A Research on

Agroecology and Bio-Inputs in Nepal: An Assessment of the Organic Karnali Mission

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1. Introduction

Nepal has made commendable progress in terms of agroecology and bioinputs policies and regulations over the last few years. The Right to Food and Food Sovereignty Law 2018 and the Declaration of Organic Karnali Mission are solid examples to demonstrate the remarkable achievements the Nepalese peasant movement has made against corporate and chemical agriculture.

La Via Campesina defines agroecology as a model of agrarian transformation against industrial and corporate agriculture, against the privatization of resources, use of hazardous external inputs, trade and commodification of food, loss of seeds, land, and territory by people, and against the cause of climate change. [1] Thus, it is all about addressing agriculture as a whole, encompassing environmental sustainability and economic and social justice systems for all persons, with the political participation of the smallest farmers, women, and indigenous people. Agroecology is about farming practices that respect nature, or mother earth. It is a holistic approach to production that integrates science, people's resistance, and practices. A farming system based on a family farm model that protects small farms and traditional approaches but also guarantees their upliftment. It is a sustainable agriculture that avoids chemicals, protects soil and its fertility, and uses multi-storied or multi-cropping practices.

"Bioinputs" generally refer to biological materials or substances used as inputs in various processes, industries, or applications. These can include organic materials, biological agents (such as enzymes or microorganisms), or agricultural inputs like biofertilizers or biopesticides. They are often utilized in sectors like agriculture, pharmaceuticals, biotechnology, and environmental science to enhance productivity, create sustainable solutions, or improve processes using natural or biological components. The use of bioinputs often aligns with environmentally friendly practices and sustainable development goals due to their natural origin and reduced environmental impact compared to synthetic alternatives. Therefore, bioinputs are nothing more than biological inputs of plant, microbial, and animal origin that act on production systems.

[1] La Via Campesina, the largest global platform of small food producers, introduced the concept of food sovereignty and is the strongest defender of agroecology also referred as peasants' agriculture. [See: La Via Campesina, *La Via Campesina in Action for Climate Justice* (Berlin: Heinrich-Böll-Stiftung, 2018), https://www.agroecology-europe.org/wp-content/uploads/2019/02/La-Via-Campesina-in-Action-for-Climate-Justice_volume_44_6_1.pdf.]

If Nepal is moving towards the implementation of food sovereignty, genuine steps should be taken to promote agroecology and produce bioinputs locally, because without bioinputs, there is no agroecology, and without agroecology, there is no food sovereignty.[2] As we all know, there is a heated discussion around safe food, climate-friendly agriculture, sustainability, adaptation, and resilience. The International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD) concluded that "business as usual is no longer an option" and that the future of agriculture lies in biodiverse, agroecological-based farming that can meet social, economic, and environmental goals as well as maintain and increase productivity.[3] The analyses of the IAASTD show the need for an agro-ecological evolution in agriculture, food production, and consumption.

In Nepal, debates against chemical, industrial, and corporate farming are centered around the concept of organic farming. Though there are some fundamental differences, the use of these concepts implies mostly the reduction and avoidance of chemicals in agriculture.[4] Actually, this hegemonic discourse comes from the Food and Agriculture Organisation, as FAO has been intervening in policy formulation in Nepal in the name of technical assistance. In most of the policies formulated by FAO, farmers are not involved, but bureaucratic and non-government organizations are.

Organic farming involves employing eco-friendly methods for the management of weeds, pests, and diseases. The International Federation of Organic Agriculture Movements has identified health, ecology, fairness, and care as the fundamental principles guiding organic farming practices.[5] While the organic farming movement emerged in the post-1920 era as a response from agricultural scientists and farmers against intensive industrialized farming,[6] some experts contend that farming exclusively relied on organic methods prior to the 1920s, devoid of synthetic chemicals or pesticides.[7] Organic farming offers a host of benefits that extend beyond just producing food. One of its key advantages lies in the preservation of soil health, as organic practices eschew synthetic pesticides and fertilizers, promoting a more sustainable and nutrient-rich soil.

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[2] Pramesh Pokharel in his book *Krishiko Samajbadi Rupantaran* (Socialist Transformation of Agriculture) (2018) highlights the key aspect of socialist transformation of agriculture.
[3] The United Nations' International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) convened experts from around the world to investigate how agriculture can most effectively reduce hunger and poverty, improve rural livelihoods, and protect human health and it produced IAASTD report in 2009. https://www.globalagriculture.org/report-topics/about-the-iaastd-report.html.
[4] Oshin Sharma and Kundan Shrestha, 'Exploring agroecological farming in Karnali, western Nepal' 6 June 2023. https://www.icimod.org/article/agroecological-farming-karnali-nepal/.
[5] IFOAM Organics International, 'Home', 'Why Organic?', 'The Four Principles of Organic Agriculture', https://www.ifoam.bio/why-organic/shaping-agriculture/four-principles-organic
[6] Gregory A. Barton (ed.), *The Global History of Organic Farming* (Oxford: Oxford University Press, 2018).
[7] Korcak, R. F., 1992, Early Roots of the Organic Movement: A Plant Nutrition Perspective, Hort. Technology, American Society for Horticultural Science, 1992 (2), pp. 263-267.

Organic farming employs numerous techniques similar to those found in other sustainable agricultural methods, including intercropping, crop rotation, mulching, and the integration of crops and livestock.[8] Additionally, organic farming promotes biodiversity by avoiding genetically modified organisms and relying on natural pest control methods, fostering a healthier ecosystem.[9] As such, the use of biofertilizers can help to enhance food production by introducing living microorganisms to seeds, plant surfaces, or soil, facilitating nutrient availability for plants, and restoring the soil's natural nutrient cycle, ultimately promoting plant and soil health.[10] The absence of synthetic chemicals in organic farming also translates to fewer residues in the environment and the food chain, benefiting both human health and the overall environment. Intensive farming, enabled by the use of various chemical fertilizers, pesticides, and insecticides, has caused a multitude of soil-related physical and physiological problems.[11] Additionally, this practice is accountable for both soil degradation and environmental pollution.
Organic farming has a rich history in Nepal, with rural farmers traditionally cultivating their crops without pesticides or chemical fertilizers, although they may not have used the term 'organic.'[12] The shift towards formalizing and promoting organic agriculture gained momentum particularly after the implementation of the 10th Five-Year Plan (2002-2007), which prioritized reducing pesticide use and adopting organic farming practices.[13] This plan emphasized cooperation between cooperatives and the private sector to encourage the use of organic fertilizers.

The National Agricultural Policy further supports organic farming by facilitating certification for exportable agricultural products produced through organic methods and promoting the production and use of organic fertilizers to improve sustainable agriculture.[14] The recent fifteenth periodic plan focuses on transforming waste into organic fertilizers to promote sustainability.[15] It outlines strategies such as providing incentives for biogas plants and organic farming initiatives and establishing model integrated organic farms in each province, in collaboration with the

[8] FAO and TECA, 'Training manual for Organic Agriculture', fao.org/fileadmin/templates/nr/sustainability_pathways/docs/Compilation_techniques_organic_agriculture_rev.pdf
[9] Siddique, Saima, Madeeha Hamid, Ameema Tariq, and Alvina Gul Kazi. 'Organic farming: the return to nature'. *Improvement of Crops in the Era of Climatic Changes: Volume 2* (2014): 249-281.
[10] 'Developing Bio-fertilizers in Nepal' *Realliance*, 15 September 2020. https://www.re-alliance.org/post/biofertilizers-in-nepal
[11] Teg Bahadur Singh et al. (2020). Role of Organic Fertilizers in Improving Soil Fertility. In: Naeem, M., Ansari, A., Gill, S. (eds) *Contaminants in Agriculture*. Springer, Cham. https://doi.org/10.1007/978-3-030-41552-5_3
[12] Prakash Bahadur Chand et al, 'Factors Affecting the Adoption of Organic Farming in Far Western Hill, Darchula District of Nepal' *Tropical Agroecosystems (TAEC)* 3, No.1 (2022): 16-22. http://doi.org/10.26480/taec.01.2022.16.22
[13] National Planning Commission, *Tenth Plan (2002-2007)* (Kathmandu: National Planning Commission, Government of Nepal, March 2002), https://npc.gov.np/images/category/10th_eng.pdf
[14] Government of Nepal, *National Agricultural Policy, 2004* (Kathmandu: Nepal Law Commission, 2004).
[15] National Planning Commission, *The Fifteenth Plan (Fiscal Year 2019/20 – 2023/24)* (Kathmandu: National Planning Commission, Government of Nepal, March 2020), https://npc.gov.np/images/category/15th_plan_English_Version.pdf

private sector and cooperatives, to enhance farmers' capacities and promote sustainable practices. Apart from government initiatives, there have been significant contributions from non-governmental sectors towards the adoption and promotion of agroecological farming focused on utilizing bio-inputs with minimal to no negative impacts.[16] The production and utilization of bio-inputs are expected to contribute to the growth of certified organic production and increase farmers' access to international markets, which can benefit even small-scale farmers with the increased opportunity to get higher prices for their products.[17] Nevertheless, such policy and programmatic initiatives from international non-government organizations have often faced criticism for serving the interests only of these donors and not the actual interests of farmers. Despite all these plans, the government is frequently criticized for the shortcomings in policy formulation, ineffective implementation mechanisms, political interference, lack of subsidies and incentives to the farmers, inadequate market research, and a lack of technological support.[18] These governmental constraints are seen as key contributors to the ineffective promotion of organic farming in the country.

Amidst these initiatives and criticisms and in response to the growing global emphasis on sustainable and organic agricultural practices, the Karnali province of Nepal took a significant step by declaring itself an organic province.[19] This declaration reflects a commitment to fostering environmentally friendly, socially responsible, and economically viable agricultural systems. The fiscal year 2080–81 budget speech of Karnali Province outlines the provincial government's intention to promote and market indigenous and organic agricultural products through branding initiatives.[20] Although the provincial government has outlined its objective of promoting organic farming across the province, its effective implementation is still a challenge due to a range of factors. One of such factors involves the province's farmers' reluctance to fully adopt organic farming owing to a significant decline in crop production due to curtailment in the use of chemical fertilizers.[21] The provincial government of Karnali province has faced severe criticism following its decision to declare Karnali province an organic state, citing that it was a hastily made decision lacking adequate preparation, such as the establishment of essential infrastructure like pesticide testing laboratories and the limited availability of alternatives for farmers such as

[16] IFAD, 'Resilient High Value Agricultural Programme (R-HVAP): Project Design Report (Nepal)', https://webapps.ifad.org/members/eb/141/docs/EB-2024-141-R-4-Project-Design-Report.pdf
[17] IFAD, 'Resilient High Value Agricultural Programme (R-HVAP): Project Design Report (Nepal)', https://webapps.ifad.org/members/eb/141/docs/EB-2024-141-R-4-Project-Design-Report.pdf
[18] Gopal Datt Bhatta, Werner Doppler and Krishna Bahadur KC, 'Potentials of Organic Agriculture in Nepal' *The Journal of Agriculture and Environment* 10 (June 2009): 1-11.
[19] 'Government Planning with the Aim of Making Karnali an Organic State, Emphasis on Indigenous Crop Marketing' (in Nepali), *bizmandu* 17 Jeth 2078 (BS). https://bizmandu.com/content/20210531171846.html
[20] Ministry of Economic Affairs and Planning, *Budget Speech for the Fiscal Year 2080/81* (in Nepali) (Birendranagar: Ministry of Economic Affairs and Planning, Government of Karnali Province, 2080[BS]), http://moeap.karnali.gov.np/progressfiles/Budget-Speech-of-Karnali-Province-1686914619.pdf
[21] Krishna Prasad Gautam, 'Karnali farmers say they can't do without chemicals' *The Kathmandu Post* 30 September 2023. https://kathmandupost.com/money/2023/09/30/karnali-farmers-say-they-can-t-do-without-chemicals

organic compost and plant fertilizers, among other things.[22] The decrease in production could have a direct impact on the province's overall food security situation, particularly considering statistical data that highlights Karnali's annual deficit in food grain supply.[23] The goal of transforming Karnali Province into an organic state encounters significant hurdles, notably the ongoing influx of pesticide-contaminated vegetables from outside without undergoing quarantine checks.[24] Thus, it has become imperative for the government to urgently implement suitable plans and policies to safeguard farmers encountering unforeseen challenges stemming from reduced production. This approach is crucial to preventing any shortage of food in the province. In Nepal, there persists a visible gap in the farmers' grasp regarding approaches to organic farming principles, with many relying on locally available resources under the assumption that this alone is adequate. Unfortunately, this mindset overlooks crucial aspects such as understanding soil fertility dynamics and the importance of preserving plant micronutrients. Bridging this knowledge deficit could significantly enhance sustainable farming practices and yield positive ecological outcomes.

2. Objectives

The study was commissioned with the purpose of achieving three key objectives that include:

i) Assess the status of policy implementation and programme adoption concerning agroecology and organic farming in Nepal by examining the extent of policy implementation at various levels of government—national, provincial, and local.

ii) Investigate the alternatives provided by the state and different agencies to replace chemical fertilizers and pesticides for farmers in Karnali and, if any, the sustainability of the support system(s) provided to the local farmers.

iii) Assess how local farmers have reacted to the announcement of the Organic Karnali initiative and their ability to adapt to any modifications in agroecological methods and bio inputs in the region. Also, analyze the factors that affect farmers' choices to either adopt or oppose the Organic Karnali mission.

[22] 'Nothing Organic About It' *The Kathmandu Post*, 01 April 2024. https://kathmandupost.com/editorial/2024/04/01/nothing-organic-about-it
[23] 'Karnali Has Annual 19,116 Metric Tonnes Food Grain Deficit' *NepalNews* 18 October 2023. https://nepalnews.com/s/nation/karnali-has-annual-19-116-metric-tonnes-food-grain-deficit
[24] Krishna Prasad Gautam, '"Organic" province Karnali imports pesticide-laced vegetables' *The Kathmandu Post*, 26 March 2024, https://kathmandupost.com/money/2024/03/26/organic-province-karnali-imports-pesticide-laced-vegetables

3. Methodology and Approach

The study utilized a qualitative methodology, incorporating qualitative tools such as a comprehensive review of secondary literature and primary data collection through interviews. The literature review encompassed academic and gray literature sources, alongside an examination of federal and Karnali Provincial Government policies. Additionally, interviews were conducted with local farmers in Karnali Province, concerned government representatives of the federal as well as Karnali provincial governments, and non-government stakeholders at the federal and provincial levels.

Overall, this study has delved into the various facets of the organic declaration, evaluating its impact on agricultural practices, environmental conservation, socio-economic dynamics, and the overall well-being of the local communities. Through rigorous investigation and analysis of the existing legislation and policies, this study has sought to provide valuable insights that can inform future policies and initiatives, not only within the Karnali province but also serve as a reference for other regions aspiring to adopt sustainable and organic approaches to agriculture.

3.1. Review of literature and relevant policies

An extensive body of literature as well as laws and policies have been reviewed in preparing this report. In addition to laws and policies, the major programmatic initiatives led by the government and various non-government organizations have also been reviewed. The key laws and policies guiding agriculture and farming in Nepal have been listed below.

Table I: Laws and policies guiding agriculture and agroecology in Nepal

SN	Law/policy	Enactment year
Federal level		
1	Constitution of Nepal	2072 (2015)
2	National Agriculture Policy	2061 (2004)
2	Food Act	2023 (1967)
3	Pesticides Act	2048 (1991)
4	Seeds Act	2045 (1988)
4	Pesticides Regulation	2050 (1993)
5	Right to Food and Food Sovereignty Act	2075 (2018)

6	Lands Act	2021 (1965)
7	Plant Protection Act	2048 (1991)
8	Consumers' Rights Act	2054 (1997)
9	Consumers' Right Regulation	1999
10	Environment Protection Act	2053 (1996)
11	Environment Protection Regulation	2054 (1997)
12	National Standards of Organic Agriculture Production and Processing	2064 (2007)
13	Organic Fertiliser Subsidy Directory	2068 (2011)
14	Organic and Biological Fertiliser Regulation Procedure	2068 (2011)
15	Subsidy on Organic Agricultural Produce Certification Fees Rules	2069 (2012)
16	Subsidy on Organic Agricultural Produce Certification Fees Procedure	2069 (2012)
17	Procedures to regulate the provision of the National Organic Agriculture Relation Provider Agency	2069 (2012)
18	Internal Control System Guidelines for Collective Certification of Organic Agricultural Products	2069 (2012)
19	Procedures for Provision of Certification Fee Subsidy for Organic Agricultural Products Export	2069 (2012)
20	Grant Procedures for Organic Fertiliser Manufacturing Factories	2066 (2009)
21	Agriculture, Livestock, Land Management and Cooperative Sector Transformation Roadmap	2075 (2018)
Provincial level (Karnali Province)		
1	Karnali Province Organic Agriculture Act	2076 (2019)
2	Karnali Province Co-operative Act	2076 (2019)
3	Food Right and Sovereignty Act	2079 (2022)
4	Karnali Agricultural Business Promotion Act	2079 (2022)
5	Narkle Karnali Target Organic Promotion Programme	2075 (2018)

Note: The provided list is not exhaustive

The Constitution of Nepal 2015 asserts that "every citizen shall have the right to food sovereignty as outlined by the law," as specified in Article 36. Following this, the Right to Food and Food Sovereignty Act was established in 2018, and the Nepali government has recently released guidelines and regulations to enforce this act. This marks a significant and distinctive milestone in the movement by Nepali farmers towards an agroecological and food-sovereign nation. What remains crucial is to foster a supportive environment and demonstrate dedication to putting these measures into practice.

Similarly, another important policy document is the Agriculture Development Strategy (2015–2035). After the failure and end of the Agriculture Perspectives Plan (1995–2015), which was driving Nepal agriculture towards the green revolution, it was important to draft a new policy to guide the agricultural policies of Nepal for the coming year. The recent agriculture development strategy (ADS) envisions "a self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security, leading to food sovereignty." The strategies and pillars of the ADS are:

- Food and Nutrition Security
- Poverty Reduction
- Agricultural Trade Competitiveness
- Higher and more equitable Income
- Farmers' Rights ensured and strengthened

Therefore, the agriculture development strategy (2015–2035) has been one of the more progressive and pro-peasant documents as compared with other previous policy documents. The ADS was finalized with the representation and consent of the farmers. The historical document also has many elements, including peasant rights, as a strategy to develop the agriculture sector of Nepal. Similarly, it is towards achieving food sovereignty. It is yet to see the implementation of the ADS and thus the changes it can bring to peasant lives and the agricultural scenario of the country.

There are few policies and regulations for organic standards, certifications, and subsidies for organic certification and exports. The government also introduced a directory for the subsidy on organic fertilizer in 2011, but due to controversies over the standards of the fertilizers, it couldn't be a regular program of the government. Most notably, the Pesticide Act of 1991 and Pesticide Regulation of 1993 banned a few of the hazardous pesticides and set regulations with regard to the use of pesticides.

The Karnali Province also introduced a few policies and programs in line with national policies to move towards organic. It started with the declaration of the Organic Province in 2018 and the

formulation of the Provincial Organic Act in 2018. Many programs were launched, such as the Karnali Target Organic Promotion Program, by the government and a few projects by NGOs and INGOs. Actually, Jumla was declared the first "organic district" of Nepal back in 2007, and the use of agrochemicals for agricultural production was banned in the district. This, nonetheless, was an experimental case.

FAO is involved in formulating the Karnali Province Organic Agriculture Production and Processing Standards, 15-Year Karnali Organic Mission Plan, Participatory Guarantee System (PGS) Guidelines, Internal Control System (ICS) Operation Guidelines, and Organic Model Farm Standards and Implementation Guidelines.

International provisions/conventions favoring organic agriculture

Nepal has signed different conventions and made few agreements towards sustainable production and environmental conservation. Nepal has adopted a policy of adhering to the global Sustainable Development Goals 2030, under which organic agriculture can be enhanced and promoted. Similarly, Nepal has ratified different conventions, like the United Nations Convention to Combat Desertification (UNCCD) in 1994, the United Nations Convention on Biological Diversity (UNCBD) in 1993, the Cartagena Protocol on Biosafety in 2001, the United Nations Framework Convention on Climate Change (UNFCCC) or Kyoto Protocol in 2005, and the Paris Agreement in 2016. All these conventions are directly concerned with organic agriculture.[25]

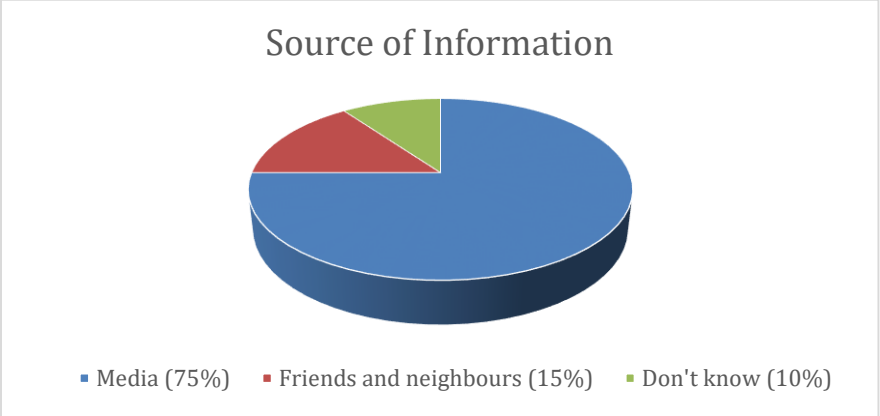
3.2 Interviews with farmers

A total of 20 interviews were conducted with farmers—11 females and 9 males—across all 10 districts of Karnali Province. These interviews were conducted by locally hired researchers. These locally hired researchers were provided an extensive in-person orientation by the project team members at SOLVE-Nepal's office in Kathmandu before deploying. The Kathmandu-based project team maintained regular communication with the local researchers during the interview process to stay updated on the collected field data. The farmers selected for this research were chosen based on their extensive experience in farming and their widespread recognition in their communities as exemplary model farmers. Their deep understanding of agricultural practices and their established reputations as leaders in their field made them ideal participants for this study. The farmers were identified based on their ability to provide comprehensive information relevant to this study, with the selection criteria also aiming to ensure, to the extent possible, the group was as inclusive as possible in terms of gender, caste, and ethnicity.

[25] P. Baral, R. Paudel, S. Kharal and A. Khadka, 'Organic Agriculture in Nepal: Policies and Practices' *Journal of the Institute of Agriculture and Animal Science* 36 (2020): 279-289.

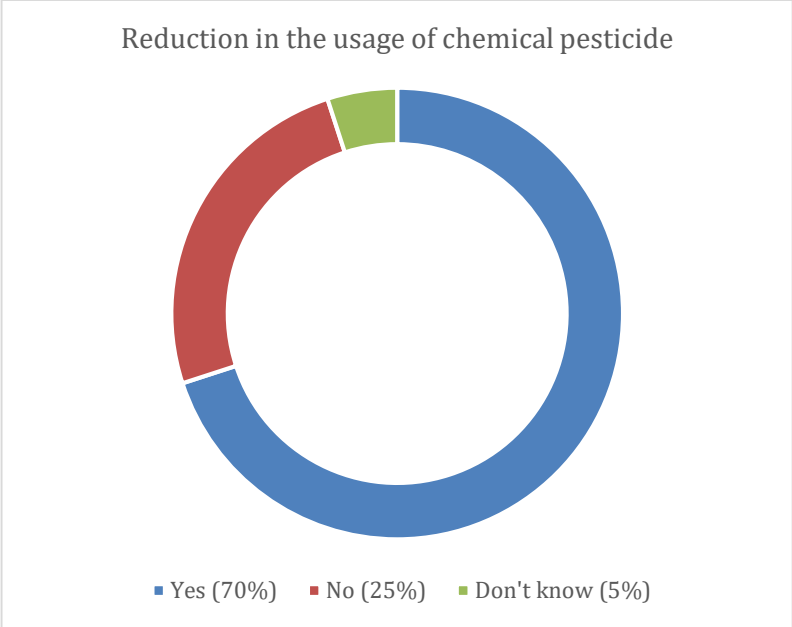
4. Key Findings

This study has found that a large majority of interview participants are aware of the Karnali government's initiative to promote organic farming across the province. Notably, a significant number of these informed farmers reported learning about the initiative through various media sources, such as radio, television, and the internet.

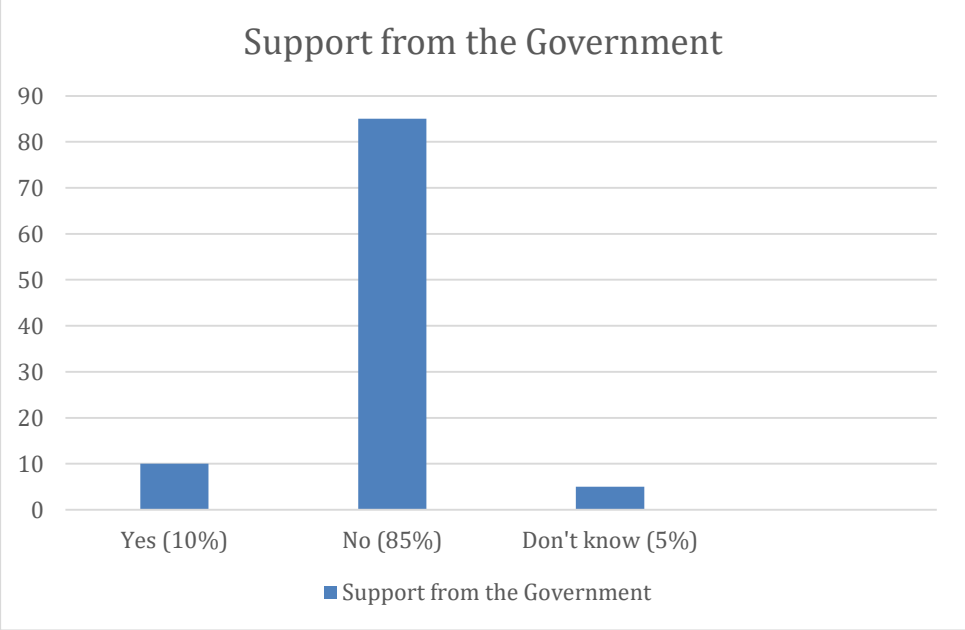


Although the majority of interviewed farmers reported being aware of the provincial government's "Organic Karnali" initiative, they have expressed concerns regarding the adequacy of information dissemination. Despite their general awareness of the initiative, many farmers lack detailed knowledge about its specifics and the support mechanisms in place for promoting organic farming. This gap in information has led to widespread criticism of local governments, with farmers across all districts unanimously highlighting the insufficient efforts made to support those interested in adopting organic farming practices.

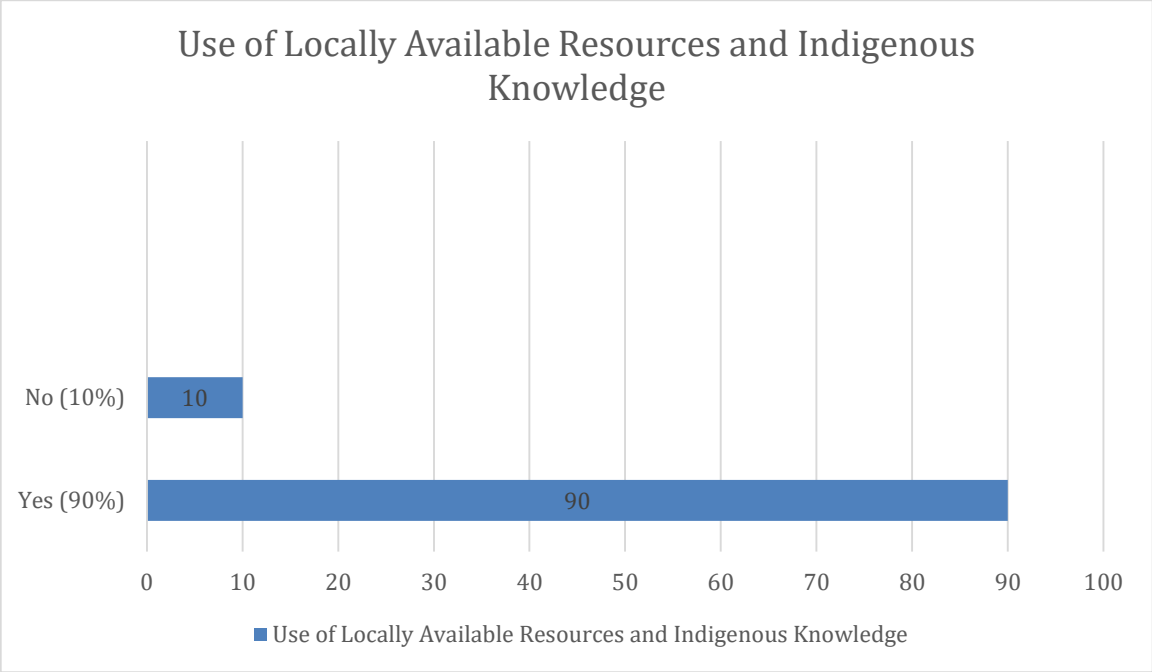
A large majority of study participants have reported a decline in the widespread and haphazard use of chemical pesticides in their areas since the provincial government declared the province to be an organic province. However, a few participants noted that this reduction has not been significant. According to the interviewees, this is primarily because the government has not provided adequate alternatives to these pesticides.



Although interviewees argue that there has been a significant reduction in the use of chemical fertilizers in Karnali province, farmers unanimously shared that the government's lack of adequate alternatives has added additional stressors. Without these alternatives, farmers may soon revert to using chemical fertilizers.



Ninety percent of the farmers who participated in the study reported relying on locally available resources and traditional knowledge to maintain organic farming practices. These farmers acknowledged that the local resources and the knowledge passed down by their predecessors have been crucial in sustaining their farming efforts, even when the absence of chemical fertilizers led to reduced crop production.



Discussion, Analysis and Conclusion

The “Organic Karnali” initiative, introduced by the provincial government, has sparked a significant shift among farmers towards reducing the use of chemical fertilizers. This transition, informed primarily through media channels, marks a positive step towards more sustainable agricultural practices. However, a notable gap exists as the government has not provided viable alternatives to these chemical fertilizers. Despite their enthusiasm for organic farming tools, farmers express concerns over new crop diseases exacerbated by climate change. This anxiety underscores the urgent need for government support in safeguarding local herbs, which farmers view as vital resources for disease management. The traditional practices of these farmers, such as the use of bio-tools derived from forest products and farming residues, highlight their commitment to eco-farming. Nevertheless, the success of “Organic Karnali” hinges on proactive governmental measures to equip farmers with the necessary resources and knowledge to combat emerging agricultural challenges.

Farmers in Karnali province are leveraging indigenous practices and locally available materials to sustain their crops and promote organic farming. They utilize local herbs to manage insect infestations, bamboo and other plants for crop storage, and medicinal plants to treat crop diseases. These methods not only demonstrate the farmers’ ingenuity but also their deep-rooted connection to traditional agricultural knowledge. The use of such eco-friendly practices aligns with the goals of the “Organic Karnali” initiative, yet the provincial government's role in supporting these efforts remains crucial. The lack of government-provided alternatives to chemical fertilizers and the growing threat of climate-induced crop diseases necessitates a more

robust support system. By promoting and protecting locally available herbs, the government can help mitigate these risks and ensure the sustainability of organic farming in the region. Ultimately, the success of "Organic Karnali" will depend on a collaborative effort between the government and farmers, emphasizing the need for continuous innovation and support in organic farming practices.

Besides the commitment through the constitutional measure to safeguarding the food autonomy of Nepali citizens, the country has only a few legislative and policy provisions comprehensively aiming to protect people's right to food.[26] In 2018, the Right to Food and Food Sovereignty Act was enacted, and the Nepali government has recently released guidelines for its implementation.

Nonetheless, there are existing policies and regulations that tackle the ongoing challenges across various sectors, including food and agriculture, land use, water management, forest conservation, and irrigation. This marks a significant and distinctive milestone in Nepal's agricultural landscape, reflecting the efforts of the Nepalese farmers' movement towards an agro-ecological and food-sovereign nation. The key now is to foster a supportive atmosphere and demonstrate dedication to executing these measures effectively. The initiative proved to be highly damaging from the standpoint of organic and agroecological farming. The Agriculture Perspective Plan (APP) placed considerable emphasis on the commercialisation of agriculture, which ultimately had detrimental effects. Designed as a long-term strategy for the agriculture sector, the APP nearly faltered due to several factors, including its donor-driven nature, growth-focused approach, and strong emphasis on exportation. Notably, this plan encouraged the widespread use of chemicals in agriculture, leading to increased subsidies for chemical fertilizers, hybrid seeds, and chemical pesticides.

Overall, farmers are pleased with the announcement of organic provinces. They believe that organic farming offers numerous advantages, including:

- Healthy/no side effect
- Efficient use of local resources
- Conservation of environment/No pollution
- Maintenance of soil fertility
- Lower economic burden to the farmers
- Testy and nutritious
- Longer durability in storage
- Balance of pest and predators
- Drawing foreign currency

[26] Article 36 of the Constitution of Nepal guarantees several rights regarding food, including the right of every citizen to access food, be protected from situations where their life is endangered due to food scarcity, and to food sovereignty as stipulated in the law.

However, these farmers have also noted several challenges of organic farming, and some of these key challenges, as noted by farmers, have been listed below:

- Inadequate knowledge and techniques available for organic agriculture
- Carelessness and lack of knowledge on organic products among consumers themselves
- Misconception that Production will decrease
- Lack of market
- Expensive or high production cost
- Scarcity of labor and organic farming is more labor demanding
- Lack of adequate biomass and organic manure
- More pest and disease problems since alternatives are not available or even use of natural pests
- Uncontrolled/cosmopolitan market of chemicals/no regulation from the government
- Good for apple, herbs and other products but difficult for commercial vegetable growers
- Lack of confidence among farmers
- Slow growth of plant and slow change in benefits
- Soils are less fertile due to their fragility, slope and geography
- Need more livestock
- Lack of organic manure and bioinputs

Recommendations

- Government should promote agroecology more than organic farming. Because Organic farming has also increased the burden of standards and certification.
- Integrated programs addressing ecological, economic and socio-cultural aspects should be applied for the development of agriculture through organic farming.
- Government should incorporate the food sovereignty as the sovereign rights of peasants
- It should also declare the WTO and GMO-free agriculture to make Karnali more self-reliant and sovereign
- There should be a suitable policy to recognize the value of traditional and indigenous knowledge in organic production methods, storage practices, seed conservation and seed propagation methods, preparation of farmyard manure etc.
- To support the organic farming and promote the market, micro-credits, co-operatives should be developed.
- Training and workshops should be organized

Annex I: Framers who participated in the study as interviewees

SN	Name	Gender	District
1	Indra Kumari Budha	F	Rukum West
2	Kamala BC	F	Rukum West
3	Surendra BC	M	Surkhet
4	Mira Dhakal	F	Surkhet
5	Bhim Bahadur BK	M	Rukum West
6	Kamala Kastari	F	Rukum West
7	Kamal KC	M	Salyan
8	Asha Kumari Shahi	F	Kalikot
9	Bhim Budha	M	Mugu
10	Ubjan Budha	M	Mugu
11	Binita Lama	F	Humla
12	Tanka Bahadur Bohara	M	Dolpa
13	Ekraj Basnet	M	Jajarkot
14	Tapendra Bhandari	M	Jumla
15	Shila Sira	F	Humla
16	Parbati Kami	F	Rukum Paschim
17	Gita Hamal	F	Jajarkot
18	Sangita KC BC	F	Rukum West
19	Samjhana Karki	F	Surkhet
20	Surendra Bista	M	Dailekh