carbon emission development;
- (d) To mobilize national and international financial resources for climate change mitigation and adaptation in just manner;
- (e) To conduct research, make effective technology development and information service delivery related to climate change;
- (f) To mainstream or integrate climate change issues into policies, strategies, plans and programs at all levels of State and sectoral areas;
- (g) To mainstream gender equality and social inclusion (GESI) into climate change mitigation and adaptation programs"

Prospects of Agro-ecosystem Services and Policy Gaps

Still nearly quarter of population in the nation are living under conditions of poverty and social deprivation. Poverty alleviation is the biggest long-term development challenge for the government. The growth in agriculture has remained stagnant over decades despite a number of plans and policies in national level and international supports. In this sense, the plans and policies fail to address problems and issues relating to agriculture to some extent. The agriculture sector in Nepal has been facing a number of problems ranging from policy to implementation level due to many reasons.

- Complete organizational structure in agriculture sector has not been finalized yet under federal system, the critical judgements are required to finalize the structure so that needful functions do not get disturbed. The structures should be developed in such a way that highly essential services will be provided by local bodies, development functions by the provincial government and policy and regulatory functions by the central level.
- Agriculture is diverse sector, it requires specialists services from different disciplines like crop/horticulture/ livestock extension, business plan and market oriented production schemes; disease and pest management, soil and seed testing; a special units to link local bodies to provincial and central government are essentially required.
- Improved-agricultural technologies demand timely availability of improved seed varieties, fertilizers, and technical support including competitive marketing of the farmers produce, which are not resolved in time. The price for the agriculture production and market are complex, which drastically vary from farmer (producer) to consumer. Farmers' main complaint is the late price fixing after harvesting period and not paid timely. The crop insurance and security of farmers in terms of their commodity selling is not assured in time.
- Poor or lack of physical access has adverse impacts on the delivery of agricultural inputs on a regular basis, and there is shortage of agriculture storage centers that is essential in order to boost the commercialization of agriculture.
- Land fragmentation among Nepalese farmers is becoming a problem for the development of commercialization of agriculture, rather agriculture land is reducing due to urbanization.
- Due to climate change and modernization of commercial agriculture solely depending on high chemical inputs, farmers are facing problems of number of insect pests and diseases on crops that are devastating agriculture production and adding costs to farmers.

- The research-oriented agriculture policy and program seem to be supportive of sustainability, which is limited because of meagre funding and some results are only in the paper than reaching to the needy farmers in various geographic, climatic, soil variability domains of the country.
- To make all realistic, location specific research, regular funding and technical human resource development are necessary and all these provided by the government is insufficient in the agriculture sector.
- Hence to conclude, the agriculture friendly economic policy and effective implementation are required for agriculture development.
- National Planning Commission (NPC) is at the top to assess and approve all policies, programs and projects before they go into effect in the country and related stakeholders must have their great role and responsibilities to implement them all effectively.