



# THE MAINSTREAMING OF ORGANIC AGRICULTURE AND AGROECOLOGY IN THE HIMALAYA REGION

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POLICY CONTEXTS IN BHUTAN, INDIA AND NEPAL



SCHWEISFURTH  
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# The Mainstreaming of Organic Agriculture and Agroecology in the Himalaya Region.

## Policy Contexts in Bhutan, India and Nepal



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# Table of Contents

- Abbreviations ..... 5
- Preface ..... 7
- Introduction ..... 9
  - A Global Perspective ..... 9
  - Local Answers to Global Challenges ..... 9
  - Moving Forward, But Not Without Contradictions ..... 9
- Bhutan ..... 12
  - General Introduction: About the Country and Its Agricultural Sector ..... 12
  - Overview of Legal Frameworks, Laws, and Policies for Organic Farming ..... 13
  - Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology 14
    - International Conventions ..... 16
    - Detrimental Policies..... 16
- India ..... 18
  - General Introduction: About the Country and Its Agricultural Sector ..... 18
  - Farming on the Himalayan Range ..... 19
  - Overview of Legal Frameworks, Laws and Policies for Organic farming..... 20
    - Central Level ..... 20
    - State Level..... 23
  - Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology .26
    - International Conventions ..... 27
    - Detrimental Policies..... 27
- Nepal..... 31
  - General Introduction: About the Country and Its Agricultural Sector ..... 31
  - Overview of Legal Frameworks, Laws, and Policies for Organic Farming ..... 32
  - Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology .34
    - International Conventions ..... 35
    - Detrimental Policies..... 35
- Conclusion ..... 38

# Abbreviations

<b>ADF</b>	Agriculture Development Strategy
<b>APEDA</b>	Agricultural and Processed Food Products Export Development Authority
<b>BAFRA</b>	Bhutan Agriculture and Food Regulatory Authority
<b>Bt</b>	<i>Bacillus thuringiensis</i>
<b>DADO</b>	District Agriculture Development Office
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>FSSAI</b>	Food Safety and Standards Authority
<b>GAEC</b>	Genetic Engineering Appraisal Committee
<b>GM</b>	Genetically Modified
<b>GMO</b>	Genetically Modified Organism
<b>GNH</b>	Gross National Happiness
<b>HKH</b>	Hindu Kush Himalayan
<b>ICAR</b>	Indian Council of Agricultural Research
<b>LDC</b>	Least Developed Country
<b>MoAF</b>	Ministry of Agriculture and Forests
<b>MoALD</b>	Ministry of Agriculture and Livestock Development
<b>MOMA</b>	Manipur Organic Mission Agency
<b>MOVCDNER</b>	Mission Organic Value Chain Development for North East Region
<b>MT</b>	Metric Ton
<b>NCOF</b>	National Centre of Organic Farming
<b>NMSA</b>	National Mission for Sustainable Agriculture
<b>NOP</b>	National Organic Program
<b>NPOF</b>	National Project on Organic Farming

<b>NPOP</b>	National Programme for Organic Production
<b>NPR</b>	Nepalese Rupee
<b>OA</b>	Organic Agriculture
<b>PGS</b>	Participatory Guarantee Systems
<b>PKVY</b>	Paramparagat Krishi Vikas Yojna
<b>SDGs</b>	Sustainable Development Goals
<b>SHM</b>	Soil Health Management
<b>UNCBD</b>	United Nations Convention on Biological Diversity
<b>UNCCD</b>	United Nations Convention to Combat Desertification
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>USDA</b>	United States Department of Agriculture
<b>WFC</b>	World Future Council
<b>ZBNF</b>	Zero Budget Natural Farming

# Preface

There is no doubt that organic agriculture and agroecology provide an effective pathway for achieving the Sustainable Development Goals (SDGs) and delivering the 2030 Agenda. The sustainable management of our planet's natural resources underpins our ability to achieve these targets. The transformation of our agriculture and food systems will represent an essential step towards this vision.

The right to food is recognized by the 1948 Universal Declaration of Human Rights and was enshrined in the 1966 International Covenant on Economic, Social and Cultural Rights. However, discussion on achieving a world free from hunger is often associated with a plea for increasing productivity with any means. This short-sighted approach needs to be reversed. Food systems need to be transformed with a systemic and holistic approach, while food and those who produce it need to be valued. When food is produced in a sustainable way, it increases food security, preserves natural resources, enhances biodiversity, and reduces greenhouse gas emissions.

The complex nature of the challenges we face and the urgent endeavour our policymaking is called to address require public policies designed, implemented, monitored, and revised in a coherent, participatory, and comprehensive manner, as defined by the Seven Principles for Future-Just Lawmaking. These are based on the International Law Association's 2002 Delhi Declaration on Sustainable Development Law.<sup>2</sup> In addition, we have to ensure that our policies create a conducive environment for supporting the transition of our food systems. Hence these policies should respect the four Guiding Principles of Organic Agriculture<sup>3</sup> and the 10 Elements of Agroecology<sup>4</sup>.

With this vision in mind and guidance at hand, the Food and Agriculture Organization (FAO), the World Future Council (WFC) and IFOAM – Organics International jointly organized the *Future Policy Award on Scaling Up Agroecology* in 2018 to celebrate policies that scale up agroecology, protect the lives and livelihoods of small-scale food producers, ensure sustainable food production systems, and implement climate resilient agricultural practices. This award underlines that scaling up agroecology is an important pathway to achieving the Sustainable Development Goals. The 2018 Future Policy Award raised global awareness and encouraged policymakers around the world to adopt and implement the policies innovative elements in their own countries, states, and cities to support the change towards more sustainable food and agriculture systems.<sup>5</sup>

The Gold Prize winner, the Indian state of Sikkim, was chosen because it is the first state in the world to become fully organic. At the same time, Sikkim's approach reaches beyond organic farming production and has proven truly transformational for the state and its citizens. Embedded in its design are socioeconomic aspects like consumption and market expansion, cultural and health aspects as well as education, rural development, and sustainable tourism. As such, Sikkim sets an excellent example of how other Indian states and countries worldwide can successfully upscale agroecology.

This study is published by the World Future Council and IFOAM – Organics International with the support of the Schweisfurth Foundation. It presents a follow-up of our efforts to showcase existing political support for organic farming and agroecology, and brings new insight to the current

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<sup>2</sup> The International Law Association's 2002 Delhi Declaration on Sustainable Development Law, adopted by 192 states participating in the World Summit on Sustainable Development, describes seven principles of international law relating to sustainable development. The World Future Council's Policy Evaluation Framework is based on these seven principles and annually highlights laws and policies in line with them in its unique Future Policy Award, the "Oscar for Best Policies": <https://www.worldfuturecouncil.org/seven-principles/>

<sup>3</sup> IFOAM – Organics International, Four Principles of Organic Agriculture: <https://www.ifoam.bio/en/organic-landmarks/principles-organic-agriculture>

<sup>4</sup> FAO, 2017, 10 Elements of Agroecology: <http://www.fao.org/agroecology/knowledge/10-elements/en/>

<sup>5</sup> FAO-WFC-IFOAM, 2018, Future Policy Award on Scaling Up Agroecology: <https://www.worldfuturecouncil.org/p/2018-agroecology/> ; <https://www.worldfuturecouncil.org/wp-content/uploads/2018/10/FPA-2018-Brochure-for-web.pdf>

institutional efforts and limitations of mainstreaming sustainable agriculture across the Himalaya Region. It focuses on three countries: Bhutan, India, and Nepal.

Research for this study was based on the synthesis of information and understanding acquired through interviews, desk research, and previous investigation conducted for the Future Policy Award on Scaling up Agroecology and the *Guidelines for Public Support to Organic Agriculture*, published by IFOAM – Organics International in 2017<sup>6</sup>.

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<sup>6</sup> IFOAM – Organics International, 2017, *Guidelines for Public Support to Organic Agriculture*: [https://www.ifoam.bio/sites/default/files/policy\\_toolkit\\_main\\_report.pdf](https://www.ifoam.bio/sites/default/files/policy_toolkit_main_report.pdf)

# Introduction

## A Global Perspective

Mountains cover about 22 percent of the earth's land area and are home to 13 percent of the world's population. About half of all humankind depend directly on mountain resources, primarily for freshwater used in domestic, agricultural, and industrial consumption but also for their biodiversity hotspots that host 25 percent of our terrestrial biodiversity.

Management of these richly available natural resources has underpinned the sustainable existence of mountain population for centuries. Despite their geological magnificence, mountains encompass fragile ecological and socio-economic realities that have been long invisible to national policymakers yet are tremendously impacted by global challenges. Disruptive phenomena brought on by climate change, globalization, and industrialization have quickly depleted these ecosystems, creating socio-economic conflicts and jeopardizing the livelihoods and sustainable development in several mountain areas. The FAO recently estimated that in 2012, 39 percent of mountain populations (urban and rural combined) in developing countries were considered vulnerable to food insecurity, a 30 percent increase compared to 12 years prior<sup>7</sup>.

## Local Answers to Global Challenges

The Hindu Kush Himalayan (HKH) region extends 3,500 kilometers (2,175 miles) over eight countries, from Afghanistan in the west to Myanmar in the east. It provides water, ecosystem services, and the basis for livelihoods to a population of around 240 million people. Its river basins provide water to 1.9 billion people, a fourth of the world's population<sup>8</sup>. The HKH mountain system, where traditional agriculture still represents the main occupation, has always been made up of places where adaptation, mitigation, and resilience are hallmarks of the people, their livelihoods, and resource-use strategies.

Vast areas of Bhutan, Nepal, and the Indian Himalaya Region remain predominantly untouched by the disruptive effects of the Green Revolution as a result of inaccessibility, marginality, and landscape characteristics.

There are obvious incompatibilities between the needs of mountain agroecosystems and the capitalistic precepts of industrial agriculture. Mountain agriculture is characterized as an integrated system shaped by the ability of man to generate treasures from abundant local resources as well as their ability to adapt to hardships caused by the biophysical environment.

Over the last 10 years, Bhutanese, Nepalese, and Indian policymakers have increasingly recognized the need to transition toward sustainable agricultural systems to preserve their natural resources and improve livelihoods for their rural populations. Political commitment has been concretely implemented with varying degrees of intensity, including policies and programs with specific budget earmarks for measures supporting organic farming and agroecology.

## Moving Forward, But Not Without Contradictions

Institutional support in these countries has thus far mostly been aimed at supporting organic agriculture as a way to link farmers with international niche markets. However, in many regions

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<sup>7</sup> FAO. (2015). *Mapping the Vulnerability of Mountain Peoples to Food Insecurity*. Rome, Italy: Food and Agriculture Organization of the United Nations.

<sup>8</sup> P. Wester, A. Mishra, A. Mukherji, A. Bhakta Shrestha. *The Hindu Kush Himalaya Assessment*. ICIMOD, 2018.

of Asia, institutional effort is increasingly devoted to growing the domestic organic market and transforming small-scale farmers who are organic by default into successful organic producers.

Although Bhutan was the first to country worldwide to declare its intention to move towards fully organic and agroecological agriculture, the little state of Sikkim indeed should be regarded as the champion. Its conducive policy framework for developing organic farming shows how policymakers can design and implement holistic approaches to reverse the prevailing economic logic, which favor food systems that fail to account for the negative externalities they impose on nature and taxpayers.

By and large, institutional interventions allow for better access to organic inputs, especially organic fertilizers, the creation of governmental units dedicated to organic farming, and support for specific research, training, and extension service programs. It also allows for increased support for reaching local and international markets, i.e. through subsidies for certification.

Although positive, policy interventions across the three countries remain not without contradictions and often struggle to break free from current unsustainable development paradigms. Governments worldwide continue to provide disproportional support to conventional agriculture in the name of achieving higher productivity and reducing food insecurity, as observed in all country research except Sikkim. The most harmful examples of detrimental policies hindering the successful agroecological transition are: provisions for subsidizing synthetic fertilizers and pesticides, and sanctioning genetically engineered crops, as highlighted and discussed in the study. When these crops become a significant organic export commodity for the country, widespread Genetically Modified Organism (GMO) contamination is a major factor for increased costs, loss of reputation, and market loss for an organic supply chain. It is therefore vital to promptly discontinue such detrimental policy measures.



**BHUTAN**



# Bhutan

## General Introduction: About the Country and Its Agricultural Sector

Bhutan's development philosophy on Gross National Happiness (GNH) aligns with the objectives of the UN 2030 Agenda for Sustainable Development Goals in its analogous focus on the economic, social, and environmental dimensions of sustainable development.<sup>9</sup> The government has begun the transition from Least Developed Country (LDC) status, graduation should be achieved by 2023<sup>10</sup>. The government focus areas to ensure progress on the SDGs remain poverty eradication, climate change adaptation, food and nutrition security, and increased attention to inequalities especially related to gender.

This landlocked constitutional monarchy in the Himalaya (38,394 square kilometers / 14,824 square miles) has achieved rapid economic growth by managing its natural resources and unlocking its hydropower potential. Bhutan's strong economic growth, investment in health and education, and peaceful transition to a democratic constitutional monarchy have helped reduce the prevalence of poverty from 23.2 percent to 8.2 percent in little over a decade. The country's progress in tackling extreme poverty is among its most notable achievements. Yet poverty remains a widespread rural phenomenon in Bhutan and is the cause of ever-increasing migration from the countryside to urban areas.

The future progress and prosperity of Bhutan will depend on the government's ability to rapidly adapt to climate change, which is leading to more frequent and intense disasters that threaten to reverse Bhutan's progress to date. This has considerable effect on the country's food and nutrition security because a majority of the population depends on the agriculture sector.

Agriculture remains the primary employment source for 54 percent of the total employed people<sup>11</sup> (in 2018 the total population was 754,394). Women represents the majority of people working in the sector at 63.2 percent, while men are increasingly migrating to urban areas. Bhutan is generally characterized by small-scale farmers engaged in subsistence farming. Yet, only 8 percent of the country's total geographical area is adequate for cultivation, and the average landholding size is 0.89 hectares.

Paddy and maize are the two major food crops cultivated for home consumption whereas potatoes, cardamom, ginger, areca nut, citrus, and apples are considered cash crops. Farm technology, such as small power tiller tractors suitable to narrow mountain terraces, has played an important role in improving production efficiency. However, farmers continue to face various challenges including poor access to markets, dispersed production locations, low productivity due to low economies of scale, vulnerability to weather and natural disasters, and insufficient irrigation<sup>12</sup>.

Bhutan's small-scale producers farm organic mainly by default, performing a type of agriculture based on traditional farming systems that do not utilize synthetic inputs. In 2017, the number of certified organic producers was 4295. These producers were managing 6632 hectares of organic certified land, which represents around 2 percent of the total agricultural land. Medicinal plants and wild collection are two other sources of certified organic produce and is estimated to be performed on almost 16,000 hectares<sup>13</sup>.

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<sup>9</sup> Bhutan presented its voluntary national review to the United Nations High-Level Political Forum on Sustainable Development in July 2018.

[https://sustainabledevelopment.un.org/content/documents/19369Bhutan\\_NSDGR\\_Bhutan\\_2018.pdf](https://sustainabledevelopment.un.org/content/documents/19369Bhutan_NSDGR_Bhutan_2018.pdf)

<sup>10</sup> <https://www.un.org/development/desa/dpad/least-developed-country-category-bhutan.html>

<sup>11</sup> Labour Force Survey conducted in 2018. <http://www.nsb.gov.bt/publication/files/pub3td3256de.pdf>

<sup>12</sup> FAO, Country Programme evaluation, 2018 <http://www.fao.org/evaluation/evaluation-digest/evaluations-detail/en/c/1154357/>

<sup>13</sup> H. Willer, and J. Lermoud (2019): The World of Organic Agriculture. Statistics and Emerging Trends 2019. FiBL, Frick, and IFOAM – Organics International, Bonn.

The application of synthetic fertilizers and pesticides in Bhutan is relatively limited and confined to crops such as rice and maize and other crops such as potatoes, some vegetables, citrus, and apples. In 2012, 37 percent of Bhutanese farmers used agrochemicals on about 19 percent of arable land<sup>14</sup>. Bhutan's livestock sector is predominantly ruminant based and part of an integrated farming system for manure production, which relies, only to a small degree, on conventional inputs and concentrate feed.

These circumstances present a huge potential to promote Organic Agriculture (OA), both for increasing sustainable food production to safeguard food security as well as for enhancing farmers' income.

## Overview of Legal Frameworks, Laws, and Policies for Organic Farming

Political support for organic agriculture in Bhutan began in 2003. Implementation followed in 2006 with the launch of the **National Framework for Organic Farming in Bhutan** (NFOFB)<sup>15</sup>. As foreseen in the policy framework, the **National Organic Program** (NOP) was established in 2008. Today the NOP consists of a full-time national coordinator, who is assisted by a technical working group (established in 2009) of 12 representatives from the Ministry of Agriculture and Forests (MoAF). The group meets quarterly and provides the NOP with guidance and direction for planning and implementing programs. The objective to turn Bhutan into an organic state has been supported by several different policies and programs. Overall the policy framework addresses virtually every aspect needed to facilitate the shift towards a completely organic agricultural sector.

Over the last 10 years, the NOP has overseen the development of a comprehensive range of policies and guidelines to support organic farming in the country, including the **Strategic Action Plan for Organic Agriculture Development in Bhutan** (2011), the **Master Plan for Organic Sector Development** (Draft, 2012); the **National Organic Standard of Bhutan** (First draft dates 2016), the **Bhutan Organic Certification System** (2013), and **Guidelines for the Import and Distribution of Bio-Pesticides/Fertilizers** (2015).

In 2012, Bhutan declared it would become a 100 percent organic state by the year 2020<sup>16</sup>. General concern for the environment is deeply anchored in Bhutan's policies. For instance, there is a constitutional mandate to maintain 60 percent forest cover<sup>17</sup> and a pledge to remain a carbon neutral country. Part of the rationale for the 100 percent organic vision is to promote Bhutan as an organic brand, which should help commercialize smallholder agriculture products, alleviate poverty, and add value to the tourism sector.

There are several concrete examples of policy measures to support organic farming that have been adopted by the Bhutanese government. Of note among these is the capacity development program for farmers, which is implemented directly by the National Organic Program. Since 2008, the NOP program has trained 3306 farmers directly and 259 staff members of the Ministry of Agriculture (training of trainers). Following the training of trainers, MoAF staff (including NOP staff and agricultural extension officers) carried out further training of farmers<sup>18</sup>. Further, the northern district of Gasa and the southern district of Samdrup Jongkhar chose to develop themselves into organic districts in 2004 and 2010, respectively.

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<sup>14</sup> MoAF. Agricultural Sample Survey 2012. Thimphu, Bhutan: RNR Statistics Division, Ministry of Agriculture and Forests; 2013.

<sup>15</sup> <http://extwprlegs1.fao.org/docs/pdf/bhu167577.pdf>

<sup>16</sup> <https://www.npr.org/sections/thesalt/2012/07/31/157645902/bhutan-bets-organic-agriculture-is-the-road-to-happiness?t=1565186176815>

<sup>17</sup> In 2011 a Honorable Mention of the Future Policy Award of the World Future Council was given to Bhutan for its constitutional mandate to maintain 60 percent forestry cover: <https://www.worldfuturecouncil.org/p/2011-forests/>

<sup>18</sup> FOAM-Organics International, Guidelines for Public Support to Organic Agriculture, 2017:

[https://www.ifoam.bio/sites/default/files/policy\\_toolkit\\_main\\_report.pdf](https://www.ifoam.bio/sites/default/files/policy_toolkit_main_report.pdf)

In March 2014, Bhutan co-hosted the **International Conference on Organic and Ecological Agriculture in Mountain Ecosystems**, resulting in the Thimphu Declaration on Ecological Organic Agriculture in Mountain Agro-Ecosystems: Leading the Transformation<sup>19</sup>. The conference developed a declaration, which contained an action plan for the world's mountain regions that focused on developing organic farming by empowering small-scale farmers, shifting the value chain's current emphasis from export to local food sovereignty, promoting multi-stakeholder assessments of local food systems, and endorsing the valuation of ecosystem functions and the true pricing of agricultural products at the political level by internalizing externalities and reallocating subsidies.

Despite its pioneering vision, a recent assessment<sup>20</sup> requested by the Ministry of Agriculture and Forests (MoAF) concluded that Bhutan will not be able to achieve 100 percent organic status by 2020. The assessment showed that since the mission's initiation, the Bhutanese government has continuously lowered its support for organic to focus instead on ensuring food security. This diminishing priority is highlighted clearly by the progressive decrease in budgetary allocations for the organic program compared to the total budget for the Ministry of Agriculture. The budget allocation to support NOP for 2012-2017 shows that the government allocated, at the maximum point of investment, only 2.7 percent (2014-2015) of the total agricultural budget to the organic program. In 2015 and 2016, the budget steadily decreased, reaching as low as 0.8 percent. This has resulted in progressively smaller programs and lower outreach capability as well as increasing dependence on donor-funded projects.

The reasons behind this shift can be found in the perception that the nation's primary objective should be to increase field crop production, thereby enhancing cereal self-sufficiency, functional agricultural infrastructure, and food and nutrition security. This is achieved by utilizing strategies that facilitate access to synthetic fertilizers for farmers communities. Concerns arose as a result of Bhutanese dependence on cereal import needs, 34 percent is imported, and widespread food insecurity in the country. One out of three Bhutanese suffer from food insecurity.

However, the acknowledgment that the 2020 vision will not be achieved has triggered a positive, open, and honest discussion about the future of Bhutan's farming and food policy. Assessment outcomes were validated in a multi-stakeholder consultative workshop in Thimphu on May 22-23, 2017. Following the revision, the Bhutanese government appears to be lending renewed support to the organic mission: The 12th Five Year Plan (2018–23)<sup>21</sup> has established a dedicated set of measures to develop the organic farming under the **Organic Flagship Program**. The program has a budget allocation of 11.7 million EUR, the highest financial support ever earmarked for organic in the country. The program will target the organic production of eight selected export commodities and four for domestic consumption. Implemented by the National Organic Program, this action aims to produce approximately 254,000 MT of bio-inputs within five years, generate approximately 1,500 new jobs, and to engage around 33,000 farmers across the country<sup>22</sup>.

## Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology<sup>23 24</sup>

Bhutan has developed many policies and laws to preserve its vast and diverse natural ecosystem. These statutes outline procedures for ensuring the sustainable management of forests,

<sup>19</sup> <https://www.navdanya.org/site/2017-03-29-08-02-10/organic-himalaya/organic-bhutan>

<sup>20</sup> ICIMOD & MoAF (2018). *Organic Agriculture Development Strategies: Roadmap for 12th Five Year Plan and Beyond*. Kathmandu: ICIMOD: [http://lib.icimod.org/record/33841/files/icimodOrganic\\_strategy\\_BT-a.pdf](http://lib.icimod.org/record/33841/files/icimodOrganic_strategy_BT-a.pdf)

<sup>21</sup> Bhutan follows a five-year socio-economic development planning cycle, starting with the first Five Year Plan (FYP) in 1961. The FYPs articulate the socio-economic development priorities and programs to be implemented over a five-year period.

<sup>22</sup> [www.moaf.gov.bt/download/Miscellaneous/12th-FYP.pdf](http://www.moaf.gov.bt/download/Miscellaneous/12th-FYP.pdf)

<sup>23</sup> Asian Development Bank. Review and compendium of environmental policies and laws in Bhutan—Input to the Asian Judges Network on Environment. 2014.

<sup>24</sup> Davis, M. and L. Li 2013. Understanding the Policy Contexts for Mainstreaming Climate Change in Bhutan and Nepal: A Synthesis. Regional Climate Change Adaptation Knowledge Platform for Asia, Partner Report Series No. 10. Stockholm Environment Institute, Bangkok.

waterways, wildlife, and plants, coupled with a respectful development of human activities.

*Table 1: Overview of select policies and action plans relevant to the development of Bhutanese organic agriculture and agroecology.*

<b>Area</b>	<b>Title</b>	<b>Purpose</b>
Agriculture	Guidelines for Biofertilizer and Biopesticide Supply and Distribution 2015	Encourages local production, import, and supply to all districts of organic inputs.
Agriculture	National Irrigation Policy 2012	Provides policy for improved irrigation and water management, and optimize use of national water resources for crop production.
Agriculture	Seeds Act of Bhutan 2000	Regulates the import and export of agriculture seeds to prevent introduction of plants and disease and to promote the seed industry.
Agriculture	Pesticides Act of Bhutan, 2000	Regulates the safe use and handling of pesticides to prevent public health and environmental hazards.
Agriculture	Livestock Act of Bhutan 2000	Regulates livestock breeding, health, and production aimed at enhancing their productivity and preventing diseases.
Natural Resource	Water Policy 2003, Water Act 2011	Protects water resources and ensures an economically efficient, socially equitable, and environmentally sustainable management.
Natural Resource	Forest and Nature Conservation Act 1995	Strengthens the scientific management of forest resources and grants community groups management and use rights in conjunction with an approved management plan.
Natural Resource	National Environment Protection Act 2007	Further strengthens forest protection.
Natural Resource	National Forest Policy of 2010	Sets the framework for the scientific management of the country's forests.
Natural Resource	Biodiversity Act 2003, National Biodiversity Strategy and Action Plan 2009	Ensures national sovereignty of the government over genetic resources. The most significant outcome achieved is the establishment of protected areas constituting 42.7 percent (protected areas) and 8.6 percent (biological corridors) of the country's total land area.
Natural Resource	National Action Program to Combat Land Degradation 2014 <sup>25</sup>	Includes target for reaching Land Degradation Neutrality.
Natural Resource	Biosafety Act 2015	Forbids the import of import, transit, use, introduction and research on any genetically modified organism capable of reproducing and requires the competent authority to coordinate the conduct of safety assessment of GM Food/Feed.
Climate Change	National Adaptation Program 2006	Develops adaptation strategies by choosing nine priorities, based on costs, human life and health impacts, and impacts on land, water and infrastructure. Poses the basis to integrate climate change response measures in planning, budgeting, design, and implementation of agriculture projects.
Climate Change	National Determined Contribution 2015	Aims to remain carbon neutral by keeping GHG emissions below the country's total carbon sink from land use, land use change, and forestry.

<sup>25</sup> <https://knowledge.unccd.int/sites/default/files/naps/Aligned%2520NAP%2520FINAL%28Bhutan%29.pdf>

## International Conventions

- **United Nations Convention to Combat Desertification (UNCCD)**: Bhutan ratified the UNCCD in 2003.
- **United Nations Convention on Biological Diversity (UNCBD)**: Bhutan ratified the UNCBD in 1992 and the Cartagena Protocol on Biosafety in 2003.
- **United Nations Framework Convention on Climate Change (UNFCCC)**: Bhutan ratified the Kyoto Protocol in 2002 and the Paris Agreement in 2017.

## Detrimental Policies

### Subsidies on Chemical Fertilizers

Although there are presently no subsidies available for supporting producers in purchasing inputs, MoAF is incentivizing input usage by providing subsidies for agricultural inputs in the form of commission for sales agents and by supporting transportation costs of these inputs from ports of entry to sales agents. All inputs are available across the country at the same price for farmers who can afford and choose to use them. Currently most of agricultural inputs are imported and decreased import duties are applied— 20 percent for fertilizers and 10 percent for pesticides. In 2015, MoAF developed the Framework and Guidelines for Biofertilizer and Biopesticide Supply and Distribution in Bhutan, which encourages local production, import, and supply to all districts to supplement needs. However, the current availability of commercial organic inputs in Bhutan remains limited to neem oil and pheromone traps<sup>26</sup>. Over the last few years potato and rice farming communities, in particular, were encouraged to significantly increase their amounts of chemical fertilizers and pesticides<sup>27</sup>.

### Allowance of GMO Crops

Bhutan has adopted a precautionary approach toward GMOs, as regulated by the Biosafety Act of Bhutan 2015 and its Rules and Regulations 2018. The Biosafety Act prohibits the import of and research on GMOs capable of reproducing and requires that the correct authority, the Bhutan Agriculture and Food Regulatory Authority (BAFRA) of the Ministry of Agriculture and Forests, coordinate and conduct safety assessments for GM food/feed. In order to import GMOs for direct use as Food, Feed, or for Processing (FFP), a GM food safety assessment or review is required. The National Biosafety Board reviews and makes decisions on events based on the scientific/technical risk review provided by the Biosafety Technical Working Group, also taking policy issues as well as public input into consideration.

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<sup>26</sup> ICIMOD & MoAF (2018). *Organic Agriculture Development Strategies: Roadmap for 12th Five Year Plan and Beyond*. Kathmandu: ICIMOD: [http://lib.icimod.org/record/33841/files/icimodOrganic\\_strategy\\_BT-a.pdf](http://lib.icimod.org/record/33841/files/icimodOrganic_strategy_BT-a.pdf)

<sup>27</sup> [http://www.arc2020.eu/bhutan-food-sovereignty-and-organic-farming/#\\_ftn3](http://www.arc2020.eu/bhutan-food-sovereignty-and-organic-farming/#_ftn3)



INDIA



# India

## General Introduction: About the Country and Its Agricultural Sector

With over 1 billion inhabitants, India is the world's second most populated country and third largest economy in terms of purchasing power parity. The economy, growing at over 7 percent per annum, is projected to be the fastest-growing of all G20 economies, driven by its service sector, which contributes 54 percent of the country's GDP (2016). Industry, instead, contributes 29 percent, while agriculture contributes only 17 percent, a share of the total GDP that is projected to decrease. Nevertheless, over 40 percent of India's population is still somehow employed in agriculture. The employment rate reaches even higher for women, at almost 60 percent (FAOSTAT 2014). Yet, development in India is changing. It is estimated that the urban population will increase from 31 percent in 2011 to 40 percent by 2030. Urbanization presents enormous challenges to food and nutrition security and aggravates inequalities. Environmental challenges are also becoming more urgent, increasingly worsened by the climate crisis. India has one of the largest populations living on degraded land and was among the five countries most frequently hit by natural disasters between 2002 and 2013.

Nonetheless, India has achieved significant progress in economic and sustainable development over the past decade. This is reflected clearly in the reduction of poverty and food insecurity as well as improvements in education, health, and infrastructure. In 2011 and 2012, the overall poverty rate was roughly 22 percent, but this figure hides a considerable rural-urban gap (26 percent versus 14 percent). Women also do not benefit equally from economic opportunities, as revealed by India ranking 125th of 159 countries on the Gender Inequality Index.

India's agricultural sector grew on average between two percent to slightly less than five percent annually between 2011 and 2017. The Indian organic market, however, has been experiencing a steady double-digit growth of 20 percent<sup>28</sup>. India is currently emerging as a key player in the global organic arena, exporting over 300 different organic products to over 20 countries. Additionally, India is the largest exporter of organic cotton and houses the largest number of organic certified producers in the world at 835,000<sup>29</sup>. The current Indian organic market, mainly a result of export, is estimated at 0.5 billion EUR. The local consumption of organic produce is still in a nascent stage with a market share of less than one percent, but is also showing steady growth. The Indian government intends to promote farmer organizations and village-producer organizations in large clusters under different national schemes. The most renowned organic champion in the country is the state of Sikkim, which became India's first fully organic state in 2016 with 75,000 hectares under organic cultivation, thereby providing impetus to other states to pursue similar objectives, especially in the country's northeast.

Indian agriculture is highly vulnerable to climate change, largely because the sector continues to be very sensitive to monsoon variability. Climate change will disproportionately affect the most vulnerable groups – farmers in rain-fed areas, landless workers, and women. A major challenge for India is to promote adaptation measures that sustain production and ensure resilience as well as food and nutrition security. Despite an increase in areas under irrigation, 55 percent of India's total area under cultivation and 40 percent of all crop production are rain-fed, and thus more vulnerable to monsoon variability. And more than 70 percent of India's farmers fall into the category of small and marginal farmers, with 85 percent of holdings under two hectares.

In 2017, India ranked eighth in terms of total land under organic cultivation worldwide: the

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<sup>28</sup>Ernst & Young LLP. The Indian Organic Market: A new paradigm in agriculture. 2018. [https://www.ey.com/Publication/vwLUAssets/ey-the-indian-organic-market-report-online-version-21-march-2018/\\$File/ey-the-indian-organic-market-report-online-version-21-march-2018.pdf](https://www.ey.com/Publication/vwLUAssets/ey-the-indian-organic-market-report-online-version-21-march-2018/$File/ey-the-indian-organic-market-report-online-version-21-march-2018.pdf)

<sup>29</sup>The World of Organic Agriculture Statistics and Emerging Trend 2018, FiBL and IFOAM – Organics International FiBL & IFOAM website <https://shop.fibl.org/CHen/mwdownloads/download/link/id/1093/?ref=1>

cultivated land under certification is approximately 1.8 million hectares, slightly more than one percent of total cultivated area<sup>30</sup>. An additional 1.8 million hectares are forest area and are used for wild collection. However, unofficial estimations report that approximately 69 million hectares are managed under traditionally farming, thus without any adoption of chemical inputs (approximately 43 percent of total arable land)<sup>31</sup>. Certifying these producers remains a challenge, however, as many of these farms are small holdings with scarce knowledge of organic farming and difficult access to markets.

### **Zero Budget Natural Farming (ZBNF)<sup>32</sup>**

ZBNF is an agroecological farming approach that promotes growing crops in harmony with nature based on traditional practices. The approach is based on improving soil fertility through a number of agroecological principles, including diversification, nutrient recycling, increasing beneficial biological interactions. It is focused on de-linking farmers from external inputs by promoting on-farm inputs production.

ZBNF became a grassroots peasant movement, which started to attain wide success in southern India, especially in the state of Karnataka, where it first evolved in 2002 thanks to the collaboration between Subhash Palekar, agronomist and guru, and the state farmers association Karnataka Rajya Raitha Sangha, a member of La Via Campesina. Since 2018, much hype has surrounded ZBNF after Andhra Pradesh's announcement to become the world's first natural farming state through the implementation of a program that will cost approximately \$2.3 billion and should transition 6 million farmers by 2022 to ZBNF. The program will be financed both by government and private funds. Organizations such as the German bank KfW and the UNEPs Sustainable India Finance Facility, which includes the European bank BNP Paribas are pledging two billion USD, raised from climate bonds, for the future scaling up of ZBNF across the state. Recently, the endorsement of Bt cotton by Mr. Subhash Palekar<sup>33</sup> and the mobilization of private investments for financing the policy as well as doubts regarding the lack of scientific foundation behind ZBNF have been the subject of debates within the Indian organic movement.

## Farming on the Himalayan Range

The Indian Himalayan Region covers an area of approximately 54 million hectares. A cradle of water resources and rich in biodiversity, this part of India is home to important and fragile ecosystems and natural resources. The Indian states located across the Himalayan range can be divided between western and eastern states. Western Himalaya refers to the region including Jammu and Kashmir<sup>34</sup>, Himachal Pradesh, and Uttarakhand. In the Eastern part are the northeastern states of Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura as well as Assam Hills and West Bengal Hills.

Himalayan agricultural systems were historically "subsistence-based" or "family-farming" systems. Such farming systems are based on a high integration between crops, livestock, and forest products and were completely dependent on locally available natural resources. Agriculture still constitutes the main livelihood for the area's population and significantly contributes to food security for local communities. Although traditional mixed farming systems continue, crop mixes have shifted toward cash crops. This shift in livelihood has affected agrobiodiversity and nutritional security of households.

<sup>30</sup> India's arable land area is estimated to be approximately 158 million hectares.

<sup>31</sup> B. Suresh Reddy, Organic Farming: Status, Issues and Prospects – A Review. Agricultural Economics Research Review Vol. 23 July-December 2010 pp 343-358

<sup>32</sup> Sources: a) Ashlesha Khadse & Peter M. Rosset (2019): Zero Budget Natural Farming in India – From Inception to Institutionalization, Agroecology and Sustainable Food Systems. b) Leo F. Saldanha, *A Review of Andhra Pradesh's Climate Resilient Zero Budget Natural Farming*, Environment Support Group, October 2018.

<sup>33</sup> <https://indianexpress.com/article/india/subhash-palekar-zero-budget-farming-union-budget-2019-nirmala-sitharaman-finance-minister-5828441/>

<sup>34</sup> A presidential decree issued on August 5, 2019 revoked Article 370 of India's constitution that guaranteed special rights to Jammu and Kashmir, including the right to its own constitution and autonomy to make laws on all matters except defense, communications, and foreign affairs. This provision will impact agricultural policymaking.

The constraints posed by farming in mountain regions make agriculture a challenging business in these areas. The situation is aggravated by recent changes in weather patterns, which have brought on more extreme and unpredictable weather and an overall decrease in water availability. Male outmigration is a widespread phenomenon and one of the most urgent trends to counteract in order to preserve agriculture and ecosystems in the region.

India's Himalayan states would have numerous advantages in transitioning toward organic food production. The region has been only marginally impacted by the Green Revolution: the use of synthetic inputs is still scant as is mechanized agriculture and large-scale monocropping systems, which is possible only in the region's valleys. Additionally, livestock is commonly integrated in the farming systems, making manure largely available.

Based on these premises, the state of Sikkim chose to pursue a 100 percent organic mission. The state government believed that mainstreaming organic and agroecological farming could be the right strategy to preserve the ecosystem and the health of its citizens while simultaneously delivering socioeconomic benefits, which include helping young people stay on the land and attracting local and foreign sustainable tourism. Since 2016, Sikkim has been the first state in the world to become fully organic. In 2018 it was recognized by UN FAO, the World Future Council, and IFOAM – Organics International with the Future Policy Gold Award on Scaling up Agroecology.<sup>35</sup>

But Sikkim is not the only state looking at organic farming as a strategy for transforming agricultural systems. The adoption of organic farming is already a reality in all other Himalayan states, and political promotion of organic farming is ongoing with varying intensity across all states.

## Overview of Legal Frameworks, Laws and Policies for Organic farming

### Central Level

In India, agriculture falls under state jurisdiction, and state governments are primarily responsible for the sector's growth and development. The central government supplements these efforts through specific schemes as well as policy and budgetary support. In recent years, the central government has increased its efforts to modernize and transform the agricultural sector, but not without contradictions. It has increased the total agriculture budget by 45 percent (in nominal terms) over the last three years. In 2018-2019, the total share for agriculture in the central government budget reached 10 percent of the total volume (approx. 9.5 billion EUR), reflecting the priority given to the sector.

India's central government currently proposes several important programs to support the development of organic farming and agroecology. Aside from a few dedicated programs, several subcomponents of state missions address and support organic principles and agroecology. Unfortunately, there are no official estimates on how much of the total budget is earmarked to support organic farming and agroecological production. In 2015-2016, the two main state programs supporting organic farming represented approximately 2 percent of the total budget for agriculture.

Institutional support for organic production began in 2001, when the Indian government began to promote organic farming as a niche sector by launching the **National Programme for Organic Production (NPOP)**, which has the objective to support organic production for export through

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<sup>35</sup> UN FAO, the World Future Council and IFOAM, 2018, more about the award-winning policies of the Future Policy Award on Scaling up Agroecology can be found at: <https://www.worldfuturecouncil.org/p/2018-agroecology/>

third-party certification. NPOP is implemented by the Agricultural and Processed Food Products Export Development Authority (APEDA), and organized under the Ministry of Commerce and Industry, which is mandated to support certification and accreditation. Under NPOP, the national organic standards, guidelines for the use of the national organic logo and regulations governing its use were created. The European Commission and Switzerland have recognized India's NPOP standards for production and accreditation systems as equivalent to their countries standards. Similarly, the United States Department of Agriculture (USDA) has recognized NPOP conformity assessment procedures of accreditation as equivalent to those in the US.

### Indian Organic Regulation

Until 2017, the Indian national organic market was not regulated, and compliance with the National Standards for Organic Production was only compulsory for products exported as organic. For the domestic market, voluntary organic claims were possible and not regulated. This allowed for the development of the sector, particularly through the implementation of alternative guarantee systems such as Participatory Guarantee Systems (PGS). Since 2006, the government and NGOs have promoted PGS initiatives, providing small farmers with access to affordable and more appropriate organic certification. Following successful experiences of the NGO-led PGS (PGS – Organic Council), the Indian government launched its own system called PGS-India in 2011, under the Department of Agriculture Cooperation and Farmers' Welfare through the National Centre of Organic Farming (NCOF). The PGS National Advisory Committee oversees the certification of PGS groups and grants access to the PGS-India Organic Logo. To address the increased demand for organic produce in the domestic market and the lack of a regulatory framework, perceived as an obstacle for the promotion of national consumption, in 2016 the Food Safety and Standards Authority of India (FSSAI) initiated the development of new regulations focusing on regulating the national organic market. The regulation was launched in November 2017 and recognizes both third party certification and PGS as quality assurance system for the national organic market.

In 2004-2005, the Ministry of Agriculture established the **National Centre of Organic Farming** (NCOF) at Ghaziabad to provide institutional support and facilitate farmers conversion to organic crop production. The Centre together with its 9 regional offices implements the National Project on Organic Farming (NPOF), which promotes organic farming in the country through capacity building and by supporting the production of organic inputs. In the same period, the Indian Council of Agricultural Research (ICAR) started a **Network Project on Organic Farming**<sup>36</sup> at 13 centers in different agro-ecological regions. Since then, the research centers have been working to develop a package of practices for different crops and cropping systems under organic farming. They have also been organizing training for farmers and extension services. Recently, ICAR has increased the number of collaborating centers to 20 and launched an additional Network Project on Organic Horticulture Research<sup>37</sup>.

In 2005, the Central Government adopted the **Organic Farming Policy**<sup>38</sup>, which introduced a policy framework structuring central support for organic farming. The document recognized the problems caused by the Green Revolution and presented organic farming as the most sustainable set of practices. Presently, several states have drafted and, in some cases, implemented their own organic farming policies based on the guidelines established by the government of India<sup>39</sup>.

A decade later, in 2015, two key programs fully dedicated to support organic farming were launched:

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<sup>36</sup> <http://www.iifsr.res.in/npof/>

<sup>37</sup> Dr A.K. Yadav (APEDA). 2018. Policy Framework for Promotion of Organic Agriculture in India.

<sup>38</sup> [https://ncof.dacnet.nic.in/Policy\\_and\\_EFC/Organic\\_Farming\\_Policy\\_2005.pdf](https://ncof.dacnet.nic.in/Policy_and_EFC/Organic_Farming_Policy_2005.pdf)

<sup>39</sup> Sikkim, Mizoram, Uttarakhand, Karnataka, Kerala, Andhra Pradesh, Madhya Pradesh, Maharashtra, Himachal Pradesh, Tamil Nadu, Gujarat and Chhattisgarh (A.K. Yadav, 2018).

## - Paramparagat Krishi Vikas Yojna (PKVY)

PKVY is a component of the Soil Health Management (SHM) under the National Mission on Sustainable Agriculture (NMSA) led by the Ministry of Agriculture. The program aims to support domestic organic market development through certification of small-scale producer through PGS. The subsidy, about EUR 275/acre for three years, is provided to farmers who are organized in clusters. The subsidy covers a variety of costs, such as input purchase, harvesting, transportation of costs, and marketing. Himalayan states have to co-finance only an additional 10 percent out of the total budget received from the central state. The total amount allocated for the scheme in the period 2015-2018 was 118 million EUR, and the government estimates that under this scheme 237,820 hectares of land were converted into organic farming land and 394,550 farmers benefited from the support. All Himalayan states have implemented the program with varying level of intensity.

## - Mission Organic Value Chain Development for North East Region (MOVCDNER)

MOVCDNER is a value chain-based organic farming scheme in the northeastern region under the Ministry of Development of the northeastern region. A total sum of approximately 50 million EUR has been allocated to this scheme in its first phase (2015-2018). The mission aims to support the creation of producers' organizations, on-farm and off-farm organic inputs production, support for certification, post-harvest, processing, and marketing. The government reported that almost 50,000 farmers benefited from the program. A second phase is foreseen for the period 2018-2020, with a budget allocation of approximately 28 million EUR. All Himalayan states have implemented the program with varying level of intensity.

Table 2: Additional central schemes currently supporting, at least partially, organic farming and agroecological practices in India.

Area	Title	Purpose
Agriculture	National Mission for Sustainable Agriculture (NMSA) <sup>40</sup>	Aims at enhancing agricultural productivity especially in rain-fed areas focusing on integrated farming, water use efficiency, soil health management, and synergizing resource conservation. The component on Soil Health Management (SHM) aims at promoting organic farming practices and it is implemented partially by the National Centre of Organic Farming (NCOF).
Agriculture	Mission for Integrated Development of Horticulture (MIDH) <sup>41</sup>	Supports holistic development of horticulture, including organic inputs development. Focused on fruits, vegetables, root and tuber crops, mushrooms, spices, flowers, aromatic plants, coconut, cashew, cocoa, and bamboo.
Agriculture	Rastriya Krishi Vikas Yojana (RKVY) <sup>42</sup>	Promotes growth of the agriculture sector, including several measures to support organic farming and organic inputs production.
Agriculture and Gender	Mahila Kisan Sashaktikaran Pariyojana (MKSP) <sup>43</sup>	Provides support for women farmers by promoting self- help groups, for access finance, extension services for crops and livestock husbandry, and drudgery-reducing equipment, thus improving household incomes and women's decision-making power. Since its 2011 launch, MKSP has benefited more than 3.3 million small and marginal women farmers in 22 states.

<sup>40</sup> <https://nmsa.dac.gov.in/>

<sup>41</sup> <https://midh.gov.in/>

<sup>42</sup> <https://rkvy.nic.in/>

<sup>43</sup> National Programme for Women's Farmer Empowerment <http://mksp.gov.in/>

## State Level

### Western Himalayan States

#### **Jammu & Kashmir**

In Jammu & Kashmir's Agriculture Policy of 2013, a dedicated chapter describes policy interventions to support organic farming in the state<sup>44</sup>. The policy includes targets for converting its hilly regions into organic farming by 2020. It also states that "inorganic fertilizers are and will never be the sustainable option of maintaining productivity in these regions". In 2018, the state Directorate of Agriculture launched a program<sup>45</sup> to support vegetable production in J&M, which adopts the promotion of organic horticulture, the production of organic inputs, and the marketing of traditional varieties. Today, due to the government's support, more than three percent of the state's arable land has been converted to organic farming.

#### **Himachal Pradesh**

Himachal Pradesh's Organic Policy was developed in 2011<sup>46</sup>. As framed in the policy, the state launched its own specific research centers for organic agriculture at Palampur, under the Chaudhary Sarwan Kumar Himachal Pradesh University of Agriculture and Technology (CSK HPKV). Since 2018, the Department of Agriculture has been promoting organic farming closely in line with ZBNF through a state program called Prakartik Kheti-Khushal Kisan<sup>47</sup>. This overarching program includes the implementation of national organic programs like the PKVY and the creation of a state unit for ZBNF. Under this scheme, training and workshops are organized to make farmers aware of natural farming. Subsidies are provided to farmers for on-farm input production as well as for purchasing indigenous cow breeds. In May 2019, the Governor Acharya Devvrat said that the state government wants to train 50,000 farmers under ZBNF in 2019-2020. It foresees that by 2022 the whole state could become a fully natural farming state. Today, due to the government's support, almost three percent of the state's arable land has been converted to certified organic farming.

#### **Uttarakhand**

The state drafted its Organic Agriculture Bill in 2018, on the impetus of Sikkim achievements and on the basis of Prime Minister Narendra Modi's vision to develop Uttarakhand as an organic state, and thereby double local farmer incomes by 2022. Additionally, in 2018 the state allocated approximately 195 million EUR for developing the organic sector over the following three years<sup>48</sup>. Synergies have been created between the PKVY program supporting organic farming and the national program aiming to improve Ganga River water quality. In this context, the Uttarakhand government is supporting hill farmers in 42 villages in the catchment areas of the river, in order to encourage them to adopt organic farming<sup>49</sup>. Today, due to the government's support, more than five percent of the state's arable land has been converted to certified organic farming.

### Eastern Himalayan States

#### **Sikkim**

Political commitment to support organic farming in Sikkim began in 2003, when former Chief Minister Pawan Chamling announced his vision for Sikkim to become India's first organic state. In a historical declaration to the State Assembly in 2003, Chamling announced "a long-awaited policy initiative of declaring Sikkim as a total Organic State". The vision was strengthened in 2010 with the design of the *Sikkim Organic Mission*, a road map detailing all necessary measures to become

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<sup>44</sup> Chapter 10, [http://jkapd.nic.in/salary/Agriculture\\_Policy\\_J\\_K\\_State.pdf](http://jkapd.nic.in/salary/Agriculture_Policy_J_K_State.pdf)

<sup>45</sup> [http://www.diragrikmr.nic.in/assets/files/Scan\\_20180821.pdf](http://www.diragrikmr.nic.in/assets/files/Scan_20180821.pdf)

<sup>46</sup> <http://www.hpagriculture.com/Organic%20Farming%20Policy.pdf>

<sup>47</sup> Policy: <http://www.hillagric.ac.in/aboutus/registrar/pdf/2018/GA/30.05.2018/GA-30.05.2018-24882-98-29.05.2018.pdf>

<sup>48</sup> <https://www.thebetterindia.com/129890/uttarakhand-blooms-organic-state-gets-rs-1500-crore-boost-centre/>

<sup>49</sup> <https://www.hindustantimes.com/dehradun/uttarakhand-government-wants-farmers-to-go-organic-to-keep-ganga-toxin-free/story-TEAGs454rILGAwIA9hmFcN.html>

a fully organic state by 2015. This objective was achieved and in December 2015 the state declared itself the first organic state in the world with 75,000 hectares of certified organic land. This is the first such far-sighted and visionary policy commitment of an Indian state or, indeed, the world. The adopted approach was thoroughly holistic and recognized as such in 2018 by UN FAO, the World Future Council, and IFOAM – Organics International through the Future Policy Gold Award on Scaling up Agroecology<sup>50</sup>. Sikkim's policy framework tackles many aspects needed for the transition to organic farming (input provision, capacity building, etc.). Moreover, the framework combines mandatory requirements, such as gradually banning chemical fertilizers and pesticides, and providing support and incentives, thus guaranteeing sustainable alternatives. In 2014, the Sikkim Agricultural, Horticultural Inputs, and Livestock Feed Regulation Act was passed, which bans the import of any chemical inputs for agriculture and horticulture, thereby constituting a total ban on chemical pesticides sales and use in the state<sup>51</sup>. In 2016, a National Organic Farming Research Institute (NOFRI) was established in the state capital of Gangtok. The institute promotes research and education on organic farming, and provides research and technological backstopping to organic production systems, not only for Sikkim but for all of the Indian northeast hill region.<sup>52</sup>

### **Arunachal Pradesh**

The state has had an organic farming mission since 2017<sup>53</sup> and an organic policy since 2014<sup>54</sup>. Under the MOVCDENR mission, the state has built seven post-harvest units, six transportation facilities, and one organic retail store. Today, due to the government's support, almost four percent of the state's arable land has been converted to certified organic farming.

### **Assam**

The state of Assam currently has no specific policies promoting organic farming, nevertheless it has been supporting organic farming through the national programs. Under the MOVCDENR program, the state has built two transportation facilities and one organic retail store. Currently one percent of state arable land is organic certified.

### **Manipur**

The government of Manipur has not yet developed an organic policy. However, it has been supportive of organic agriculture, having formed a government agency specifically dedicated to promoting organic agriculture. This agency is known as Manipur Organic Mission Agency (MOMA)<sup>55</sup>, and is a registered society working under Department of Horticulture and Soil Conservation. MOMA aims to convert as much of the state's area into organic zones by 2025 and act as the implementing body of the MOVCDNER program. Under this scheme, a total of 5,000 organic farmers covering 5,000 hectares benefited from the measures supported during the phase one implementation period. Through the scheme, the state has also built 10 post-harvest units, one processing unit, one packaging unit, 10 transportation facilities, and one organic retail store. Today, due to the government's support, almost four percent of the state's arable land has been converted to certified organic farming.

### **Tripura**

In July 2018, Tripura Agriculture Minister Pranajit Singha Roy declared that its government will put the maximum effort into supporting organic farming. Although not yet equipped with a specific policy, under the MOVCDENR program the state has built six post-harvest units, two transportation facilities, and one organic retail store. Currently less than one percent of the state's arable land is organic certified.

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<sup>50</sup> UN FAO, the World Future Council, and IFOAM – Organics International. More about the award-winning policies of the Future Policy Award on Scaling Up Agroecology can be found at: <https://www.worldfuturecouncil.org/p/2018-agroecology/>

<sup>51</sup> <http://www.lawsofindia.org/pdf/sikkim/2014/2014Sikkim10.pdf>

<sup>52</sup> More information about Sikkim's State Policy on Organic Farming and its Organic Mission India can be found at: <https://www.futurepolicy.org/healthy-ecosystems/sikkims-state-policy-on-organic-farming-and-sikkim-organic-mission-india/>

<sup>53</sup> <https://thedawnlitpost.com/state-organic-mission-launched/>

<sup>54</sup> <http://www.agri.arunachal.gov.in/filesdoc/e109ugpwub3.pdf>

<sup>55</sup> <https://momamanipur.com/>

## Nagaland

Nagaland is currently in the process of drafting an organic policy. In May 2019, the Additional Director of State Agriculture Department, Kevikhu Achumi, confirmed during a public event that the government will continue to work toward spreading organic farming across the state. In the meanwhile, under the MOVCDENR program, the state built 12 post-harvest units, one transportation facility, and one organic store. Today, due to the government's support, more than three percent of the state's arable land has been converted to certified organic farming.

Table 3: Overview of cultivated area (ha) in the Indian Himalayan states under certified organic farming, including in-conversion, and their share at state and national levels (2017).

State	Organic Agricultural Cultivated Land in 2017 (ha) <sup>56</sup>	Total Cultivated Area (ha) <sup>57</sup>	Share of Organic Land Over the Total Crop Land of the State	Share of Total Organic Land in India
Jammu and Kashmir	22,870	733,000	3.12%	1.28%
Himachal Pradesh	14,153	551,000	2.57%	0.79%
Uttarakhand	42,304	788,000	5.37%	2.37%
Arunachal Pradesh	6,179	166,000	3.72%	0.35%
Manipur	5,397	140,000	3.86%	0.30%
Meghalaya	40,335	240,000	16.81%	2.26%
Mizoram	998	91,000	1.10%	0.06%
Nagaland	8839	261,000	3.39%	0.49%
Sikkim	76,076	95,000	80.08% <sup>58</sup>	4.26%
Tripura	2,251	277,000	0.81%	0.13%
Assam	28,011	2,701,000 <sup>59</sup>	1.04%	1.57%
West Bengal	5,811	5470,000 <sup>60</sup>	0.11%	0.33%
<b>Sub-regional total</b>	253,224	11,513,000		14.17%
<b>Total in India</b>	1,786,494	158,000,000		

## Meghalaya

In 2015, Meghalaya launched its Organic Mission , a program to support organic conversion and certification. The state is already vibrant in its practice of organic agriculture but there is no specific policy on organic farming in place at the government level. Under the MOVCDENR program, the state has built one processing unit. Today, due to the government's support, almost 17 percent of the state's arable land has been converted to certified organic farming.

## Mizoram

Mizoram made history with the adoption of the Mizoram Organic Farming Act , passed by the Mizoram Legislative Assembly in July 2004, by becoming the first state in the country to legislate its vision for turning its entire agricultural sector organic. The policy included the creation of a state-level Committee on Organic Farming. However, this vision was not implemented, the state was seen taking steps in 2006-2007 to push this policy further, however currently, there is no concrete report available on the policy's implementation. Nevertheless, under the MOVCDENR

<sup>56</sup> APEDA, 2017, [http://apeda.gov.in/apedawebsite/organic/data.htm#certification\\_process\\_5](http://apeda.gov.in/apedawebsite/organic/data.htm#certification_process_5)

<sup>57</sup> Tej Partap, Hill Agriculture: Challenges and Opportunities\* *Ind. Jn. of Agri.Econ.* Vol.66, No.1, Jan.-March 2011.

<sup>58</sup> De facto conventional agriculture is forbidden in the state of Sikkim because the use of synthetic inputs is banned by law. However, not all of the entire cultivated land is certified by third party organic certification.

<sup>59</sup> Assam is mainly a land of plains and river valleys; the mountainous area is located between Meghalaya (to the west) and Nagaland and Manipur (to the east) in the south-central part of the state. In this region, research was not able to differentiate organic cultivated area based on the geographical area of the state.

<sup>60</sup> West Bengal is divided into two natural geographic divisions—the Gangetic Plain in the south and the sub-Himalayan and Himalayan areas in the north. In this region, research was not able to differentiate organic cultivated area based on the geographical area of the state.

program, the state has built three post-harvest units, one processing unit, and one transportation facility. Today, slightly more than one percent of the state’s arable land has been converted to certified organic farming.

## Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology

*Table 4: Overview of select policies and action plans relevant to the development of Indian organic agriculture and agroecology.*

Area	Title	Purpose
Agriculture and Natural Resources	National Agroforestry Policy 2014	Aims at bridging forestry, agriculture, water, and the environment. Rather than defining agroforestry as a separate set of activities worthy of policy support, the process was geared toward ensuring that other policies do not undermine agroforestry as a solution to multiple national goals.
Natural Resources	National Biodiversity Action Plan 2008 (updated 2014)	Aligns the existing plan with the Strategic Plan for Biodiversity 2011–2020 and the Aichi Biodiversity Targets (ABTs).
Climate Change	Nationally Determined Contribution 2015	Aims to reduce emission intensity of its GDP by 33-35 percent from 2005 levels by 2030; to achieve about 40 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030; to create an additional carbon sink of 2.5 to 3 billion tons of CO <sub>2</sub> equivalent through additional forest and tree cover by 2030; to better adapt to climate change by enhancing investments in development programs in sectors vulnerable to climate change, particularly agriculture, water resources, the Himalayan region, coastal regions, health, and disaster management.
Land Degradation	National Action Plan to Combat Desertification 2001	Pledges to achieve the land degradation neutrality by 2030.
Climate Change	National Action Plan on Climate Change (NAPCC) 2008	Outlines a strategy by which India will adapt to and mitigate challenges of climate change. The NAPCC has identified five missions related with agriculture are: <ol style="list-style-type: none"> <li>1. <u>National Water Mission</u>: aims to optimize water use by increasing water use efficiency by 20 percent, recycling of waste water;</li> <li>2. <u>National Mission for Sustaining the Himalayan Ecosystem</u> (concluded): aims to conserve biodiversity, forest cover, and other ecological values in the Himalayan region;</li> <li>3. <u>National Mission for a “Green India”</u>: includes the afforestation of six million hectares of degraded forest lands and expanding forest cover from 23 to 33 percent of India’s territory;</li> <li>4. <u>National Mission for Sustainable Agriculture</u> (NMSA): aims to support climate adaptation in agriculture through the development of climate-resilient crops, expansion of weather insurance mechanisms, agricultural practices, and improving productivity of rain-fed agriculture;</li> <li>5. <u>National Mission on Strategic Knowledge for Climate Change</u>: gain a better understanding of climate science, impacts, and challenges.</li> </ol>

## International Conventions

- **United Nations Convention to Combat Desertification (UNCCD)**: India ratified the UNCCD in 1996.
- **United Nations Convention on Biological Diversity (UNCBD)**: India ratified the UNCBD in 1994 and the Cartagena Protocol on Biosafety in 2003.
- **United Nations Framework Convention on Climate Change (UNFCCC)**: India ratified the Kyoto Protocol in 2002 and ratified the Paris Agreement in 2016.

## Detrimental Policies

### Subsidies on Chemical Fertilizers

Although the Indian government provides assistance for procuring organic fertilizers under some of its dedicated programs and sub-components (PKVY, NPOF, NHM, NMSA etc.), the reality is that the majority of government support is allocated to conventional grown cash crops under monocropping conditions. This is especially true if one looks at the support for agricultural inputs: in 2017-2018, the Indian government allocated approximately 9 billion EUR to provide subsidies for synthetic fertilizers<sup>61</sup>. In comparison, the two dedicated programs for organic farming, PKVY and MOVCDENR, were supported over the period 2015-2018 with approximately 168 million EUR. A total of 24 million tons of fertilizers were consumed in India in 2011-2012. In the same period, the fertilizer subsidies in India were concentrated in seven states. Not by chance, these states are the ones dominated by fertilizer intensive crops like paddy, wheat, sugarcane, and cotton.

### Allowance of GMO Crops

Several legislations regulate the cultivation and commercialization of GMOs crops, seeds, and food in India. The Genetic Engineering Appraisal Committee (GEAC) under the Ministry of Environment, Forest, and Climate Change is the responsible body for appraising proposals related to releasing genetically engineered organisms and products into the environment, this includes experimental field trials. In India, several GM crop trials have been approved but little is done to monitor field trials. As of now only five different GM Bt cotton varieties have been approved by GEAC. The allowance of GM Bt cotton in 2002 has proven terribly harmful for the organic sector, since cotton is also a significant organic export commodity for the country. GM contamination has been a major factor in increasing costs, reputation loss, and market loss for the organic cotton supply chain in India. Sikkim is now not the only Indian state to have banned GM crops, Maharashtra and Karnataka have also enforced a ban on Bt cotton, in 2012 and 2015, respectively.

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<sup>61</sup> [https://www.business-standard.com/article/news-cm/no-proposal-to-decrease-subsidies-on-fertilizers-and-fixing-a-nutrient-based-subsidy-rate-nbs-for-urea-d-v-sadananda-gowda-119062100718\\_1.html](https://www.business-standard.com/article/news-cm/no-proposal-to-decrease-subsidies-on-fertilizers-and-fixing-a-nutrient-based-subsidy-rate-nbs-for-urea-d-v-sadananda-gowda-119062100718_1.html)

## Rise and Fall of GM Cotton in India<sup>62</sup>

GM (Bt) cotton was first introduced to India in 2002 by Mahyco Monsanto Biotech (India) Ltd. Today, about 90 percent of India's cotton area of 11.8 million hectares is sown with genetically modified cotton. GM cotton was lauded as resistant to the most common cotton pest in India, the pink bollworm.

In the beginning, GM cotton was briefly successful in decreasing pink bollworm damages, but other insects stepped into the gap and attacked crops, which necessitated additional pesticide applications. For example, in Punjab in 2015, the whitefly destroyed two-thirds of the cotton crop, causing an estimated loss of \$629 million and leading to the suicide of 15 farmers. In 2006, just four years after Monsanto released its first-generation GM cotton, the pink bollworm struck back, becoming resistant to it in Western India.

Monsanto then released a more expensive, second generation Bt cotton. But, within a few years, the pink bollworm had also developed a resistance to this cotton. As a result, insecticide use has increased in recent years, from a reported 0.5 kilogram per hectare in 2006 to 1.20 kilogram per hectare in 2015. The Cotton Advisory Board of India has found a threefold increase in the cost of growing cotton, due to the high price of Bt seeds and other input costs, such as fertilizers and the pesticides needed to deal with the pests. Pro-GM advocates claim that Bt cotton has increased yields, but most of the recent yield increases in India happened between 2002-2005, when Bt comprised only 0.4-5.6 percent of India's cotton. From 2008-2012, as Bt cotton production rose from 67 percent to 92 percent, yields steadily dropped. A 2015 study, led by a scientist from the University of California-Berkeley, found that annual suicide rates in rain-fed areas of India are directly related to increases in Bt cotton adoption. The study found that four of the seven factors that influence suicides are driven by the GM industry.

By 2012, non-GM and organic farmers faced significant hurdles as supplies of non-GM and particularly organic seed became scarcer. GM cotton was considered one of the biggest threats to the future of sustainable organic cotton in the country and elsewhere.

All that has now changed; the 2016-17 cotton season saw a roughly 15 percent drop in Indian Bt cotton sales. In the state of Andhra Pradesh, the government planned to reduce Bt cotton cultivation in 2016-17 from 670,000 hectares to 450,000 hectares, following the 2016 devastation by the pink bollworm. It also suggested alternative crops for farmers to cultivate, such as millet and pulses. In Punjab and Haryana, cotton growing areas have declined by 27 percent as farmers move away from cotton following last season's whitefly devastation. In Uttar Pradesh, cotton growing has dropped by 19 percent for the same reasons. Overall, the area planted with Monsanto's seeds has declined by roughly 10 percent, either because farmers have switched to desi (local strains of) cotton or have moved away from growing cotton altogether.

GM food products are currently available on the Indian market, partly a result of a legislative void on GM food in India. Between 2007 and 2015, the GEAC, previously in charge of appraising the import and sale of processed foods made with GM ingredients, approved three genetically modified food products: Doritos corn chips, canola oil, and soybean oil.

However, the Food and Safety Standards Act (2006), under the Food Safety and Standards Authority of India (FSSAI), says that "no person shall manufacture, distribute, sell or import any genetically modified article of food except as otherwise provided under the Act and regulations made thereunder". In 2013 the Legal Metrology (Packaged Commodities) Rules (2011) were amended to mandate that packages containing genetically modified foods bear the words 'GM' on

<sup>62</sup> This section is taken from: Soil Association, 2017, Failed Promises: The Rise and Fall of GM Cotton in India: <https://www.soilassociation.org/media/13510/failed-promises-e-version.pdf>

their primary display panels. This rule was inconsistent with the fact that GM foods are not allowed in India, and instead created the false perception that GM food was allowed in the country.

In 2018, the Centre for Science and Environment (CSE) in Delhi tested 65 available food products containing soybean, rapeseed, and cottonseed oil for genetically modified (GM) ingredients. Both domestically produced and imported<sup>63</sup> products were tested. Some 17 percent of the domestically manufactured samples containing cottonseed oil tested positive for GM traits. These findings clearly indicate that Bt cotton, which is the only genetically modified crop allowed for commercial cultivation in India, has found its way into the country's food system. The report's release triggered a serious scandal in the government.

The GEAC admitted there was a gap in laws regarding the regulation of GM processed foods and decided to take up the issue with the FSSAI. In response, the FSSAI released a statement saying it had started work on framing regulations to define procedures for safety assessments and the approval of food items.

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<sup>63</sup> Chandra Bhushan, Amit Khurana, Sonam Taneja and Bhavya Khullar, *Genetically Modified Processed Foods in India—Need to Curb Illegal Sales in the Indian Market*, Centre for Science and Environment, New Delhi.



NEPAL



# Nepal

## General Introduction: About the Country and Its Agricultural Sector

The Federal Democratic Republic of Nepal is a country in Southern Asia with an estimated population of 29 million people, the majority of whom (80.26 percent) live in rural areas. Situated between China and India, Nepal has a total area of 147,181 square kilometers (56,826 square miles) with three main geographical areas: the southern lowland plains that make up 20 percent of land area; the central band of foothills, and the high Himalaya Mountains along the northern border with China, which respectively comprise 56 percent and 24 percent of land area.

The country's economy depends primarily on services, which accounted for 59.5 percent of Nepal's GDP in 2017. This is followed by agriculture at 27 percent and industry at 13.5 percent. Agriculture represents 69 percent of total country employment and uses 28.8 percent of the available land (2011 estimates).

Nepal is facing several social, political, and environmental challenges, which were exacerbated by the 2015 earthquake. 24 percent of the population lives in poverty<sup>64</sup>. The incidence of poverty in the rural far-western and mid-western hills is 36.8 percent. In Dalits hills, however, this figure reaches 43.6 percent<sup>65</sup>. The average size of landholding is about 0.5 hectares, and land is often fragmented into scattered parcels.

Nepal is richly endowed with agrobiodiversity. Rice, maize, millet, wheat, barley, and buckwheat are the country's major staple food crops. Similarly, other important cash crops are oilseeds, potato, tobacco, sugarcane, jute, and cotton, whereas lentil, gram, pigeon pea, black gram, horse gram, and soybean are considered the most important pulse crops. Nepal is also famous for orthodox tea<sup>66</sup>, large cardamom, turmeric, and ginger<sup>67</sup>.

Until the early 1980s, Nepal was food self-sufficient and even exported food. Over the past decades, however, the country has increasingly been experiencing food shortages. Major reasons for this are severe weather conditions including drought, floods, landslides, and hailstorms, among others. According to World Food Program<sup>68</sup>, 4.6 million Nepalese are suffering from food insecurity.

Deforestation, forest degradation, soil erosion, contaminated water (with human and animal wastes, agricultural runoff, and industrial effluents), unmanaged solid-waste, wildlife conservation, and vehicular emissions are the most challenging environmental issues facing Nepal. Such issues are likely to increasingly impact the country as the climate changes, which will possibly turn productive agricultural areas into unproductive ones, thereby displacing a large number of workers and causing an increase in poverty rates and food insecurity.

The establishment of commercial organic farming in Nepal was started in the early 1990s. The total amount of cultivated land certified organic in 2017 was 9,361 hectares<sup>69</sup>, only 0.2 percent of the total cultivated land. Additionally, it is estimated that over 24,000 hectares are used for wild collection<sup>70</sup>. Though certified organic farming accounts for a small segment of acreage, production,

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<sup>64</sup> As cited in The Global Food Security Strategy Nepal Country Plan, 2018. Government of Nepal. National Planning Commission Secretariat, Central Bureau of Statistics. 2015.

<sup>65</sup> The Global Food Security Strategy Nepal Country Plan, 2018. National Living Standards Survey 2010-2011.

<sup>66</sup> Orthodox tea refers to either hand-processed tea or tea rolled with machinery in a manner that mimics hand-rolling.

<sup>67</sup> Nepal at a Glance. (n.d.). Retrieved July 30, 2019, from <http://www.fao.org/nepal/fao-in-nepal/nepal-at-a-glance/en/>

<sup>68</sup> World Food Program. WFP Nepal Country Brief. June 2019.

<sup>69</sup> Willer, Helga and Julia Lernoud (Eds.) (2019): The World of Organic Agriculture. Statistics and Emerging Trends 2019. Research Institute of Organic Agriculture (FiBL), Frick, and IFOAM – Organics International, Bonn.

<sup>70</sup> Unofficial estimates state that up to 180,000 hectares are currently managed according to organic principles. <https://myrepublica.nagariknetwork.com/news/fewer-farmers-going-for-organic-certification/?categoryid=blog>

and number of producers (less than 1,000 in 2017), organic farming is not a new concept in the Nepalese context, where a very high percentage of agriculture farming is by default organic. Organic farming is currently gaining momentum in Nepal. Recently there has been growing interest from both the governmental and non-governmental sectors to advocate for its promotion.

## Overview of Legal Frameworks, Laws, and Policies for Organic Farming

In April 2019, the National Planning Council approved the 15th Five-Year Plan (2019/20-2023/24)<sup>71</sup> presented by the National Planning Commission. The plan aims to reduce poverty from the current level of 18.7 percent to 13 percent. Likewise, it seeks to reduce the percentage of people suffering under multi-dimensional poverty from 28.6 percent to 14 percent by the end of 2024. The budget for the 15th five-year plan is 9,246 billion NPR (74.4 billion EUR)<sup>72</sup> with an estimated investment of 5,135 billion NPR from the private sector that will target the industry and service sectors. The government expects to invest 413 billion NPR (3.3 billion EUR, 4.5 percent of its total budget) into the agriculture and forest sectors. With the implementation of this plan, the government expects that after the 5 years, the agriculture sector will achieve an average growth of 5.6 percent per year, and thereby contribute 22.1 percent of the GDP by 2024<sup>73</sup>. Nevertheless, this represents a continuous reduction from 2017 GDP contribution of 27 percent.

Government efforts to boost the Nepalese agricultural economy have focused on easing dependency on weather conditions, increasing productivity, and diversifying the range of crops for local consumption. Solutions have so far focused on the use of irrigation systems, chemical fertilizers, and improved seed varieties as well as providing access to credit and technical advice. Only recently did it include the promotion of organic farming.

With the **National Agricultural Policy** (MOAC, 2004)<sup>74</sup>, the government included the promotion of organic farming among its strategies to modernize the agriculture sector for the first time. Policy objectives seek to preserve and properly manage natural resources, the environment, and biodiversity. The policy encourages organic farming, product certification, minimization of agrochemical adverse effects in livestock products, land, water, and other aspects of environment, improvement in the production and usage of organic manure, the enhancement of local participation in food quality management, and the regulation of pesticide use and GMOs.

In 2006, the Nepal Permaculture Group<sup>75</sup>, together with other key stakeholders, the private sector, and civil society organizations, drafted the national organic standards for production and processing. Endorsed by the government, these standards continue to remain voluntary because Nepal's National Regulation on Organic Production has not yet been enacted.

The **Agriculture Development Strategy** (ADS) (2015–2035), was established to guide the Agriculture Sector of Nepal over a period of 20 years. ADS includes policy guidelines and periodic action plans to bridge gaps and shortcomings of previous plans and policies. Key features of ADS, which include ensuring food and nutrition security, increasing food sovereignty, competitiveness, commercialization, good governance, and establishing farmer's commissions to ensure, protect, and promote farmers rights, are also reflected in the Nepalese Constitution. ADS is expected to accelerate agricultural growth through four strategic components related to commercialization, productivity, competitiveness, and governance while promoting inclusiveness and sustainability. The ADS recognizes organic branding as a possible component in increasing the competitiveness of the Nepalese agricultural sector. The strategy includes promoting community-based seed

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<sup>71</sup> [https://www.npc.gov.np/images/category/15th\\_Plan\\_Approach\\_Paper2.pdf](https://www.npc.gov.np/images/category/15th_Plan_Approach_Paper2.pdf)

<sup>72</sup> Maharjan, U. (2019, February 05). The 15th Plan and Implementation. Retrieved August 8, 2019, from <http://therisingnepal.org.np/news/30253>

<sup>73</sup> Approach paper draft of 15th five-year plan okayed. (2019, April 04). Retrieved August 8, 2019, from <https://thehimalayantimes.com/business/approach-paper-draft-of-15th-five-year-plan-okayed/>

<sup>74</sup> [https://www.npc.gov.np/images/category/15th\\_Plan\\_Approach\\_Paper2.pdf](https://www.npc.gov.np/images/category/15th_Plan_Approach_Paper2.pdf)

<sup>75</sup> <https://www.npg.org.np/introduction/>

production, supporting integrated systems such as agroecology, promoting extension services in organic farming, production of organic inputs and subsidies for purchasing fertilizers (organic and synthetic). The ADS Action Plan general budget is an estimated 2.9 billion EUR, with private sector participation at 538 million EUR. Actions related to organic farming have an estimated cost of 35.5 million EUR, including 5.6 million USD or 15 percent of participation from the private sector related to actions on seeds, organic farming, and organic bio-fertilizer production.

In November 2017, the current ruling party released its **election manifesto**<sup>76</sup>, which includes a target to make Nepal a chemical and pesticide-free country within ten years. However, this statement has thus far not been supported by a concrete road map. Nonetheless, the Himalayan Times reported that in 2019 the ministry allocated a total of Rs 520 million (approximately 4 million EUR) for promoting organic farming during the fiscal year 2018-19. The budget has been distributed to two eastern provinces (n.1 and 3), Karnali (far-western n.6), and Gandaki (western n.4) for local development of the organic sector.

In April 2018, Karnali Province government enacted a **Policy and Development Program (2018-2019)**<sup>77</sup> that outlines the area's gradual transformation into a fully organic province. The transition will be piloted in five Himalayan districts. Local governments will assign high priority to investments in capacity building, improving organic seed quality and availability, as well as the producing organic inputs and developing sustainable tourism. Some commodities, such as walnuts and other indigenous products, will be used for export to foreign countries. In addition, farmers and agricultural industries that support organic farming will be provided.

This program is built on the previous experience of the Jumla district, which is part of the Karnali province. In 2007, the District Agriculture Development Office (DADO) decided to transform the area into an organic district. Following this decision, the import and use of chemical fertilizers and pesticides in the district were banned. As the area specializes in apple production, DADO sought help from foreign donors and established a project to develop the organic apple value chain. Project activities included trainings on production, support for certification, facilitating transport of the apples to markets, identifying buyers, and brand marketing. These actions substantially helped support small-scale producers in this remote area; in 2018 the total sale of organic apple reached over one million EUR, and organic apple farmers are fetching better prices than their conventional competitors.

Moreover in 2019, the Ministry of Agriculture and Livestock Development (MoALD) formulated a high-level committee, chaired by the Minister and various stakeholders including farmers, non-government sector officials, private sector representatives, and others to analyze and formulate strategies to address the current needs of soil nutrients through organic farming. This high-level committee coordinated with MoALD to organize an International Organic Experts' Conference from May 14-15, 2019 in Kathmandu<sup>78</sup>.

In parallel, the Nepal government has formed a 15-member Committee (named High Level Task-force/Committee on Organic Promotion in Nepal) to develop a proposal for a holistic program that guides the development of organic farming over the coming years. According the press, the document suggests several recommendations, which include establishing a separate Organic Development Board, conducting trainings on organic agriculture for farmers and awareness programs for consumers, and providing support dedicated to researcher and extension services. The document was submitted to the Ministry of Agriculture in July 2017.

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<sup>76</sup>Available in Nepali: <https://drive.google.com/file/d/1pRmvgkL1IGSSP5rcoThluvRkutHHksey/view>

<sup>77</sup> <http://ocmcm.karnali.gov.np/sites/ocmcm/files/2018-06/Policy%20and%20Programme-Karnali%20Province-Unofficial%20Translation-Final-ST.pdf>

<sup>78</sup> International Organic Experts' Meet in May. (2019, April 23). The Himalayan Times. Retrieved August 12, 2019, from <https://thehimalayantimes.com/business/international-organic-experts-meet-in-may/>

## Additional Policy Frameworks Relevant to Organic Agriculture and Agroecology

Table 5: Overview of select policies and action plans that are relevant to the development of Nepalese organic agriculture and agroecology.

Area	Title	Purpose
Agriculture	Prime Minister Agriculture Modernization Project (PMAMP) 2017 <sup>79</sup>	Aims to enhance productivity and commercialization of major cereals, fisheries, fruits, and vegetables over the next decade in direct connection with ADS. Despite also supporting conventional agriculture, the program allocates funds for the promotion of rooftop farming to produce organic vegetables in urban areas and focus on organic production in Karnali and other hilly areas in cooperation with state and local governments.
Agriculture and Gender	High Value Agriculture Production Program (HVAPP) 2010 <sup>80</sup>	Aims at reducing poverty and vulnerability of rural populations in hilly and mountain areas of the mid- and far-western development region of the country. The project's purpose is to integrate the rural poor, especially women and marginal groups, into high-value agriculture and Non-Timber Forestry Products (NTFPs)/Medicinal and Aromatic Plants (MAPs) value chains and markets, and to improve income and employment opportunities by promoting organic farming for export markets.
Agriculture and Food	Right to Food and Food Sovereignty Act, 2018 <sup>81</sup>	Contains several affirmative provisions such as those that require identification of food-insecure households, the protection of farmers' rights, the formulation of food plans. Takes steps to penalize actions that may impair access to minimum essential food.
Agriculture and Food	National Biosafety Framework 2006 <sup>82</sup>	Authorizes the concerned agencies for regulatory measures and guidelines to avoid or minimize potential risks of GM plants and their products, GM microorganisms and their products, and GM animals and their products
Technology and Infrastructure	2018 Digital Nepal Framework 2018 <sup>83</sup>	Special Food Program subcomponent targets the development of crops with export potential, such as organic produce, particularly those grown in urban areas.
Natural Resources	Master Plan for the Forestry Sector 1989  Forest Act 1993  Forest Regulation 1995	Together these documents enable a major shift in forest resource management in Nepal by establishing community forestry. In 2000, Nepal revised its forest policy to cover forest management in the Terai, the lowlands at the foot of the Himalayas. Community forestry is widely seen as a success on multiple fronts. It has engaged local communities in forest protection, helping curb illegal logging and rapid deforestation.

<sup>79</sup> <http://pmamp.gov.np/en/home/>

<sup>80</sup> The project is implemented by the Ministry of Agricultural Development (MoAD) in partnership with the Netherlands Development Organization (SNV) and the Agro-Enterprise Center (AEC) of the Federation of Nepalese Chamber of Commerce and Industries (FNCCI). <http://www.hvap.gov.np/index.php>

<sup>81</sup> <http://www.lawcommission.gov.np/en/archives/20817>

<sup>82</sup> [http://www.fao.org/fileadmin/user\\_upload/gmfp/docs/14%20National%20Biosafety%20Framework%202006.pdf](http://www.fao.org/fileadmin/user_upload/gmfp/docs/14%20National%20Biosafety%20Framework%202006.pdf)

<sup>83</sup> <http://mocit.gov.np/application/resources/admin/uploads/source/EConsultation/Final%20Book.pdf>

Natural Resources	Agrobiodiversity Policy 2007 (updated 2014)  National Biodiversity Strategy and Action Plan (NBSAP) for 2014-2020.	Enables the creation and development of the National Agricultural Genetic Resources Centre and community seedbanks, and ensures via a variety of committees – at national and local levels – the participation and collaboration of all relevant stakeholders. A number of efforts have been made to develop ex situ and in situ conservation strategies of genetic materials for food and agriculture and strong commitment to the sustainable use of these genetic resources is evident.
Climate Change	Climate Change Policy 2011	For the agriculture sector, the plan focuses on i) community-based agricultural biodiversity conservation, ii) development of appropriate technology and infrastructure for conservation and utilization of indigenous knowledge and natural resources, iii) encouragement of production based on agricultural biodiversity, and employment and income generating activities, and iv) promotion of market centers and entrepreneurship.
Climate Change	National Determined Contribution 2016 <sup>84</sup>	Climate action is focused on adaptation. Nevertheless, the NDC includes plans to increase renewable energy production. The NDC does not include any overall greenhouse gas (GHG) emission reduction targets.
Climate Change	National Adaptation Plan (NAPA) 2018 <sup>85</sup>	Guides adaptation actions across various sectors. More localized versions of the NAPA have also been formulated. For the agriculture and food security sector, priorities include integrated management of agriculture, water management, improved systems, livelihood diversification, access to agriculture development services, identification of potential drought areas, early warning and forecasting for adverse temperature, floods and other hazards impacting the sector. <sup>86</sup>

## International Conventions

- United Nations Convention to Combat Desertification (UNCCD): Nepal ratified the UNCCD in 1994.
- United Nations Convention on Biological Diversity (UNCBD): Nepal ratified the UNCBD in 1993 and the Cartagena Protocol on Biosafety in 2001.
- United Nations Framework Convention on Climate Change (UNFCCC): Nepal ratified the Kyoto Protocol in 2005 and the Paris Agreement in 2016.

## Detrimental Policies

### Subsidies on Chemical Fertilizers

On one side, the Nepalese government is committed to transiting the country toward organic agriculture. On the other side, policymakers continue to pursue food security by increasing agricultural productivity through the supply of mainly synthetic inputs. Political support for chemical fertilizers has been ongoing since the 1950's. After a short reprieve in the early 2000s, subsidies were reintroduced in 2008 and continue until today. These subsidies are seen as the favored way to support productivity, especially for commodity crops. The result is that the use of synthetic fertilizers in Nepal has consistently increased over the last decades. The former Agriculture Perspective Plan (APP, 1995-2015) also envisaged an increase in fertilizer-use from 31 kilogram nutrient/hectare in the base year (1995) to 131 kilogram nutrient/hectare by 2015.

<sup>84</sup><https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf>

<sup>85</sup><http://napglobalnetwork.org/wp-content/uploads/2018/07/napgn-en-2018-nepal-nap-process.pdf>

<sup>86</sup> However, smart-climate agriculture has been included as a part of the adaptation plans, and is unclear if organic farming and agroecology are recognized as systems that can help to mitigate the climate change effects.

Similarly, the Agriculture Development Strategy (2015-2034) still highlights the limited use of fertilizers as the major reason for low agricultural productivity and commercialization<sup>87</sup>. However, the government has also started to realize that the country's soil health is deteriorating due to imbalanced chemical usage. Taking these facts into consideration, the government has launched various organic intervention programs to enhance soil health, decrease chemical fertilizers dependency, and reduce crop production cost. Among these programs are: vermicomposting, cattle shed improvement, organic fertilizer plant establishment, and price subsidy programs. Despite their benefits these programs are still in their initial implementation phases and have thus far proved to be less effective than the support for chemical fertilizers. In 2015-2016, only 4,053 MT of subsidized organic fertilizers were distributed while the amount of subsidized synthetic fertilizers distributed that same year reached almost 300, 000MT<sup>88</sup>.

In Nepal contradictions continue to emerge. Earlier this year, in April 2019, at the Nepal Investment Summit, the government proposed establishing a synthetic fertilizer factory. This plan is clearly inconsistent with the vision to turn Nepal into a chemical- and pesticides-free country by 2030.<sup>89</sup>

### Allowance of GMO Crops

No GM crops or seeds are formally registered, introduced, and grown in Nepal. However, the relevant acts for biosafety and environmental protection were formulated and enacted quite long ago, before the emergence of modern biotechnology. Thus, they do not deal explicitly with this issue. Additionally, Nepal has no law regarding labeling for food containing GMOs. Yet Nepal ratified the Cartagena protocol in 2001, which requires countries to conduct risk assessment for the development, handling, transfer, transport, use, and release of GMOs. Research can be done with permission from the authorized agency. However, the government can ban import and research on any GMOs that carry a potential risk of altering diversity and negatively impacting health and environment, as defined by the National Agrobiodiversity Policy and the National Biosafety Framework.

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<sup>87</sup> Sujan Amgai, Santosh Raj Paudel, Diwas Raj Bista and Salik Ram Poudel. Government Intervention on Organic Fertilizer Promotion: A Key to Enhancing Soil Health and Environment. *The Journal of Agriculture and Environment* Vol:18, Jun. 2017.

<sup>88</sup> Diwas Raj Bista, Sujan Dhungel and Santosh Adhikari Status of Fertilizer and Seed Subsidy in Nepal Review and Recommendation. *The Journal of Agriculture and Environment* Vol:17, Jun.2016.

<sup>89</sup> Chemical fertilizer factory not feasible, say stakeholders. (2019, April 06). *The Himalayan Times*. Retrieved August 12, 2019.

## Conclusion

Despite their diversity, all three assessed countries are characterized by large rural populations with many small-scale farmers practicing traditional agriculture without the use of synthetic inputs. The limited success of the Green Revolution in these territories represents one of the biggest opportunities for developing successful rural communities that rely on organic farming and agroecology. The multi-faceted benefits of adopting these types of agriculture range from poverty alleviation to sustainable resource management. They have been recognized in recent decades by policymakers, which ensure the adoption of policies that support organic and agroecological farming, and, in some cases, full pledges to convert whole countries or states to organic farming.

Across the three countries, policy frameworks supporting organic and agroecological farming have been implemented with varying efficacy and intensity. In general, these policies have resulted in the improvement of farmer incomes through diversification, improved integration of traditional farming systems, reduction of dependency on external synthetic inputs, increase in climate resilience, and encouragement of alternative marketing channels. The most successful policies have been those that created overarching, integrated approaches spanning from natural resource management to socio-economic measures that improve livelihoods, as in Sikkim.

However, under the guise of food insecurity reduction, increased amounts of chemicals have been provided to farming communities in Nepal, India, and Bhutan, which is in contradiction with the vision of pursuing a full transition to organic and agroecological farming. At the same time, agricultural budget allocations for organic and agroecological farming remain disproportionately low compared to those provided to conventional farming. Both the promotion of chemicals and the lack of adequate budget allocations undermine the pledge to becoming fully organic, and locks countries into continuously providing support for increased chemical use, especially for cash crops. This is leading to the depletion of soils, loss of biodiversity, and loss of traditional farming knowledge.

Yet these three countries are providing inspiration and impetus for a radical paradigm shift in agriculture. They achieve this through institutional frameworks that create new opportunities and approaches to food sovereignty and by strengthening subsistence farming through the development of market-driven farmer-centric approaches, all while preserving natural resources.

To be fully successful, these countries must build stronger synergies in different domains, remove conflicting objectives, and address missing pathways. It is fundamental to create holistic and inclusive approaches, which is ensured via cross-ministerial collaboration and encompassing policies on issues such as agriculture, food security, rural development, gender empowerment, protection of indigenous people's rights, research and education, environmental and biodiversity protection, climate mitigation and adaptation, and renewable energy.

Cooperation among the three countries is also an opportunity to leverage. For instance, in June 2018, at the inaugural 'India-Nepal New Partnership in Agriculture' meeting held in New Delhi, India confirmed assistance to Nepal in developing organic farming coupled with soil testing and recommendations for improve nutrient use efficiency.

Institutional support to organic and agroecological farming has increased the visibility and importance of a wider range of mountain organic products. However, to upscale the role of organic and agroecological farming in mountain development and worldwide, policy frameworks should go beyond the conventional 'value adding chain' approach and pursue organic and agroecological farming as holistic strategy to achieve the vast spectrum of targets foreseen by the SDGs and the 2030 Agenda.

