

Study Report on Policy, Government Programs & Budget for Agroecology Promotion in Nepal

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LIST OF ACRONYMS AND ABBREVIATIONS

ADS	Agriculture Development Strategy
AGDP	Agriculture Gross Domestic Product
FNSP	Food and Nutrition Security plan
FY	Fiscal Year
GoN	Government of Nepal
LAPA	Local Adaptation Plans of Action
MoALD	Ministry of Agriculture and livestock Development
MSNP	Multi Sector Nutrition Policy
NAFSP	Nepal Agriculture and Food Security Project
NAPA	National Adaptation Programme of Action
NARC	Nepal Agriculture Research Council
SDG	Sustainable Development Goal
SUN	Scaling up Nutrition
ZHC	Zero Hunger Challenge
KCC	Kishan Call Center
FYM	Farmyard Manure
RM	Rural Municipality

EXECUTIVE SUMMARY

Agroecology is defined as the application of ecological principles to farming. It has been considered as a pathway to ensure sustainability, resilience and food security to combat the challenges including but not limited to climate change, high food and energy prices, biodiversity loss and lack of adequate investment and increment in world hunger, especially in developing countries.

It is practiced by millions of farmers across the world. However, it is still underfunded and not supported by prevailing Policies. Countries are entrenched in farming models inspired by the Green Revolution, with high use of chemicals and pesticides and concentration on a few crops for the international market.

AAI Nepal undertook this assessment to evaluate the extent of the Nepal's

support to agroecology, both in terms of policy and national budget. The baseline research looks at the main national agricultural and climate policies, the national budget as well as programs and announcements on the organic transition pursued by the Nepal Government. The analysis was then integrated with the results of community consultations to include farmers' direct experiences with agroecology and their own demands.

The study revealed vibrant experiences in the field and manifested how farmers practice agroecology to respond to climate change and build their adaptation even without the support from the Government. In case of Nepal, majority of the Nepali Population rely on agriculture be it employment or the livelihood and thus it has significantly contributed to national economy.

Acknowledgement

First and foremost, we would like to express our ardent gratitude to an entire team **of Forest Action Nepal and National Farmers Group Federation** who were involved from the very beginning in the process of Study and preparing Report on Analysis of Policy, Government Programs & Budget for Agroecology Promotion in Nepal.

AAIN Nepal has been promoting agroecology practices with their small holder's farmers since its' establishment in the year 1982 A.D. Herein, we would like to extend our gratitude to those small holder farmers who have been or are up to strengthen the approaches to agroecology practices onwards.

We would like to extend special thanks to particular **Team** who were involved in the process of this Study including **Dr. Krishna Prasad Paudel, Dr. Sujata Tamang, Sarda Thapa, Dipesh Nepal** and **Sindrela Dewan.** Similarly, our special thanks also go to the farmer communities, municipalities and **Karnali Province** who extended their support for this study.

Introduction

Agroecology is defined as the application of ecological principles to farming. It has been considered as a pathway to ensure sustainability, resilience and food security to combat climate change, high food and energy prices, biodiversity loss and lack of adequate investment and increment in world hunger, especially in developing countries.

There are bunch of literature and documented experiences concluding the success of the agroecology practices, but many national budgets still suffer from low level of investment in agriculture. A very few supports have been provided to agroecology as compared to more conventional agriculture, which is highly dependent on the use of pesticides and fertilizers.

The aim of this study commissioned by AAI Nepal, is to explore related Policies, Programs, and Budget Allocation to Agroecology in Nepal to use as a baseline for further research and advocacy work.



Methodology of the Study

This desk review research undertook a preliminary analysis of agroecology related policies such as agriculture, climate change and international frameworks, periodic plans, annual program, and budget, with the aim of assessing the status of the expenditure made by Nepal Government and policy provisions relating to agroecology. The national program and budget have been identified as key primary sources for information.

This desk review has both quantitative and qualitative analysis. The details of program activities and associated budget were drawn from the official documents, while the analysis was developed through discussions at various forums, lessons and reflections from a qualitative assessment and triangulation of data with the observation of field experiences, secondary data, structured interviews, and human stories. This study is based on both primary and secondary data collection. Field case studies were conducted to validate the findings, interview, and informal discussion with key stakeholders. The team gathered qualitative information to present case stories ranging from districts, rural municipalities (RMs) and farmer groups.

The research questions and checklist were discussed with project partners and presented to smallholder women farmers and their networks to record their needs and aspirations regarding agroecology. Initially, the review notes were prepared along with quantitative data information of budget allocation on agroecology and its expenditure patterns. Then both quantitative and qualitative data were categorized in themes, table and were presented in figures and diagrams.

Limitation

This study was carried out in a short period. Data were collected from Government and the analysis was generated after two years of rigorous data collection. Due to time limitation, the research team had to select two Municipalities in the east and west region, Karnali province and cases stories across the eco regions aiming to bring insights of diverse ecoregions and government levels. Nevertheless, the study will serve as a basis for further analysis to pave the way for better support to agroecology, food security and nutrition as well climate resilience in Nepal.





Policies Review related to Agroecology in Nepal

Agroecology refers to Khetipati in Nepali. The natural resource-based subsistence agriculture in rural Nepal is still dominant. There are various categories of agriculture system based on communities, resources base and landscape among which Agro-Silvi and Agro-Pastoral systems are the dominant in social forestry, community forestry, integrated farms, natural farming, eco-farming etc. (Adhikari & Dahal, 2015).

This section reviews various policies, planning, programs, and budget allocation for agroecology promotion in Nepal.

6.1 National Agricultural Policy 2004

- The Policy is currently being revised by MoALD. The 2004 version focuses on the commercialization of crops that are locally suitable and hold comparative advantage and opportunities.
- Moreover, the policy promotes improved inputs in agriculture (seed, sapling, gene etc.) and aims at regulating the use of agrochemicals, hormones, and pesticides instead of banning it.

6.2 Agrobiodiversity Policy 2007

- It was developed in 2007 and revised in 2011 and 2014.
- It aims to conserve agrobiodiversity and improve traditional exchange of seeds among farmers.
- It also identifies farmer's traditional skills, knowledge, practices, and learnings as crucial factors to conserve agrobiodiversity.

6.3 National Adaptation Program of Actions (NAPA) 2010

NAPA identifies needs for key adaptation in agriculture and food security in agriculture and food security. However, it does not specifically mention locally available seeds, green manure/bio fertilizer and pesticides to reduce the use of chemical inputs.

Based on it, there are procedural guidance prepared to guide actions at local level called Local Adaptation Program of Actions (LAPA). These guidelines outline the strategic actions as well as operational activities for climate change adaptation. However, the resources and process are not local and adaptive in practice. Analogous situation is observed in other NDCs such as biodiversity conservation and development, gender mainstreaming and indigenous rights.

6.4 Multi-Sector Nutrition Policy -MSNP (2013-2017/2023)

- The MSNP is a comprehensive and multi-sector policy which defines the roles and responsibilities of various Ministries to implement interventions related to nutrition.
- The plan is a direct outcome of the Scaling Up Nutrition (SUN) initiative. SUN is a global movement that brings together national leaders, civil society, bilateral and multilateral organizations, donors, businesses, and researchers in a collective effort to improve nutrition.
- SUN's priority commitments in Nepal are to implement and scale up evidence-based, cost-effective nutrition-programs of the MSNP; develop and implement a longterm National Food Security and Nutrition Action Plan.

6.5 The recommendations of International Organic Experts' Conference, 2019

The Ministry of Agriculture organized an International Organic Experts' Conference in May 2019 with an objective of government to make Nepal an Organic Country. The Conference outlet following recommendation:

- There are no possibilities to solve the prevailing food crisis problem, until and unless the needs and problems of small holder farmers are addressed at policy level.
- The current agricultural system based on external inputs is not sustainable as it is exploiting the natural resources basis. There

is the need to set an appropriate standard measure for sustainable development based on the per unit consumption of energy and water, should also focus on and less recourse on external investments.

- The use of chemical fertilizers and pesticides has caused problems to health, environment, and soil.
- The context, need and the efforts to transform the agriculture sector varies depending on the countries/state. In the context of Nepal, many parts are still organic by default. Therefore, it will be much easier for Nepal to go for Organic practice of Agriculture.
- To keep the soil healthy and to increase productivity, there are no other choices than opting for the transition to agroecology.
- The green revolution-based agriculture has not only impacted the environmental and soil health, but also human health. To live a healthy life, we must consume healthy food. And healthy food can only be grown with healthy farming practices.
- The indigenous breeds, seeds, knowledge, and technologies are in the verge of extinction. Until and unless this heritage is conserved, preserved, and promoted, we cannot even imagine sustainable farming.

6.6 Fifteenth Plan of National Planning Commission (2076/77-2080/81)

 The latest plan (fifteenth plan) of National planning commission has identified agroforestry as an approach to improve the quality of agricultural



land and foster productivity by conserving watersheds and environmental system.

- It envisions to establish at least two integrated organic farms in each province (for a total of 14).
- It further envisions to use agroforestry to produce high value crops such as medicinal herbs, aromatics, and spices. Its strategy is to develop and expand agricultural technologies including climate adaptive and resilient organic farming.

6.7 Agriculture Development Strategy-ADS (2015-2030)

The ADS is a long-term strategy to incentivize agricultural sector growth over the next 20 years.

- It emphasizes four strategic components such as; governance, productivity, profitable commercialization, and competitiveness of agriculture.
- It mentions certification and branding of organic products to increase added value of export crops and reduce trade deficit.
- The ADS proposes to contribute on food and nutrition security in all the outcomes, outputs, and activities included in the ADS documents.
- It recognizes the needs of the most disadvantaged rural population including lactating and pregnant women, Janajatis, Dalits, and groups in disadvantaged regions such as Karnali.



- In the productivity component, it proposes to increase local production in a sustainable way, to reduce vulnerability of farmers through improved food and seeds.
- The ADS claims an impact on food and nutrition security by improving food safety, trade for a more diversified diet and accelerating the growth of micro, small, and medium agricultural enterprises headed by women, youth, disadvantaged groups, and individuals based in disadvantaged regions.
- ADS also promotes organic/ biofertilizer as both supplementary and complementary to chemical fertilizer and facilitation of effective distribution and supply. However, it doesn't mention how they will make organic/biofertilizer available.
- ADS identifies organic farming as one of the green technologies.
- It's been observed that a flag ship program "Food and Nutrition Security Program (FANUSEP)" that includes sub-programs like the Nepal Agricultural and Food Security Project (NAFSP), Food and Nutrition Security Plan of Action (FNSP), and a new comprehensive program on food and nutrition security are closely connected with agroecology.

6.8 Zero Hunger Challenge National Action Plan (2016-2025), Nepal

Nepal is committed to the Zero Hunger Challenge (ZHC) declared by the Rio+20 Conference on Sustainable Development in Brazil in 2012.

- The MoALD also launched the Zero Hunger Challenge National Action Plan on December 19, 2014, with a view to make Nepal free from hunger and malnutrition by 2025.
- The ZHC initiative recognizes the significant importance of interconnectedness of food systems with the usage of natural resources that impact poverty, hunger, and malnutrition.
- The ZHC initiative strongly encourages the improvement of agricultural systems to overcome poverty, hunger, and malnutrition. This intends to ensure adequate micronutrient intake affordability.
- It also focuses on changing nutritional behavior for the best utilization of selected food items with the focus on sustainable production of food.

6.9 Sustainable Development Goals (SDGs), Nepal

- On 25th September 2015 all countries including Nepal adopted a set of goals to end poverty, protect the planet, and ensure prosperity for all as part of the new sustainable development agenda.
- Good Governance and Rule of Law at national and international levels are essential for sustained, inclusive and equitable economic growth, sustainable development and the eradication of poverty and hunger.
- For the goals to be achieved, everyone needs to do their part: the

governments, the private sector, civil society, and other stakeholders.

We need to be prepared to accomplish SDGs via developing culturally appropriate and effective advocacy materials and providing advice, recommendations, and tools for our beneficiaries (farmers and RSPs) to help them conceive, design, implement, and manage effective and efficient food and nutrition programs associated with the SDGs.

6.10 Policy Provisions at Province and Local Level

Following the provisions of the federal government policy, program, and budget, related to organic agriculture, as well as the cabinet decisions of Karnali province, various initiatives were taken to promote agroecology. Few Local Governments also started to prepare an Act relating to Agriculture of the municipality.
For example, Belaka Municipality of Udayapur district, Koshi
Province (Belaka Municipality, 2075). While others have prepared agriculture policy documents, municipality level strategic plans, such as Bijayanagar Rural Municipality of Kapilvastu district, Lumbini province (Bijayanagar Rural Municipality, 2078). These documents adopt framework and principles of Agroecology.

Nevertheless, several program interventions and strategies are still not working either because they are not designed holistically or are inappropriate to local conditions.

CASE STORY

Bed Kumari Luitel and her husband live in Buddhashanti Rural Municipality in south-eastern Nepal. They have been farming without chemicals since 2013 and are now some of the best organic farmers in their district, able to earn 100,000-150,000NPR (£680-£1000) a month.

They used to eat fruit and vegetables produced using chemical fertilisers, but after feeling ill, they chose to grow organic crops including cabbage, beans, cauliflower, chillies, dragon fruit and watermelon. Bed explained the challenges with organic farming include having limited technical knowledge on seed treatment, making organic fertilisers and pesticides, and the lack of access to market and limited government support.

"One of the benefits of organic farming is being able to use weeds, dry plants, rotten vegetables, manure and animal urine which are all easily available to make compost. Production is also cheaper and less time-consuming. Using agroecological practices in the farm we can maintain good health, save the soil fertility, and earn an income."



Program and Budget in Agroecology Promotion

This section includes the expenditure in agriculture and the budget allocation to agroecology.

7.1 Agriculture Expenditure as a Proportion of the Annual Budget

In Nepal, the budget allocation to agriculture as a proportion of total national annual budget ranged between 3.06 percent in FY 2000/01 to 2.73 percent in FY 2021/22, with an average of just 3.2 percent allocation as shown in **Figure 1**. The highest percent allocated in the last twenty-two years was 4.14 percent in FY 2014/15 otherwise the allocated budget for agriculture sector remained below 3 % in most of the years. Low budget allocation in agriculture sector might be one of the main reasons for the low rate of agricultural growth and low contribution to rural poverty reduction.

Figure 2 shows the percentage of programs and budget allocation for agriculture in periodic plans. Comparing the last seven periodic plans, the highest budget allocated was 16.3 % in the ninth five-year plan and it declined to 8.77 % in the fifteenth (ongoing) five-year plan, which is almost half. However, in the thirteenth three-year plan the percentage increased to 15.5. In general, the trend shows regressive budget allocation budget allocation for agriculture over the years.

The percentage of population engaged in agriculture is shown in **Figure 3** below.



Source: Ministry of Finance, GoN, 2078 (2021/22)



Source: Ministry of Finance, GoN, 2078 (2021/22)

The figure shows decreasing trend of population engaged in agriculture. Population engaged in agriculture declined from 68.86% in 2012 to 64.54% in 2020. Thus, in span of nine years, the population engaged in agriculture has declined by 4.32%. Figure 3 shows the growth of the agriculture budget along the national budget from 2009/10 to 2021/22. The annual agriculture budget growth relative to national budget is not consistent over the years. In the last twelve years the trend improved except for the fiscal year 2012/13, 2014/15 and 2019/20 (Fig 2, Table A2). There was a substantial budget growth (37.92%) for agriculture in 2016/17 and significant decrease (-15.72%) in 2018/19.

7.2 Budget and Expenditure in Agroecology

After 2015, the federal and provinces elected governments announced programs to promote organic agriculture and thus allocated budget for Karnali Province to promote Organic Agriculture.



Source: MoALD, 2078 (2021/22)





Budget and expenditure on agroecology



Added Budget on Agroecology



However, while analyzing the data, the budget percentage directly allocated to agroecology remained extremely low, almost insignificant, and gradually decreasing over years. Less than 5% in fiscal year 2020/21 and less than 1% in 2021/22 (MoEAP, 2021/22).

Out of the allocated budget to agroecology activities, some budgets were transferred to other headings such as field support activities that were not related to agroecology. In 2020/21, 4.21 % was transferred to other than the relevant topic whereas it is 28.21% in 2021/22. Almost 50% allocation has not been used in both fiscal years. Most of the unspent budget is meant for field support activities.

There is some budget that was added for agroecology from other related headings. Such additions are mostly related to training, learning exchange, study visits and learning.

7.3 Composition of Agricultural Expenditure and Program Priority among Research and Extension

The federal annual budget is composed of different chapters: the "regular" or

"recurrent" budget, the "development" or "operational" budget and the "capital" budget.

The largest share of the agriculture production program is for subsidies on chemical fertilizers, organic manure and seeds, training, and monitoring, purchase of electrical and other inputs, meeting, and expo etc. Among these, local seed promotion and conservation, promotion and development of organic manure and pesticides, research on locally available sources are less prioritized. Similarly, there are less budget allocation for crop production, food technology, seed quality control, agri-information and extension and training at farmer level, development of models, research of ITKs, and research on organic production.

7.4 Budget Allocation Patterns in Province and Municipalities

Budget allocation for Provinces and Municipalities depend on the bundle of authorities assigned to province and local government by constitutional arrangement and are guided by the federal framework of budget allocation. As usual practice, program and budget planning are initiated by the staff of the MoALD at province level under the guidance of the Ministry and by the agriculture section of the municipalities under the guidance of the local agriculture committee.

Out of the total agricultural budget of Bijayanagar Rural Municipality for FY 2021/22, the maximum amount of budget (41%) is allocated to conventional agricultural program, while only 1.41% is allocated for agroecology promotion programs. Distribution of seed of Dhaicha is the only program which promotes agroecology. Conventional agricultural programs like hybrid seed distributions, subsidies on input, and promotion of commercial farming get higher amount of budget.

17.02% and 24.82% are allocated for agriculture and livestock extension programs, respectively., while 15.52% is allocated for subsidy and insurance

Table 1: Distribution of Budget for Agricultural Program,Bijaynagar Rural Municipality (2021/22)Total agriculture budget NPR 70,50,000

Extension budget (Rs. 000)		Farmer support (Rs. 000)		Agricultural and livestock input (Rs. 000)	
Agriculture	Livestock	Subsidy	Insurance	Conventional	Agro-ecology
1200	1750	950	150	2900	100
17.02 %	24.82%	13.47%	2.12%	41.13%	1.41%

Source: Profile of Bijayanagar RM, 2021/22



Table 2: Distribution of Budget for Agricultural Program,

Belaka Rural Municipality (2021/22)

Total agriculture budget: Rs.1,80,00,000

Extension budget (Rs. 000)		Farmer support (Rs. 000)		Agricultural and livestock input (Rs. 000)	
Agriculture	Livestock	Subsidy	Insurance	Conventional	Agro-ecology
3495	2140	1810	200	5305	600
19.41%	11.88%	10.05%	1.11%	29.47%	3.33%

Source: profile of Belaka Rural Municipality (2021/22)

to farmers. Extension programs like round training to progressive farmer, visit program of farmer, farmer committee formation and meetings, monitoring and evaluation from livestock department of local bodies are prominent.

Out of the total agricultural budget of Belaka Rural Municipality for FY 2021/22, the maximum amount (29.47%) is allocated to conventional agricultural program while only 3.33% is allocated for agroecology promotion programs such as organic campaign, vermicompost making training, bio crop protection program and home garden promotion program.

19.41% and 11.88% are allocated to agriculture and livestock extension program respectively while 11.16% budget is allocated for subsidy and insurance to farmers. Farmers admiration and price distribution program, awareness to chemical use program, establishment of KCC, evaluation and monitoring program are the major extension program of Belaka Rural Municipality.

Table 3: Budget Allocated for AgriculturalSector, Karnali Province (2021/22)

Total Budget for agriculture program	Rs 1,46,40,00,000 (9.18% of total budget of Karnali Province)
Budget for Agroecology promotion	Rs 20,00,00,000
% of budget for Agroecology promotion	13.66 %

Source: MoLMAC, 2021/22

For FY 2021/22, Karnali Province has allocated 9.18 % of its total budget for agricultural programs. Out of this agricultural program budget, 13.66% is allocated for agroecology promotion in Karnali Region. The slogan "bot ra gotha ma lagani garau" is placed on the budget to promote the organic farming in the province.

Agroecology at Ground: Farmer' Experiences

The cases from the ground provide insights on the initiatives of the farmers, their focus and perceived benefit of agroecology. The team investigated more than 60 cases of agroecological practices. Here are some key findings from the analysis clustered under the different type of approach adopted by farmers.

Firstly, farmers adopt agroecology farm practices as **traditional** approach of sustainable agriculture in their family farms. While doing so, they have incorporated the new sustainable technologies, methods of eco-farm practices and integration of various agriculture practices. Most of the farmers have participated in integrated pest management (IPM) courses, permaculture training and worked as activists and former-employees who are aware of the shortcomings of chemicalbased agriculture practices.



Secondly, some farmers also applied more integral approach by designing their **farms as agroecological**, for example permaculture design at farm level, local races promotion and have designed the farm in an integrated way. These designed farms are exemplary in terms of varietal trials and research, capacity building support and promotion of organic technologies. Most of these are small scale enterprise and commercial farms with nursery outlets and training.

Thirdly, some farms are based on **organic inputs tools and techniques.** Most of the farmers use local resources in the process particularly to make organic fertilizers and pesticides. Garbage has become conducive to healthy crop production.

Fourthly, the group (mostly women & small holder farmers) is more concerned with **soil and human health** and therefore they have adapted different approaches of pest and disease control, and cultural practice to improve soil. Case stories suggest that most of these farmers have been influenced by the IPM programs sponsored by donors. Their claim on the benefits of



agroecology practices is loud and clear; "we've managed to keep our heart and liver healthy. What could be a greater benefit than this? "

Fifthly, **home/kitchen** gardens are another category of agroecology practices by applying diverse approach, technologies, and design in kitchen gardening. The variety of agroecological farming practiced by farmers suggests that the inspirations and motivation factors are diverse and multiple, but the key drivers are health, nutrition, and economic benefits. The stories shared by the farmers suggest that from their own practice they are building confidence on agroecology practices.

Apart from some project that are based or initiated with external or government's support, many of these farms are in operations and mostly sustained by farmers' own efforts without any external support.



Key findings

The understanding on agroecology among the actors and institutions is diverse. There is no reservation on relevance of agriculture as the basis for healthy food and nutrition.

The team found farmers to be clear with the "sustainable agriculture" and "conventional agriculture," however there is confusion around the basic principles that differentiate agroecology from other approaches such as organic agriculture or climate smart agriculture.

In terms of policy review, there are a very few references to agroecology principles and practices in the Nepali context. Policies don't incorporate subjects such as organic agriculture and/or climate resilience in agriculture. The dominant orientation of the agriculture system is guided by the "green revolution" framework. Financial subsidies tend to promote monoculture and the current notion of policy process is neither well informed nor articulated based on the overall changing context of agroecology. Additionally, there is a huge gap between agroecology policies and program implementation due to lack of clarity and motivations (long term policies and periodic plans) policy contradictions (agricultures policy and agriculture development strategy) and lack of coordination in implementation (organic vs inorganic activities) among others. Also, there is no consistency in presenting annual activities and budget at all levels of governments.

Similar is the situation with budget expenditure. There are some tokenistic initiatives to promote agroecology, but these are not the intended outcome of a clear policy framework rather an attempt to respond to ecological concerns raised by the environmental science. The raising global attention on the need to preserve healthy soil, food and nutrition is influencing the planning of activities but without commitment and continuation. The budget process fails to follow the principles of program planning, evaluation, and feedback mechanism while it focuses. more on agriculture tools and techniques than an integrated approach.

Field experiences are more explicative. The cases suggest that the farming practices are deeply rooted as traditional practices and continue to grow with the experimental learning and reflection of farmers. The field experiences demonstrate that there are diverse, adaptive cases across the country beyond the policy guidance and boundaries of program and budget. Farming is highly influenced by individual choice, experience and interests and there is an enormous potential to draw a wide range of lessons in improving agroecology practices from the direct experience of farmers. The contribution of women and small holding farmers, their indigenous knowledge and local innovations is paramount and show how agroecology is more sustainable, profitable and is implemented by confident and committed farmers.

Conclusion and Recommendation

Agriculture sector is crucial to respond to the current crisis and improve food security and nutrition in Nepal. Most of aforementioned policies and programs are designed based on the conventional knowledge of the agriculture system. It is important to transform Nepalese agriculture framework, policies, and practices towards being more agroecology sensitive, integrated, and supportive of sustainable food production.

Though the government seems to be politically committed in improving agriculture and food security and enhancing farmers' conditions, there is lack of understanding on the appropriate framework and policies to foster agroecology based on the conditions and the socio-economic context of Nepal. Most of these documents are prepared with donor and under international influence, which fails to identify and address the priority issues. Very often, the policies and strategies are not farmers friendly and nutrition sensitive and are mostly focused on curative and downstream approaches.

Now, it is urgent need to promote agroecology which has wide scope. There are several actors engaged in agroecology with various approaches but there is a lack of collaboration and coordination among them. Also, there is lack of coordination in curricula, research, and extension to scale up the innovations and new knowledge and technologies to address the current crisis. There is the need for more advocacy work and critical debate on how agroecology can boost food and nutrition security in the mountain ecosystem of Nepal. Therefore, it is highly desirable to create a forum/ platform to engage and reflect collectively on the issue of agriculture, food, and livelihood security in Nepal.

The study has revealed research gaps, particularly in capturing the variety of practices covering the ecological diversities allowing a more realistic picture of the Nepalese context. More research is needed on producing foods applying low input and local resources and technologies.

Many small holder farmers depend on agriculture for their livelihoods, so more resources should be lay aside for sustainable agriculture, natural resource management, conserving agrobiodiversity to improve the incomes and households' food security. Similarly, Policies should create the enabling environment for smallholder farmers development. Provisions should be made so that more budgetary resources reach farmer's groups for their greater empowerment. Pro-poor agroecology programs should focus on the specificity of local biophysical and socio-economic conditions.

The federal government must formulate clear policy and administrative framework to rural municipalities and should make them flexible to choose their priorities. The MOALD also should effectively provide guidelines to all layers of agriculture administration on how program and resource can be utilized for the maximum benefit of local farmers and food security.

The criteria and guidelines to provide subsidies and supports, services and inputs should be reviewed. To make agricultural extension more propoor and inclusive, farmers must be grouped based on economic status and gender where marginal and disadvantaged groups should not be left out. In the context of feminization of agriculture in Nepal, women friendly policies, institutions, and practices, should be kept at the center in policy planning as women farmers are key to succeed in agroecology promotion.

Considering the contribution of agriculture in National Economy, the Government should have more priority and budget towards agroecology promotion. The budget allocation however should be commensurate to improved financial governance, transparency, and absorptive capacity of spending at all levels. The policies, program and budget should be informed by field best practices and feedback mechanisms. Thus, to pinpoint, following are the recommendation of the Study:

- Policies should guide plans and programs towards sustainable agriculture. The policy development process must be informed by evidence, and well-coordinated, avoiding conflicts among different layers and sectors.
- Programs and allocation of the budget must address the issues of supporting small holder farmers to enable them to enhance production and productivity by providing appropriate technologies, inputs, and extension services.
- Similarly, the experience in field suggests that the agroecology is practiced by farmers to respond to climate change and build their adaptation. So, program and activities need to be informed by the farmers' experiences. These can be achieved by allocating more budget to promote FYM to farmers, market promotion to organic products and its price premium etc.
- The role of women in agriculture must be recognized where they can play a role as advocate for agroecology and lobby the government on other needs and important issues relating to farming.
- There should be a dedicated long-term effort of evidence-based advocacy that can contribute to shape the Policy on Agroecology.

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COUNTRY OFFICE

Apsara Marga, Lazimpat Ward No. 3, Kathmandu, Nepal P.O. Box. 6257 Tel.: +977 (0) 1 400 2177 Email: mail.nepal@actionaid.org