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EXPLORING ORGANIC AGRICULTURE IN ICELAND THROUGH THE LENS OF ECOLOGICAL ETHICS: IMPLICATIONS FOR KYRGYZSTAN

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ABSTRACT

In view of global climate change and the pressing issue of land degradation, sustainable agricultural practices such as organic farming represent one of the viable solutions. This research contributed to better understanding of the concept of sustainability by placing emphasis on the ethical aspect in organic farmers' decision-making and elaborated on the thresholds and opportunities for organic agriculture development in Iceland and Kyrgyzstan. The study employed semi-structured interviews and a literature survey for data collection. Twelve stakeholders in the organic sector from varied geographical regions of Iceland were interviewed. A thematic analysis of the interview transcripts was conducted. The respondents reported that organic farmers' mindsets could be characterized through their ethical values connected to nature and society. Among the key values participants mentioned were care for the environment, with the accent placed on soil and human health, respect for nature, dedication and commitment to organic principles, and fairness to customers. The following main thresholds for the enhancement of organic agriculture in Iceland were identified: a public policy vacuum, lack of a strategic vision and political leadership, poor linkages among the stakeholders of the organic agriculture sector, inadequate system for financial support to stimulate organic conversion, and unrealized organic market potential. Based on these thresholds, recommendations for the organic sectors of Iceland and Kyrgyzstan were formulated. Specific recommendations for the Kyrgyz organic sector included prioritization of organic farming in policies, organic market development, promotion of role modeling,

establishment of an interactive platform for the stakeholders, and greener agendas in research and education. The findings indicate that ethical values are essential aspects of organic farmers' decision-making and should be considered in the policy-making process. On a larger scale, this research illustrates the importance of farmers' ethics in reaching sustainability and tackling environmental issues.

Key words: organic agriculture, ecological ethics, Iceland, Kyrgyzstan

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TABLE OF CONTENTS

ABBREVIATIONS.....	v
1. INTRODUCTION.....	1
1.1 Theses	1
1.2 Justification of the study	1
1.3 Significance of the study	3
1.4 Project goal and objectives	4
2. METHODS.....	5
2.1 Research approach.....	5
2.2 Selection of interviewees and their recruitment	5
2.3 Data collection and processing	6
2.3.1 Interviews	6
2.3.2 Literature survey	7
3. RESULTS.....	7
3.1 Links between organic agriculture, sustainability and ecological ethics.....	7
3.2 Motives for the conversion to organic agriculture in Iceland.....	11
3.2.1 Primary motives	12
3.2.2 Dedication, conviction and commitment as components of organic mindset....	13
3.2.3 Above all is the soil	15
3.2.4 Cases of “living the culture” in organic agriculture.....	15
3.2.5 Other aspects of conversion	16
3.3 Thresholds for the enhancement of organic agriculture in Iceland	17
3.3.1 Organic certification system.....	17
3.3.2 Infrastructure for organic agriculture	17
3.3.3 Preaching to the “converted”	18
3.3.4 Policy issues and governmental support	19
3.3.5 Market constraints and threats.....	20
3.3.6 Other difficulties in the promotion of organic agriculture	21
3.4 Opportunities for the enhancement of organic agriculture in Iceland.....	22
3.5 Recommendations for the promotion of organic agriculture in Iceland.....	24
3.5.1 Agricultural policy	24
3.5.2 Education and research.....	25
3.5.3 Strengthening interactions.....	26
4. DISCUSSION	26
4.1 Mindsets in organic agriculture of Iceland	27
4.2 Barriers and prospects of organic agriculture in Iceland.....	29

4.3 Lessons for Kyrgyzstan’s organic agriculture sector 31

4.4 Limitations and recommendations for future studies 33

5. CONCLUSIONS 33

ACKNOWLEDGEMENTS 35

LITERATURE CITED 36

APPENDICES 44

 APPENDIX I 44

 APPENDIX II 45

ABBREVIATIONS

FAO	Food and Agriculture Organization of the United Nations
IFAD	International Fund for Agricultural Development
IFOAM	International Federation of Organic Agriculture Movements
SDG	Sustainable Development Goal
SWOT	Strengths, Weaknesses, Opportunities and Threats
UNCTAD	United Nations Conference on Trade and Development
UNICEF	United Nations Children's Fund
WFP	World Food Programme
WHO	World Health Organization

1. INTRODUCTION

This section sets the framework of the study in the form of theses and justifies the importance of the study and selected research topic.

1.1 Theses

The theses of this research were as follows:

- 1) agriculture inherently bears a cultural imprint as in the following equation: $\text{agri} + \text{culture} = \text{agriculture}$
- 2) the enhancement of the social and ethical pillars of sustainability is crucial for global sustainable development
- 3) organic farmers have certain mindsets grounded deeply in ecology and ethics

1.2 Justification of the study

One can argue that the first agricultural experiences were of an organic type as there were no synthetic fertilizers and pesticides nor huge intensive industrial crops and livestock production complexes. Agriculture was probably a cardinal experience of interaction between humans and nature which marked a new era of growing friction in the human-environment system (Pascalev 2009) or dichotomy (Damian et al. 2019). Needless to say, today agriculture is the most prevalent interaction mode in that system (Zimdahl & Holtzer 2018) taking up to 40% of the total land surface (Orgiazzi et al. 2016).

Rapid technological advancements and population growth in the 20th century brought to the fore the Green Revolution with its negative environmental effects (Kaplan 2009) and human beings as the main actors of changes (Attfield 2018). One of the most acute and infamous problems engendered by reckless agricultural practices is land degradation. In turn, poor land management practices are being compensated by overuse of chemical fertilizers and pesticides (UN Environment 2019) resulting in a vicious circle. As opposition to destructive exploitation of nature, agricultural intellectuals and environmentalists started promoting alternative ways of land management such as organic farming based on a back-to-the-nature modus operandi (Hilde 2009). Against this background, this research delved into the domain of ecological ethics to question the value side of organic agriculture.

Based on the discussion above let us have a closer look at the organic agriculture profile in Kyrgyzstan and how it can be linked to ecological ethics. The organic movement is taking its first steps in Kyrgyzstan and needs further advocacy as well as policy and scientific backup for further development (Grigoruk & Klimov 2016; Government of the Kyrgyz Republic 2017). The SWOT analysis of organic agriculture in Kyrgyzstan shown in Table 1 demonstrates the needs for improving policies, increasing awareness of farmer community and the general public as well as scientific justification of introducing organic agriculture in Kyrgyzstan.

According to the latest available statistical data, there were 1,097 organic producers operating on 19,327 hectares of organic farmlands (including lands in conversion) which were 0.2 % of total arable agricultural lands in Kyrgyzstan in 2017 (Lernoud & Willer 2019). In contrast, the total number of all farms has exceeded 400,000 units (National statistical committee of the Kyrgyz Republic 2018a), i.e. agriculture is based on small commodity production farms which are characterized by low outputs, high energy use and, hence, insufficient market

competitiveness. This, in turn, causes serious problems for Kyrgyz farmers in terms of marketing their agricultural produce (Lerman & Sedik 2009).

Table 1. SWOT analysis of organic agricultural production in Kyrgyzstan.

Strengths	Weaknesses
Conceptual legislative acts and policy documents adopted	Small commodity production
Favourable climatic conditions	Absence of national organic standards
Growing farmers' interest	Low level of knowledge and experiences in managing organic systems in agriculture
Organic agriculture department established	Weak cooperation among the stakeholders
Membership in Eurasian Economic Union	Lack of research, complete and reliable information on the soil condition
Donor organizations' interest	
Opportunities	Threats
Development of the market of organic produce	Insufficient development of the domestic market
Competitive advantage on export markets	Bureaucratic procedures preventing the flow of policy initiatives
Development of agribusiness and ecotourism	Deterioration of the ecological situation
Alternative for consumers	Intensification of land degradation processes
Contribution to soil fertility and mitigation of anthropogenic pressures on nature	Loss of traditional export markets

(Source: Taranov et al. 2019)

The legacy of large state-driven entities with farm practices based on extensive use of chemical fertilizers and pesticides still lingers and results in low adoption rates of sustainable agricultural practices, including organic agriculture, due to, among other reasons, a lack of trust and psychological barriers of changing habitual farming patterns (Government of the Kyrgyz Republic 2017). It is interesting to note that the Kyrgyz government itself identified issues related to the farmers' mindsets as the formidable challenge for conversion to organic agriculture. Of note, almost all farms in Kyrgyzstan are privately-owned (National Statistical Committee of the Kyrgyz Republic 2018a) which simply means that farmers themselves bear full responsibility for managing the resources and making decisions.

This merits the closest attention as these food production decisions are, *inter alia*, manifestations of certain values and assumptions. In other words, farmers' decisions are influenced by cost-effectiveness considerations just as they are the results of ethical constituents (Sulemana & James 2014). For instance, Schmid et al. (2004) concluded that the culture of a given territory is manifested in the food produced there. Gliessman (2015) underlines that:

Those who grow the food, those who eat it, and those who move the food between the two – must all be connected in a social movement that honours the deep relationship between culture and the environment that created agriculture in the first place (p. 1).

If so, then, having in mind the focus of this research, what motives drive food producers, in our case organic farmers, to embrace organic practices and be proponents of environmentally friendly farming? It, thus, becomes important to conduct studies aimed at examining the obstacles precluding farmers from conversion to organic agriculture (Seufert et al. 2017) and

the motives that stimulate the organic conversion to understand more profoundly the role of mindsets in organic agriculture.

In this regard, the exploration of experiences of countries such as Iceland with the history of organic agriculture promotion to identify respective mindsets of organic farmers is a viable approach to deliver valuable insights for Kyrgyzstan.

In fact, Iceland is almost half the size of Kyrgyzstan in terms of the total land area but nevertheless slightly ahead in organic farmland area, not to mention the much higher proportion of organic lands to all agricultural lands – 1.1% in 2017 and rapid growth of organic lands in Iceland of around 16,000 hectares, as illustrated in Figure 1, in the period from 2006 to 2017 compared to only 4,179 hectares in Kyrgyzstan (Lernoud & Willer 2019). Nevertheless, this growth does not fully meet the demands of the domestic market, resulting in the import of organic products (Dyrmundsson 2018).

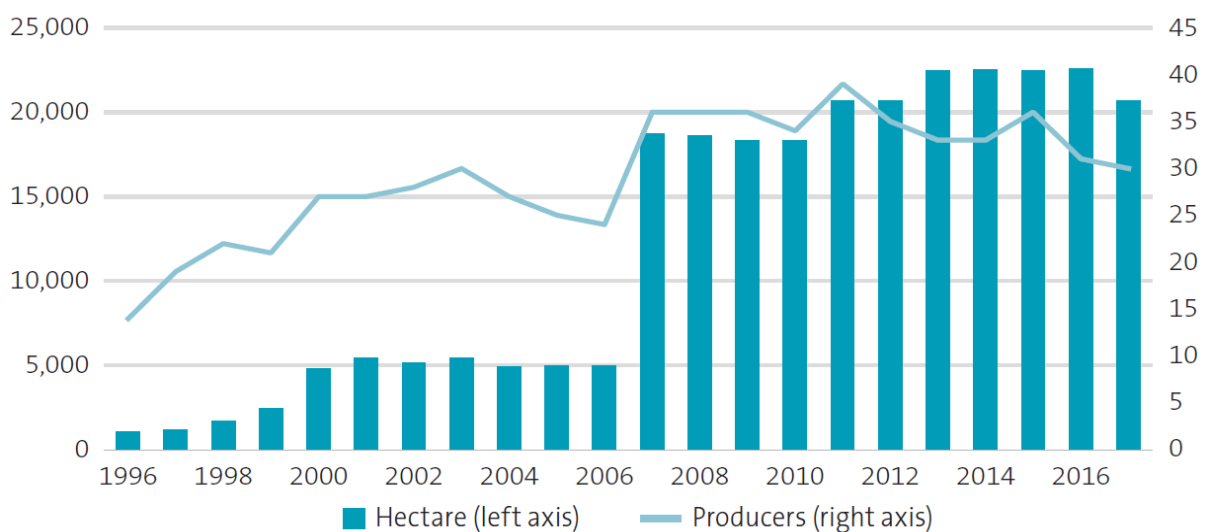


Figure 1. Organic farmlands and organic producers in Iceland 1996-2017. (Source: From Statistics Iceland 2018).

Despite its harsh climatic conditions and short cultivation period, Iceland managed to set the stage for organic agriculture relatively early in the 1930s (Kilcher et al. 2011). On the other hand, Icelandic climate sets barriers to plant diseases and pests which makes a boundary between organic and conventional farming quite subtle (Dyrmundsson 2018). All the aforementioned beg the question: what could we learn from Icelandic organic farmers who keep pursuing organic principles against all odds and from other key stakeholders of the organic sector of Iceland who advocate an organic approach? This question was a starting point of the current study.

1.3 Significance of the study

With its mission of contributing to the sustainable growth of Kyrgyz organic agriculture, this research study has an attribute of scientific novelty in terms of the targeted research field, expected implications for Kyrgyz policymakers and contributions to the existing body of research on organic agriculture and ecological ethics. The study by Sulemana and James (2014) underscores that there is a significant lack of research on farmers' attitudes towards the environment and perceptions of their actions from the angle of ethics.

Kyrgyzstan has recently taken the course towards building the green economy model where organic agriculture and sustainable use of natural resources are integral components. The concept of green economy and production of organic products are highly supported by the Kyrgyz government and included in development strategy until 2040 as one of the priorities for the agrarian sector (National development strategy of the Kyrgyz Republic 2018–2040 2018). Furthermore, there are several short- and medium-term concept documents with action plans adopted by the Kyrgyz government. These policy documents centre specifically on organic agriculture promotion and fostering organic movement at the grass-roots level, e.g. organic aimak (territory). Also, the law “On organic agricultural production in the Kyrgyz Republic” was adopted by the Parliament and signed by the President on 18th May 2019. Further work on drafting by-laws jointly with all stakeholders involved will follow. One of the crucial components of the promotion of legal acts is their justification. Therefore, the research findings of this research project can be used to facilitate the promotion of new policies and legislation on organic agriculture and to inform the decision-making process in developing environmentally friendly policies based on organic principles.

The guiding principles of organic farming embrace, *inter alia*, care and justice (Stolze & Lampkin 2009). Both principles entail equal participation of men and women in the use of land resources based on the balance of interests between the current generation and nature to ensure sustainable well-being for future generations. Also, noteworthy, organic agriculture may empower women who represent a big proportion of smallholders in Asia by having a positive impact on their incomes due to the higher prices of organic products and lower energy use (Twarog 2006). What is to be noted is that Kyrgyzstan is a predominantly agrarian country with more than 65 % of the overall population residing in rural areas (National Statistical Committee of the Kyrgyz Republic 2018b). Because of the current economic constraints and low-paid jobs, especially in the rural areas, around 700 thousand persons annually have to go abroad seasonally to maintain their families with a prevalence of male labour migrants over females (Kadyrkulova 2018). As a result, more and more left-behind women take over farms and households while simultaneously bringing up children.

Taking into consideration that a family is a primary institution of socialization and formation of values, norms, and beliefs, one can argue that left-behind women are the mind-shaping actors that have a direct influence on the development of new mindsets anchored in sustainability. Salisu Barau et al. (2016) conclude that “environmental ethics is one platform that transcends public, private, individuals, community, and gender dimensions of sustainability” (pp. 1545-1546). Cognizant of this fact, the findings of this study may shed light on the gender aspects of organic agriculture.

1.4 Project goal and objectives

The major goal of the study was to explore organic agriculture in Iceland based on an ecological ethics approach to draw implications for the Kyrgyz organic sector.

Specific objectives were to:

- i. examine the concepts of organic agriculture and sustainability in relation to ecological ethics
- ii. investigate the motives for conversion to organic agriculture in Iceland
- iii. identify and analyse key stakeholders’ standpoints on thresholds and opportunities for the enhancement of organic agriculture in Iceland

- iv. elaborate recommendations on the promotion of organic agriculture in Kyrgyzstan based on the research findings

2. METHODS

This section explains the research approach used by the researcher, data collection tools and selection and recruitment of interviewees.

2.1 Research approach

This research employed qualitative methodology. Mohajan (2018) stresses that qualitative research is more complicated than quantitative as it seeks to interpret people's actions and experiences and is exploratory in the way it endeavours to elucidate the world we live in. Jensen and Laurie (2016) see the possibility to make use of qualitative methodology for exploration of the unknown or under-investigated aspects of reality from a cultural and social perspective. Formulation of inductive general conclusions from the investigated phenomena is a major objective of the exploratory study (Stebbins 2008).

Therefore, the data analysis was based on an interpretive inductive approach to the primary data collected through semi-structured interviews with key stakeholders in the organic agriculture sector of Iceland. According to Thomas (2006), the inductive approach aims at linking research objectives and results of research to ensure a high level of justification and clear argumentation.

The primary data were supplemented with an interpretive deductive approach to the secondary data from the targeted literature to build a theoretical framework on ecological ethics and organic agriculture in general. By doing so, the research was able to overcome weaknesses of both logical methods (induction and deduction), make use of advantages of qualitative research and fit in the arch of knowledge as presented by Sale and Thielke (2018). This approach matched the objectives of the research and could generate recommendations for the promotion of organic agriculture in Iceland and in Kyrgyzstan.

2.2 Selection of interviewees and their recruitment

Selection of interviewees was based on the purposive snowballing sampling technique (Braun & Clarke 2013) to ensure that all major stakeholders were covered and a broader picture of their perceptions was conveyed. The main criteria for the selection of interviewees were 1) official organic certification for farmers and 2) direct participation in organic agriculture promotion for other stakeholders.

As a result, 6 groups of interviewees were identified in the following numbers: organic farmers (6), Farmers' Association of Iceland (1), Vottunarstofan Tún (organic certification body) (1), environmental NGO Landvernd (1), organic certification (1) and extension officers (2). In total, 12 informants participated in the research. Recruited participants represented mostly the capital area and the southern part of Iceland. However, there were 2 organic farmers who resided in the western and eastern parts of Iceland, respectively.

What is to be noted is that several informants had extensive experiences of working for various organizations within the organic sector and held diverse positions (in some cases simultaneously) and, thereby, were able to provide broader views on the current status of

organic agriculture in Iceland. Importantly, all interviewed organic farmers were members of the Organic Farmers Association of Iceland. To assure anonymity, this research operated with the generic notions of “organic farmer” and “stakeholder”.

Organic farmers’ contact information including their locations was obtained from the list of organic farmers of Iceland posted on the Vottunarfóttan Tún official website. This information was utilized to form a sample of organic farmers. The researcher sent 18 electronic messages to potential informants, including 12 to organic farmers and 6 to other stakeholders. Overall, 6 organic farmers and 6 other stakeholders confirmed their participation. The researcher did not have previous contacts with any of the interviewees regarding their opinions on the organic sector in Iceland. In total, the researcher conducted 9 face-to-face interviews, 2 interviews via Skype and 1 interview by mobile phone. Furthermore, the researcher visited 2 organic farms, the organically certified eco-village Solheimar and a certified organic greenhouse in the Selfoss area and conducted interviews with their respective representatives.

A total of 12 interviews was sufficient due to reaching data saturation after 9 interviews when no new concept pertinent for this research study appeared (Fuchs & Ness 2015; Saunders et al. 2018). No monetary benefits were provided to the informants except small thank-you gifts after the actual interviews conducted in the face-to-face mode.

2.3 Data collection and processing

2.3.1 Interviews

For each interview group, separate interview guides were prepared based on their affiliation and professional focus. Interview questions were formulated around key topics related to the research objectives (Table 2). Following the semi-structured approach to the interviews, the researcher posed open-ended questions and encouraged interviewees to share their views on issues within the scope of the organic agriculture sector. The basic interview framework is presented in Appendix 1. Participants were interviewed in English by the researcher. This was an apparent limitation of the study as English is the second language for both interviewer and interviewees. The interviews were recorded and transcribed by the researcher. All interviews were conducted between June 23 and September 3, 2019. The average length of the interviews was 38 minutes.

Table 2. Key topics raised during the interviews with the stakeholders of the organic sector of Iceland.

General activities in the organic sector of Iceland
Interactions with other stakeholders
Motives towards conversion to organic agriculture
On-farm activities
Decision-making process during the pre-conversion period
Feelings about being an organic farmer
Personal likes/dislikes of organic agriculture
Differences in mindsets of organic and conventional farmers
Support from central/local governments
Obstacles/opportunities for organic agriculture development in Iceland
The vision of the future of organic agriculture in Iceland
Recommendations for organic agriculture promotion in Iceland

Initial codes had been assigned before interview transcripts were analysed based on the literature review and research objectives. Secondary coding was performed after the actual thematic analysis of the transcripts and identification of key statements.

2.3.2 Literature survey

Search for relevant literature was conducted in the online databases of Science Direct, Web of Science and Google Scholar based on keywords related to the key themes identified from the objectives. The keywords included the following: “ecological ethics”, “environmental ethics”, “organic agriculture”, “sustainable agriculture”, “organic agriculture in Iceland”, “organic agriculture in the world”, “organic agriculture in the Kyrgyz Republic”, “agroecology”, “environmental philosophy”, “sustainability”, “sustainable development”. In addition to the scientific articles, relevant legislative acts, policy-related documents, reports, and books were utilized to collect the data. A total of 208 relevant sources were identified and grouped thematically. Information from various sources mitigated the negative impact of limitations on the validity of the findings.

3. RESULTS

This section presents the main findings on the linkages between the concepts of organic agriculture and sustainability in relation to ecological ethics (research objective (i)) and on the key themes identified in the interviews, namely 1) motives for conversion to organic farming in Iceland (research objective (ii)), 2) thresholds for the enhancement of organic agriculture in Iceland, 3) opportunities for the enhancement of organic agriculture in Iceland (research objective (iii)) and 4) recommendations for organic agriculture promotion in Iceland. The key theme “Organic farmers’ mindsets” is described in subsection 3.2.

3.1 Links between organic agriculture, sustainability and ecological ethics

Modern society has found itself at the crossroad of either following a sustainable way of living or facing an unescapable manmade catastrophe with growing political, economic, social and climatic uncertainty and instability (FAO 2011). Realization of these options has forced modern economic scholarship and policymakers to incorporate principles of sustainability in new economic models such as recently emerged concepts of the green economy and circular economy, promoted by the European Union and some Asian countries (Korhonen et al. 2018). As is shown further, there is a close conceptual link between sustainability and organic agriculture in terms of core values. Suárez-Eiroa et al. (2019) maintain that root causes of the problems addressed by SDGs are a primary target of the circular economy. Consequently, this implies a close connection between the circular economy and SDGs which obviously entails logical linkage between the circular economy and organic agriculture. Following Suárez-Eiroa et al. (2019) logic and their definition of the circular economy, one can maintain that this linkage goes beyond purely economic considerations and touches upon ethical aspects of fairness and promotion of certain values and knowledge through education.

A new report jointly prepared by leading international organizations clearly states that transformations in the agricultural sector are necessary and urgent to cope with the acute issues of undernourishment and provide the world population with high-quality nutritious food (FAO, IFAD, UNICEF, WFP and WHO 2019). It goes without saying, as Pröbstl-Haider et al. (2016) note, that today’s agriculture is experiencing changes caused by climate variability. Projected

world population growth and consequent demand for food coupled with ongoing climate change and unsustainable patterns of land use put additional pressure on agriculture in terms of reaching a higher productivity level and introducing better land management practices to attain the Sustainable Development Goals (FAO 2011; Wolff et al. 2018; Gonzalez-Roglich et al. 2019).

As per Kerber (2015), “climate and ecological crises have various components, not only environmental, social, cultural, and political, but also ethical and spiritual” (p. 391). The facts of the matter are that “we cannot do whatever we want” with nature (Riggio 2015, p. 6) and that “no one will ever live in a post-agricultural world” (Zimdahl & Holtzer 2018, p. 751). At the convergence of these three postulates, an urgent demand for internalization of a new ethic in agriculture (and not only) arises.

Our planet is going through tremendous changes caused by anthropogenic activities that have resulted in disruptions in the carbon cycle (Gurevitch et al. 2006). Being responsible for around one-fourth of total greenhouse gas emissions and negative land degradation trends manifested in wide-spread desertification, soil erosion, climate change, forest degradation and deforestation, loss of biodiversity and in general unsustainable use of natural resources (Daloğlu et al. 2014; Kristensen et al. 2016), agriculture, nevertheless, is seen as a crucial tool to contribute to the establishment of the more sustainable future (Nicklin 2018).

More specifically, Twarog (2006) underlines that organic agriculture as one of the sustainable agriculture methods can bring positive effects for economic, cultural, environmental and social aspects of sustainable development. United Nations Convention to Combat Desertification (2017) emphasizes that the role of organic agriculture in solving food security and developmental issues is underestimated as it can tackle the main causes of degradation of land resources. Similarly, Marabesi (2019) states that people practicing organic methods in agriculture have a major goal of reaching sustainability in economic, environmental and social spheres.

In this sense, of 17 SDGs adopted by the United Nations General Assembly in 2015, Sustainable Development Goal 15 and its targets play an essential role in mitigating adverse consequences of climate change, enhancing sustainable management of land resources and, thereby, improving livelihoods of the world’s rural poor (United Nations 2015). Of particular relevance to this research are the targets illustrated in Table 3. Importantly, target 15.9 demonstrates the growing recognition of environmental values for policy-making and overall development.

Table 3. Selected targets of SDG 15.

15.3	Combat desertification, restore degraded land and soil, including land affected by desertification, drought, and floods, and strive to achieve a land degradation-neutral world by 2030
15.5	Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
15.9	Integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts by 2020

(Source: United Nations 2015)

Therefore, the issue of identifying and applying appropriate agricultural practices is critical to the achievement of SDGs. The usage of synthetic inputs in agriculture is incompatible with the pursued sustainable future in this sector of the economy (Lacombe et al. 2018). Moreover, to attain SDGs without taking ecological and ethical considerations into account will be highly

problematic (Damian et al. 2019). It can thus reasonably be argued that organic agriculture may be considered as one of the promising approaches capable of reducing greenhouse gas emissions from soil and usage of pesticides and chemical fertilizers, preserving biodiversity, enhancing ecosystem services provision (Puech et al. 2014), protecting ground and underground waters (Sanders & Hess 2019), accumulating soil organic matter, improving soil quality and lowering anthropogenic pressures on the environment compared to conventional agricultural systems heavily relying on the use of synthetic chemicals (Ma & Sauerborn 2006; Fließbach et al. 2007; Tuomisto et al. 2012; Nandwani & Nwosisi 2016).

A tendency for growth of the organic sector can be observed in the number of farmers converted to organic agriculture around the world and the dramatic increase in the global organic market with its annual turnover of around 97 billion US dollars in 2017 whereas it amounted approximately to 18 billion US dollars in the year 2000 (Willer & Lernoud 2019). However, despite a multitude of studies on organic agriculture with positive findings and multiple efforts of governmental and numerous non-governmental organizations, the share of organic farmlands globally of all agricultural lands reached merely 1.4% in 2017 (Willer & Lernoud 2019).

To ensure the faster uptake of organic agriculture, one needs a broader understanding of the obstacles it faces, especially in the view of the fact that ethical and environmental dimensions are closely interlinked (Sánchez García & Díez Sanz 2018). Along with all these factors, understanding organic agriculture from the point of view of ecological ethics is of import to streamline the achievement of the SDGs and to elaborate on the thresholds as well as future projections of organic agriculture development. Tucker (2015) concludes that ““fixing” the environment or climate through technology or finance or legislation is necessary but not sufficient. Ethical approaches are also needed” (p. 396).

The founders of ecological (environmental) ethics and philosophy, Routley, Naess and Rolston, brought new puzzling axiological questions of humans' attitudes toward nature and dethroned anthropocentrism by advocating the idea of nature having value in itself (Attfield 2018). Clearly, values are at the centre of ecological ethics that tries to comprehend human attitudes, duties and actions towards the surrounding world, and, thereby, identify links between theoretical and practical aspects (Carter 2018). In this case, among the new eco-values, one can identify biodiversity and climatic soundness (Northcott 2012), or moral extensionism as discussed by Carter (2018), or the world in its wholeness with a cooperative agenda for the biosphere (Kaczocha & Sikora 2016). Narrowly defined, ecological ethics touches upon humans' duties and includes actions directed to preservation and care for the environment (Dicks 2017). According to Gola (2013), the creation of new behavioural patterns towards nature is a focal point of ecological ethics, whereas Price and Leviston (2014) point out that environmental issues often have their roots in people's behaviour. Correspondingly, agriculture, as argued by Zimdahl and Holtzer (2018), is essentially about addressing ethical issues at various scales.

The list of ethical questions related to nature and its exploitation by people is far from being exhaustive. Probably the most conspicuous example illustrating the current ethical dilemma is the issue of feeding the growing world population. In his philosophical essay, Rolston (2014) posed point-blank alternatives of either feeding people first at the expense of damaging the environment or preserving nature at any cost despite the hunger and even death of people. This tough option could be, of course, treated as a thought-experiment but it unmistakably shows the whole depth of ethical issues which may easily perplex sustainability activists when asked to weigh the immediate value of a human life against that of nature and of future generations.

As observed by Arnason (2018), there is a growing rupture nowadays “between what it is possible and what it is right to do” (p. 19). Modern agriculture can offer many possible technologies but do farmers question themselves with ethical considerations of a similar magnitude as in the example from the previous paragraph? For instance, is it ethical to overuse chemicals to get higher yields and feed more people while being aware of the negative long-lasting effects of those chemicals on human health and environment? One could dub this behaviour as unsustainable and, moreover, interpret it as a case of an irresponsible attitude towards future generations and the environment. On the other hand, this situation could be viewed from another, earthlier angle. What if this imaginary farmer has no other option because of various economic and social or even political reasons, or just has no idea about other opportunities? What are our expectations from agriculture and farmers? Can, for instance, tomatoes and sheep be ethically grown and at the same time secure livelihoods for farmers? And if this peculiar terminology is possible, then what does it mean in reality for farmers and consumers? Indeed, agriculture is a front line between our own culture and nature. A call for sustainability is striving for peace and balance between the two and withdrawal from previous destructive rhetoric.

A reasonable approach to get closer to the kernel of the farmers’ ethic would be questioning the advocates (theoreticians and practitioners) of sustainable agricultural approaches on their motives for practicing and supporting responsible farming. Sulemana and James (2014) argue that “how farmers see themselves matters” (p. 60) and speak in favour of a further investigation of farmers’ behaviours and drivers for accepting sustainable farming practices. According to Walder and Kantelhardt (2018), understanding of behaviour and views of farmers on ecosystems and sustainability is a prerequisite to attain SDGs.

In this context, it is not surprising that the concept of sustainability comprises not only economic and environmental components but also the social aspect (United Nations 2015), social equity (Millar et al. 2019) and human well-being as Jónsson et al. (2019) put it. As Opoku (2019) debates, “the SDGs are aimed at delivering a prosperous society that provides justice and dignity for people while protecting the planet” (p. 2). Research in the field of environmental philosophy and ecological ethics goes even further and includes the human dimension in sustainability. This dimension is embodied in cultural and ethical aspects as sustainability in its core is a philosophical concept devised to justify a new paradigm towards cooperation rather than competition with nature to secure the future for humankind (Salisu Barau et al. 2016; Sánchez García & Díez Sanz 2018). The same is true for organic agriculture as a logical conclusion of its principles (Table 4).

Table 4. Principles of organic agriculture.

1) The principle of health
Organic agriculture should sustain and enhance the health of soil, plant, animal, human and planet as one and indivisible.
2) The principle of ecology
Organic agriculture should be based on living ecological systems and cycles, work with them, emulate them and help sustain them.
3) The principle of fairness
Organic agriculture should build on relationships that ensure fairness with regard to the common environment and life opportunities.
4) The principle of care
Organic agriculture should be managed in a precautionary and responsible manner to protect the health and well-being of current and future generations and the environment.

(Source: From Meredith et al. 2018)

Nowadays, organic farming has become one of the leading and steadily growing sustainable agricultural systems and food production trends in the world (Twarog 2006; Seufert et al. 2017) with a total area of organic farmlands of almost 70.0 million hectares in 2017 compared to 11.0 million hectares in 1999 (Willer & Lernoud 2019). IFOAM (2019) defines organic agriculture as a method that benefits the environment and can “promote fair relationships and a good quality of life for all involved” (p. 1).

Subsequently, the defining characteristics of the organic approach are primarily based on local knowledge and resources (Schmid et al. 2004; Silici 2014) and the ethical principles of fairness, justice, and care for the generations to come (Stolze & Lampkin 2009; Meredith et al. 2018). Thus, one of the biggest issues on the way towards organic agriculture development around the globe may be nurturing and sustaining a certain type of norms and values which is a primary focus of ecological ethics in post-industrial reality confronted with environmental problems (Kaczocha & Sikora 2016). Dinis et al. (2015) have come to the similar conclusion arguing, however, that organic agriculture may lose its previous appeal and momentum and follow the path of commercialization and the conventional way of farming if underpinning ethical values are not practiced and clearly linked with the standards. In other words, the simple “no chemicals” principle does not make a given farming pattern an organic one automatically.

At heart, the concepts of sustainability, organic agriculture (agroecology as a whole), and ecological ethics have a similar concern over ensuring well-being for future generations and shaping a new model of co-existence based on collaboration between humanity and the environment (Miloradova & Ishkov 2015; United Nations 2015; Carter 2018). Following the logical justification by Sarkar (2005), we can maintain that this concern is a long-term one. It simply implies an urgent necessity for a paradigm shift from understanding nature instrumentally as a means to meet our needs and greed to thinking of the environment as having intrinsic value in itself regardless of what it provides for human beings (despite all the wounds such a stance may impart to human egoism) and this obviously may serve as a rationale for various nature protection and restoration activities as well as an introduction of environmentally friendly agricultural practices such as organic and conservation agriculture (Sandler 2014). Further alienation between the parts in the “human-nature” dyad is something more than just persistent blunder; it represents a growing threat and danger to both humanity and the environment (Riggio 2015). In essence, it means that an overarching question of harmonious co-existence is “What is best for life?” (Ketcham 2016, p.48). Those pursuing the sustainable vision in any sector, be it agriculture or energetics or any other sector, will have to address this question first, having in mind that this well-formulated question contains the answer.

An extended theoretical model of linkages between sustainability, organic agriculture and ecological ethics, compiled by the researcher in accordance with the results of the discussion, in the context of the broader domains of environmental philosophy and agroecology, is presented in Appendix II (Fig. 2).

3.2 Motives for the conversion to organic agriculture in Iceland

This subsection presents the results of the study obtained through semi-structured interviews with the stakeholders of the organic agriculture sector of Iceland. The 78 codes identified in the interview transcripts were grouped into 5 key themes and 12 subthemes (Table 5) for further analysis as described in Castleberry and Nolen (2018). These key themes were used to attain the research objectives of this study.

Table 5. Key themes and subthemes identified by the results of interview transcripts’ analysis.

Key interview themes	Interview subthemes
1) Icelandic organic farmers’ mindsets	Values, responsibilities related to society and nature, respect, commitment
2) Thresholds of organic agriculture promotion in Iceland	Problems, threats, challenges in the development of organic agriculture in Iceland
3) Motives for organic conversion in Iceland	Drivers for conversion, support from governments and other stakeholders
4) Opportunities for organic agriculture promotion in Iceland	Future of organic agriculture in Iceland, actors of change
5) Recommendations to promote organic agriculture in Iceland	Measures of support

Participants’ citations were italicized, whereas researchers’ comments were presented in square brackets.

3.2.1 Primary motives

The interviewees communicated various reasons for organic conversion in Iceland. Among the basic motives were mostly mentioned environmental and health concerns as well as market opportunities. All the interviewed organic farmers pointed out that organic produce was healthier and safer both for them and their customers. Certain farmers noted the different taste of the organic vegetables compared to those grown conventionally. For many interviewed organic farmers as well as other stakeholders, health concerns appeared to be an important driver for conversion. As one organic farmer stated:

I always had this feeling when I was working with chemical fertilizer in the on field, you know, I always had that feeling that it is something wrong with it.

One of the participants noted regarding practicing organic farming:

The thing I like most is that I do not use any poison. Everything is pure that you get. I think I make my life longer because the poison affects you. You can get cancer and things like that.

Another organic farmer echoed:

Some of those [organic farmers] who have started, they started somehow like I did. They didn’t want to use chemicals. They want to grow and make some healthier food.

One of the stakeholders summed up well the main drivers for organic conversion in Iceland:

(...) you can say straightaway four reasons [for conversion to organic farming]: environmental consciousness – they [organic farmers] want to respect nature and now they want to reduce greenhouse gas emissions, etc., they care about this. And this is very important because it has been shown that organic farming ... organic growing is better. You have less greenhouse gas emissions from organic farming than from conventional farming. And they know that and this helps to justify organic farming. Then I mentioned influence of other countries, also animal welfare was an issue and there would be some health issues with use of chemicals for themselves. And fourth point was the market. These would be sort of main reasons, main drivers.

When asked to rank the mentioned motives for conversion, this stakeholder stated the following:

I would probably say that it would be the first point – environmental consciousness. That would be the first point. And the market is the second. This applies to all the pioneers and many others. In a few cases it might just be the market. But they gradually get into this. I would say the basic reason is that they are concerned about the environment, they are concerned about soil, animals, etc.

It is interesting to note that all the interviewed organic farmers mentioned both main drivers in this order: first, environment and health, and second, market. Although the environmental motives prevailed during the interviews with organic farmers, the issue of marketing and getting premium prices constantly emerged. As, for example, one organic farmer explained:

(...) it's important possibility to sell what you're producing because money comes that way. Of course, money has an important role in this case. (...) If I had no customers, I would not be farming organic. That's so easy.

However, the same farmer later pointed out:

It [organic agriculture] is somehow a philosophy because you're taking the whole system, you're looking to the whole system in organic farming. You're not only looking to the yields or how much money is in your pocket. You're not only looking to this; you're looking on the whole system. It should be sustainable, you know, should run by itself somehow.

One of the stakeholders claimed that the monetary aspect is a prevalent driver in farmers' decision-making.

I think usually it's monetary [concerns for organic conversion]. They [farmers] think they'll get more income. I think that's the biggest driver. Especially for the sheep farmers.

One organic farmer compared the importance of finance for organic and conventional farmers:

My theory is that usual gardeners, they first and last think about the profit. When you are growing in an organic way you're thinking about to be on the line, not going under the line and you don't have to go up to heaven, you know, in profit.

3.2.2 Dedication, conviction and commitment as components of organic mindset

When investigated from the angle of other stakeholders, the motivation for organic conversion became clearer. Said one stakeholder:

Many of them [organic farmers] sort of have ... they got interested in organic farming, they are very committed to it. And there are also farmers that are exploring the opportunity of higher prices. And for some it's the image that matters. But I think mostly it's some conviction and they are really interested in doing it in the right way, both for the land, crops and animals, and the customer.

Another stakeholder underlined the importance of having a certain trait to pursue organic agriculture:

You really have to have strong conviction that this [organic agriculture] is the right way to go. ... I think it is a key element if people are going to last. If the main driver is money, then you're going to quit very soon when you realize that it's more work. They [farmers] have to have this conviction that organic farming has some other merits than just making money. ... If you don't have conviction that organic farming is good for the environment, then it's not going to last.

A matter of conviction brings us to the realm of mindsets characterized by values, beliefs, attitudes and consequent patterns of behaviour. Care for the environment, feeling of responsibility, respect for nature and fairness to customers stated by the interviewees were the reflections of an ecological type of mindset common for the interviewed organic farmers. This conviction is kept throughout one's whole life or as one stakeholder expressed:

The organic farmers, they are very dedicated to certain ecological practices. ... The general rule is if they [organic farmers] start organic farming they continue.

When asked if there was any reason for abandoning their organic practices, all the organic farmers maintained that there was no such reason that could change their attitudes towards organic farming. These organic farmers felt that their way of farming was closely tied with their lifestyles and mentality.

(...) quitting this way of growing never be. (...) We never change that. You don't do ... you don't go back. Here this place has never been sprayed. (...) It would be a crime to start doing it! Against nature. It's lovely, so many birds here. It's a good place for everybody. (...) we are part of this nature. We are all. We are part of the system. If you're always at the same place for all these years you are starting knowing everything. You're a part of it, your land and the life in it.

Furthermore, when confronted with the question of a potential change of current organic practices, one participant stated that:

How would I feel if I would not be doing organic? I think I would be a little bit ... I think you cannot ask this kind of question. You cannot ask it because I cannot imagine it.

A similar sentiment was expressed by another organic farmer:

When you are organic, there is no way back, it is a way of life.

Nevertheless, the organic agriculture sector of Iceland seems to consist of various groups of organic farmers. One of the stakeholders noted that there is a core group of organic pioneers with strong ideology, close to the one described above. However, as this stakeholder later explained:

They are few like that, there are more who are thinking to get some extra from this [organic farming], but also those are the ones that quit after a short time. ... For the past few years, the number of farmers who have quit and the number of new applications has been about the same. So, the number [of organic farmers] has been similar for many years.

3.2.3 Above all is the soil

Environmental considerations of the organic farmers primarily centred on soil and its special role in the life of humans and the whole planet. According to one of the interviewees,

...the only farmers who realize this [that the soil is a living organism] are organic farmers really. The other farmers do not always understand this. (...) the organic farmers are very much aware of the biota, earthworms and everything. So, they are dedicated to improving the soil.

Similarly, one organic farmer argued that:

I really believe that biodynamic farming and organic farming are very important for us because it sustains our health, it sustains our production, it sustains just the land itself, it is sustainable for the soil. We do not want to be using a lot of chemicals and destroy our soil because the soil is the base for our food.

Further, another organic farmer explained that:

It is the soil that is the most important of everything we do. And what we are actually doing when using organic fertilizers like manure from our animals and compost and everything thing like that, we are growing the soil, we are building up the fertility of the soil, we are feeding the micro life in the soil. Make your soil fertile and you can grow everything you want.

One of the interviewed stakeholders noted that:

We really need to take care of our soil and by using organic farming we take the best care of our soil. We're not doing it well if we use a lot of synthetic fertilizers.

3.2.4 Cases of "living the culture" in organic agriculture

One organic farmer vividly described the experience of interaction with soil and the difference between conventional and organic agriculture:

(...) conventional farmer or gardener, he thinks from the spring to the autumn I used to say. They [conventional farmers] use chemical fertilizers ... they use chemical analysis of the soil and everything. But I used to say my analysis of the soil is you take your soil in your hand, you feel it, you smell it and it tells a lot. It tells more than any chemical analysis for me. Because really when you can feel it in your hand you can really feel, you gonna experience the life, the energy in the soil. I take the full hand of organic soil from my garden and I feel it, it is soft, it is warm. You take soil from conventional farm which uses chemical fertilizers I feel it a bit hard, it is cold, it is not as warm as the other one. But we can measure it with other methods, and you'll get the same numbers. But it's something ... it is still different.

One of the organic farmers also illustrated the experience of applying chemicals:

Once there was a poison that you could use because it could kill ... you could spray it on your plants. And it was allowed in organic farming. And then I got some worms on my rows. Ok, just spray one drop on each one that it will kill, it's so little. Because it was allowed. And then I started. Ok, that was more than 20 years ago. And I put one drop on my turnip like this. Then I saw all kinds of animals running from that plant, animals that I didn't see before in the ground.

It was so strange seeing that. When I saw it, I stopped. I was just thinking about one little maggot I was going to kill but I was affecting the lives of all those other animals that were doing good for my life. (...) Of course, it would look better if you could spray weed and everything away and use all these poisons. But it would look better for the eye. It would be worse for all the life that is living here.

The feeling of being a part of the whole and seeing wholeness rather than parts led some organic farmers to perceive their organic farms as living organisms. For example, one organic farmer stated:

We have to learn to look at a farm as a living being. And if you compare it with a living being, we compare a farm with ourselves. We have animals, plants, vegetation, we have the soil, you can compare those things with the different organs we have in our body. They are all necessary and all those organs together make it possible that we can live and work. (...) And you must learn to look at the whole Earth as a living being. (...) In conventional farming they [farmers] use the chemicals, and in biodynamic [farming] you start from the whole universe. And from whole universe you look at the life and ask how and what can we do.

Importantly, living organic culture brings out intangible aspects of life. Another organic farmer said it best:

The more time is passing, the happier I am about being organic. I am more and more happy about this decision to go organic.

3.2.5 Other aspects of conversion

A majority of the interviewees discussed the central government's financial support for Icelandic farmers to convert to organic farming. All the interviewed organic farmers and most of the stakeholders did not consider it to be a primary motive for conversion. However, some stakeholders emphasized that financial support gave it a little boost. But, as one stakeholder put it, at the same time governmental funding attracted some farmers who entered the organic sector for monetary reasons, and later quit.

In contrast to the central government's support, the situation may be better at the local level. One of the stakeholders noted that:

They [local governments] give them [organic farmers] some grants and they may help them to market, to put up market stalls or something like that or even they may agree to promote some of their products like using products in the schools. They [local governments] are positive. They give the organic farmers a little bit stronger background and this is local, it is on local basis.

One crucial aspect worthwhile to mention is the influence of the successful foreign models of agroecological farming on the uptake of organic practices in Iceland. The ideas of permaculture, biodynamic agriculture, organic farming, and anthroposophy were brought mainly from continental Europe (Germany, Sweden, the Netherlands, etc.) by Icelandic farmers themselves and foreigners who settled down in Iceland. For most of the interviewed farmers, Solheimar eco-village was the starting point or the model for changing the way of running their farms sustainably.

3.3 Thresholds for the enhancement of organic agriculture in Iceland

3.3.1 Organic certification system

Iceland adopted the European Union's organic standards and other regulations. However, many of the interviewed organic farmers and other stakeholders pointed out that the existing certification system needs improvement in terms of meeting the reality of Icelandic agriculture. One participant, for instance, discussed this issue and explained its effects on the organic sector.

Interviewer: (...) Why other conventional farmers do not follow your steps?

Organic farmer: That's maybe about the system we have. The certification system. They are very strict. It seems to be that they are more Catholic than the Pope, you know. (...) the system here in Iceland is a bit different from Europe, for example, ... and it's maybe difficult to get organic fertilizer from outside because you have to be sure that you have enough grass after you stop using chemical fertilizer. It will be a shock in the fields. So, you need extra when you're converting. And it's very difficult to get these organic fertilizers. You cannot use it from these factory farms, chicken farms because they are using ... their animals are tied, they get food from America which is genetically polluted. And we may not use that, you know, on our farm. So, I say, we are too strict. We have to have possibility to get more people in it [organic agriculture].

Another organic farmer was of the same opinion stating that:

One of the problems with certified organic farming is the regulations. Farming in Italy and in Iceland is very, very different. But regulations in Europe are made by some bureaucrats in Brussels who never touched the soil or the real work.

3.3.2 Infrastructure for organic agriculture

Although not so common, several issues related to infrastructure were mentioned. For example, the following interviewee discussed the issue of the lack of organic slaughterhouses in Iceland:

There is another problem with sheep farmers that they ... We had a certified slaughterhouse here at Selfoss which is only a kilometer from here [the town of Hveragerdi]. But they decided at a certain point in time not to certify organics and then we have only one slaughterhouse in the North of Iceland, so it would be very difficult to take all the lambs up to the North of Iceland. And this is a problem. In the South, we don't have a slaughterhouse of organics. Unfortunately, we tried to persuade them to carry on, but they didn't. So, if you have organic sheep here [in the south], you have to take them to the north of Iceland for 300-400 km driving. So, there are problems like that.

Another organic farmer mentioned a shortage of tools for tillage which are suitable for organic agriculture:

But there is one thing that ... the question you had before; what is the worst about, what's the most difficult about being organic. Everything that they make, every tool and everything is for conventional farming and there are no tools that they are making for organic farming because we need a little bit different tools. And we have to go 60-70 years back to find tools that really can help us. (...) it's very difficult to find them [tools]. Now I know the website where I can find

it. But it was difficult. (...) you have to go online to find something to use. I mean for small farmers.

Some farmers felt that there was a problem with the supply of organic seeds. For instance, one organic farmer pointed out that:

It is hard to get good seeds. Quality is often not so good for organic seeds.

3.3.3 Preaching to the “converted”

Iceland is known for its long chilly winters and short summers which do good for agriculture by lowering the number of plant diseases and pests. Obviously, it helps the farmers grow their crops with less use of chemicals and makes it easier to convert to an organic way of farming.

(...) traditional horticulture in Iceland is rather clean compared to other countries because we don't have so many diseases and pests. And, therefore, a traditional grower who is growing tomatoes here, he is hardly spraying anything, so the only difference is the fertilizer.

This leads to a commonly held belief well expressed by one of the organic farmers:

Everybody thinks Iceland is so clean that you do not have to do anything.

Preaching-to-the-converted type of farmers in Iceland is unfolded in the following interview excerpt:

Organic farmer: It is easier to convert to organic here in Iceland than it is in many countries.

Interviewer: The question comes why they [farmers in Iceland] do not convert?

Organic farmer: They are very conservative to their ways, even if they are very open to new technology and so on, but when it comes to new methods of growing, they are very conservative. They are very careful to make changes. (...) many farmers would like to do it but they do not dare to do it because they know that the first year the production goes down and it may be the period of 5,6,7 years when it starts going up again. And that would be for many a very difficult period. So, they do not dare to take the step even if they want to do it.

Another dimension of non-organic mindsets was revealed by one of the stakeholders who said that:

Well, the most difficult obstacle is that you cannot use chemical fertilizers. Summers here can be very short and the weather is often not stable. So farmers are in general often quite conservative so they are maybe not interested in making a jump into uncertainty, so I do believe it's one of the main reasons why not many converted to organic farming but I do believe it's the main reason because you have a short growing season and if you can't use chemical fertilizers then many people ... do not believe that they can harvest enough feed for the winter. (...) But I mean mindset of the general farming population, they are not simply believing in full that they can do this. But, of course, the producers which have converted and are producing, of course, they have found solutions.

Another stakeholder considered the mindsets of conventional farmers as an obstacle:

I think the biggest problem is the mentality of the agricultural sector in general because conventional farmers are very negative towards organic. I think it's changing a little bit slowly.

In subsection 3.3.2, one of the stakeholders discussed the issue of closure of the organic slaughterhouse in the southern part of Iceland. One possible reason was mentioned by another stakeholder:

Conventional farmers are often the worst enemies [of organic agriculture], they apply social pressure and they often make fun of organic farmers. It's very, very common. And try to talk it down. And I know perfectly that when the slaughterhouse was certified and offered to organic farmers a little bit higher prices, they were under great pressure from conventional farmers: why are they getting more than we are? And this is probably the reason why there is only one [certified] slaughterhouse in Iceland.

One farmer gave an example of being treated negatively when he made an attempt to expand his business:

Organic farmer: ...it was a bit fight because I was out of the system.

Interviewer: What do you mean, out of the system?

Organic farmer: Because most of the farmers were offering the milk to these big dairies and I was doing everything by myself. That was not very ... You're a strange man. And you are telling people that you are better than me, you know. Even if I am not saying that, you know. Because it was like we were taking something from them, you know.

3.3.4 Policy issues and governmental support

All the interviewed organic farmers and stakeholders noted that there was a policy gap in the overall system of promotion of organic agriculture. Most of the interviewees were not aware of any policy for the development of the organic movement in Iceland. However, all informants agreed on the importance of having a well-formulated official policy document. One stakeholder described the current situation in the following way:

(...) problem with the central government is that the Ministry of Agriculture has never been able to formulate a proper policy for organic farming, so we do not have in Iceland yet a good policy for organic farming. That is a problem. We should have it and we've been trying to speak for it for a long time, but this is missing. (...) and lack of policy, official policy is a problem. It should be a part of agricultural policy.

One of the participating stakeholders thought that the organic policy issue reveals an even deeper layer of lacking leadership and ownership of organic agriculture within the government:

Stakeholder: There is not much political leadership on the issue.

Interviewer: So, it's just developing by itself?

Stakeholder: In truth, yes.

Interviewer: And would you like to see real policy on organic farming?

Stakeholder: Yes, but I would mostly like to see stronger leadership in farming as a whole from the government.

Furthermore, one of the stakeholders reflected on the fact that there was no clear vision of future development of organic agriculture except some statements.

The ministers, the government is not really realizing yet that organic farming could be one of the keys to a better solution. ... it's not enough to have the farmers, we need to have local authorities, we need to have a central government. (...) The main problem is that we do not have a clear vision for organic farming in the system.

As one organic farmer stated:

In all countries, it [organic agriculture] is growing faster. It's because they get support and the government wants them to, they have a goal ... we're going to have so much and so much bigger part of our farmers organic. But it's not been here [in Iceland]. They [government] are not interested. I don't know why.

One of the stakeholders expressed the views on the issue of public policy in the organic sector:

I think there is not enough drive from the policymakers to increase organic agriculture. ... I think the situation will not change unless the government gets involved. I think that is the key. ... I don't think you will make any real progress unless government is involved ... so if there is a goal to go there [development of organic farming], and there are incentives and there is a campaign to get the consumers on board and everybody, then it makes a difference.

Another crucial aspect brought up by the participants was the issue of governmental financial support allocated for conversion to organic farming. A large majority of the informants stated that this support was insufficient to motivate farmers to convert, cover potential risks and secure their livelihoods during the conversion period and several years after.

Stakeholder: I think that the [organic] sector is not growing as it should be, as it needs to grow to make an impact.

Interviewer: So, do you think that the main reason, the main barrier for this low growth is insufficient support from the government?

Stakeholder: Yes, insufficient priority within the support [system] of the government.

This idea of inadequate financial support of the organic sector was echoed by one of the stakeholders who suggested that the support period should be prolonged by several years after the actual conversion. One of the organic farmers added that the period of financial support should be extended up to 5 years to stimulate conversion to organic agriculture.

3.3.5 Market constraints and threats

One of the obvious advantages of organic farming is the opportunity of getting premium prices and using an organic logo for marketing the products. None of the interviewed organic farmers had any concerns regarding selling their produce. Nevertheless, some of the participants

realized that the organic sector of Iceland could do more. For instance, one organic farmer underscored that:

It is necessary to operate this [organic sector] to give the customers the possibility to buy organic, to choose. If it's not produced in Iceland, it will be imported. So, it's necessary for Icelandic produce to be available as Icelandic.

There could also be a problem of consumer preferences and willingness to pay extra for organically grown products. Opinions on this account were relatively different among the interviewees. According to one stakeholder, consumers may be reluctant to pay more because many are sure of the “cleanness” of Icelandic agriculture and environment and do not see much difference between the organic and conventional type of farming. A similar opinion was expressed by another participant:

I think organic consumers are a very small portion of the market. It's especially a problem with sheep farmers because people just don't ... there is no demand for the organic meat at all which is a shame. And the reason for that is that people don't understand what the difference is. Majority of the organic lamb is sold as conventional.

Later this stakeholder explained the possible reason:

... there is no information campaign telling people why they should go organic, why it is a good idea. And it goes both ways for the farmers and also for the consumers because they are not aware of the differences either.

However, another stakeholder believed that there is a disparity between the supply of organic products and demand for them, i.e. demand for organic products is higher than supply. As a result, the organic niche market of Iceland is being occupied by organic products from abroad as the local organic producers are lacking the capacity to meet the demand.

Also, one of the issues confronting the organic production sector is unrealized potential for expansion. As one of the interviewees put it, referring to the organic sector of Iceland:

What is disappointing is that they [organic farmers] have not been able to find solutions to produce organic chicken or organic pork here.

3.3.6 Other difficulties in the promotion of organic agriculture

Apart from the issues highlighted above, there were voiced other no less important challenges. The first one deserving to be mentioned was weak intercommunication among the stakeholders of the organic sector in Iceland. One stakeholder pointed out that:

There are formal links, but they are sort of more dependent on individuals than the system itself.

The most representative example of it was the case of organic regulations on the use of manure for composting from non-organic farms. Due to this restriction, some of the interviewed farmers and stakeholders characterized the current organic regulations as strict. However, later through the discussion of this issue with a certification officer, it became clear that organic regulations had been recently changed and the use of manure from conventional farms was no longer prohibited.

The issue of poor interlinkages is becoming more serious in the light of thresholds for conversion. One of the stakeholders mentioned mismanagement of organic matter (e.g. manure) from conventional farms as a threshold for organic conversion as some farmers may be cautious about starting organic farming in view of the lack of cheap organic fertilizers. This idea was expressed by one organic farmer:

I said it's only the fertilizer the biggest problem to go over when you start. And this is what farmers are scared of. They want to have enough food for animals. They want to be sure.

One participant also underlined that:

It is hard to get fertilizer, you have to think for a long time when you're making soil.

Another issue relates to knowledge creation and its circulation within the system of the organic sector. Unanimously all the interviewees criticized the current level of research on organic agriculture in Iceland. It was defined by several stakeholders as “very patchy” and “lacking in many ways”.

The significant role of science in the promotion of organic agriculture was recognized by many of the interviewees:

Currently science is the best tool that we have to guide us in our decision-making.

Attitudes towards the Agricultural University of Iceland and Soil Conservation Service of Iceland in terms of their contributions to organic farming varied from severe criticism to cautious optimism. Nevertheless, the basic perception was that academia could do more to explore the avenues of further development of organic agriculture in Iceland.

3.4 Opportunities for the enhancement of organic agriculture in Iceland

Identified thresholds allowed the research to shed some light on possible opportunities. The main untapped reserve for further growth is the market. Some participants regretted the fact that the organic sector could not fully meet local consumers' expectations and produce a wider assortment of products.

One stakeholder mentioned that:

We have more and more imports of organically grown vegetables and I would like people to produce them here because if the consumer wants organically grown vegetables or whatever, they will buy it somewhere else.

Taking into consideration the demand for local organic products in Iceland, organic producers have opportunities of improving their positions in the domestic market, especially in the organic vegetable niche. Like another stakeholder noted:

There are opportunities in vegetable growing (...) to grow more variety and there is a big market for some production such as salad and carrots. And maybe tomato and cucumber.

In addition to vegetables, organic farmers could pay closer attention to producing other types of products.

I also see opportunities in producing quality products either processed products... all kinds of food of course made out of local certified products. Some of them could be definitely exported. And I think the main possibility to grow in this sector is to make more valuable products out of certified raw materials. And also, plants collected in nature, they are growing relatively faster than conventional or organic production. It's based on primary production. Collection of wild plants. (...) It is of course all based on consumers' wishes. It should be based on what consumers want and what they are buying and so on. It's difficult to tell people to start producing if they are not able to get it all the way to the consumers.

One of the organic farmers was of a similar opinion:

Organic farmer: ... maybe if the demands come from the market, they need more organic, maybe some people will start to think because of the market.

Interviewer: So, the market could be the driver for conversion?

Organic farmer: Yeah, maybe. I don't know what else could be for those [farmers] that have always been ... normal [probably "conventional" was implied].

Furthermore, one interviewee contemplated on the future of organic agriculture in Iceland:

I think it is going to grow. It is going to be industrial. In the end, it is the market, the people that are buying organic things. And it's getting bigger every year. People want to buy organic things, people want to have organic things in the stores. I think it [organic sector] is going to be bigger because of that.

One stakeholder reflected on the pace of organic conversion in Iceland and commented on the growing trends presented in subsection 1.2 (see Fig.1). According to this stakeholder, the sudden growth of organic lands in 2007 occurred due to organic certification of vast areas in the Westfjords for wild plant collection. Noticeably, the whole converted area belonged to only one owner.

In view of the ongoing global processes of climate change and its consequences affecting the lives of people around the globe, organic farming may become a more appealing way of managing agro-landscapes. As one organic farmer stated:

Organic farmers, they have a very strong message now, which altered what we had before.

The new reality of imminent changes will inevitably alter the methods of farming.

(...) they [conventional farmers] have these relatively easy methods: artificial fertilizers. It's easy. But now I think they have to rethink and it has to go through the whole system. It [rethinking] will have to come through politicians because some politicians understand it. It comes through some green parties. And then you have those who are marketing the products. They are very interested in organics. And then there are many consumers who are very interested in it.

One organic farmer noted that one of the positive features of Icelandic organic farmers is that they are innovative and enjoy entrepreneurial skills which allow them to find direct ways to their customers usually bypassing middlemen.

Although some of the organic farmers criticized the certification system, the new organic regulations, as was noticed by one of the stakeholders, can provide opportunities for the organic sheep farmers to export their produce to the European countries.

3.5 Recommendations for the promotion of organic agriculture in Iceland

3.5.1 Agricultural policy

The development of agricultural policy and financial stimulation was suggested by the majority of the participants as the main recommendation for the promotion of organic agriculture in Iceland. For example, one interviewee stated that:

It [growth of organic agriculture] will depend much on the policy, official policy and also the financial support basically to farming.

A similar idea was offered by another stakeholder:

If we were to somehow agree to formulate some coherent agricultural policy which can be wider in scope, I would be quite happy. (...) But it will not help just to adopt some policy here if the ministry or the government does not own it at the same time.

Many participants closely linked their future expectations for positive changes with the government and its policies as instruments to make a difference. When faced by the hypothetical situation of taking political decisions themselves, some of the organic farmers took various stances regarding the conversion, its scale and distribution of financial support. For instance, one organic farmer noted:

Organic farmer: I've already told to many politicians, you have to decide to change, you have to decide to go over to organic farming for the whole country and it will not take more than 10 years to convert all farming in Iceland.

Interviewer: How can they make this conversion of all farmers?

Organic farmer: They can make a decision and make a plan. And many western countries have already done it.

Another organic farmer held a more moderate view on conversion and suggested the following:

(...) the government should offer some money if they [farmers] stop to use chemical fertilizer, to start lesser use of chemical fertilizers. So, every field which is taken out for organic field ... they get money. Or have some plans for 10 years maybe to stop using chemicals to get money for every hectare they stopped. This is something what we're trying to let ... we're asking the government to do this way to pay the farmers some green money. Not paying farmers for polluting, pay them for green which makes farming sustainable. It does not have to be necessarily certified, it just has to be stopped, chemical fertilizing. So, we have to help some other systems (...). I think this organic system is too strict, farmers are too nervous. So, we can

go an easier way. And then they also start to see that they do not need ... for example cow farmers, they have enough fertilizers. They do not need to buy chemical fertilizers. But they do not believe it. It's just here, you know.

Stakeholders other than organic farmers articulated the idea of designing a holistic organic agricultural policy that would fit the Icelandic context, support innovations, facilitate entry into the organic sector for new farmers, include financial, environmental and ethical concerns and ensure policy ownership despite turbulence and radical shake-ups in the governmental structure.

3.5.2 Education and research

For many participants, it appeared that the infrastructure of research and the education system should be more responsive to the newly emerged global trends and should set the stage for nurturing new generations responsible for the environment. This was the basic sentiment expressed by almost all the interviewees.

If only people knew that it [chemicals] affects not only your body but also your soil, or the body of the Earth, then it would encourage people to buy more organic products which leads to the development of organic farming. (...) here in Iceland just like in any other country we have to have more education about that. People need to be aware of that. (...) I think it always comes with the education of individuals.

Of similar opinion was one organic farmer:

Interviewer: What would you do to improve the situation [in the organic sector]?

Organic farmer: Educate. About life and what it does mean to us. It is all connected. Just educate people about how life works. To think about us as animals on Earth [laughs]. Everything is interconnected. (...) So, it has to come from some knowledge about life.

These educational undertakings should be accompanied by relevant educational materials. Needs for more extensive research were mentioned by many of the participants. Among the possible fields for research, interviewees pointed out the greenhouse sector and horticulture, social study of the organic sector, and a comprehensive survey of all farmers in Iceland to understand better their motivation.

... we should do a better survey of ... on what farmers themselves think. Maybe we need a better understanding of what they [farmers] feel what are the biggest obstacles. Is it support system or something else? Based on this to build up a better knowledge on what we are working with ... then better be able to see where we should go and where we can go.

One stakeholder pointed out that:

The organic program in the Agricultural University needs to be stronger and encompass more areas like livestock production. What we need is more knowledge about organic farming. It should be complemented with consultancy services. I think there is a lack of information on how to do things for new farmers. And that could be one of the reasons why they don't last. They don't have information on how to deal with the problems that they encounter. I think that

the way to increase organic farming is to increase the number of people who are aware of the importance of organic farming.

The leitmotif of the interviewed stakeholders was summarized well by one stakeholder:

I think the information could be ... education, the information should be much, much more important. And the conventional farmers should also be educated about environmental methods and ways of making farming less damaging for the environment. (...) It has to do with attitude, definitely. I think social attitude is the biggest issue. This, of course, needs changing through education.

3.5.3 Strengthening interactions

For many participants the market has been an important element in the overall promotion of organic agriculture. Therefore, they recommended establishing a better connection to the market, its players and consumers. Among the potential stakeholders for streamlining the promotion process, the Agricultural University and local supermarkets were mentioned.

One stakeholder placed hopes on the Agricultural University by saying that:

We need more people who are educated in organic farming at the university. This is very important.

Changes in consumers' preferences should not be neglected as well.

I think it would be useful for everyone if we would work more with consumers organizations. I have seen much that consumers, at least consumers here (...) some decades ago consumers were thinking only about price: the cheaper the better. But now, it's my experience, that the consumers are looking to other things, they are looking to sustainability, looking to climate change. They are looking to production methods too. So, maybe we can find more common grounds there. (...) I would connect more with the consumer organizations to do a better mutual understanding. Just to better understand this sector within the farming community as a whole.

Organic farmers themselves represent a small but quite active group of stakeholders who could disseminate their ideas through role modelling as one stakeholder suggested.

It [motivation for organic conversion] can depend on having good role models in the countryside because farmers learn a lot from each other. When you are farming, you are in the countryside, you learn from your friends, you learn from your neighbours. If there is an organic farmer in the district with successful ... doing well, it will have an impact on the others. So, yes, it will have an impact to have more role models. (...) as soon as people have more role models near them then it will have an effect. But at this point, the role models are quite few. They need to be more in number and they need to be situated ... distributed more around the country to have an impact on this aspect.

4. DISCUSSION

This section discusses the results of the study with the accent on the mindsets of Icelandic organic farmers, elaborates on barriers and prospects of organic agriculture in Iceland,

formulates recommendations for the organic sector of Kyrgyzstan (the research objective (iv)), describes limitations and gives recommendations for future studies.

4.1 Mindsets in organic agriculture of Iceland

The research findings suggest that organic farmers in Iceland enjoy an ecological type of mindset that comprises ethical values of care for nature and all its components, especially the soil, and for human health. Moreover, the results indicate that these values apparently played a crucial role in the decision-making process to convert to organic agriculture or in some cases to go organic from the very start. The third thesis formulated at the very beginning of the research found its confirmation in the key statements of the interviewed organic farmers and other stakeholders of the organic sector of Iceland. The economic aspect and connection to the market were relatively important for all the organic farmers, which is consistent with the study by Marabesi (2019). However, it must be noted that financial motives were not identified as the prevalent factors for conversion to organic farming. All the farmers participated in the study converted to organic agriculture before the state system of payments for organic conversion was introduced in Iceland.

To contribute to a better comprehension of drivers for conversion to organic agriculture in Iceland, it is necessary to look at how farmers can be categorized. Furthermore, it is critical to reflect on farmers' decision-making types as they are important to design holistic agricultural policies (Fairweather 1999; Daloğlu et al. 2014; Price & Leviston 2014; McGuire et al. 2015; Li et al. 2017). There is a growing body of research on farmers' motives based on diverse criteria of economic, environmental and ethical motives and considerations to adopt nature-oriented practices. A recent study by Siepmann & Nicholas (2018) highlighted 28 drivers and thresholds for conversion to organic agriculture in the European Union based on an ample literature survey. In addition to basic motives related to environmental protection, mindsets, health, quality of produce and market, other drivers were mentioned, namely location of a farm, professional aspirations, factors of age and education, certification, etc. In particular, van Dijk et al. (2016) emphasize the sociocultural aspect of nature-friendly agricultural methods and farmers' self-identity as a powerful adoption driver of these methods, apart from financial motives. Put differently, the way farmers see themselves and perceive their roles towards the environment and society has a strong impact on the voluntary uptake and application of environmental practices. The results of this research strongly correlate with this statement through the concern about climate change, the ideas of holism and living the culture, expressed by the organic farmers.

The idea of holism prevails in organic agriculture and offers to find solutions to various problems within the system itself, rather than resort to artificial means like synthetic chemicals. The philosophy of universal interconnectedness in nature (holism) considers a separate farm as an independent and self-sufficient organism. This vision of a farm as an organism is the beginning of the concept of "organic" (Taranov et al. 2019). An important aspect of the philosophy of organic agriculture is the role of a human being. Man is a part of nature, and it is from this premise that the need to work in harmony with natural processes, not against them, arises. Overall, the results of the current research are in accordance with the idea of holism which was clearly articulated by the interviewed organic farmers and some other stakeholders.

Several organic farmers used the term "biodynamic agriculture" interchangeably with the concept of "organic agriculture" to describe their experiences. Biodynamic agriculture as a term appeared historically earlier than organic farming and was based on the anthroposophical ideas

delivered by Rudolf Steiner in the framework of his agricultural course in 1924 (Paull 2011). Nonetheless, principles of both organic and biodynamic agriculture have a lot in common in part of their underpinning values. Some authors use the more generic umbrella term of agroecology that covers major modern agricultural methods such as organic agriculture, conservation agriculture, permaculture, biodynamic agriculture, etc. (Silici 2014; Hainzelin 2015). Agroecology is inextricably connected with ecology and its underlying principles shown in Table 6.

Table 6. Principles of ecology.

Nature is an interconnected system of living organisms;
Matter circulates throughout the ecosystem, consequently, there is no waste;
Processes within the ecosystem are driven by the energy of the sun;
Energy and resource circulation in the ecosystem are promoted through cooperation;
Ecological cycles are sustained through abundant diversity;
The ecosystem is characterized by its flexibility to maintain the balance.

(Source: Compiled by the researcher based on Third World Network and Sociedad Científica Latinoamericana de Agroecología 2015)

As such, it is of importance to look at the results of the study through the prism of one of the frequently used categorization models. The organic farmers' typology suggested by Fairweather (1999) is still of high relevance due to its simplicity and practicability. Organic farmers are subdivided into two broad categories based on their pragmatism or commitment towards basic organic principles and expected benefits. Following this approach, Darnhofer et al. (2005) and Marabesi (2019) describe pragmatic organic farmers as primarily income-driven, whereas committed organic farmers have certain ethical and ecological views based on their world outlook. In simple terms, the financial aspect is critical only for the former group of organic farmers while for the latter organic farming is something more than an income-generating business and closely relates to their lifestyles and mindsets.

A pragmatism-vs.-commitment two-fold model under various labels and modifications is recurrent in the vast majority of identified literature on farmers' motivation and behaviour to take (or not to take) a nature conservation stance. From the results, it is evident that 3 organic farmers can be categorized as committed farmers whereas 3 other farmers put some emphasis on the economic side of their activities which, though, did not outweigh the ecological component as mentioned earlier. All interviewed organic farmers stated that they would never change their way of farming even if financial troubles arose.

These findings go beyond Fairweather's typology of organic farmers, demonstrating that there is a gap between the two extremes of pure committed and pure pragmatic farmers. To illustrate better the key motives for conversion and being an organic farmer, it is suggested that the mixed position be included too. Therefore, 3 organic farmers with expressed economic considerations can be categorized as more concerned with the ecological aspect but with considerations for the financial outcome. Of note, these 3 organic farms are much larger in terms of their production turnover compared to 3 other organic farm units, and, obviously, have more concerns over maintaining their businesses and promoting sales. This, in turn, brings us back to the reflections over the issues of further industrialization and commercialization of organic agriculture globally and keeping its values in place.

The influence of financial incentives and potentially higher prices of organic produce on the emergence of newcomers in organic agriculture is noticeable in Iceland. Apart from the

identified group of organic pioneers mostly led by ethical values, analysis of the data collected allows the research to hypothesize an additional group of organic farmers who could be described as disappointed quitters driven primarily by monetary reasons to become organic. A lack of strong conviction and dedication to organic principles and daunting workload may bring their undertakings to an end. Other reasons, e.g. shortage of the needed information to manage an organic farm, may come into play too.

Nevertheless, none of the farmers mentioned governmental support as a key motive for conversion to organic agriculture, possibly due to the fact that all organic farmers who took part in the interviews converted before financial support was allocated by the central government. However, even after the provision of such support, the number of organic farmers has been growing only slowly. Possible reasons could include an insufficient amount of finance for conversion and duration of the support period as expressed by the stakeholders. On the other hand, the reason may be rooted in farmers' perceptions and beliefs (disbeliefs) as was underlined by many interviewees. One more reason could be identified in future studies through the inclusion of the farmers characterized in the previous paragraph as quitters.

Reflections over organic farmers' mindsets should be complemented by considering those of conventional farmers. Certain mindsets may both stimulate and impede the uptake of organic practices. The most notorious example of it is conservatism of the majority of conventional farmers as numerous interviewees overtly pointed out.

All the interviewed organic farmers and some stakeholders mentioned the significant influence of the continental European countries on sowing the seeds of biodynamic and organic agriculture in Iceland. Study abroad, participation in international workshops, communication with organic farmers in other countries and new settlers in Iceland with new ideas contributed to the spread of agroecological practices and change in mindsets too.

4.2 Barriers and prospects of organic agriculture in Iceland

The current study found that all the participants saw high potential for further growth of the organic sector in Iceland if its impediments are addressed urgently. The policy vacuum, a lack of holistic vision and political leadership were identified as the main thresholds for the development of organic agriculture in Iceland. The results of the study suggest that the possible reasons for that could be frequent changes and reshuffles within the government that create the situation of "no ownership" of the sectoral policy. Another possible explanation is the shortage of scientifically proven information and research on organic agriculture delivered to both Icelandic policymakers and other stakeholders. This, in turn, results in the lack of understanding among the former or misinterpretation of the role organic agriculture could play in the mitigation of negative outcomes of climate change by sequestering carbon in soils, building up soil organic matter and preventing water and wind erosion, etc.

A deeper look at the system of interaction among the stakeholders of the organic agriculture sector uncovered a serious issue of poor linkages and intercommunication gaps. To make matters worse, poor interlinkages are coupled with the lack of research and opposition (reluctance and scepticism) from some of the conventional farmers, among others, who consider Iceland *a priori* in a pristine natural condition and do not believe in the organic way of farming. A similar pattern was reported by Siepmann and Nicholas (2018).

Many participants expressed their dissatisfaction with the current organic regulations which do not meet fully local circumstances and conditions. Excessive strictness of the organic regulations was mentioned by some participants as a formidable challenge for newcomers. The above-mentioned disruptions in communication among stakeholders may cause confusion in terms of practical implementation of the rules and their correct interpretation by organic farmers. For example, some organic farmers' main argument of the prohibited use of manure from conventional farms for composting on organic farms proved to be wrong as new organic regulations allowed it, excluding manure from big industrialized farms. Again, the question of mutual interaction and clearly defined roles within the sector emerged and remains unanswered. Although the organic sector is gradually developing on its own, driven by farmers' enthusiasm, it was recognized by all the participants that organic agriculture in Iceland is lagging behind many European countries and has not realized its full potential due to the absence of comprehensive strategy.

Concerning financial support, most participants believed that the support system of organic agriculture in Iceland needs changing as the payments for conversion do not fully cover farmers' risks and, thereby, do not stimulate farmers to convert, taking into account the current low number of organic farmers. In other words, the mechanism of financial support fails to perform its main function of promoting organic farming. Moreover, other options for attracting farmers to go organic should be considered. For instance, payments for partial gradual conversion, reduction in the use of synthetic chemicals and parallel farming where simultaneously coexist organic and non-organic areas within one big farm unit, according to organic regulations.

Also, findings confirmed that the organic market in Iceland has a tendency for growth in terms of demand for organic products. On the other hand, this growth reveals another issue of the insufficient capacity of the local organic producers who cannot meet the demand completely. Some of the interviewed stakeholders including organic farmers emphasized the threat of the influx of foreign organic products which may replace local ones due to their more competitive prices and volumes. Some market niches remain unexplored by local organic farmers. This is true for some meat products and vegetables. Indeed, as was identified, all stakeholders would like to see more Icelandic organic products rather than imported ones on the shelves of the supermarkets.

Discrepancies between Iceland and the rest of Europe are readily identifiable through their focus on public policy as an instrument to enhance the development of organic agriculture. As was found in this study, many of the current problems in the organic sector of Iceland were attributable to the absence of a holistic policy and vision, whereas leading European countries have detailed action plans aimed at promoting organic agriculture and addressing the aforementioned problem areas. Schmid et al. (2008), for instance, summarize organic policy action plans from 8 European countries and their main elements, as illustrated in Table 7.

All the issues the organic sector of Iceland is currently facing represent evident opportunities for further growth of the sector if tackled systematically and timely. It comes as no surprise that organic farmers and other stakeholders have their own visions of the future of organic agriculture in Iceland. But in many ways, those visions coincide at essential points which speak in favour of an opportunity to establish better interlinkages based on common perceptions, aspirations and expectations among the key players of the organic sector. The first important commonality is that farmers' livelihoods should not be earned at the expense of nature but in a sustainable and respectful way towards both environment and consumers. And, secondly, the

market is a place for farmers to obtain a fair reward for rendering eco-services to the whole country and planet.

Table 7. Targeted policy areas of national organic action plans of eight European countries (Spain, Czech Republic, Denmark, Germany, England, Italy, the Netherlands, Slovenia).

Information
Training and education
Research and development
Producer support
Processing support
Market development
Certification and inspection
Institutional development
Action plan administration and development

(Source: Adapted from Schmid et al. 2008)

In addition to the common ground for establishing a communication platform among the actors of the organic agriculture sector, the main prerequisite for the further advancements is ecological education and an accent on nurturing “greener” generation of citizens with an ecological type of mindset by connecting the young with the surrounding nature (Enkerlin-Hoeflich et al. 2015). Apart from educational institutions, organic farmers themselves can promote organic principles and ideals through role modelling. A good example of it is the eco-village Solheimar, performing ecological, educational and social functions. It may be thought of as an eco-university *al fresco* with a “seeing is believing” approach.

Although the gender issue was not a primary focus of the research project, several observations deserve to be touched upon. Women who participated in this study equally took part in managing organic farms and were actively engaged in the marketing of organic produce. No gender inequality issue was identified by the researcher or reported by any of the interviewees. On the contrary, women demonstrated proactive attitudes and freely voiced their concerns over and plans for future development of organic agriculture in Iceland and their farms. It could, therefore, be hypothesized that organic farming promotes gender equality in both sharing responsibilities and benefits from farming. In general, rural organic farm units can be seen as conductors of family and cultural values (which can be attributable to family size units typical for organic farming in contrast to industrialized agriculture) combined with care for nature.

4.3 Lessons for Kyrgyzstan’s organic agriculture sector

The Kyrgyz certified organic sector is at the embryonic stage of its development as the law “On organic agriculture” was passed in May 2019. For the first time the notion of “organic agriculture” found its place in the Kyrgyz official legal-normative base. The next logical steps are to formulate national organic standards and support the organic conversion of local farmers.

However, as experiences of Icelandic organic farming demonstrated, having regulations and financial support in place is not enough to facilitate a conversion. Matters of belief, conviction and personal values play a significant role in farmers’ decision-making. Therefore, studies on Kyrgyz farmers’ perceptions and attitudes towards the environment are highly advisable, especially for policymakers to make informed decisions, to design effective sectoral programs and to decide on the pace of conversion and its ratios across the country.

The case of Iceland clearly illustrated that there were at least two main groups within the farmer community: the prevailing group of conventional farmers characterized by conservatism and reluctance to adopt organic principles and organic farmers whose attitudes and behavioural patterns are embedded in the ethical values and philosophy of holism. It may be argued that these two groups may have manifold subgroups as identified for organic farmers. An arduous task for policymakers is to amalgamate economic, social, environmental and ethical considerations when drafting organic agriculture policies. None of them should be left out or neglected.

Analysis of the current policy documents on organic farming in Kyrgyzstan showed that there were no mid- or long-term goals (vision) indicating the overall ratio of organic farmlands and breakdown by regions. For instance, Germany is a case in point. The Federal Ministry for Food and Agriculture officially published the strategy of future development of organic agriculture in Germany with the concrete action plan and clearly defined mid-term goal of reaching 20% of organic farmlands (Federal Ministry for Food and Agriculture of the Federal Republic of Germany 2019). This type of policy document could be of high relevance to Iceland and Kyrgyzstan.

The issue of organic standards formulation is a pressing one. The expectations of the ready-to-convert Kyrgyz farmers are closely tied to an opportunity of selling their organic produce with premium prices at agro-markets of the European Union, Japan and the Eurasian Economic Union. In turn, this brings to the foreground the issue of conformity to the organic standards. The experience of Iceland demonstrated that simple adoption of organic standards of other countries without considering local natural and economic conditions may cause problems in interpretation and implementation of regulations.

Successful promotion of the organic principles across the whole country is hardly possible without concerted efforts of all the stakeholders. The enthusiasm of pioneer organic farmers is not sufficient to scale up organic farming country-wide. However, their potential and experiences are of high importance as positive role models and proofs of organic approach feasibility. Therefore, a common interaction platform for key actors of the sector needs to be established to ensure timely flow of information and exchange of ideas. Despite all the tendencies toward building governance, the government still remains the main social institution that is expected to steer and guide major processes within the system and set the developmental agenda in close cooperation with the other stakeholders.

In order to successfully promote the very idea of organic agriculture in Kyrgyzstan, government support is required in the form of well-formulated policies and legislation, the formation of the domestic market for organic products and their promotion abroad. Consumers, in turn, should be informed about the benefits of organic products and the additional contribution of organic farmers to the creation of social benefits through environmental care.

General recommendations formulated during the study are presented below:

- set the priority of organic agriculture and other agroecological approaches in all governmental program documents on the development of the agrarian sector of the Kyrgyz economy;
- carry out detailed agronomic research and social studies of farmers' experiences and their mindsets to identify the prevailing characteristics;

- conduct market research of consumers' perceptions to identify their familiarity with organic products, willingness to pay a premium price for organic products and their concerns over environmental and health issues;
- based on the findings set a clear organic conversion goal and define the policy measures based on regional features;
- establish an interactive platform for the stakeholders of organic agriculture sector;
- study local experiences of the conversion to organic agriculture and use successful cases to establish role models;
- open the master's and doctoral programs at the Kyrgyz National Agrarian University for researchers in the field of agroecology and related scientific disciplines to provide an opportunity for comprehensive research of the problems of transition to sustainable farming systems in Kyrgyzstan.

4.4 Limitations and recommendations for future studies

This study has several limitations. Due to the limited time, it was decided not to include all certified organic farmers of Iceland but instead to obtain broader views from various groups of stakeholders of the organic sector. As this research showed, organic agriculture in Iceland may include varied groups of organic farmers and, consequently, diverse motives for conversion which were not identified in this study due to the small sample size but could be revealed in future research.

A bigger sample of organic farmers and inclusion of representatives from local and central governments, consumers' organizations as well as main chain stores and shops selling organic products could significantly broaden the understanding of the phenomena of organic farmers' mindsets and thresholds/opportunities of organic agriculture in Iceland. Therefore, future studies should have a bigger and more heterogeneous sample of stakeholders to address potential variations. In addition to the in-depth semi-structured interviews, a survey and focus groups could be utilized as data collection tools.

5. CONCLUSIONS

This research aimed at investigating the organic farming sector of Iceland from the point of view of ecological ethics to make implications for the Kyrgyz organic sector. The theses of the research revolved around the ideas of culture and ethics channelled through farmers' mindsets and influencing their decisions. The realm of ecological ethics is essentially about values connected to nature and values we ascribe to nature and ourselves. But it is a human being who is the bearer of these values.

Following this sentiment, the current study contributes to better understanding of the links between organic farmers' mindsets and the motivation to convert to organic agriculture in Iceland. The novelty of the research is that multiple stakeholders were engaged to provide their insights from different angles on the status of the organic sector and views on organic farmers as the main actors interacting with the environment. The research accent was placed on revealing connections between farmers' values and their uptake of organic farming practices.

This study identified two groups of organic farmers in Iceland, namely committed farmers and committed farmers with expressed concerns over the economic viability of their farms. Both groups were categorized as committed due to their strong passion to manage their farms

organically no matter what circumstances may arise. One particular farm characteristic seems to be a decisive factor in shifting (or prioritizing) values connected with financial aspect, namely farm size and, consequently, its larger productive capacity and stronger links with the market. In this connection, the current study additionally hypothesized one group of organic farmers in Iceland who convert to organic agriculture in the pursuit of extra money but then quit as soon as the difficulties and frustration amass.

All interviewees recognized that organic farming in general and organic farmers in particular have certain characteristics allowing differentiation between organic and conventional ways of farming. These traits reflected ethical values, beliefs and attitudes related to the environment, natural processes and society. A human being is not the centre but an inextricable part of the ecosystem and, therefore, solutions to the numerous ongoing man-driven environmental problems are in the hands and minds of people. This conclusion is seen as a crucial contribution to reaching a higher level of sustainability in agriculture.

Apart from the issue of mindsets, the thresholds to the enhancement of organic agriculture in Iceland were investigated as well. The acutest issues confronting the organic sector in Iceland were found to be a lack of political leadership and strategic vision of the future of organic agriculture, weak linkages among the stakeholders, unleashed market potential and a shortage of research on organic agriculture. It should be clear for all the stakeholders that the solutions to these issues are opportunities for the growth of the sector.

The case of organic agriculture in Iceland demonstrated possible obstacles the Kyrgyz organic sector may face on the way to its promotion. Governmental financial support without a holistic vision does not make much difference. As argued throughout this research, the issue of mindset in organic agriculture plays a significant role which cannot be neglected. In this case, a reasonable approach to facilitate the adoption of the organic methods lies in the understanding of the farmers' values and thereby their readiness for innovations. Policymakers should rely not solely on financial calculations but also on farmers' perceptions. Identification of farmers' groups is one of the keys to the successful promotion of new agricultural practices. In this sense, intensified profound research and greener political agendas and educational institutions' curricula are the essential ingredients for the development of agroecological mindsets and formation of the market of organic products.

The current study brings up other issues of a bigger scale. In view of the growing organic sector around the globe and its commercialization, it is paramount to look closely at differences between large and small organic farm units in terms of their ecological and ethical motives for running their farms. Another promising research problem to be investigated touches upon perceptions of pioneers of organic agriculture and those who recently converted or are still in the conversion period. How do their motives for conversion differ? To what extent do governmental policies and market conditions influence decision-making? And lastly, but most fundamentally, will organic agriculture manage to preserve its initial values confronted by transnational corporations and industrialized farming?

As the research identified, understanding of the mindsets of conventional farmers is equally important for designing effective and efficient policies and taking steps towards the ecologization of agriculture. On a wider scope, this research has shown the importance of ethical considerations in attaining sustainability and addressing environmental issues. Therefore, relevant research could make notable contributions to streamlining an adoption of eco-friendly agroecological approaches in agriculture.

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APPENDICES

APPENDIX I

The interview guide (*basic framework*)

Introduction

(Self-introduction, statement of purpose and ethical considerations).

General info

1. How long have you been doing organic farming?
2. What kind of activities do you do on your farm?

Interaction with other stakeholders

1. Are you a member of the organic farmers association?
2. What kind of benefits do you get from the association?
3. What major support do you get from the municipality and central government?
4. Do you receive any support from extension officers? How necessary is it for you?

Motives (drivers) towards conversion to organic farming

1. You started doing organic farming in ... (... years ago). Could you describe your decision-making process for pursuing an organic approach?
2. What were the main reasons for conversion?
3. Did you have any worries at that time? What were they?
4. What could change your decision to be organic at that time? Now?

Feelings about being an organic farmer

1. What do you like most (least) about being an organic farmer?
2. What makes organic farming different from a conventional one?
3. How important is it for you to be an organic farmer?

Obstacles/opportunities for organic agriculture development

1. What are the advantages of being organic in Iceland?
2. What are the barriers you are facing now?
3. What recommendations do you have for future promotion of organic agriculture in Iceland?

Thank you very much for sharing information and ideas. Would you like to add anything?

APPENDIX II

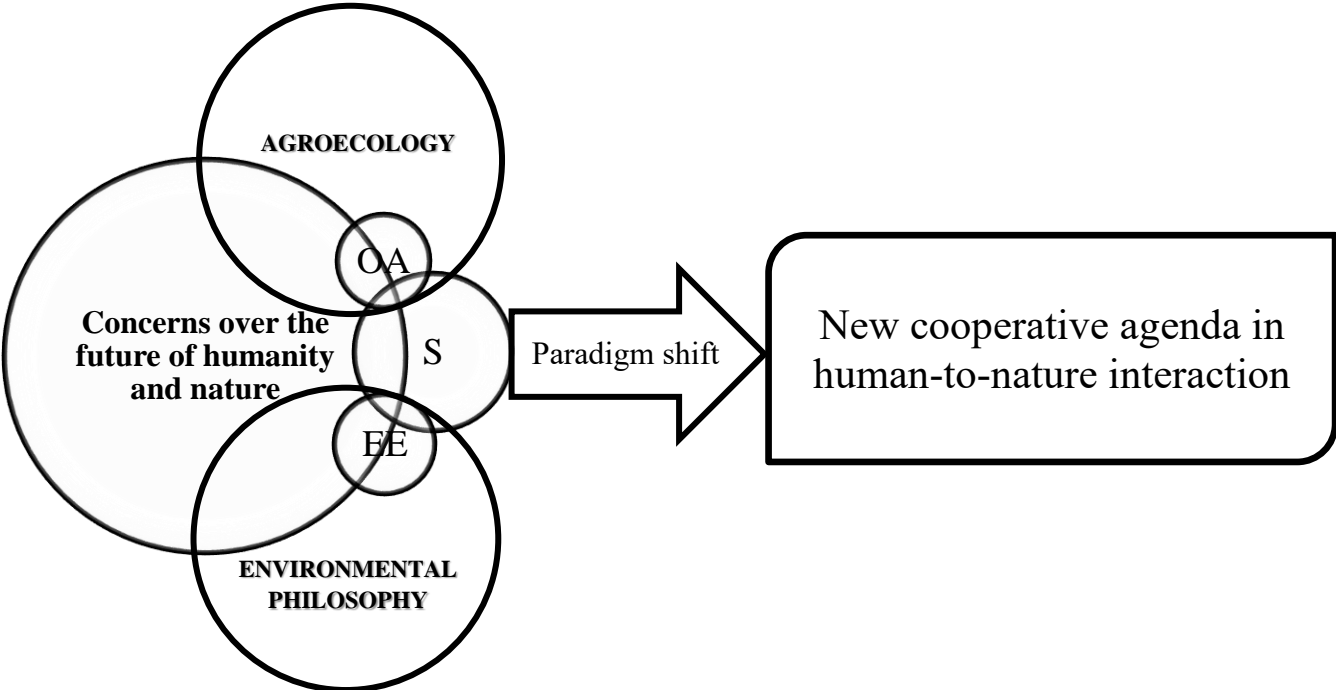


Figure 2. Theoretical model of linkages between sustainability (S), organic agriculture (OA) and ecological ethics (EE). (Source: prepared by the researcher).