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An Overview of Large-Scale Conversion Programs to Organic Agriculture in Asia

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An Overview of Large-Scale Conversion Programs to Organic Agriculture in Asia

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Abstract:

In Asia, various large-scale organic agriculture conversion programs have been initiated by national or regional policymakers. These programs involve the ban of agrochemicals and intensive farming methods in large-scale and replace them with organic inputs and methods with different policy tools and include whole agricultural producers in a region or country. The present article addresses the policies, driving factors and the restrictions of such programs, as the first study investigating the various form of large-scale organic agriculture conversion policies in Asia. Results show that many factors can lead the governments to initiate large-scale organic agriculture programs, such as existing proper market opportunities and demands in or outside of the land, health issues among farmers or people, great potentials like traditionally organic farming in large parts of the region or country, and high awareness of organic production advantages among policy makers. Such conversion programs need to be established, implemented, and continuously supported by the highest level of government and entire political and economic structure should follow it as the main approach. The most effectual policies include political strategies such as legislation changes, capacity building through organizational, institutional, and structural alterations, national and regional mid-term plans, and building human capital by education.

Key Words: Organic Agriculture Development, Organic Agriculture Policies, Large-Scale Conversion Programs

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1 Introduction

Very few scientists today would argue that the world's current approach to food production and agriculture is sustainable. Land degradation, salinization, pesticide pollution of soil, water, and food chains, depletion of ground water and decline in biodiversity are all reasons for questioning modern agriculture and its sustainability (Altieri & Rosset, 1996; Seufert et al., 2012).

The implemented policies intend to apply ecological concepts and principles to agricultural systems, focusing on the interaction between micro-organisms, plants, animals, humans, and the environment, to develop sustainable agriculture and to ensure food security and nutrition to all, now and in the future by co-creation of knowledge, sharing innovation, combining local traditional and indigenous practices with multi-disciplinary science. (Srouf, 2018). All conversion policies can have different drivers, and take different approaches, to reach their ambitious goals to upscale organic agriculture. One project has already reached its objective, others are still in process, while one is no longer pursuing the full transition to organic.

The global farmland under OA is at an all-time high of 71.5 million hectares as awareness and demand for organic produce is constantly rising (Willer et al., 2020). In Asia, a growth rate of 82.6% organic land for last ten years i.e., from 2008 up to 2018 is reported. The full conversion projects are in line with the world's current organic movement. (Willer et al., 2020)

According to our definition, a large-scale conversion program into OA is a program which is initiated by policymakers of a country or a region to ban the use of agrochemicals and replace them with ecological or organic inputs and methods. Such program may be in line with organic products' certifications or without certification

strategies, and mostly is implemented to change the entire agriculture and food production system with a holistic approach.

The state Sikkim in India followed the belief that a full conversion to OA will preserve the ecosystem and the health of its citizens. In 2016, it became the first state going fully organic worldwide (IFOAM, 2019). Bhutan, being the only carbon negative country worldwide, took its ambition to the next level striving to be world leader in environmental sustainability and the first country to make a full transition to OA (Willer et al., 2020). Other countries and states released similar policies to convert whole or parts of their land as organic, for example Sri Lanka's Toxin Free Nation Program, Indonesia's 1000 Organic Villages, China's Areas for the Demonstration of National Organic Product Certification, Philippine's the League of Organic Agriculture Municipalities and Cities (LOMAC), Kyrgyzstan 10-year plan to switch to 100% organic agriculture, and The Zero Budget Natural Farming (ZBNF) in India. Such ambitious projects do come with its challenges.

As there is not a lot of research on this large-scale organic conversion projects there is a lack of knowledge on how countries are implementing these policies, and which are the key drivers of these large-scale conversion programs. There is only little information on the implementation process, the policy instruments, and institutional arrangements to realize such programs. Even though there are several studies focusing on one program or one aspect of these conversion policies, in this study the first comparative overview of the context and drivers of these policies is presented.

This paper is focusing on identifying and researching the key policy factors of large-scale organic agriculture conversion programs, the implementation of the initiatives in respect of policy instruments, institutional arrangements, and the analyzes of

challenges during the implementation in different Asian countries, especially regarding to large-scale conversion programs. It also aims to reveal whether the conversion policies studied in this paper are founded on different underlying drivers.

2 Worldwide Organic Agriculture Movement

According to the Food and Agriculture Association of the United Nations (FAO) definition:

“Organic agriculture is a holistic production management system which promotes and enhances agroecosystem health, including biodiversity, biological cycles, and soil biological activity. It emphasizes the use of management practices in preference to the use of off-farm inputs, considering that regional conditions require locally adapted systems. This is accomplished by using, where possible cultural, biological and mechanical methods, as opposed to using synthetic materials, to fulfill any specific function within the system” (FAO & WHO, 1999).

The global organic organization IFOAM assigns the four principles, health, ecology, fairness, and care to OA (de Schaetzen, 2019). Although OA as a concept has existed for about 100 years, it has only gained more significance in the mid-80s with the attention from consumers, environmentalists, farmers, and later policy-makers and has been on a rise ever since (Willer & Lernoud, 2019).

In 2018, 93 countries had organic standards and 16 more countries were in process of drafting their legislation. 69.8 million hectares were under organic agricultural management by 2.9 million organic producers worldwide in 2017, which is 1.4 % of the world's agricultural land, with a stable and strong increase over the last years (Willer & Lernoud, 2019). Demand of organic products locates mainly in North America and

Europe, but growth in production and consumption takes place in all regions. In developing countries, the organic sector is mostly focused on export commodities. 40 % of the 2.3 million world's organic producers in 2014 are located in Asia, followed by 26 % in Africa and 17 % in South America (Niggli et al., 2016).

There is an ongoing discussion on whether OA could feed the world population. An analysis by Smil (2001) has estimated the carrying capacity of OA at three to four billion, which would not allow the current population of over six billion people to be fed. Nonetheless, especially in Asian countries there is a movement where many countries promote OA and some even try to mainstream the organic movement.

3 Organic farming in Asia

Nine % of the total global certified organic land, which is 6.1 million hectares in 2017 with a yearly growth rate of 24.9 % in Asia. About 0.4 % of the agricultural land is organic certified, but the number is steadily growing. Almost half of the organic farmland is used for arable crops, such as wheat and rice. 13 % is used for permanent crops, including coconuts, tea, coffee, and tropical fruits and 18 % is reported as grassland. For 24 % of the organic agricultural land the land use information was not available (Willer & Lernoud, 2019).

Most organic cereals were grown in China and Kazakhstan, while oilseeds mostly were produced in China and India. The Philippines grows most organic coconuts with 70 % of the total organic coconut production of the region. Indonesia and Timor-Leste make 95 % of the organic coffee in Asia. China and Myanmar are leading in organic tea production (Willer & Lernoud, 2019).

In 2017 a total of 1.1 million organic producers were reported in Asia (Willer & Lernoud, 2019). In Figure 1 (left) the countries in Asia with the largest share of certified land are displayed. Timor-Leste and Sri Lanka have the highest proportion of organic land with 8.2 and 6.0 %. China and India have the largest organic certified area in Asia (Figure 1, right).

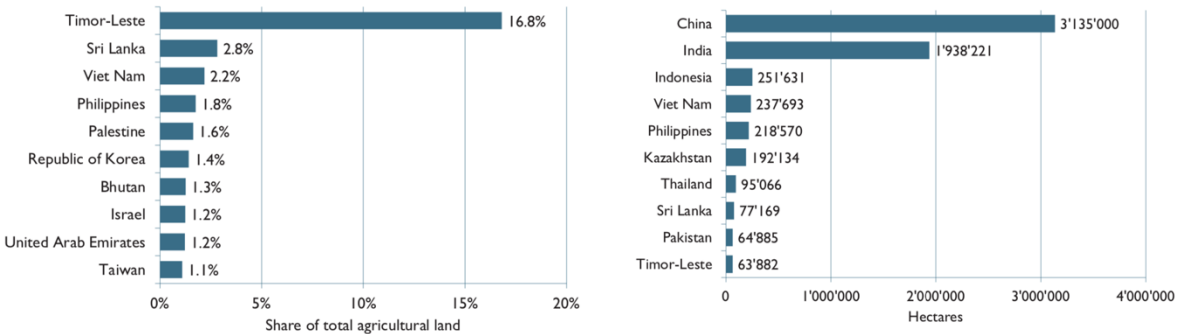


Figure 1: The countries in Asia with the highest organic share of total agriculture land (left) and with the largest organic area (right) in 2018

Source: (Willer et al., 2020)

There are currently 22 countries who have a legislation in Asia of which 11 have their legislation fully implemented and 11 have the legislation partially implemented. Six countries are in the process of drafting a legislation.

The scope for certification of organic farmland is far beyond this. In many regions there is a lot of farmland which are traditionally organic, but not certified through any system, especially the land tribal populations or totally rainfed areas, also areas with a poor population are often naturally organic, as there is no access to chemical inputs (Willer & Lernoud, 2018). PGS are an important step towards recognizing these produces without certification as organic in the markets, another option is to declare whole states or districts as organic by prohibiting the use of chemicals through regulations (Willer & Lernoud, 2018).

Participatory Guarantee Systems (PGS) are a common tool for certification in areas with many smallholder farmers like in Asia. According to the IFOAM definition PGS certify producers based on active participation of stakeholders and are built on social networks, trust, and knowledge exchange. Third-party certifications are mostly high in cost and for the growth and mainstreaming of the organic market PGS or Community Supported Agriculture are necessary. (Willer & Lernoud, 2016).

4 Policy overview of Large-Scale Conversion Programs in Asia

In many Asian countries policy makers are implementing regulations that favor OA and efforts to promote or even mainstream OA. Following we briefly explain some large-scale conversion programs and their related policies in Asia.

4.1 Bhutan National Organic Program (NOP)

Bhutan, the small country in southeast Asia was the first country in the world to implement a 100 percent organic, organic national agricultural plan. (Watson, 2019) In Bhutan since the 1960s the introduction of the planned development agricultural development was given high priority, policy support, and resource allocation. The country's policies always supported biodiversity, environment conservation, and forest cover maintenance. The Bhutan government in 1992, laid the foundation for Integrated Pest Management which reduced the use of pesticides (DoA, 2006). In 2003 the formal political support and institutionalized process for organic farming was started in Bhutan and organic is promoted as a way of life (ICIMOD & MoAF, 2018; IFOAM, 2019). To create some guidelines and support for OA the Department of Agriculture has developed a National Framework for Organic Farming (NFOFB) in 2006 (GNHC, 2009), which was to develop and promote organic farming that will enable Bhutanese farmers and traders to provide safe and high quality food for local consumers as well

as for other markets. It included the concept and rationale of organic farming, policy frameworks for promotion, strategic action plans and the institutional arrangements for implementation with several steps for the realization of the policy, including developing a coordination and advocacy institution and a technical working group, establishing organic communities and pilot activities, ensuring political recognition and overall education, providing critical inputs for organic farming, establishing advisory services, and developing an organic market, standard, and certification system (DoA, 2006; Duba et al., 2007). In June 2012 Bhutan's Prime Minister declared that the country, as the world's first nation, will strive to become 100 % organic. It was announced that a high level support from the government was promised (Wai, 2013). Of Bhutan's total cultivated land already about 95 % of field crops and 98 % of fruit trees were under management without agrichemicals. The task was not seen in conversion but rather in registration and supervision. Farmers just had to register and comply with local standards, the certification through a third-party was voluntary (Wai, 2014; 2015).

Despite the pioneering vision recent report of IFOAM shows that the Bhutanese government has continuously lowered the support for organic agriculture by cutting budgetary allocations to ensure food security until 2017. (IFOAM, 2019) To reach these goals, the focus was put on increasing crop production by utilizing strategies that included fertilizers. The budgets for the NOP were cut from 2.7 to 0.8 %, hence the outreach was reduced. An assessment by the MoAF concluded that the ambitious goal to convert to fully organic by 2020 will not be reached (ICIMOD & MoAF, 2018; IFOAM, 2019). According to the FiBL report, by 2019 only 1.3 percent of total agricultural land is certified as organic cultivated land. (Hossain et al., 2021) Organic farming and especially the conversion of a whole nation brings some challenges. One of the biggest identified problems, which is common among organic farmers in developing countries,

is the market access for the farmers, especially in more remote areas the infrastructure and access to markets is difficult or nonexistent. There is often no possibility to transport the produce to nearby markets or regions where there is demand of the product. Further, there is also a lack of storing or processing possibilities to extend shelf life. Additionally, due to the lack of roads, farmers rarely have means of transportation and now a lot of value is created by middlemen instead of farmers. (Mühlberger, 2020)

4.2 Sikkim Organic Mission in India

Sikkim is a heavily mountainous region with little cultivated area and a poor population with little access to chemical inputs, hence it was comparatively easy to convert to an organic state (IFOAM Asia, 2018). The Sikkim Organic Mission, a political commitment and roadmap to support organic farming, was started in 2003 and consolidated in 2010, with the target to become the first completely organic state worldwide in 2015 (IFOAM Asia, 2019).

In 2009, the resolution to convert the state into an organic one passed the state assembly. In 2010, a road map with all necessary measures to become a fully organic state by 2015 was released and the Sikkim Organic Mission was launched under the MoA (Ministry of Agriculture) by the former chief minister. It brought all planning and issues related to the large-scale organic conversion under one department that was now in charge to fast-track the organic mission. The plan included the continued phase-out of subsidies for agrochemicals and ultimately their complete ban as well as providing organic seeds and manure as well as farmer trainings in organic methods, e.g., organic fertilizer production. The Sikkim Organic Mission was backed by government funding (Sikkim Organic Mission, n.d.; Hossain et al., 2020).

The agricultural officers in each district and the extension centers were responsible to create awareness about the program among the farmers and trainings on composting methods and chemical free methods of pest and disease management were conducted by several agencies, Organic farming was also included in the school curricula and several platforms for knowledge exchange have been created. The use of chemicals was completely banned by a legislative act in 2014, imposing high fines on the possession of agrochemicals to ensure organic farming practices. The state government made schemes to certify the whole state and bore the immense cost of the initial certification with funds allocated from the central government. Further support was given to the farmers in form of direct subsidies for organic inputs. (Mühlberger, 2020)

In December 2015, Sikkim achieved the goal of converting around 75,000 hectares farming land and crops, including 66,000 farmers to OA and provide them with third-party certification. In 2016 the state was officially declared India's first fully organic state. The achievement was praised by the Indian Prime Minister on several occasions and the program won many prizes. (Mühlberger, 2020)

In India it is estimated that at least 18 million hectares, especially in the northeaster regions are traditionally organic, but not certified (IFOAM Asia, 2018). Arunachal Pradesh and Mizoram, two states in the northeast of India, and the district of Kasargode in Kerala State in the South of India are following Sikkim and are planning to become organic states/districts (IFOAM Asia, 2018).

4.3 Sri Lanka's Toxin Free Nation Program

In Sri Lanka the government initiated to ban toxic chemicals as a reaction to medical problems the country was facing and research has suggested OA as a solution (Ranasinghe, 2016).

Today OA is well implemented in Sri Lanka. The share of organic land is with 2.8 % the second highest in Asia. The total organic area is 77,169 hectares, including in-conversion land (Hossain et al., 2020). In 2014, a separate unit, the National Organic Control Unit (NOCU) was established to control the organic sector, regulate and streamline all organic related activities in the local and export market to provide credibility for organic produce originating from the country (Karyawasam, 2017; SLEDB, 2014)

For a long time, OA in Sri Lanka was mainly promoted by the Export Development Board. The official first conversion from conventional to organic took place on a tea estate and was certified in 1986 by the National Association for Sustainable Agriculture Australia for tea to be exported to Europe. In the next decades, more and more exporters showed interest to convert their chemical based system into organic systems. The government started supporting the organic export sector by building a Global Affairs Division under the Environmental Ministry with an Organic Product Council. Besides the government support of OA, driven mainly to support the high demand of certified organic products for export, in 2015 there was another movement initiated directly from the former president Maithripala Sirisena. In his manifesto before the election, he already announced to immediately ban the import and distribution of agrochemicals that were suspected to cause kidney diseases as a major change in agriculture. Further, he promised to promote the use of traditional seeds, launch a

subsidy scheme for organic fertilizer application and non-chemical agriculture, and establish a timeframe for the complete elimination of agrochemicals (Sirisena, 2015). Shortly after the successful election, the Ministry of Agriculture released the three-year government strategy: 'a wholesome agriculture, a healthy population: A Toxin Free Nation'. The action plan aims to replace agriculture based on imported agrochemicals with sustainable agriculture to convert the island to a green nation. The program is a three-step strategy, which reduces the use of chemicals slowly to zero and implements all kinds of farming practices known from OA (The Presidents Office, 2015). However, the strategy has never named a transition to 'organic', even de facto it is mentioning all the attributes of OA in its call for a toxin free nation. From 2015, the support for toxin free agriculture from the highest levels of the government started and implementing policy to ban glyphosate was an important step for the huge development. Sri Lanka's Toxin Free Nation Program, which was launched in March 2016, is a ten-area action plan to ban toxic chemicals from the agriculture in Sri Lanka. Parts of the program are to subsidize organic fertilizer with cash payments, to establish facilities to conduct more research in indigenous natural agriculture systems, to commit to the increase of state interventions and investments to increase the use of traditional seeds, and to prevent subjugation of the monopoly in seeds. (Wai, 2016; IFOAM Asia, 2017). Malkanthi et al. (2019) in a study found that most of the farmers in general were well educated and had proper knowledge mainly obtained from the division's agricultural instructor. Due to the epidemic situation of CKDu in the area farmers wish to gradually move away from agrochemicals, in particular glyphosate, even though they are facing problems due to the sudden ban of glyphosate. (Malkanthi et al., 2019)

4.4 Indonesia's 1000 Organic Villages

In 2001 the Department of Agriculture (DoA) in Indonesia launched the 'Go Organic 2010' program, which aims Indonesia to be one of the main organic food producers in the world (Willer & Lukas, 2011). In 2011, the Governor of Bali has launched an organic island campaign 'Organic Bali' (Willer & Lukas, 2011). The organic development was moving forward slowly, even with the increased interest of local and central government as the regulations were very strict, and especially smallholder farmers, which are the majority of producers, did not have the chance to obtain the necessary third-party certifications until PGS, in Indonesia called Community Based Assurance, were introduced (Wai 2015). PGS remain strong in Indonesia, and the central government shows active support for its '1000 Organic Villages' project, which is steadily developing and has already certified products for the national and international markets (IFOAM Asia, 2019). The Indonesia Organic Alliance for local development supports many PGS initiatives under PAMOR, the Indonesia PGS system in Sumatra and Java (IFOAM Asia, 2019). In 2001 the ministry of agriculture set up the "1000 organic villages program" as a part of self-sufficiency strategy, which aims to spread OA across the Archipelago region. (Schreer & Padmanabhan, 2020).

In Indonesia there is currently a major policy development in terms of large-scale organic farming under the "1000 Organic Villages" program, regarding the National Medium-Term Development Plan IV (2020-2024) through the collaboration of various government ministries in different levels. (Hosseini et al., 2021).

4.5 Philippine's the League of Organic Agriculture Municipalities and Cities (LOMAC),

In 2010, the Philippines adopted the Organic Agricultural Act (Republic Act 10068), which supported the structural framework and support for the organic sector. It also included organic regulation provisions and laid a foundation for a strategic national plan for OA for the period 2012 to 2016 (Willer & Lernoud, 2019). The Philippines approved the National Organic Agriculture Law in 2010 with the target that 5 % of the countries agriculture shall be converted to organic systems; in 2017 only about 2 % have been converted. Mainly the implementation is constrained by personnel capacities to plan long-term strategic interventions and approaches (IFOAM Asia, 2018). To fill this gap another government initiated program in the Philippines, the LOMAC (League of OA Municipalities and Cities in Philippines), was initiated in 2012 and developed in 2017, showcases excellent examples of integrated urban management, and aims to mainstream organic farming and institutionalize the experiential- based family farms and municipal/ city- wide assets based on the main objectives of hunger, poverty, and sickness free 32 family farms of seven pioneer municipalities in Philippines. (IFOAM Asia, 2018, 2019). In this organization mayors proactively engage in the institutionalization of organic agriculture with membership in LOAMC- PH to correspond to the conversion a wide area of the farmland (minimum 10000 to 1.2 million hectares) in municipalities/ Cities. (Arnado, 2017)

4.6 China's Areas for the Demonstration of National Organic Product Certification

In 2014, the China National Certification and Accreditation Administration established a research program for all aspects of the Chinese organic sector with a very high budget of several million dollars, which indicated the increased support of the government for organic production (Wai, 2015). China's national government has

declared the 'Green Development', which includes actions in OA as a development strategy (IFOAM Asia, 2018). The China national organic standard (GB/T19630) has undergone its second revision and the third version of the standard is effective since 2019. China National Certification and Accreditation Administration started the program 'Areas for the Demonstration of National Organic Product Certification'. Initially 26 counties were chosen and in 2018, 51 more counties were added to the list (IFOAM Asia, 2019). The Organic Farming Development Center also launched an internet and tele-control system for organic products inspection in 2018, the system shall lower the costs for applicants and certification bodies and enhance the integrity of organic products (IFOAM Asia, 2019).

4.7 Kyrgyzstan 10-year plan to switch to 100% organic agriculture

In Kyrgyzstan, the Soviet mono-cropping approach devastated soil productivity, caused environmental pollution, exhausted water resources leading to the human induced catastrophe, overuse of chemical fertilizers over the last 20 years led to soil degradation destroying 50% of arable land's productivity. (Otunchieva, 2019) In response to these matters and regarding the potentials of the country, the National Action Plan for the transition to organic agriculture in Kyrgyzstan became a part of the sustainable development program of organic agriculture for the years 2013 to 2017. (Aidaraliev, 2017) In addition, in 2014, Kyrgyzstan's government, banned the cultivation and importation of genetically modified crops. And, taking it a step further, the country's parliament announced a 10-year plan to slowly phase out non-organic farming. (Watson, 2019) Starting December 2018 and Following Bhutan, Kyrgyzstan plans to shift to 100% organic farming within the next ten years. Speaker of the Parliament Dastanbek Dzhumabekov sent a corresponding instruction to the

government. (Watson, 2019) This announcement ordered that “farmers should not use agrochemicals, pesticides (toxic chemicals), synthetic substances, hormones, growth regulators, feed additives, GMOs, antibiotics and additives other than biological preparations for plant protection and organic fertilizers” (Podolskaya, 2018 in: Otunchieva, 2019).

4.8 The Zero Budget Natural Farming (ZBNF) in India

The small-scale farming in India faces a vicious cycle of debt, because of the high production costs, high interest rates for credit, the volatile market prices of crops, the rising costs of fossil fuel-based inputs, and private seeds, due to the neo liberalization of the Indian economy in last decades. In reaction to this crisis, “Zero Budget Natural Farming” promises to end a reliance on loans and drastically cut production costs, ending the debt cycle for desperate farmers. (Campesina, 2016) The phrase 'Zero Budget' refers to zero costs, i.e. without using any credit, and without spending any money on purchased inputs, (Bharucha et al, 2020) and 'Natural farming' means farming with Nature and without chemicals or external inputs. (Bharucha et al, 2020) Zero Budget Natural Farming (ZBNF), which is a form of agricultural system redesign and a set of farming methods, has spread to various states in India. It has attained wide success in southern India, like Karnataka and Andhra Pradesh. (Campesina, 2016)

According to this program, India's Legislature is advancing natural farming in the nation from 2015-16 through the traditional agricultural development plan's committed schemes and the National Agricultural Development Plan. And referring to this, in 2018, Andhra Pradesh started a plan to become the first state in India to practice 100% natural farming by 2024. (Tractorjunction, 2020) This state has set out the aim of 'rolling

out' ZBNF to all 6 million of the state's farmers through a state-led program of training and extension. (Bharucha et al, 2020)

Table 1- Organic farming large- scale conversion programs and their policies in Asia

Program	Background	Policies	Policy Instruments	Driving Forces
Bhutan National Organic Program	<ul style="list-style-type: none"> - Constitution the foundation for Integrated Pest Management in 1992 - The formal political support & institutionalized process for organic farming in 2003 	<ul style="list-style-type: none"> - Including OA in the Economic Development Policy - Pesticide regulations on import & distribution of pesticides 	<ul style="list-style-type: none"> - Fund allocations for capacity building - Supply of organic inputs - Research funding - Establishing Bhutan organic certification system - Implementation of Local Organic Assurance System - Research funding 	<ul style="list-style-type: none"> - Organic is promoted as a way of life by government - Low usage of agrochemicals - Conservation of the natural environment - Reduce poverty and increase employment opportunities - Religion values of Buddhism
Sikkim Organic Mission in India	Vision to go organic by chief minister in 2003	Ban on import & distribution of agrochemicals	<ul style="list-style-type: none"> - Fund allocations for capacity building and third- party certification - Imposing high fines on the possession of agrochemicals - Supply of organic inputs - Research funding 	<ul style="list-style-type: none"> - Vision from central government to convert entire northeast region to organic - Little access for farmers to chemical inputs in the state (being easy to convert to an organic state) - Safer food & environment
Sri Lanka's Toxin Free Nation Program	2015 election manifesto and support through president candidate	<ul style="list-style-type: none"> - National food production program - Regulation on export development of organic products - Ban on implementing pesticides - Ban on importing glyphosate 	<ul style="list-style-type: none"> - Fund allocations for capacity building - Cash payment subsidy of (organic) inputs - Legislations on implementing agricultural inputs 	<ul style="list-style-type: none"> - Farmers' health and reducing the pandemic disease (chronic kidney disease) - Safer food & environment

Program	Background	Policies	Policy Instruments	Driving Forces
'1000 Organic Agriculture Villages Program' of Indonesia	The vision of achieving food sovereignty by becoming self-sufficient in five strategic commodities (rice, maize, soya, sugar, and beef)	Self- sufficiency and food sovereignty	<ul style="list-style-type: none"> - State support for organic agriculture by standing out from conventional policies like land reform, the large-scale 'reclamation' of non-agricultural land - Being a part of Asian Local Government for OA (ALOGA) 	<ul style="list-style-type: none"> - Increasing in demand for organic products (herbs, spices, and oils) - Governmental interests and supports
LOAMC – Philippines (2017)	National Organic Agriculture Program (2012-2016)	Institutionalization OA development in family farms and municipalities	<ul style="list-style-type: none"> - Proactive recruitment of municipal mayors - Training - Developing PGSs 	<ul style="list-style-type: none"> - Changing the mind-set that sees OA as a technology not as a sustainable approach - Family farms training - Proactive engagement of Executive local chiefs
China's Areas for the Demonstration of National Organic Product Certification	Green Development of China	<ul style="list-style-type: none"> - Legislation changes & structural alteration in organic agriculture sector - Enhancing informational access for OA applicants 	<ul style="list-style-type: none"> - Making registration of organic certification bodies (CBs) easier - Stricter supervision on operation of CBs - Establishing national and local PGS development 	<ul style="list-style-type: none"> - A large organic market in China
Kyrgyzstan 10-year plan to switch to 100% organic agriculture	National Action Plan for the transition to organic agriculture in Kyrgyzstan	Cease the effects of mono-cropping approach and GMOs	<ul style="list-style-type: none"> - Ban cultivation and importation of genetically modified crops (GMOs) - ... 	<ul style="list-style-type: none"> - Growing awareness of the advantages of organic agriculture by all stakeholders, especially by the government - Strong potential for export of organic products to the countries of EU
Indian Zero Budget Natural Farming (ZBNF)	Social movement, occurred in 2002 to 2015 in Karnataka	<ul style="list-style-type: none"> - Institutional & organizational innovations - Building human capital (by Education & training) 	<ul style="list-style-type: none"> - Extension education services - Farmer-focused participatory training 	<ul style="list-style-type: none"> - Organic market growth - Reduced input costs and expenses of farming in this system
Source: Compiled from the resources of the study by authors				

5 Conclusion

Initial factors for large-scale organic agriculture development are provided mainly by highest level of governments by political strategies such as legislation changes, capacity building through organizational, institutional, and structural alterations, organizational innovations, national and regional midterm programs, and plans, and building human capital by education.

The key drivers like social values of the government and the people, growing awareness of the advantages of organic agriculture by all stakeholder, include government, consumers and produces, low usage of agrochemicals by smallholding farmers, and extended market and accessing to the markets in local, national, and international level for organic farmers, providing organic inputs to place instead agrochemicals play a key role in organic sector development in large-scale as well.

As most farms in these areas are managed in a traditional way, without or only little use of fertilizer, it is anticipated that a change to OA could enhance farming practices, increase the yield in marginalized areas, as well as increase farmers' income by higher yield and better market access, ensure security through product diversification, and conserves biodiversity. But some studies (e.g., Feuerbacher et al., 2018) on the economy-wide effects of such a large-scale conversion plan revealed that large-scale conversion plans can have a diminishing effect in agricultural output and a larger dependency on imported food. It remains a question if the policy instruments are sufficient to pursue the full conversion goal, in contrast to this, other studies (e.g., IFOAM, 2019) showed that in general the implemented 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. Thus, it is of vital importance to have logical and gradual steps to develop a large area as an organic region.

The main challenge that in this regard face many policy makers and organic farmers, are lack of the infrastructures, organic inputs, high prices of inspection and certification, low information sharing and education and training shortages. To address these problems by policy makers it is also essential, to have a high willingness to pay for organic sector by politicians and enough budget to extend organic in entire life of the inhabitants.

6 Resources

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