Analysis of Organic Agricultural Policies: Pakistan's Comparison with Australia, Italy, Sri Lanka, and Uganda

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CERTIFICATE

This is to certify that this thesis entitled: ***"Analysis of Organic Agricultural Policies: Pakistan's Comparison with Australia, Italy, Sri Lanka and Uganda"*** submitted by Mr. Shahbaz Rasul accepted in its present form by the School of Public Policy, Pakistan Institute of Development Economics (PIDE), Islamabad as satisfying the requirements for partial fulfillment of the degree in Master of Philosophy in Public Policy.

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Dedicated

To My Guiding Light,

"My Mother"

&

"Brothers"

(Dr. Ijaz Rasul & Dr. Fiaz Rasul)

Acknowledgment

All praises for Almighty Allah, who enables us to know about certain unknown things in the universe and helps us to overcome a lot of difficulties. All respect for the Holy Prophet Muhammad (PBUH) who clearly mentioned the difference of right and wrong path, to ensure the success in our lives.

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List of Acronyms

CAP	Common Agriculture Policy
MiPAAF	Ministry of Agriculture, Food, Forestry, and Tourism Polices Italy
MAAIF	Ministry of Agriculture, Animal Industries and Fisheries
DAWR	Department of Agriculture and Water Resource Australia
MNFSR	Ministry of National Food Security and Research (Pakistan)
IFOAM	International Federation of Organic Agriculture Movement
NOGAMU	National Organic Agriculture Movement Uganda
AIAB	Italian Association of Agricultural Biology (Organic Agriculture)
CIHEAM-IAMB	Mediterranean Institute of Agronomy, Research, and Teaching
ISMEA	Institute of Services for the Agricultural Food Market
RDPs	Rural Development Plans
FSP	Food Security Policy
ACO	Australian Certified Organic
AOL	Australian Organic Limited
NASAA	National Association of Sustainable Agriculture Australia
SLSI	Sri Lanka Standards Institute
EDB	Sri Lanka Export Development Board
LOAM	Lanka Organic Agriculture Movement

ABSTRACT

In this study, comparative analysis of organic agriculture policies of five countries (Pakistan, Sri Lanka, Uganda, Australia, and Italy) has been done. Different policy documents, research reports, and organic institution's websites were analyzed. Nine criteria and thirty-nine indicators were used in the latent content analysis to learn lessons from unique ideas (practices) present in the organic agriculture sector. That has provided data (score as well as theoretical) on organic agriculture policies, food security, fertilizer policy, political and organizational support, organic standards and certification status, economic viability, feedback mechanism, extension, and marketing services. The total score (39) has provided idea on support of organic agriculture: Italy being first in score (31), Australia on second (27), Pakistan and Sri Lanka on third (25), and Uganda on fourth (23). Five countries do not have an independent organic agriculture policy. Conversely four countries except Uganda have incorporated organic agriculture practices, extension services and political support in the agriculture policies at varying levels. Pakistan, Sri Lanka, and Uganda are lacking behind Australia and Italy with minor differences in score. In fact Australia, as well as Italy, has strong network of local organic organizations, certification bodies and knowledge dissemination institutions with the implementation of national organic standards to provide services in organic sector. Australia has exceptional feedback mechanism in evolving agriculture policy compared to others. Consequently five countries have some unique factors. That provides an opportunity to learn lessons and implement in the organic agriculture sector.

Keywords: Organic agriculture, Policy, Pakistan, Sri Lanka, Uganda, Australia, Italy, Analysis.

Chapter 1:

INTRODUCTION

1.1 Background

Organic agriculture is assumed to be the best for human health and environmental friendly (Anjum, Zada, & Tareen, 2016). In addition, the attention behind organic farming is to gain market opportunities and create new ways to fill the food availability gaps in developed as well as in developing countries. Moreover, other motives to shift on organic farming are: minimize the reliance on costly agricultural inputs, increase exports by attracting international markets, food and economic self-sufficiency. Accordingly, a study in Pakistan indicated that to cope with the productivity issues of organic agriculture, higher production could be achieved with organic inputs which are environmentally friendly (farmyard manure and crop debris, crop straws and crop rotation, etc.) to avoid costly synthetic fertilizers (Anjum et al., 2016). But all this depends on the dimension of a country's agriculture policy. Additionally, the high price of organic products is a crucial issue because organic produce will not get popular unless consumers are willing to pay higher prices for safe food. In a developing country like Pakistan consumers are price-conscious, thus have limited demand for organic produce. So it's an important dimension for agriculture policy to deal with the cost of production and product prices. Furthermore, in Pakistan, organic farming can focus on exports where the higher cost of production will pay off in the form of higher product prices of organic products. Developed countries are managing organic farming market better due to their well-structured system for organic farming. On the other side, the aim of the developing

countries' policy is to create new ways of income generations; however, they can also conserve their resources through efficient management of this sector. Furthermore, legal regulations were established in the USA to increase consumer satisfaction on organic outputs in the form of government and private sector schemes of certified organic food (N. Scialabba, 2000). To cope with the land issues and intensification, European Union countries aligned agriculture policies with environmental policies, which is a beneficial option for sustainable development of rural and agriculture sector. Meanwhile, the participation of entrepreneurs and the private sector was increased due to the privatization and liberalization in agriculture sector by developing countries for the reason of limited financial resources (N. Scialabba, 2000).

A Study indicated that arable land in Asia including Pakistan is also increasing in developing countries besides increasing usage of the existing land base for other economic activities (industrial motives and urbanization). Meanwhile, the usage of existing irrigation land with heavy cropping patterns is increasing. Land intensification is also responsible for the usage of fallow land and inorganic fertilizers. So this provides an opportunity for policies to provide viable options to cope with the increasing population in the rural sector because it comprises a major part of agriculture sectors in a country (Bilsborrow, 1987). In fact, to increase the pace of agriculture development in this region, only the specific agricultural policies are required which could be suitable for unique geographical areas to grow agricultural outputs efficiently (Perez, 1990). The race to catch up with the EU policies provided benefits in the form of biodiversity conservation due to the strict standards for organic certification (as in the case of Italy). While at the same time it has made difficult for small farmers, to improve their economic status

through agricultural trade. Furthermore, organic farming is practiced in most of the European Mediterranean countries: in the Eastern Adriatic and Southern and Eastern regions out of which Italy, Siberia, Spain, France, B & H, Greece, Portugal, Tunisia, Turkey, and Montenegro has the largest organic area in the region respectively since 2008. Thus organic farming provides new employment opportunities to different groups of the society: to farmers and especially to women because it is labor-intensive. However, the lack of technical and scientific knowledge restricted them to enjoy its benefits (Al-Bitar, 2008).

A study on Australia indicated that organic farming has both positive and negative effects. In fact, negative effects include decreasing soil fertility by excessive use of land and soil contamination due to the use of natural wastes, etc. Compared to that the positive points comprise of conserving biodiversity through avoiding synthetic fertilizer and improving soil health by addition of organic input etc. However, the positive points of organic agriculture are dominating the negative ones (Conacher & Conacher, 1998). Australian agriculture practices were discussed in a study, to evaluate the benefits of organic farming in comparison with conventional farming while considering the environmental aspects. It has indicated that the productivity of organic farming was low but the benefits of organic farming have demanded the modification in policies that could deal with the issue of low productivity and high cost of production (Gomiero, Pimentel, & Paoletti, 2011).

The need for the development of organic agriculture in Uganda have been recognized in the 2005 on government level through introduction of concept paper on organic agriculture for drafting the organic policy due to the export potential and

environmental friendly nature. The Uganda Export Promotion Board (UEPB), Uganda Coffee Development Authority (UCDA) and MAAIF have also shown interest to support organic agriculture sector through collaborating with IFOAM (e.g. coffee conference etc.). But these efforts are not enough to deal with issues in the development of the organic agriculture sector (Taylor, 2006). In Uganda, the introduction of schemes (organic certification) in the agriculture sector has provided higher return on coffee production. Additionally, the incentive on the sure price premium on the organic coffee production resulted in the form of increased producer's interest in organic farming. Ultimately the incentive policy can provide supportive ground for the organic agriculture promotion (Bolwig, Gibbon, & Jones, 2009).

The demand of organic products was analyzed in Kandy (Sri Lanka) based on the market potential and customer's willingness to pay for it. Awareness on the organic products was a most important factor which is increasing the demand of organic products based on the consumer's income level. The certification of organic products and availability to the nearest market are two factors which can also increase the demand of organic products. Ultimately it depends on the number of awareness programs for the promotion of organic products with the help of government and as well as private sector (Piyasiri & Ariyawardana, 2002). Moreover the problem in the success of agriculture policies of Sri Lanka can be due to the reluctant behavior of farmers to adopt these policies which resulted in the form of non-sustainable agriculture system. This problem can be handled through engaging farmers in the policy processes, research and extension services to make policies for the successful adoption of the policies (Senaratne, 2003). In the case of Sri Lanka, a study showed that the use of organic fertilizer can decrease the

expenses of producers because the organic fertilizers increase the holding capacity of the soil (Vengadaramana & Jashothan, 2012).

The IFOAM and FiBL report (2019) has provided some data (of 2017) on organic agriculture area, organic share of total agricultural land and number of organic producers in Pakistan, Sri Lanka, Uganda, Australia and Italy. Accordingly, figure no. 1 shows that Italy has the highest organic share (15.6%), Australia on second (8.8%), Sri Lanka on third (6%), Uganda on fourth (1.8%) and Pakistan has the least share (0.1%) out of the total agricultural area of the country. Furthermore, figure no. 2 shows that Australia has the largest organic agriculture area (35645038), Italy is on the second number (1908653), Uganda on third (262282), Sri Lanka on fourth (165553) and Pakistan has the least area (51304) under organic agriculture out of the five selected countries. Moreover, figure no. 3 shows that Uganda has the largest number of organic producers (210352), Italy is on the second number (66773), Australia on third number (1998), Sri Lanka on fourth (8703) and Pakistan stands on the last number (25) in terms of having number of organic producers in the country (FiBL and IFOAM, 2019).

Figure 1: Organic share of total agricultural area

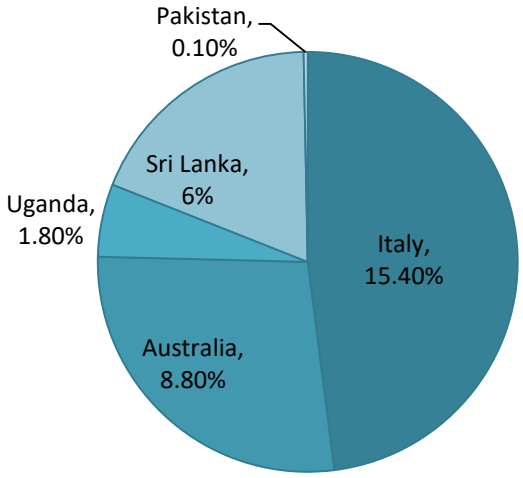


Figure 2: Organic agricultural area

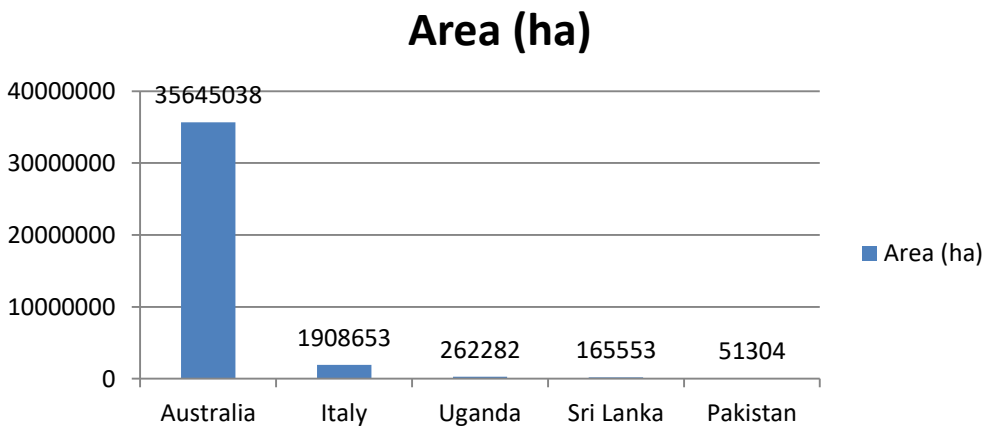
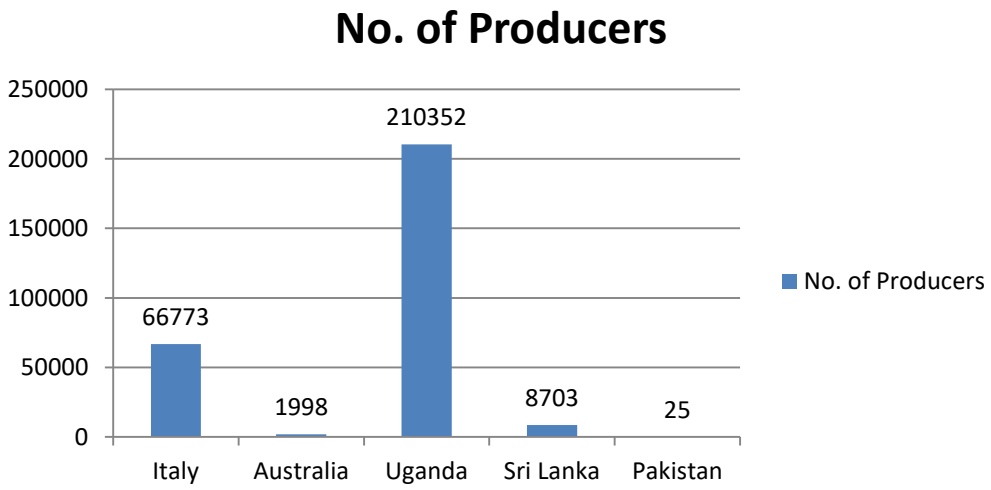


Figure 3: No. of organic producers



Source: FiBL & IFOAM- Organic International (2019): The World of Organic Agriculture

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However the data presented (figure 1-3) above shows that, every country has some unique aspects to deal with organic agriculture which are allowing them to perform better in one domain but not in other. As Italy has highest organic share, Australia has highest organic area and Uganda has highest number of organic producers. All counties are lacking behind each other in one or another category. So there is need to learn the reason behind this contradictory situation through analyzing their organic agriculture policies.

At the same time, regional differences in the agricultural sector of Pakistan are prominent due to the unsuitability of agricultural policies with the ground realities of local structure. As Baluchistan, KPK, Sindh, and Punjab; all of these provinces have different environmental conditions. At first Baluchistan and KPK bears non-sustainable agriculture output due to the use of limited fertilizers and the use of groundwater in the coastal area of Baluchistan. Whereas Punjab and Sindh have poor agriculture output due

to the use of excessive inorganic fertilizer and water shortage. However, the knowledge gap prevails in all the provinces which are not being properly channelized from research institutes and policymakers to farmers. Likewise bottom to the top-level approach of participation is also not in proper practice (Zulfiqar & Thapa, 2017). Furthermore, government's intervention (subsidy or exchange rate) in Pakistan's agriculture sector may result in the form of market imbalances which could discourage the private sector's participation in the finance sector. Moreover, sometimes the benefit of intervention could not be achieved by small farmers. Eventually, the situation is complex for decision-makers to make the best suitable decision for a diverse geographical area to support the market (Faruqee, 1995).

1.2 Problem Statement

In the past, the agriculture policies of Pakistan were apparently focused to increase the production of agriculture sector with the existing agriculture base which was not a sustainable approach. Additionally, a lot of publications are available on the profitability of agriculture; yield gaps of organic and conventional agriculture (De Ponti, Rijk, & Van Ittersum, 2012); comparison of conventional and organic agriculture (Samie, ABEDULLAH, AHMED, & KOUSER, 2010). In this modern era, policy demands innovative knowledge to make agriculture sustainable which is more linked with incorporating organic agricultural practices due to its relationship with the environmental and human health issues. However, the major barrier to practice is economical incompatibility for producers and consumers to afford at the moment. Unfortunately, organic agriculture is not well developed in Pakistan due to some barriers: low productivity, affordability issues for farmers and customers due to its high cost,

insufficient government support, lack of certification agencies and complex international certification standards. Additionally, the approach of having low productivity in organic farming is also a worldwide barrier.

Meanwhile, other regions of the world especially the USA, EU, and Mediterranean region are more passionate to align their agricultural policies with environmental standards for sustainable organic agriculture (Raynolds, 2004). Perhaps some discrepancies also prevail there in the form of political instability and high cost of organic certification. While in Pakistan; the use of inorganic fertilizers, pesticides, intensification, and improper product value addition, made it difficult for agricultural products to meet international standards of food safety e.g. cotton (Zulfiqar & Thapa, 2017). Furthermore, general health consciousness and subsequent demand for safe and healthy food have provided new directions for the development of organic agriculture. Moreover, there is a need to share the technical and scientific knowledge of organic agriculture practices among other regions, which is being used by the leading organic farming regions of the world. Partial organic agriculture is already in practice in Pakistan due to the limited affordability of producers to use synthetic fertilizers but that area is not acknowledged due to the insufficient certification data availability. So there is a need to learn new lessons from the experience of different organic farming regions for making agriculture sustainable by comparing the agricultural policies of Pakistan with Australia, Italy, Sri Lanka, and Uganda. These countries have some interesting aspects: similarity in weather conditions of Australia and Pakistan, the leading position of Italy in organic farming, struggling motive for organic agriculture of Sri Lanka and Uganda. But the

versatility in the dimension of organic agriculture policies can provide productive lessons for making the world's agriculture sustainable.

1.3 Research Objectives

This study aimed to:

- Compare the agriculture policies of Pakistan with Australia, Italy, Sri Lanka, and Uganda; to find out similarities, differences and versatile aspects in dealing with organic agriculture
- Identify opportunities for mutual learning in the organic agriculture sector
- Make policy recommendations for the development of organic agriculture of Pakistan based on best practices in the selected countries

1.4 The rationale of the Study

Pakistan has different agriculture policies after independence but these policies have not achieved huge success due to some aspect i.e. political instability, lack of awareness among stakeholders and unsuitability with the local demands etc. Moreover, the desire of developed as well as developing countries to align their agriculture policies with the environmental and health standards is leading them to mold their agriculture policies towards organic agriculture. EU countries hold a leading market position in the world which provides a chance for them to make their agriculture sustainable. Furthermore, the health problems (diarrhea, abdominal cramps, anxiety, neurological issues and skin problems etc.) due to the use of inorganic inputs in the food are creating increased demand for organic products in the markets. Pakistan need to focus towards strengthening of the organic agriculture sector though making sustainable policy

measures for this sector because it has a huge export potential. Most importantly the comparative organic agricultural policies are generally missing in literature and especially in this particular case for Pakistan whose comparison with Australia, Italy, Sri Lanka, and Uganda, have provided new lessons to learn and implement (unique practices) in organic agriculture sector. Subsequently, the latent content analysis of agricultural policies of Pakistan with these countries has provided productive lessons (similarities, differences, and innovations) to restructure the agriculture policies with versatile ideas. Additionally, the results of the analysis have provided diverse ideas for strengthening the organic agriculture market in the world and sustainable agriculture. Furthermore, it could help policymakers and researchers to understand the policy gap of this sector.

1.5 Organization of the Study

This study is organized in a comprehensive way. Firstly Introduction chapter comprises five sections: background of the research, problem statement highlighting the severity of the problem, objectives of the research, rationale of the study, organization of the study. Then in the second chapter of Literature Review, published literature has been presented in five sections for highlighting: the regional differences in organic agriculture development; issues, and obstacles in the development of organic agriculture; global compassion of organic agriculture policies and development; organic agriculture in Pakistan; synthesis of the literature review. Thirdly Material and Methods have been described in the third chapter that contains five sections: overall approach, selection of study area, criteria and indicators of policy analysis, estimation method of analysis, study approach and data collection sources. Fourthly in Results and Discussion chapter, results have been explained under nine criteria comprises thirty-nine indicators. Fifthly in

Conclusion and Recommendation chapter, conclusion has been made and recommendations are given based on the results of chapter four. Finally, Bibliography and Appendices (appendix 1 to 5) are given at the end of this document.

Chapter 2:

LITERATURE REVIEW

In this chapter published literature of different regions of the world has been presented to develop an understanding of the different approaches used in the world, to deal with organic agriculture. However multiple sections in this chapter explained the regional differences, issues and obstacles and global compassion for organic agriculture. Additionally, the literature on organic agriculture in Pakistan is also presented. Furthermore, the synthesis of the literature is also given at the end of this chapter.

2.1 Regional Differences in Organic Agriculture Development

There is a debate on the point that organic farming can produce enough food to fulfill human requirements or not. For this argument, research on the comparison of organic farming and conventional farming with the global food supply showed that the organic farming can feed the population on the same land base by conserving the soil fertility if the distribution of food is “equitable” (Badgley et al., 2007). Leguminous or cover crops could be used for nitrogen fixation avoiding the synthetic fertilizer. Furthermore, small farms showed better organic farming results as compared to large farms which could also help to reduce unemployment in the rural economy (Badgley et al., 2007).

The production, distribution and consumption patterns of organic products compared on the basis of social, economic, political and institutional setup that prevails in European and American markets (Raynolds, 2004). This exploratory study explained that power of certification and documentation prevails in the hands higher institutional

positions, which increased certification cost and make it difficult for Southern small farmers to participate in the process of production and ultimately it creates social distance in the system. The minimized certification cost for producer and consumer consciousness for better organic trade growth required for market stability (Raynolds, 2004).

Meanwhile, another case study discussed by (Campbell & Liepins, 2001) in which they have mentioned that the export industry has boosted up the growth of the organic industry during the 90s in New Zealand. Additionally a discourse analysis is done, in which organic standards were constructed and then circulated to evaluate the adaptability with respect to location.

The benefits of organic farming analyzed by examining the 22 years experimental data of Rodale Institute on different types of farming outputs (Pimentel, Hepperly, Hanson, Douds, & Seidel, 2005). In their study, they have mentioned that even if the labor input is high in organic farming but still it could provide the same returns as conventional farming due to higher market prices. Moreover, organic agriculture consumes 30% less fossil energy inputs, higher soil organic matter helps to pest control and conserves biodiversity. However conventional agriculture could be ecologically suitable by using traditional techniques in an efficient way.

While considering the African case study introduced an interesting concept of "Knowledge" and "Innovation" which will be a point of focus in farming. Additionally, the use of synthetic fertilizer is required to be avoided. Furthermore, policy decisions taken for agriculture should base on suitability with the concerned area rather than devising one solution for all the regions (N. E.-H. Scialabba, 2007).

A comparison of nutritional values of organically and conventionally grown vegetables and fruits has been given by (Bourn & Prescott, 2002) in which they argued that there is no clear evidence to prove that organic food has high nutritional values as compared to conventional and low resistance to diseases. Because it depends on the climate conditions and way of handling by the producer but certified organic products have low residues due to no use of synthetic fertilizers.

The producer and consumer in relation to the trade of organic products discussed by (Giovannucci, 2006). In which he argued that consumer and trade environment making it more difficult for organic producers to compete with the world standards due to the uncertainty in the process. Moreover, the high cost for consumers and producers may help certified organic producers to earn more without providing adequate standard products. Additionally, immediate effects will not be satisfied because it requires long-time commitment and knowledge for farmers to practice organic farming.

The choice of the consumer about the purchase of organic products is explored by a qualitative study on the consumer of the UK by (Padel & Foster, 2005). It has shown that initially fruits and vegetables purchased by consumers due to their health-consciousness but higher prices put a constraint on their decision to purchase. However, consumer choices specifically based on product segmentation were not explained in this study.

The difference in the yield of organic and conventional agriculture was explained by (De Ponti et al., 2012). In which he argued that yield from organic is 80% of the conventional farming but this difference varies from region to region. However, this yield

difference depends on the availability of leguminous crops for rotation, nutrients availability and water stress level. Accordingly, the availability of the above mentioned factors is required in sufficient amount to analyze the actual yield gaps in two methods for better understanding of the situation.

2.2 Issues and Obstacles in the Development of Organic Agriculture

The certification affects elaborated by (Michelsen, 2001) in his study. They argued that with the introduction of European certification, cooperation decreased among the bodies that govern the standards of organic production and ultimately affected the farmers. Meanwhile, the self-regulation of organic producers is an instrument that could be used for the solution of this problem instead of public policy.

Policies need to focus on the finance issues for production, the attitude of farmers and technology inputs for better agricultural practices because the motivation of farmers towards organic farming highly depends on these factors (Fairweather, 1999).

The comparison of the two largest organic markets (i.e. EU and the US) has done by (Dimitri & Oberholtzer, 2005). EU markets followed the policy of organic agricultural promotion through “green payments” and have more organic farms compared to the US market led by consumer demand for organic products and promote free-market but growing rapidly as compared to EU. So the rationale behind policy determines the success and failure of the market.

The consumer behavior of the US was analyzed about the US risk management tools for organic agriculture (Hanson, Dismukes, Chambers, Greene, & Kremen, 2004). In which they have indicated that appropriate education about crop insurance and

participation of farmers in the management policies will be beneficial to increase the level of organic farming. However, fruits and vegetable producers of conventional farming were more interested in risk management tools.

Meanwhile, a study elaborated that the non-involvement of smallholders in the certification process increased social distance among large and smallholders of organic products. For which a close relationship between producer and consumer is beneficial for the improved participation of farmers in the certification and market processes (González & Nigh, 2005).

A study on Australia indicated that organic farming also has negative effects (limiting nutrients and increasing acidity in soil) but its positive points dominate its negative points (sustainability). Additionally, the performance results vary due to the previous use of land with the conventional method but strong motivation may provide better results (Conacher & Conacher, 1998).

Here another study in Sri Lanka argued that the use of organic fertilizer can decrease the expenses of producers because the organic fertilizers increase the holding capacity of the soil (Vengadaramana & Jashothan, 2012).

Three aspects of organic agricultural promotion were introduced by (Guthman, 1998) in the study. These aspects include: initially certification agencies follow standards for producers, then standards selected by considering the economic, environmental and social impacts, lastly the legal rights for the market improve the participation in this sector.

2.3 Global Compassion of Organic Agricultural Policies and Development

Sustainable global food supply is discussed by (Premanandh, 2011). He argued that the sustainable global food supply for the population required the involvement of new technologies. Accordingly, the Political spirit and abundant investment are necessary to deal with the food shortage in developing countries in the world. Meanwhile, agreements need to be signed among different countries on food standards determinants, to deal with the effective solution of food safety problems for the future of our generations.

The economic, environmental, social, political and technological impact on the food markets system was analyzed by (Meulenberg & Viaene, 1998). In which importance of strategies like policy coordination, market orientation, innovation, and market leadership were of great importance. In this new era, product marketing through new technological channels increased its value. Moreover, now customer demands updated information about the products for the decision to choose among different options based on health and economics. Actually, the organic industry needed to incorporate all the aspects, to strengthen the market.

The concept of Sustainable Development gained importance in the past few years but confusion remained on the actual meaning of it which is explained by (Lélé, 1991). It explained that “Intellectual clarity” and “rigor” are required to avoid the political confusion and implementation of the actual concept of SD.

The difference in the policy and ground realities was highlighted by (Maxey, 2006). In which he argued that the policy and theory were not perfectly compatible with

the actual experiences and practices of farmers used in the food networks. Accordingly, for a better understanding of the issues of food market networks, change required to move from “alternatively” to “sustainability”.

The concept of sustainable development with organic agriculture was discussed by (Rigby & Cáceres, 2001). They have emphasized that the use of synthetic fertilizer is not an appropriate way to check sustainability. But it’s the farming practices that determine the sustainability level of the farming. Moreover, in the UK most of the farmers considered small farms as more suitable for organic agriculture (Rigby & Cáceres, 2001).

The different approaches to participation were introduced by (Pretty, 1995). However, some approaches may be beneficial or not for development. But public and scientific participation in decision making and analyzing are crucial for sustainable development. Moreover, decision making organizations need to be more decentralized, to synchronize with farmer’s desires for new professionalism.

2.4 Organic Agriculture in Pakistan

Some published literature on Pakistan can highlight the situation of organic farming in Pakistan which is given below:

A study in the area of Peshawar (Pakistan) indicated that the productivity of organic farming is influenced by the factors affecting the adoption of organic agriculture. Moreover, the factors: efficiency, productivity, profitability, cost, and compatibility are responsible for the decision of organic producers. However shifting from chemical

fertilizer to organic farming is beneficial for a sustainable environment and producer's income (Ullah et al., 2015).

Meanwhile, another study in Pakistan explored the role of women in organic farming in Pakistan (Panhwar, 1998). That study indicated that women can perform the agriculture activities like men (i.e. picking of cotton, fruits, and vegetables; weeds removal) because the pelvic bone in their body makes them able to move comfortably in the field. Moreover, women were already involved in agricultural family labor without salary. But the provision of equitable salary can improve the living standard of women and their families.

The nature of organic agriculture in Pakistan was discussed in research which indicated that organic agriculture is preferable for rural producers due to the limited input cost. In organic farming, high production achieved with organic inputs (crop debris and farmyard manure, etc.) rather than with chemical inputs which make them environmental friendly (Anjum et al., 2016).

2.5 Synthesis

The crucks of the literature review are given in the following section to summarize the situation for the understanding of the reader:

Firstly in section 2.1 of chapter 2, regional differences are explained as follows: organic agriculture is a good source of food supply due to the natural way of practice. As existing land base can be utilized efficiently with organic farming and the small landholder can perform better in this sector. Moreover, the minimization of certification cost is essential to make the organic farming market more stable by effectively regulating

the authority of higher institutional positions. Meanwhile, the importance of the location was recognized in New Zealand to evaluate the suitability of organic standards with the concerned location in the country. Furthermore, the knowledge and Innovation concept was explained in African research in a way that the policy decisions are required to be suitable with the local region's aspects of sustainable agriculture. Moreover, limited knowledge of producers about new trends in the market is constraining the creation of standards market.

Secondly, in section 2.2 of chapter 2, issues and obstacles in the development of organic agriculture are discussed as follows: The cooperation in responsible bodies of organic agriculture decreased due to the EU certification but self-regulation could be a good alternate for the better performance of the organic farming sector. Furthermore, the policy dimension matters a lot. The "Green Payments" in EU policy was responsible for a high number of farms. On the other side policy "Consumer Demand" for organic products and free-market helped the US to maintain a higher position in the market. Here three productive aspects for organic agriculture promotion were introduced: certification agencies follow the selected standards for producers, standards-based on economic, environmental and social impacts, legal rights for the market.

Thirdly in section 2.3 of chapter 2, global compassion for organic policies and development has discussed some approaches as follows: Initially, the global motivation is required for the sustainable food supply which could only be possible with international cooperation (political and financial) for implementation of universal standards including. Furthermore, different strategies for meeting market needs are recognized: policy coordination, market orientation, innovation, and market leadership. Sustainable

development has now included “Intellectual clarity” and “rigor” for implantation of the approach. An interesting concept of “alternatively” to “sustainability” was provided to remove the confusion between policy and theory and for the development of the agriculture sector. In addition, the involvement of public and scientific pillars in the process of decision making is an interesting approach to remove the gaps in the implementation process in the agriculture sector.

In section 2.4 of chapter 2, organic agriculture in Pakistan has discussed some points: Initially, some factors in Pakistan: efficiency, productivity, profitability, cost, and compatibility are responsible for the decision of organic producers. Furthermore, a study in Pakistan argued that their unique body structure of women has made them able to play a vital role in organic agriculture. Then an interesting aspect of Pakistan is that the limited financial resources of producers have made them able to avoid the use of chemical fertilizer which led them to the path of organic agriculture.

The world is now focused to follow the path of sustainable development. Accordingly, sustainable development has recognized organic agriculture as a sustainable way of the food supply. But policy differences in different regions are making them difficult to cooperate in this sector so learning from the successful experience required for world development.

Chapter 3:

MATERIALS AND METHODS

3.1 Overall Approach

The vast history of Pakistan agriculture comprises several government decisions but three concrete policy document presented to deal with the agricultural issues for this sector's development; The National Agricultural Policy (1991), The Agricultural Perspective and Policy (2004) and The Draft National Food Security and Agriculture Policy (2013). However, in this research, the comparative organic agriculture policy analysis of Pakistan has been done with four countries: Australia, Italy, Sri Lanka, and Uganda. Accordingly, the agriculture policy documents of all these countries have been analyzed based on the nine criteria and thirty-nine indicators mentioned in section 3.3. Finally on the basis of latent content analysis, results have been presented in chapter four.

3.2 Selection of the Study Area

Countries are facing multiple issues in dealing with the agriculture sector. The desire for sustainable agriculture is leading them to focus on organic agriculture. Therefore observing the struggle of different countries for organic farming through the literature review and IFOAM data set, five countries (Pakistan, Australia, Italy, Sri Lanka, and Uganda) were selected for the comparative analysis of organic agricultural policies. However, the environmental condition of Australia has some resemblance to Pakistan. Furthermore, Australia and Italy are performing much better in the field of organic agriculture in their regions according to FIBL and IFOAM report. (Willer, Lernoud, & Home, 2011). Uganda has struggling motive to develop organic agriculture

sector. Furthermore, According to IFOAM and FiBL reports, Pakistan and Sri Lanka are lacking behind and can learn lesson to realign organic agricultural policies for development of organic agriculture sector. Furthermore countries can learn better from the best examples available in the specific field i.e. Italy and Australia are the leading countries in the field of organic agriculture. Finally, it has provided beneficial knowledge to learn and implement unique practices in the organic agriculture sector of Pakistan

3.3 Criteria and Indicators of Policy Analysis

This study has conceptualized the policy analysis by following the research of (Memon & Thapa, 2016) in which mostly published literature was used to "analyze the situation of open access to public property by taking the case of mangroves". This research is based on qualitative data and sources for the data are policy documents, research reports, and websites of organic agriculture institutions and organizations of the selected countries. In this study, content analysis has been done based on 9 criteria and 39 indicators for the comparative policy analysis of five countries to determine the unique aspects of different policies. These criteria and indicators were selected on the base of certification requirements of the certification bodies and international organic bodies, research reports on the organic agriculture, domains of agriculture policies and data availability on the organic agriculture policies. These criteria and indicators are explained below:

3.3.1 Organic Agricultural Policy

In this criterion, six indicators (figure 4) are considered for the comparative analysis which is given as Independent organic agriculture policy, Organic agriculture

included in agriculture policy, Agriculture Policy has incorporated organic agriculture indirectly, Initiatives for organic agriculture in agriculture policy, Environment policy provisions in agriculture policy, other documents incorporating organic agriculture.

3.3.2 Food Security Policy

This criterion has considered one indicator as Food security policy incorporating organic farming in the policy (figure 4).

3.3.3 Fertilizer Policy

This criterion has considered one indicator as Fertilizer Policy highly supported organic fertilizer use (figure 4).

3.3.4 Political and Organizational Support

In this criterion, six indicators are considered (figure 4) as: Government bodies participation in the process, Other local organizations participation for the promotion of organic agriculture, International organizations/Bodies' involvement in the policy, International organizations /Bodies' role in promotion of organic agriculture sector, Private sector involvement in the policy, Private sector role in organic agriculture promotion.

3.3.5 Organic Standards

In this criterion, four indicators are considered as Presence of government agency for standards development and implementation, Presence of national organic standards, Following International organic standards, Role of organic agricultural research institutes in the policymaking and implementation (figure 5).

3.3.6 Organic Certification

In this criterion, eight indicators are considered as Promotion of organic products' certification, National Institute of organic agriculture, Presence of National organic logo, Presence of local certification agencies, Presence of foreign certification agencies, Following the International certification standards/criteria, Involvement of certification agencies in the policy, Role of certification agencies in the organic agriculture promotion (figure 5).

3.3.7 Economic Viability

In this criterion, four indicators are considered: Incentives to deal with high cost of production of organic products, Initiatives for consumers to deal with high prices of organic produce, Incentive for the promotion of exports of organic products, Improvement in credit market for organic agriculture (figure 5).

3.3.8 Feedback Mechanism

In this criterion, four indicators are considered as Initiatives for Farmer's awareness on policy measures, Inclusion of farmer's problems and views in policy, Initiatives for encouraging farmers' participation (by the government), Initiatives for increasing farmers' participation (by other organizations), Feedback mechanism to involve stakeholder in policymaking process (figure 5).

3.3.9 Extension and Marketing Services

In this criterion, four indicators are considered (figure 5) as Initiatives for extension services in the policy for organic agriculture, Initiatives for better market

functions, Initiatives for Innovation and knowledge dissemination, Organizations/Bodies providing extension service (other than policy document).

Figure 4: Criteria and Indicators

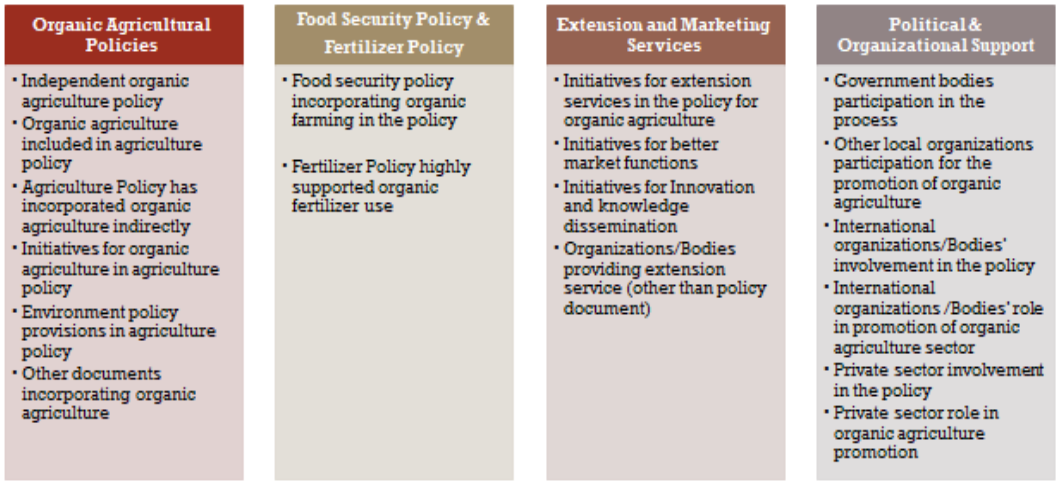
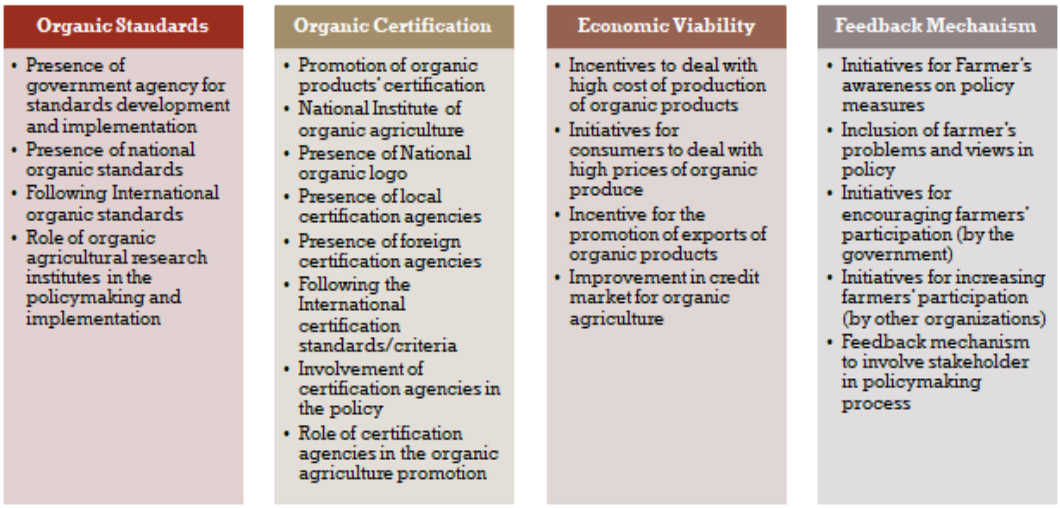


Figure 5: Criteria and Indicators



3.3.10 Cumulative Score

In this section, the total score of the criteria and indicators is discussed. The total number of 'Yes' in the results of the comparative analysis presented in the tables (1 to 9), is giving information about the level of support for organic agriculture sector in the five

countries (of this analysis). The country with the highest number of 'Yes' is having better support for organic agriculture sector (in comparison to other countries). The total possible score is 39.

3.4 Estimation Method of Analysis

The response to the criteria and indicators has been observed and presented with the words 'Yes' and 'No'. Then the results have been explained (under nine headings of criteria and indicators in fourth chapter) in the form of supporting points (of each country's unique practices and performance in organic agriculture) in order to explain reasons behind the response of analysis 'Yes' and 'No'. Ultimately the country with a higher number of Yes is performing better in organic farming than the other country with a low number of Yes. Additionally policy behavior in the country with higher score (number of 'Yes'), is providing supportive environment for the promotion of organic agriculture. This type of methodology has also been used in one published study (Pacini, Wossink, Giesen, & Huirne, 2004) to compare the economic, technical and environmental performance of conventional and organic farming methods in ecological-economic model. That study was done to support multi-objective policymaking applied in Tuscany. Another study (Viaggi, Raggi, & y Paloma, 2011) has also used this type of methodology to comprehend the reaction of decoupling of Common Agriculture Policy (CAP) on the investment behavior of farm household in eight EU countries (Italy, France, Greece, Hungary, Poland, Netherlands, Germany and Spain).

3.5 Study Approach and Data Collection Sources

This study has included five countries for comparative policy analysis: Pakistan, Australia, Italy, Sri Lanka, and Uganda. This study has used agriculture policy documents, research reports, and websites of the different organic institutions and organizations. Moreover, the latent content analysis of the policies has been done. These documents have been collected from websites of the relevant departments and institutions which are mentioned in the appendices section (appendix 1 Australia, appendix 2 Italy, appendix 3 Uganda, appendix 4 Sri Lanka and appendix 5 Pakistan). Furthermore, these documents have been analyzed on the base of nine criteria and thirty-nine indicators which are mentioned in section 3.3. Consequently, the comparative analysis has provided overall score and detailed theoretical knowledge on the unique practices of each country, in adoption of organic agriculture. Moreover, this analysis has provided opportunity to learn lessons from similarities and versatile aspects of policies regardless of having a different geographical area.

Chapter 4:
RESULTS AND DISCUSSION

4.1 Organic Agricultural Policy

According to the comparative analysis of this study, Pakistan, Sri Lanka, Uganda, Australia, and Italy have not introduced any independent organic agriculture policy (Table 4.1). However, Agriculture policy of Pakistan has incorporated promotion of organic and bio-fertilizers and pesticide (Table 4.1 and Figure 6). Additionally some more initiatives are mentioned in the policy for promotion of production of compost, certified production of bio-fertilizer and pesticide, minimize the use of inorganic fertilizers and pesticides in the light of international standards of FAO and WHO (see PD1 of appendix 5). Moreover Agriculture policy has also promoted organic agriculture indirectly (Figure 6). Some Initiatives are given in the policy as: promotion of kitchen gardening, rural poultry, medicinal plants, organic Integrated Plant Nutrition Management (IPNM), sustainable use of natural resources, improving the institutional performance through better departmental coordination with the agricultural stakeholders (see PD1 of appendix 5).

Similarly, Sri Lanka's Agriculture Policy has incorporated organic agriculture directly and indirectly (Table 4.1). As Agriculture policy has shown interest to: increase knowledge dissemination related to organic farming in the agriculture practitioners, encouraging home gardening for better human health (especially in urban areas), increase women involvement in home gardening, encouraging Integrated Pest Management (IPM) and Integrated Plant Nutrition Management (IPNM) in agriculture, discourage the use of inorganic fertilizer and synthetic pesticides through more production and use of organic

fertilizers and bio-pesticide, increase institutional support on control of pesticide regulatory mechanism by following the standards (on health and environmental issues) of Food and Agriculture Organization (FAO), Improve soil fertility through the application of Soil Conservation Act. These steps are mentioned in the policy to maintain a sustainable agriculture system in Sri Lanka (see SD1 of appendix 4).

Uganda's Agriculture Policy has also not incorporated organic agriculture, directly and indirectly, i.e. programs are not introduced in the policy specifically for the promotion of organic agriculture (see UW8 of appendix 3).

Australia's Agriculture Policy has not incorporated organic farming as a potential part rather it's more focused on increased productivity and exports. The department of agriculture and water resource has mentioned 'organic and biodynamic produce' on the website but its more about certification and labeling standards for exports and imports of organic products (see AW5 of appendix 1). Additionally, the Department of Agriculture and Water Resource (DAWS) of Australia has introduced a financial roadmap or policy called Agricultural Competitive White Paper in 2015 to make the agriculture sector more competitive and profitable for the economy. It's based on unique idea of incorporating the inputs from all the stakeholders (farmers, business practitioners, and community). In fact document is more focused on general agriculture practices and not provided any specific comprehensive program for organic industry promotion (see AD2 of appendix 1).

In the case of Italy, organic agriculture is not a prominent part of agriculture policy but it has indirectly incorporated it though some legislative decree and indirect

policy measures (Table 4.1). Development funds for the organic industry have been allocated in the Finance Act 2000. MiPAAF has introduced 'National Action Plan' in 2005 for the development of organic agriculture that constitutes: promotion of organic products in international markets, support of supply chain and trade, increase in the domestic demand and institutional communication, improving institutional system and service. National Action Plan (NAP) has also allocated about 4.7 million euros for the promotional activities through measures, promotion of bio in consumers and promotion of bio through collective organic catering. In the National Programme of Actions for organic farming (2008-09) has allocated 853,995 euros on inter-profession support and producer organization in 2011 (see ID1 of appendix 2).

Italy is following the Common Agriculture Policy (CAP) of the European Union which has two pillars. One is 'Direct (Greening) Payments' and the other is 'Rural Development'. In CAP 2007-2013, direct payments and rural development plan were made for national and local level (see IW9 of appendix 2). For these two domains, CAP 2014-2020 is providing support funds for the development of the agriculture sector that will ultimately provide a sustainable supply of food to the people of EU. Firstly the greening of the direct payment is linked with environmental and climate measures. The limitation to access these payments is to meet with Article 29 of Regulation (EC) No. 834/2007, which deals with production and labeling of the organic industry. This point infers that CAP is promoting organic agriculture indirectly in terms of environmental and climate measures (see ID1 of appendix 2). Secondly for pillar 2, in the proposed regulation of CAP for rural development, another article (Article 30) has been introduced for the promotion of organic farming. It deals with the cost of production issues of

organic farmers. It has decided to provide annual per hectare compensation funds for five to seven years to farmers which they will lose during conversion from conventional to organic farming. On the contrary, it has not clearly indicated the promotion of organic farming (specifically for the livestock sector) but indirectly some provisions support organic agriculture industry (see ID1 of appendix 2).

According to the environmental indicator, Agriculture policy of Pakistan has shown interest in incorporating the environmental aspects (Table 4.1). It has mentioned increasing production efficiency in agriculture sector by following the environmental standards (see PD1 of appendix 5).

In the case of Sri Lanka, Agriculture policy has also incorporated environmental provisions in the policy (Table 4.1). Encourage those practices and techniques in agriculture which are suitable with environmental desires i.e. increase community role in the production and use of bio-pesticides which is suitable for environmental health (see SD1 of appendix 4).

Uganda's Agricultural policy has incorporated environmental provisions (Table 4.1). Some policy measures are mentioned as: improve coordination of MAAIF with environment and natural resource sector stakeholders, and introduce programs to cope with climate change and other weather-related risk issues through policy measures, addressing the agricultural issues through "Environmental and Natural Resource Sector Investment Plan", improve coordination and performance of civil society for agriculture sector progress (see UD1 of appendix 3).

Australian Policy has incorporated environmental issues in its policy but the environment provisions are not specifically promoting organic farming (Table 4.1). National Drought Policy and Exceptional Circumstances Policy were incorporated together in agriculture policy to deal with the environmental shocks to agriculture production. The government is supposed to provide financial and technical support to farmers but it's possible in rare circumstances (see AD1 of appendix 1). Additionally the climate change policy has been linked with agriculture policy to make agriculture practices more beneficial and sustainable i.e. 'climate change adjustment program' to assist farmers in dealing with climate change effects (see AW5 of appendix 1).

In Italy, the farm support policy of agri-environmental measures linked to the implementation of the regulation (EEN) 2078/92 has led enormously to the development of organic farming in Emilia Romagna. From 1992 to 2012, the rural development policy has provided support (economically and institutionally) for the development of organic sector though making consumer's trust on organic products and improving the farm's strength in the organic sector which made Emilia Romagna as a national example for Italy (See ID1 of appendix 2).

In the case of other documents (incorporating organic agriculture) indicator, any other government document (except agriculture policy) of Pakistan has not promoted the organic agriculture (Table 4.1). Likewise, no other government policy document of Sri Lanka has incorporated organic agriculture as potential part of Sri Lanka's economy (Table 4.1). In case of Uganda, government has approved Uganda Organic Standards which is a legal guideline document for the promotion of certified organic agriculture through improving market trust (Figure 6). Furthermore some other government

documents of Australia have incorporated organic agriculture. The documents which are supporting organic agriculture are the National Standard for Organic and Biodynamic Produce, Australian Standard for Organic and biodynamic products AS 6000-2009 and Procedures for certification of organic and biodynamic products MP100-2009. These documents are approved by the department of agriculture and water resource which provide guidance for the certification of organic products (see AW5 of appendix 1). Moreover any other government document of Italy has not incorporated organic agriculture.

Synthesis

In conclusion, all five countries don't have independent Organic Agriculture Policies (Table 4.1). However the Agriculture Policies of Pakistan and Sri Lanka have mentioned organic agriculture and also promoted organic agriculture indirectly through some policy measures (Kitchen Gardening and Organic fertilizers). Conversely the Agriculture Policies of Australia and Italy have supported organic agriculture indirectly through the promotion of organic fertilizer, export of products and environmental payments. Furthermore the Uganda Policy has not incorporated organic agriculture indirectly. Secondly all the five countries have included environmental policy measures in the agriculture policy which can indirectly support the methods of organic farming (conservation of natural resources; avoid use of inputs which are harmful to environment and human health; environmental payment for agriculture sector). Thirdly the documents of National Organic Standards (other than agriculture policy) of two countries (Uganda and Australia) have incorporated organic agriculture. In contrast no other document

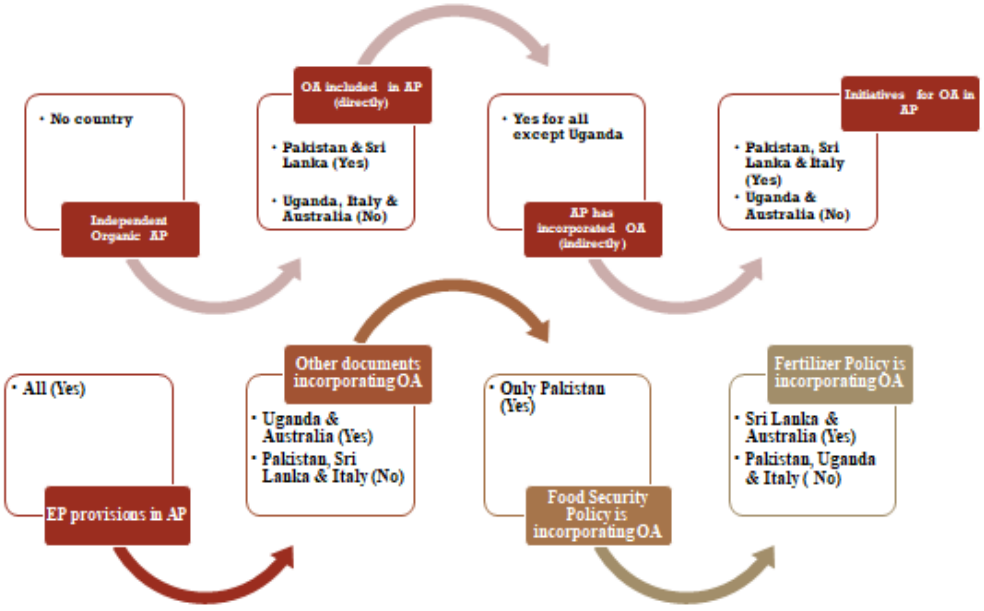
(other than agriculture policy) of three counties (Pakistan, Sri Lanka, and Italy) has significantly supported organic agriculture (Table 4.1).

Table 4.1: Organic Agricultural Policies

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
Independent Organic AP[a]	No	No	No	No	Yes
OA[b] included in AP	Yes	Yes	No	No	No
AP has incorporated OA indirectly	Yes	Yes	No	Yes	Yes
Initiatives for OA in AP	Yes	Yes	No	No	Yes
EP[c] provisions in AP	Yes	Yes	Yes	Yes	Yes
Other documents incorporating OA	No	No	Yes	Yes	No
Food Security Policy is incorporating organic agriculture	Yes	No	No	No	No
Fertilizer Policy is incorporating organic agriculture	No	Yes	No	Yes	No

[a]AP=agriculture policy; [b]OA=organic agriculture; [c]EP=environment policy
Source: Document Review

Figure 6: Organic Agricultural Policies



4.2 Food Security Policy

The Food Security Policy of Pakistan has incorporated organic agriculture (Table 4.1). Whereas it has more focus on food security (zero hunger programs, school feeding activities, controlled storage facilities, public-private partnerships in food systems) rather than on agriculture production and organic agriculture. It's promoting agricultural practices that are environmentally friendly and good for consumer health that has indirect effect on organic agriculture. It has not introduced huge programs or initiatives to support organic agriculture but only limited recommendation for the promotion of organic fertilizer production and agriculture (kitchen gardening) (see PD1 of appendix 5).

Agriculture Policy of Sri Lanka has included food security and organic agriculture provisions (Figure 6). But in comparison to Pakistan, it has less focus on food security. Food security has not prominently incorporated organic agriculture. But it is more focused towards some steps as: increase production to fulfil nutrition and food security requirements, to increase institutional capacity and infrastructure availability to regulate pesticide supply which is non-deteriorating for environment and human health in the country, application of Sanitary and phytosanitary measures and value addition in the agriculture sector (see SD1 of appendix 4).

Uganda has introduced the Global Food Security Strategy in 2018 (see UD4 of appendix 3). But it has not incorporated organic agriculture directly (Table 4.1).

Australia's Food security policies are not incorporating organic agriculture as a potential part (Table 4.1). These are more focused on food availability and productivity, climate change effects, women empowerment (economic), water availability, improving

business and policy environment and sustainable use of natural resources (see AW7 of appendix 1).

The food security policy in Italy is not specifically incorporating organic farming (Table 4.1). It is more focused on some other issues: food chains, zero hunger, climate change, sustainable food systems, and natural resource use, women and youth participation but indirectly some of these aspects have a positive impact on organic agriculture. As a sustainable food system ensures the food availability which is safe for human consumption, it relates to the organic farming methods (see ID3 of appendix 2). Italy and FAO have a historical background due to the presence of headquarter in its territory. This interesting aspect put a strong influence on the food security policy of Italy. It is also a key supporter of Codex Alimentarius; the International Plant Protection Convention (IPPC); The Committee on World Food Security (CFS); The Global Soil Partnership (GSP); the Voluntary Guidelines on the Responsible Governance of Land; Fisheries and Forest in the Context of National Food Security (VGGT).

Synthesis

In conclusion, Pakistan has included Food Security, Agriculture Policy and organic Agriculture in one document which is, directly and indirectly, supporting organic agriculture through promotion of organic fertilizer and pesticide and practices which are good for human health and environment. In contrast, the food security policies of other four countries (Sri Lanka, Uganda, Australia, and Italy) have not incorporated organic agriculture directly. However some measures can indirectly support organic agriculture

methods which are beneficial for human health (zero hunger programs etc.), resource conservation and environment (Table 4.1).

4.3 Fertilizer Policy

Some countries have independent fertilizer policy apart from agriculture policy. Pakistan has independent fertilizer policy but it is not well correlated with the latest agriculture policy. Pakistan had introduced Fertilizer Policy in 2001 and after seventeen years, Ministry of Industries and Production is negotiating with stakeholders to devise a new fertilizer policy but draft is still not finalized (see PW3 of appendix 5). The fertilizer policy of Pakistan (2001) has not incorporated the issues related to organic fertilizers (Table 4.1). However, it is more focused on the issues related to the production, distribution, import and export of the inorganic fertilizers (N, P, and K), the gas prices for production plants and subsidies for farmers (see PD2 of appendix 5). However Agriculture policy of Pakistan (2013) has shown some indirect initiatives to promote organic fertilizers (as mentioned in section 4.1) but the initiatives of fertilizer policy (2001) is not aligned with the agriculture policy which is exhibiting a confused picture for the promotion of agriculture sector.

Sri Lanka's Agriculture policy has supported the production and use of organic and Bio-fertilizer and pesticide (Figure 6). In addition to this policy has shown interest to decrease the use of inorganic fertilizer and pesticide, with the use of Integrated Pest Management (IPM) and Integrated Plant Nutrition Management (IPNM) to meet world food standards (see SD1 of appendix 4).

Secondly, the Regional Agricultural Research and Development Centre of Sri Lanka has started a campaign to provide awareness to community (farmers, consumers and other members of the society) on the benefits of organic fertilizer and hazards of inorganic fertilizers. It has also promoted the production of organic fertilizer with the improved registration facilities to organic producers with the help of Ministry of Agriculture (see SW5 of appendix 4). Thirdly and another institute of Sri Lanka, the SLSI has decided to provide a certificate to farmers on the use of organic fertilizer to discourage use of chemical fertilizer. Additionally it has decided to offer higher price for paddy on the use of organic fertilizer (see SW4 of appendix 4).

Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) of Uganda have introduced fertilizer policy in 2016 (see UD3 of appendix 3). However it has not tilted toward organic sector rather it supports the use of inorganic fertilizer (Table 4.1).

In the case of Australia, Department of Agriculture and Water Resource has mentioned three categories of fertilizers (chemical fertilizer, mined fertilizer and organic fertilizer) on their website (see AW5 of appendix 1). They have indicated organic fertilizer in the import and export rules of fertilizers but focus is more to avoid the contamination in fertilizer instead of promoting organic fertilizer (Figure 6). On other hand, Bureau of statistics acknowledged the ecological and production benefits of organic fertilizers and hazards of inorganic fertilizers and pesticides on the basis of a publication. The ‘sustainable’ aspects of Agriculture Competitive White Paper of Australia has challenged the policy ‘to increase the productivity of agriculture sector through inorganic fertilizer use’ and indirectly supported the organic fertilizer use due to environmental issues (see AW17 of appendix 1).

Additionally ‘Fertilizer Australia’ is a national association, working closely with the agriculture Department of Australia for regulating the quality of fertilizers in the country while considering the production demands and environmental issues. It is also providing training, knowledge, certification services and advice to the stakeholders (especially to farmers) of the fertilizer industry through a service called ‘Fertcare’. Manufactures, importers, and distributors are member of the body and providing major supply in the country (about 95 percent). This association is more focused to avoid the contamination in the fertilizer and efficient provision of fertilizers in the country. But it is not much enthusiastic about organic fertilizer promotion and delivery (see AW8 of appendix 1).

In the case of Italy, there is not any comprehensive fertilizer policy of Italy rather MiPAAF issues legislative decree to implement its guidelines. The legislative decree 75/2010 of Italy has implemented the regulation (EC) No. 834/2007 and (EC) No. 889/2008 which has permitted the number of inputs that are allowed to use in organic farming (see ID1 of Appendix 2). But this decree comprises guidelines on both organic and inorganic fertilizers (Table 4.1).

Synthesis

In essence, Fertilizer Policy of Sri Lanka and Australia has promoted the organic agriculture through the promotion of production and export of organic fertilizer (Australia); issuing of certificate for organic fertilizer producers (Sri Lanka) and promote the production and use of organic and bio-fertilizer and pesticide (Sri Lanka). On contrary, Fertilizer policy of Pakistan, Uganda, and Italy has not supported organic

agriculture. However Agriculture Policy of Pakistan has supported the use and production of organic fertilizers and pesticides but fertilizer policy (2001) has supported the use of inorganic fertilizers (N, P, and K). These two contradicting statements shows that the goals of fertilizer policy of Pakistan were not aligned with the agriculture policy which is hindering the development of organic agriculture sector in Pakistan. Furthermore some EU regulations in Italy have put some limitations on the use of fertilizers in organic agriculture (Table 4.1).

4.4 Political and Organizational Support

According to the first indicator, MNFSR of Pakistan has produced National Food Security Policy which is providing guidelines for the agriculture sector (see PW8 of appendix 5). It has included the promotion of the production and use of organic fertilizer (Table 4.2).

Sri Lanka's Agriculture Policy has indicated to increase coordination among government departments, producers, consumers and all Community Based Organizations (CBO) for the progress of agriculture exports and domestic industry (Figure 7).

In Uganda's Agriculture Policy, government bodies are not much involved in the promotion of organic agriculture (Table 4.2). However they are more focused towards production capacity of small farm holders, ecological management of agricultural resources, training programs for staff in agriculture department and local government, protecting labor laws, coordination and regulatory tasks management among different stakeholders (local government and MAAIF), service delivery, introduction of Secretariat for National Agriculture Sector and Rural Development (see UD1 of appendix 3).

The government of Australia is more focused on the export of agriculture products. But DAWR has provided support for the implementation of the National Organic Standards and approved six organizations for organic certification for the promotion of the organic industry (Figure 7). The transparency of the Australian institutions is the key factor that is responsible for a flourished agriculture sector in the world (see AD1 of appendix 1).

The Italian government department (MiPAAF) has not involved the private sector certification bodies and non-profit organization in the policy process but these are working independently for the promotion of the organic sector (Table 4.2). It is providing technical knowledge to the farmers, advocating the sector's strengths and weaknesses to the government departments and providing certification services to the stakeholders. MiPAAF is the Italian official body which is doing engagements with the organic organization at national and international level. It is a member of FederBio which is working efficiently for the promotion of organic farming through organizing different organic events and implementing national and international standards (see IW9 of appendix 2).

According to the second indicator, the National Institute of Organic Agriculture (NIOA) of Pakistan is sole government body linked to Pakistan Agriculture Research Council (PARC) which is specifically working for the promotion of organic agriculture in Pakistan (Table 4.2). It is providing information and training on organic practices; certification and marketing to the agriculture sector stakeholders (farmers, extension agents, and others) (see PW4 of appendix 5). Secondly, Extension Departments of Agriculture Division of Pakistan is providing services for the promotion of organic

agriculture and Kitchen gardening (Table 4) (see PW7 of appendix 5). Thirdly, Pakistan Council of Science and Technology has organized workshop on organic food benefits for human health and environment (Figure 7). It has shared research data with the participants for the promotion of organic agriculture (see PW9 of appendix 5).

The government bodies of Sri Lanka, Export Development Board (EDB) and SLSI are involved in the promotion of organic agriculture (Table 4.2). EDB is working with the Ministry of Agriculture for the organic policymaking and regulation-making process on the base of directions of IFOAM (see SW2 of appendix 4). Additionally Sri Lanka Standards Institute (SLSI) is also providing certification scheme for the organic producers in Sri Lanka based on the standards of ISO, Codex Alimentarius and IFOAM (see SW4 of appendix 4). Moreover, Lanka Organic Agriculture Movement (LOAM) is pioneer organization, working for the promotion of organic agriculture in Sri Lanka. It is providing awareness on organic agriculture to community, protecting organic standards and promoting organic products in Sri Lanka (see SW3 of appendix 4).

In case of Uganda, not any government body is involved in the promotion of organic agriculture (Table 4.2). There are some other local organizations are playing a role in the promotion of organic agriculture. NOGAMU is a leading organization working for the promotion of organic agriculture (see UD7 of appendix 3. Some NGOs, Kulika Uganda, SATNET and Caritas Uganda are also working for organic agriculture promotion. Some societies of Uganda (ACODE and PELUM) are working indirectly for organic agriculture promotion. RUCID Organic Agriculture Training College Research is also playing its role to understand and strengthen the organic agriculture sector (see UD6 of appendix 3).

Australian Agriculture department (DAWR) is supporting the organic agriculture sector through the accreditation of certification bodies and provision of import/export rules on organic fertilizer (see AW 5 of appendix 1). Additionally, organizations other than the government are working for the promotion of organic agriculture. Organic Federation of Australia (OFA) and the National Association for Sustainable Agriculture Australia (NASAA) are advocating the issues of organic agriculture sector with government and other international organizations (AW9 of appendix 1). Private and non-profit bodies (NASAA and AOL) are providing certification services to farmers and promoting organic agriculture in the country (Table 4.2). Moreover, A political party 'The Greens' have mentioned its aim for a decrease in the use of harmful pesticide and fertilize, labeling of all foods and ecological sustainability (AW6 of appendix 1).

In Italy, MiPAAF (government body) is implementing CAP and EU standards for the development of the agriculture sector. Moreover, AIAB is pioneer association of producers, consumers, technicians of Italy which is providing services for the promotion of organic farming. It has developed own standards which are more strict than the EU standards. It's providing a guarantee for the organic products in the country which are beneficial for animal welfare, sustainable environment, and health of the consumer. It is involved in the making of bio districts (an area decided for organic products promotion), organic canteens, educational bio-facts, buying groups and producer's offer groups, organic shops in supermarkets, markets, and fairs and AIAB Garanzia (see IW6 of appendix 2). Additionally a research institute, CIHEAM-IAMB is providing technical research knowledge and training workshops to the practitioners of the organic industry at national and international level (see IW11 of appendix 2).

According to third and fourth criteria (Figure 7), International organizational are playing role in the organic agriculture sector of Pakistan. As the IFOAM standards are followed by the NIOA (government body) for the certification of products, standards development, and accreditation of control bodies (see PD4 of appendix 5). However other international organizations are not directly involved in the promotion of organic agriculture in Pakistan. Additionally agriculture policy of Pakistan has shown affiliation to follow the commitments with the SDGs through some programs i.e. Zero hunger, Kitchen gardening, rural poultry (see PD1 of appendix 5).

In the case of Sri Lanka, International organization IFOAM is influencing Sri Lanka's organic industry through the application of its standards i.e. EBD is following the IFOAM standards for the production; certification and export of organic products (see SW2 of appendix 4).

In the case of Uganda, International organizations are not much involved in the policymaking and implementation process. In fact, some bodies (IFOAM, EPOPA, DED, CBI, HIVOS, and ITC) are involved in export marketing, promotion, capacity enhancement and promotion of organic agriculture (see UD6 of appendix 3).

In case of Australia, international organizations i.e. IFOAM (IOAS) is cooperating with Australian certification organization for the promotion of the organic industry through inspection of the implementation of standards and training of national certification bodies to meet with world market (AW14 of appendix 1).

IFOAM is an international body that is supervising and inspecting the organic sector performance of different countries of the world. IFOAM has the International

Organic Accreditation Service (IOAS) which is responsible for the accreditation of certification bodies of Italy and the rest of the world. It has also recognized the standards of Garanzia AIAB (Italian organization) (see IW10 of appendix 2).

According to the fifth and sixth criteria (Table 4.2), private sector of Pakistan is not actively involved in the policy-making, for the promotion of organic agriculture sector (Table4) (see PD1 of appendix 5). Good Earth is an individual Pakistani organic private organization that is member of IFOAM. It is providing some services for the strengthening of organic agriculture sector as research data, knowledge and certification ease, extension services, market opportunities, healthy organic food products to consumers (at Lahore, Islamabad, Multan, and Khanewal), agriculture machinery (tractor) sharing facility among farmers (Table4). It is more focused on the benefit of small scale rural organic farmers in the country (see PW5 of appendix 5). Moreover private sector (Inqalab Organic shop) of Pakistan has arranged an event "Organic Bazaar (Lahore)" in 2018 for the promotion of organic products and to generate connection between producers and consumers (see PW13 of appendix 5).

Sri Lanka has involved the private sector in the agriculture policy making and implementation through involvement of all stakeholder for the development of agriculture sector (Table 4.2). Unfortunately it is not involved specifically for organic agriculture promotion (see SD1 of appendix 4). However private companies of Sri Lanka are producing organic products i.e. Lanka Organic (Private company) producing and exporting major portion of organic product and also promoting organic agriculture of Sri Lanka in the country and in international market (see SW6 of appendix 4).

The private sector of Uganda has given the opportunity to engage with government department for policy making and implementation through dialogue and public-private partnerships but it's not focused on organic agriculture (see UD1 of appendix 3).

The private sector of Australia i.e. certification organizations is the leading stakeholder which is working really hard in collaboration with international bodies i.e. SAI Global, Legal vision and IFOAM to strengthen the organic market (Table 4.2). Additionally, one private body (Australian Organic Brands Pty Ltd) is involved in research and education activities for the improvement in organic products (raw and finished), promotes certified organic and eco-friendly farming (see AW19 of appendix 1).

In the case of Italy, there are some local private organizations are also working for the promotion of organic farming (Figure 7). FederBio and AIAB are working for the development of the organic sector. FederBio is federation of organizations for the organic and biodynamic sector (certification agencies, producers, distributors, organic organizations) in Italy which is a member of IFOAM and responsible for the accreditation of certification agencies. It is responsible for: institutional representation of the sector at national and international level, engagements with government departments, legal action against national and international entities, pressure building and agreements with private sector for the promotion of organic industry and implementation of EU organic standards linked with the Rural Development Plans in the region (see IW7 of appendix 2).

Synthesis

To summarize, Pakistan has three government bodies (NIOA, Extension departments and Pakistan Council of Science and Technology) that are working for the promotion of organic agriculture. Likewise Sri Lanka has two government bodies (EDB and SLSI) and one non-profit organization (LOAM) which is promoting organic products' certification and organic agriculture. In case of Uganda no government body is involved in organic agriculture promotion. However about seven local organizations (NOGAMU, Kulika Uganda, SATNET, Caritas Uganda, ACODE, PELUM, RUCID) are working for the development of organic agriculture sector in Uganda. Moreover in Australia, Agriculture department (DAWR) is promoting organic agriculture through accreditation of certification bodies and information on organic fertilizer's export and import. Additionally two non-profit organizations (NASAA and OFA) and one private organization (AOL) is working for strengthening of the organic agriculture sector. In case of Italy, government body (MiPAAF) is following the CAP for the strengthening of the process. Additionally one non-profit organization (AIAB) and one research institute (IAMB) are working prominently for the promotion of organic agriculture sector in the country (Table 4.2).

Secondly, the International organization is not much involved in the policymaking process of Australia and Uganda but IFOAM is providing support in the promotion of organic agriculture through standard development of the local organization and certification bodies. In contrary International organization (IFOAM) is involved in the policymaking process of Pakistan and Sri Lanka through providing technical guidance on standards development and certification on organic agriculture but not actively involved

in the promotion of organic agriculture with other organizations. Moreover in Italy, EU regulations and standards are actively participating in the policymaking and promotion of organic agriculture (EU logo for organic products). Moreover IFOAM standards are also followed by the local certification bodies (Table 4.2).

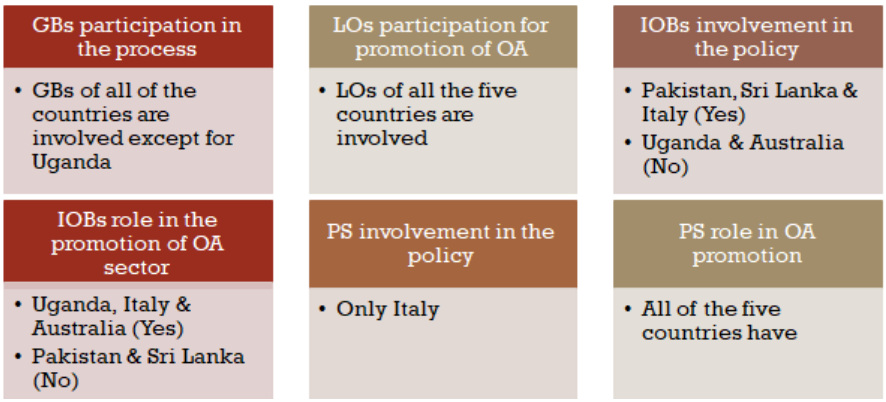
Thirdly Private sector of Pakistan, Sri Lanka, Uganda, and Australia is not much involved in the policymaking process but Italy has involved the private sector in the policy-making (CAP). However private sector of all the five countries is involved in the promotion of organic agriculture (other than the policy-making) through providing awareness campaigns, training sessions and certification services (Table 4.2).

Table 4.2: Political and Organizational Support

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
GBs[a] participation in the process	Yes	Yes	No	Yes	Yes
LOs[b] participation for promotion of OA[c]	Yes	Yes	Yes	Yes	Yes
IOBs[d] involvement in the policy	Yes	Yes	No	No	Yes
IOBs role in the promotion of OA sector	No	No	Yes	Yes	Yes
PS[e] involvement in the policy	No	No	No	No	Yes
PS role in OA promotion	Yes	Yes	Yes	Yes	Yes

[a]GB=government bodies; [b]LO=local organizations; [c]OA=organic agriculture; [d]IOB=international Organic Bodies; [e]PS=private Sector
Source: Document Review

Figure 7: Political and Organizational Support



4.5 Organic Standards

According to the first criterion (Table 4.3), Pakistan has National Institute of Organic Agriculture (NIOA) which is working for the promotion of organic agriculture through providing knowledge and training on organic practices, certification procedures, and marketing. But it is not providing adequate services in comparison with the world's competitive market. Additionally Pakistan has two more government bodies named as Pakistan National Accreditation Council and Pakistan Standards and Quality Control Authority. These two bodies are also working for the quality enhancement and standards development in the agriculture sector of country (see PD10 and PD11 of appendix 5).

Sri Lanka has two government bodies (EDB and SLSI) which are working with the Ministry of Agriculture for the organic regulation, standards and certification maintenance in the country (Figure 8). EDB is also working for the organic policymaking and promotion of organic agriculture with the Ministry of Agriculture (see SW2 of appendix 4).

Uganda has two governing bodies for the national standards development and implementation (Table 4.3). Uganda National Bureau of Standards (UNBS) has introduced Uganda Organic Standards. Uganda Export Promotion Board (UEPB) has presented presidential award category for the organic export (see UW8 of appendix 3).

In the case of Australia, Organic Industry Standards and Certification Council (OISCC) and DAWR of Australia are responsible for the implementation of 'National Standard for Organic and Biodynamic Produce (Figure 8). They are working together for continuous improvement in the trust of international market and local consumers. The

National Standards Sub Committee (NSC) has a liability to suggest changes in the national standards to Organic Industry Standards and Certification Council (OISCC) for the sustainability of agriculture sector (AW13 of appendix 1). Moreover, Australian Competition and Consumer Commission (ACCC) is a government body that is also working with the agriculture department for the implementation of the national standards. It is responsible for the fair competition in the market according to the Competition and Consumer Act 2010 (see AW21 of appendix 1).

In case of Italy, European Union (EU) Commission has the role of supervision to all the countries of Europe and linked with one responsible department in each country through regular audit and report submission on organic farming to maintain the trust and quality in the organic sector (see IW9 of appendix 2). MiPAAF is a government body, responsible for the amendment and implementation of the national and international agriculture standards in Italy through a ministerial decree (see ID1 of appendix 2).

According to the second criterion (Table 4.3), Pakistan has not introduced national organic standards. Sri Lanka has not produced national organic standards. Uganda has national Organic Standards (UOS) which provides guidelines for; certification, practices, and export of organic agriculture (see UD2 of appendix 3). In the case of Australia, the Department of Agriculture and Water Resource of Australia has approved 'National Standard for Organic and Biodynamic Produce' which defines all the requirements to be a part of organic agriculture sector. These standards were introduced in 1992 and revised in 1998 which includes information regarding labeling, certification, import and export of organic products (See AD3 of appendix 1). There is no strict restriction on the certification for domestic organic products but the department of export

certification made the necessary application of these standards at the time of export. (See AW5 of appendix1). Likewise in 2009, all the organic stakeholders in Australia (certifiers, retailers. consumers, government bodies and manufacturers) have made a committee and presented standards: Australian Standard for Organic and biodynamic products AS 6000-2009 and Procedures for certification of organic and biodynamic products MP100-2009. These standards are approved by the department of agriculture and water resource which provide guidance for the certification of organic products (see AW5 of appendix 1).

Italy has not comprehensive national organic standards document (Table 4.3). However, Italy is following the EU legislation and standards for the organic production and certification but there are some provisions and amendments present at a national level (Legislative decree 220/1995 and Regulation (EEC) 2092/91, etc.). EU regulations (EC) 834/07 on organic production and labeling of organic products and regulation (EC) 889/08 are authorized by the MiPAAF. The agreement for equivalency between USA and EU blocks (EU regulation 126/2012) allows more Non-EU Countries (Australia, USA, Switzerland, Argentina, Canada, India, Israel, Japan, Costa Rica, New Zealand) to import organic products based on corresponding standards (see ID1 of appendix 2).

There are two local private organizations in Italy which have their own standards which are stricter than the EU standards i.e. Grnanzia AIAB and Garanzia Biologico AMAB (IW9 of appendix 2). These standards are approved by the IFOAM and aligned with its basic standards and guidelines and also consistent with the EU regulation 2092/91. Their guarantee holds much trust at the national and international levels for organic products (see IW10 of appendix 2).

According to the third indicator (Figure 8), NIOA (Pakistan's government body) is following the IFOAM standards for organic product certification, standards development and control bodies accreditation in the country (see PW4 of appendix 5).

EDB and SLSI of Sri Lanka are following the international organic standards of IFOAM, Codex Alimentarius and ISO (see SW2 of appendix 4).

The national standards of Uganda are following the international standards of IFOAM and EU (Table 5) (see UD5 of appendix 3).

Australia has a positive intention to follow the international standards of IFOAM (Table 4.3). NASAA was the first certification body of Australia which was accredited to the IFOAM standards in 2000. It was providing certification services for various organic products. Additionally, Australian standards have made necessary for the export of agriculture products to meet with the standards of host country (see AD4 of appendix 1).

Italy is following the EU standards for organic production, certification, and export. MiPAAF is responsible for amendment and implementation of these standards through legislative decree.

The fourth indicator has provided that the National Institute of Organic Agriculture (NIOA) working under the Pakistan Agriculture Research Council is providing research data (theoretical and practical) and knowledge on the emerging agriculture practices (Table 4.3). This data is used by the government agriculture departments in the policymaking process (see PW12 of appendix 5). In the case of Sri Lanka, research institutes are not included prominently in the organic agriculture policy and standard making and implementation (see SD1 of appendix 4). Moreover, the

Government department of Uganda (MAAIF) has involved NOGAMU in the process of organic standards development and organic policymaking which is still under process but not finalized (see UW7 of appendix 3).

Australian Organic Limited (AOL) is a leading organic body that is promoting organic agriculture through protection, research, and education activities and advocating the organic sector issues to the government bodies and international platforms (Table 4.3). It also holds the oldest recognized organic 'Bud' mark which has much integrity in the pure organic products market of Australia (see AW12 of appendix 1). In the case of Italy, AIAB and FederBio are the Italian prominent bodies which are working for the promotion of organic farming. CHIHEAM-IAMB is also contributing to the research and training in the field of organic farming (Table 4.3). These bodies are linked with the certification bodies, producer organizations, consumers, technical lobbies, represent as sector representative to the MiPAAF and other platforms to support the organic industry. These bodies are organizing different events and projects (bio districts and training workshops) with the government bodies for the promotion of organic farming and in that way participating in the policymaking process by presenting the loopholes of this sector (IW9 of appendix 2).

Synthesis

In conclusion, the organic standards have strong influence in the development of organic agriculture sector. Because it provides the basic guidelines for the practice of organic farming and conversion from conventional to organic farming. In case of Pakistan organic standards are not recognized. However NIOA is following the IFOAM

standards for the practicing of organic agriculture (See PW of appendix 5). The absence of organic standards is not providing sufficient legal support to organic practitioners.

Pakistan has one government organic agriculture institute (NIOA) and two government bodies (Pakistan National Accreditation Council and Pakistan Standards and Quality Control Authority) which are working for standards development and quality assurance. Similarly, two government bodies (EDB and SLSI) of Sri Lanka are actively involved in the promotion of organic agriculture (certification, export, standard and policy development). Likewise two government bodies of Uganda, Uganda National Bureau of Standards (UNBS) has introduced Uganda Organic Standards and Uganda Export Promotion Board (UEPB) is involved in the promotion of exports through implementation of organic standards. Moreover Australia has three government bodies, Organic Industry Standards and Certification Council (OISCC); The National Standards Sub Committee (NSsC) and Australian Competition and Consumer Commission (ACCC), which are working with the Agriculture department (DAWR) for standards development and implementation of organic standards. In case of Italy, MiPAAF (agriculture government body) is responsible for the amendment and implementation of EU organic standards through ministerial decree (Table 4.3).

Secondly, Pakistan and Sri Lanka have not National Organic Standards and following the IFOAM standards for certification and promotion of organic agriculture sector. On the contrary, Australia and Uganda have introduced the National Organic Standards for the promotion of organic certification. However Italy is following the EU standards and CAP for the certification of organic products and MiPAAF has done amendments (by ministerial decree) related to EU regulation on organic agriculture for

the promotion of organic agriculture. Thirdly all the five countries are following the international standards of IFOAM in the national standards development, certification, export and promotion of organic products (Figure 8).

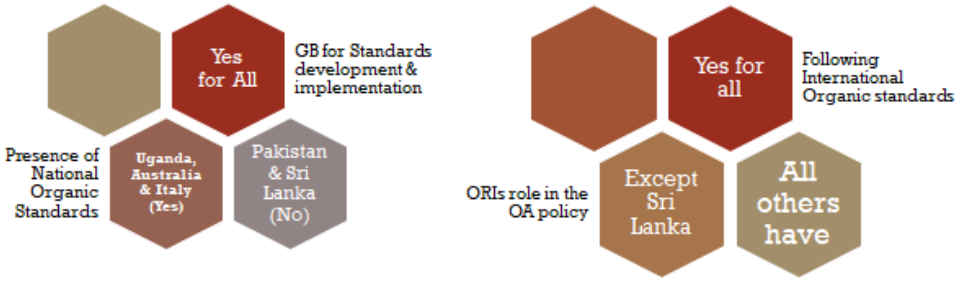
Fourthly the research institutes of Pakistan (NIOA), Uganda (NOGAMU), Australia (AOL) and Italy (IAMB) are involved in the promotion of organic agriculture and policy-making and implantation through providing research knowledge and training input to the agriculture stakeholders on organic agriculture. However research institutes of Sri Lanka are not actively involved in the policy process on organic agriculture (Table 4.3).

Table 4.3: Organic Standards

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
GB[a] for Standards development and implementation	Yes	Yes	Yes	Yes	Yes
Presence of National Organic Standards	No	No	Yes	Yes	Yes
Following International Organic standards	Yes	Yes	Yes	Yes	Yes
ORIs[b] role in the OA[c] policy	Yes	No	Yes	Yes	Yes

[a]GB=Government Body; [b]ORI=Organic Research Institute; [c]OA=Organic Agriculture
Source: Document Review

Figure 8: Organic Standards



4.6 Organic Certification

The first indicator of this criterion has explained that the Agriculture Policy of Pakistan has incorporated the promotion of certification and accreditation of organic products in the country (Table 4.4) (see PD1 of appendix 5). Moreover, the membership of Good Earth (private organization of Pakistan) in IFOAM has shown country's market interest to promote organic agriculture (see PW5 of appendix 5).

Agriculture Policy of Sri Lanka has supported the certification of agriculture products to increase competitiveness in the international market (see SD1 of appendix 4). Moreover, Uganda has approved national organic standards (Figure 9). It has also involved organic promoting organization (NOGAMU) in the policymaking process and organic standard development for the promotion of organic agriculture sector (see UW7 of appendix 3).

In Australia, the private organizations (nonprofit organization and certifiers) in Australia are playing their strong role to strengthen the organic industry in Australia (figure 9). This sector is working for advocacy to government institutions, collaborating with international organic organizations, providing help for organic standards improvement and implementation. But government institutions are not producing adequate policies in the promotion of the organic industry. On the contrary, government policies are more focused on export standards of products not specifically organic. According to IFOAM, Australia devoted the highest share of its area to organic agriculture and the private sector in Australia is more interested in organic agriculture.

Due to which organic sector is flourishing in Australia besides having low government support (see AD4 of appendix 1).

Italy has sixteen local and international control bodies authorized by MiPAAF which are providing certification and other services for the organic sector (Table 4.4). These certification bodies are following the IFOAM and EU standards. It has well-reputed organizations i.e. FederBio and AIAB which is promoting organic farming. These are also advocating the organic sector issues to government bodies for policy inputs and sector development. It is mandatory for Italy to use the EU logo on the organic products for export or use AIAB Garanzia for local guarantee.

According to the second indicator (Table 4.4), Government of Pakistan has shown interest in support organic agriculture sector through establishment of National Institute of Organic Agriculture (NIOA). NIOA is working for the strengthening of organic agriculture sector and delivering some services as: trainings and knowledge sharing on the production and use of organic fertilizers and pesticides, marketing ease for farmers, certification guidance with international bodies, technical support on organic agriculture for the agriculture practitioners (farmers, extension workers and others) (see PW4 of appendix 5).

Sri Lanka has not yet introduced any specific institute for the promotion of organic agriculture but EDB is working prominently for the promotion of organic products of Sri Lanka (See SW2 of appendix 4).

Uganda has leading and pioneer movement (NOGAMU) which is working for the advocacy to government and private platforms, certification, marketing and promotion of organic agriculture sector (see UW7 of appendix 3).

National Association for Sustainable Agriculture Australia (NASAA) is the most respectable and deep-rooted non- profit entity which has a strong position in the policy and advocacy to the government bodies for the representation of the organic sector. It is involved in lobbying and implementation of national standards for the promotion of organic sector (Table 4.4). It has its own Organic and Biodynamic Standards aligned with national standards (see AW9 of appendix 1). Additionally another non-profit body comprising different stakeholders, Organic Federation of Australia (OFA) is involved in the advocacy role to the federal government and agriculture bodies for the promotion of the organic sector (Figure 9). It is coordinating with all the practitioners of organic sector to strengthen the market and provide benefits to the producers, consumers, retailers and national market (see AW10 of appendix 1).

MiPAAF has launched the National Information System of Organic Agriculture (SINAB) which provides information to all the stakeholders for the development of the organic agriculture sector (Table 4.4). Institute of Services for the Agriculture Food Market (SMEA) and IAMB has the responsibility to handle this system through providing research data and information on organic activities in the country (see IW8 of appendix 2). Furthermore, two non-profit bodies of Italy: AIAB, FederBio are the leading bodies. These are working for the promotion of organic farming through collaborating with MiPAAF, providing technical guidance to control bodies and producers, Bio districts promotion, and service provision to international bodies (see ID2 of appendix 2).

The third indicator has explained that NIOA has introduced a national logo for the organic products of Pakistan which is showing the names of Pakistan Agriculture Research Council (PARC) and NIOA (Table 4.4) (see PW4 of appendix 5). In case of Sri Lanka, it has not introduced any national organic logo for the organic product's promotion but Lanka Organic Agriculture Movement (LOAM) is advocating with the government bodies for the introduction of national organic mark for the organic products of Sri Lanka (see SW3 of appendix 4). Furthermore, Uganda has not introduced any national organic logo (Table 4.4). Different certification agencies are using their own logo for the presentation of organic products (see UD5 of appendix 3).

Similarly Australia has not any recognized national organic logo or mark yet but efforts are in progress to introduce national mark for organic products (Table 4.4). Organic Federation of Australia is working with the OISCC to launch a national mark for organic products to boost up the organic industry of Australia at local and international market. ACCC has approved 'National Organic Mark' and it has been submitted to government department (IP Australia) for further legal approval and afterward it will be launched for implementation (see AW10 of appendix 1). Some organic producers are using different EU and USA logos for trade and some certification agencies have their own logo and standards i.e. ACO has approved logo (oldest well recognized organic mark 'Bud') with IP Australia to use on organic products which provides trustable guarantee in the Australians organic market (See AW16 of appendix 1). Likewise Italy has also not introduced any national logo for the organic products and due to the EU standards. "Euro Leaf" (EU logo) is used for organic products to export in the world (Table 4.4). It is started in 2010 and now all organic products must have to carry in

Europe for sale. AIAB (Italian organization) is using the Garanzai AIAB logo for the guarantee of organic product which has a prominent recognition at national and international level (see IW8 of appendix 2).

According to the fourth and fifth indicator (Figure 9), Pakistan has not any local body for the provision of certification services in agriculture sector. Whereas it has three foreign IFOAM accredited certification bodies (international) providing certification services in Pakistan's agriculture sector named as Organic Food Development and Certification Center of China (P.R. China), LETIS S.A (Argentina), Biocert International PVT Ltd. (India). It has one more International certification body Institute of Market Ecology (IMO) of Switzerland but it's not accredited with IFOAM (see PW6 of appendix 5).

Sri Lanka has one local government body i.e. Sri Lanka Standards Institute (SLSI) which is providing a certification scheme for the organic producer in the country (Table 4.4). But mostly the foreign certification bodies are providing services in Sri Lanka. Sri Lanka has about eight foreign international certification agencies which are providing certification services named as: NASAA (Australia), Naturland (Germany), SKAL (Netherlands), Demeter (Switzerland), Institute of Market Ecology (IMO, Switzerland), Bio Suisse (Switzerland), Organic Farmer and Grower Ltd. (United Kingdom) and ECOCERT (Germany) (see SW2 of appendix 4).

Uganda has a local certification agency: Ugocert. It has foreign certification agencies: Imo, Swedish KRAV, SGS, BCS, ECOCERT and the Soil Association (Figure

9). These agencies are providing certification services for the Uganda organic products (see UD6 of appendix 3).

The DAWS of Australia has approved six Australian certification bodies and no foreign body is approved but one foreign certification body, Organic Food Development and Certification Centre of China (IFOAM accredited) is providing services in Australia (Table 4.4). The name of DAWS approved certification bodies are: NCO of NASAA, Australian Certified Organic (ACO), Bio-dynamic Research Institute (BDRI), AUS-QUAL, The Organic Food Chain (OFC) and Southern Cross Certified Australia Pty Ltd. (SXCA). These bodies are providing certification services for the organic products at national and international level (see AW5 of appendix 1). Moreover, SAI Global is another international body which is providing certification services, agriculture standards guarantee and risk management solutions to the different organizations for the organic and other products (see AW5 of appendix 1). Furthermore, Legal vision is an Australian body which is providing legal solutions for the implementation of organic standards for the promotion of this emerging industry (see AW20 of appendix 1).

In the case of Italy, MiPAAF has authorized sixteen control or certification bodies for the certification of organic products in the country to promote organic products and transparency in this sector (Table 6). Out of sixteen, about thirteen bodies are local: Q certification, ICEA, SIQUIRIA SPA, SIDEL CAB SPA, Valoritalia, Ecogrupppo Italia, CODEX, Bioagricert, BIOS, CEVIQ, Soil & Health, IMO and CCPB. Three are three foreign control bodies: QC & I (German), ABCERT (Italian and German) and BIKO Tirol (Austria). These bodies are providing organic certification, training programs, technical guidance, and other services to Italian and international organic producers.

Some priority areas of certification are organic wine, vegetables, livestock, preparation, imports, and aquaculture (see IW8 of appendix 2).

In the sixth indicator of international scenario has explained that NIOA has also promoted the organic product's certification through following the international standards of IFOAM (Table 4.4) (see PW4 of appendix 5).

In the case of Sri Lanka, the international certification bodies and local government bodies (EDB and SLSI) are following the IFOM and Codex Alimentarius standards for the certification and production of organic products (see SW2 of appendix 4).

The certification agencies and Uganda's Organic Sector has positive concern to follow the international standards of IFOAM for the promotion and certification of organic products (see UD6 of appendix 3).

The certification agencies of Australia are following the IFOAM standards (Table 4.4). Australian bodies (ACO and NASAA) are accredited to the IOAS (body of IFOAM) standards for providing certification services to organic products (in the categories of aquaculture, crop production, livestock, and grower groups) (see AW14 of appendix1). ACO has its own 'Organic standards 2019' to compete with the changing world's market demands (see AW11 of appendix 1). Furthermore, Australia has a positive intention to follow the international standards of IFOAM. NASAA was the first certification body of Australia which was accredited to the IFOAM standards in 2000. It was providing certification services for various organic products. Additionally Australian standards have

made necessary for the export of agriculture products to meet with the standards of host country (see AD4 of appendix 1).

In the case of Italy, EU regulation 834/07 and IFOAM basic standards have put some responsibility on Italy to follow international certification standards in the organic agriculture sector (see IW8 of appendix 2). AIAB (certification body) has its own standards which are approved by the IFOAM (IW10). So the certification agencies of Italy are following the EU standards which are aligned with the IFOAM basic Standards on organic agriculture (see IW9 of appendix 2).

According to seventh and eighth indicator (Table 4.4), Certification agencies are not involved in the agriculture policy-making of Pakistan due to absence of local certification body and weak network of international control bodies (see PW6 of appendix 5). Moreover, Certification agencies in Sri Lanka are not participating in the organic policy-making and implementation due to the absence of local prominent certification agency in the country (Figure 9).

In the case of Uganda, the certification agency (Ugocert) is involved in the policymaking process and the promotion of organic agriculture (Table 4.4). Moreover organic movement (NOGAMU) is involved in the organic agriculture promotion and standards and policy development process (see UD6 of appendix 3).

The certification agencies of Australia (NCO of NASAA and ACO) are involved in the advocacy of the government agriculture departments for the organic policy and standards development. These are also involved in the promotion of organic agriculture

through lobbying and training programs for the agriculture practitioners (see AW9 and AW11 of appendix 1).

The certification bodies of Italy are involved in the promotion of organic agriculture in the country by providing information on the certification of organic products (Table 4.4). AIAB is involved in the advocacy of the government agriculture bodies for policy and standards development on organic agriculture.

Synthesis

In essence, the certified organic has a great potential for the organic producers. It increases the trust of consumer on the organic products. The absence of the local certification agencies can increase the cost of organic certification (as in Pakistan) because foreign certification agencies have their own standards for the certification. Additionally the presence of national institute for the certification and standards development can support the organic agriculture sector because it is less time consuming and provides technical support to organic practitioners considering the local conditions (see PW4 and PW6 of appendix 5).

The agriculture policies of Pakistan and Sri Lanka have supported the certification of organic products. Furthermore, the government agriculture bodies and organic organizations of Uganda (NOGAMU), Australia (DAWR) and Italy (MiPAAF) have promoted the certification of organic products through accreditation of local and foreign certification agencies according to the organic standards.

Secondly, four countries have national institutes for organic agriculture. Pakistan has NIOA (government); Uganda has NOGAMU (a non-profit organization); Australia

has non-profit organizations (NASAA and OFA); Italy has SINAB (government) and non-profit organizations (AIAB and FederBio), for the promotion of organic agriculture. These are working for the advocacy of policymakers, awareness and training sessions, certification promotion to the agriculture practitioners. However Sri Lanka has not any specific institute for organic agriculture. So the network of organic promoting organizations is more strong and effective in Italy and Australia as compared to other three countries (Table 4.4).

Thirdly, Pakistan and Italy have recognized organic logo. Italy is using EU organic logo (Euro leaf) and NIOA (Pakistan) has introduced national logo in collaboration with Pakistan Agriculture Research Council (PARC). In contrary, Sri Lanka, Uganda and Australia have not recognized national organic log. However Australia has done much of its work to launch its national organic mark and most reputable organization ACO has recognized its mark with agriculture department of Australia. Efforts are present in Sri Lanka and Uganda for the creation of national log (Figure 9).

Fourthly Pakistan has no local certification agency and three foreign certification bodies (IFOAM accredited) for the organic products but these agencies are not much involved in the policymaking process due to the absence of local certification bodies and limited interest of the agriculture practitioners. Moreover Sri Lanka has one local body (SLSI) and eight foreign certification bodies for organic products. Furthermore, these certification bodies are not involved actively in the policymaking process of organic agriculture due to the weak lobbying. In case of Uganda, it has one local and six foreign certification bodies for organic products. These bodies are involved in the policymaking

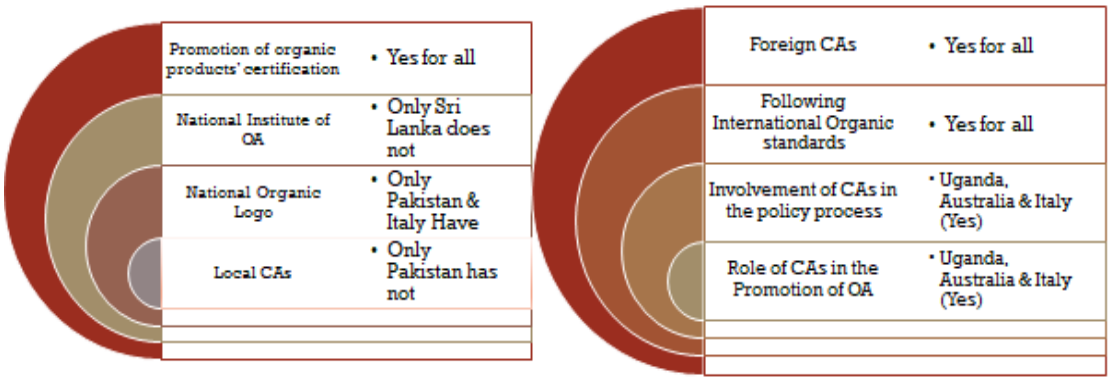
process and promotion of organic agriculture in the country. Furthermore Australia has approved six local and no foreign certification body but one foreign body (China) is providing certification services in Australia. Correspondingly these certification bodies are actively involved in the policymaking process and promotion of organic agriculture due to the strong network of local certification bodies in the country. In case of Italy, MiPAAF has recognized thirteen local and three foreign certification bodies. These certification bodies are prominently participating in the policymaking process and strengthening of the organic agriculture sector due to the highest number of local certification bodies compared to other four countries and better lobbying network. Furthermore agriculture departments, certification bodies, and local organizations of all five countries have positive attention to follow the international standards of IFOAM (Table 4.4).

Table 4.4: Organic Certification

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
Promotion of organic products' certification	Yes	Yes	Yes	Yes	Yes
National Institute of OA[a]	Yes	No	Yes	Yes	Yes
National Organic Logo	Yes	No	No	No	Yes
Local CA[b]s	No	Yes	Yes	Yes	Yes
Foreign CAs	Yes	Yes	Yes	Yes	Yes
Following International Organic standards	Yes	Yes	Yes	Yes	Yes
Involvement of CAs in the policy process	No	No	Yes	Yes	Yes
Role of CAs in the Promotion of OA	No	No	Yes	Yes	Yes

[a]OA=organic agriculture; [b]CA=certification agency
Source: Document Review

Figure 9: Organic Certification



4.7 Economic Viability

The first indicator of this criterion has explained the cost of the production scenario (Table 4.5). Agriculture Policy of Pakistan has not introduced any specific initiative to minimize the cost of production of organic agriculture. Whereas it has mentioned some general measures for agriculture i.e. issuing of government cards to meet with cost of input, re-evaluate the use of subsidy on input and output prices of agriculture crops (see PD1 of appendix 5).

In 2014, the Government of Sri Lanka has provided incentive for the promotion of organic fertilizer use in the form of increased paddy prices on using organic fertilizer instead of inorganic fertilizer (Figure 10). This could help producers to deal with higher cost of production of organic agriculture (see SW7 of appendix 4). But more subsidies were given in the past on the inorganic fertilizer for the paddy because staple food of Sri Lanka (paddy) has high demand in the country (see SD1 of appendix 4).

Agriculture policy of Uganda has not introduced any program to deal with the high cost of production of organic agriculture (see UD1 of appendix 3).

Australia has not introduced any significant program in the agriculture policy to deal with the high cost of production of organic production (Table 4.5). Some general incentives are discussed for agriculture sector in Agricultural Competitive White Paper 2015 but these incentives are not specifically for the organic sector.

The Italian government is not providing direct financial support to the organic sector (figure 10). But the CAP of EU is providing financial support (Direct or greening Payments and Rural Development fund) for the agriculture sector which is indirectly supporting the organic farming. These payments are helping the producer to meet with the high cost of production of organic farming. Moreover, the EU agri-environmental payments' measure number 214 has incorporated the matter of the high cost of production of organic farming, especially at the conversion stage from conventional to organic. EU has indicated to support farmers for five to seven years with per hectare support funds in the conversion stage. Rural development support regulation 1698/05 indicated the minimum requirement to receive payments, is supporting the organic farming (see ID1 of appendix 2). Article 29 of EU Regulation 834/07 on the labeling and production of organic products has put a limitation on 'greening payments' of CAP 2020. It allows the farmers, following organic methods in farming.

In addition to above, CAP is providing 37.5 billion euros for farming and rural development in Italy from 2014-2020. The budget of Direct Payment is about 27 billion euros but with the application of greening rules of EU, payments are linked with climate change, soil health, and biodiversity. These rules greening payments are indirectly supporting organic farming financially. About 10.4 billion euros are allocated for rural development. Itlay has 21 regional and 2 national rural development programs to utilize

these funds in the area of agriculture biodiversity, water and risk management, agriculture industries, competitiveness in agriculture production. These payments are indirectly supporting the organic sector through farm management support. It will help the producers to meet with the cost of production issues in organic farming (see ID4 of appendix 2).

According to the second indicator (Table 4.5), Agriculture Policy of Pakistan has not introduced an incentive for consumers to deal with high cost of organic products (see PD1 appendix 5). Secondly, Sri Lanka has provided no incentive for the consumers to deal with higher prices of organic products except some subsidy on paddy (produced with organic fertilizer) (see SD1 of appendix 4). Thirdly, Uganda has not introduced any incentive for consumer to deal with high prices of organic products (see UD1 of appendix 3). Fourthly, Australia has not introduced any financial incentive for customer to deal with the high prices of organic products. Fifthly, CAP of Italy has not provided any significant incentive for the consumers directly, to cope with the high price of organic products (Figure 10).

According to the third indicator (Table 4.5), Agriculture Policy of Pakistan has not provided any specific incentive for the promotion of organic products' exports. Instead it has shown interest to provide ease in agricultural exports (see PD1 of appendix 5).

Secondly, Agriculture Policy of Sri Lanka has shown interest to introduce a mechanism for the quality assurance and food safety that could help to boost the exports of agriculture products (see SD1 of appendix 4). EDB is interested to introduce national

control body which can provide local certification services and register local agencies with the international forum (EU). It could minimize the cost of certification and improve the credibility of national products in the market (see SW2 of appendix 4).

Thirdly, The Uganda Export Promotion Board (UEPB) has introduced a presidential award for export category for the promotion of organic products (see UW7 of appendix 3).

Fourthly, the Australian government is providing export opportunities for organic products through approved certification agencies and national organic standards by the Department of Agriculture and Water Resource (see AW5 of appendix1). The Australian government is interested to expand its export industry by providing financial assistance to minimize trade barriers (30.8 million dollars), to biosecurity status performance in the country (200 million dollars) and to improve export traceability in food system (12.4 million dollars). All these initiatives are general and not specific for organic export industry but indirectly provide benefit to organic products (see AD2 of appendix 1).

Fifthly, Italy has the advantage of using the EU logo of 'Euro Leaf' for the export of organic products which offers a well-recognized space in the market at the international level (see IW8 of appendix 2). USA and EU have an agreement based on EU regulation 126/12 that offers trade ease with the Non-EU countries of the world by equalizing the standards (see ID1of appendix 2).

The fourth indicator has explained that Pakistan's Agriculture Policy has not introduced any specific comprehensive program to support the credit market of the organic agriculture sector (Figure 10). But it has included some initiatives which can

indirectly support organic agriculture. These initiatives are: enhance the provision of microfinance on low interest rate to the farming community, enhance capacity of agricultural financial institutions (ZTBL), and promote 3Ps (public-private partnership) in the agriculture sector, enhance investment opportunities in rural agricultural businesses according to the CPEC projects (see PD1 of appendix 5). Another initiative was taken in 2014 by the government of Pakistan with the support of MNFSR i.e. "Prime Minister Youth Loan Scheme" for the strengthening of agriculture sector but that scheme was unsuccessful due to the complex legal requirements and non-seriousness of the government's concerned departments. Additionally this scheme has not included organic agriculture sector projects comprehensively (see PW8 of appendix 5).

Sri Lanka has introduced some incentives in agriculture policy which are general but these could provide financial support to organic agriculture indirectly as well. Some steps are mentioned here as: Support the rural credit bodies through local community's (farmer) financial support, create ease in the loan attainment mechanism for agriculture sector, minimize interest rate of loan for farmers, make compulsory the provision of agriculture share of loan in central bank, promote the private financial support and investment in the agriculture sector (in research, production, human resource development, marketing, exports and new businesses), and promote insurance schemes for the agriculture sector (see SD1 of appendix 4).

Agriculture Policy of Uganda has not provided a specific financial (credit) program for the organic agriculture sector. But policy has shown interest to increase financial services for agriculture inputs and services. The private sector has also involved

in the credit services for the investment in agriculture production and processing and marketing but not specifically for the organic sector (see UD1 of appendix).

The Australian government is not in support of subsidy on agriculture sector so the credit market is not providing loan for organic farming. One unique tool is used for risk management in the agriculture sector i.e. 'Farm Management Deposits (FMD)'. Producers can utilize this option with the help of banks, credit unions, and government institutions, to reserve money at the time of high returns and use it in a low-income situation through 'pathway plans' (see AD1 of appendix 1). These FMDs can also be used as loan payments with low interest rate to provide benefit (about 150 million dollars/year) to producer farms. The government has planned some other incentives for farmers i.e. farm insurance advice and assessment grants (29.9 million dollars over four years) and drought concessional loans (250 million dollars/ year) for 11 years. But these incentives are not specifically used for organic sector (see AD2 of appendix 1).

In Italy, ISMEA is a public institution that is working in collaboration with MiPAAF. It is providing financial support for the development of agriculture food chains, for agriculture farm development including organic farms and marketing of agriculture products. It is working for the implementation of Rural Development Plans of EU which indirectly supports organic farming. These activities are providing support to producers to cope with the high cost of production of organic farming. It is also providing loans to entrepreneurs and business which are following EU Rural Development Plans in the agriculture sector. As the organic sector is a priority area in the light of RDPs and EU standards (see IW12 of appendix 2).

Synthesis

In conclusion, Sri Lanka and Italy are providing an incentive for producers to deal with high cost of production of organic agriculture. Sri Lanka is offering high paddy prices on the use of organic fertilizer in production. Italy is providing highest financial support (compared to other four countries) indirectly through EU agri-environmental payment no. 214 and CAP package on the production of organic agriculture (especially at the time of conversion from conventional to organic). However, Pakistan, Uganda, and Australia are not providing incentives for farmers to meet with high cost of production of organic agriculture. Australia is providing some financial support but it's more focused on conventional agricultural activities. Secondly all the five countries are not providing financial support to consumers to cope with high prices of organic products (Table 4.5).

Thirdly Sri Lanka, Uganda, Australia, and Italy are providing incentives for the promotion of organic exports directly and indirectly in the agriculture policy. Australia is providing financial support to improve export mechanism. Italy is using EU logo (Euro Leaf) for having margin in the international market and done agreement (USA and EU) for export promotion. Sri Lanka (EDB) is interested to introduce local control body to increase export with lower certification cost. Uganda (UEPB) has introduced incentive (presidential award) for the promotion of organic products' export. However Pakistan is not providing any incentive for the boost in export of organic products.

Fourthly Agriculture Policy of Pakistan is supporting the credit market for organic agriculture indirectly through the provision of low-interest rate loans, capacity building of financial institutions (ZTBL), public-private partnership, PM Loan scheme (2014).

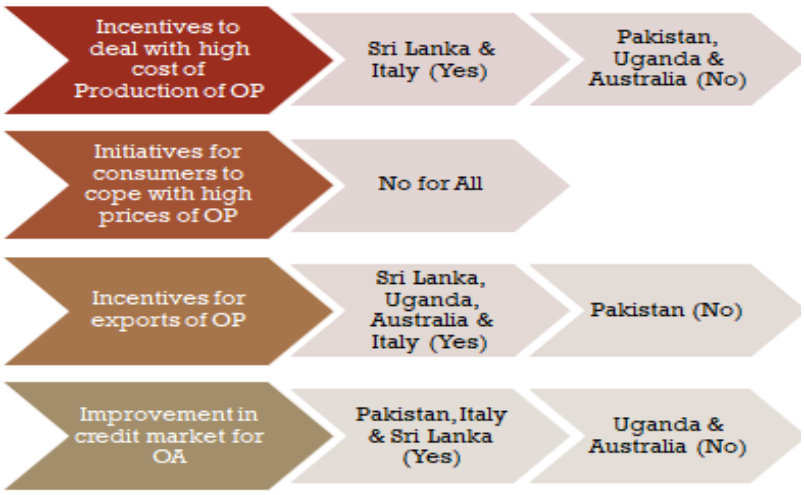
Moreover Italy is providing support for the credit market of organic agriculture i.e. ISMEA is providing financial support for the development of agriculture sector by following the Rural Development Plan of EU (which indirectly supports organic agriculture). Similarly Agriculture Policy of Sri Lanka is providing incentive for the credit market of organic agriculture indirectly (low-interest rate loans, insurance scheme, investment of private sector in agriculture, etc.). However Agriculture Policies of Uganda and Australia are not providing incentive for the credit market of organic agriculture but these are providing for conventional agriculture (Figure 10).

Table 4.5: Economic Viability

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
Incentives to deal with high cost of Production of OP[a]	No	Yes	No	No	Yes
Initiatives for consumers to cope with high prices of OP	No	No	No	No	No
Incentives for exports of OP	No	Yes	Yes	Yes	Yes
Improvement in credit market for OA[b]	Yes	Yes	No	No	Yes

[a]OP=organic Products; [b]OA=organic agriculture
Source: Document Review

Figure 10: Economic Viability



4.8 Feedback Mechanism

The first indicator of this criterion has explicated that Agriculture Policy of Pakistan has shown interest to increase coordination on the policy measures among agriculture stakeholders and improvement in the institutional performance (Table 4.6). MNFSR is also involved in the provision of research knowledge and agricultural practices to the agriculture practitioners to improve coordination in the government tiers and farming community. But policy has not introduced any specific initiative to increase awareness on organic policy measures (see PD1 of appendix 5).

Agriculture policy of Sri Lanka has shown interest to enhance trainings sessions for the agriculture scientists and farmers at national and international forums for modernizing agriculture sector (Figure 11). It has also discussed the on time provision of market information through the formation of local level entities for agriculture promotion. However these steps are indicated for general and not specifically for organic agriculture but it could help organic farmers indirectly (see SD1 of appendix 4).

Uganda's Agriculture policy has shown intention to improve knowledge dissemination for new policy interventions and technologies for sustainable agriculture resource management but these are not specifically focused toward organic sector (Table 4.6). It is also enthusiastic to improve coordination among MAAIF and other government bodies for the efficient awareness campaigns for the sustainable agriculture resource sector management (see UD1 of appendix 3).

Australia has mechanism (Green paper) to aware farmers on new policy measures (Table 4.6). Australia's Agriculture Policy is more focused to increase agriculture

productivity and exports but not in introducing abundant incentives to encourage farmers towards organic farming (see AD2 of appendix 1). Moreover, the private sector (certification agencies) and non-profit organization (NASAA, OFA and AOL) of Australia are working hard to promote the organic agriculture sector. They are providing awareness services to farmers and address issues about certification and issues in farming (see AD3 of appendix 1).

Italy is following CAP for agriculture. Rural Development Plans of CAP (EU) 2007-2013 and 2014-2020 has incorporated measures related to the vocational training and information dissemination for farmers on the organic agriculture sector (see ID1 of appendix 2).

According to second indicator (Table 4.6), Agriculture policy of Pakistan has not involved farmer's views and problems in the policy making directly (see PD1 of appendix 5).

Agriculture Policy of Sri Lanka has focused on the needs of farmers i.e. to analyze the problems of farmers and address it through the appropriate policy measure. It has also supported the financial support of private and public in these agriculture businesses to minimize the financial problems of farming sector. However these steps are indicated for general and not specifically for organic agriculture but it could help organic farmers indirectly (see SD1 of appendix 4).

Uganda's Agriculture Policy has shown interest to improve farmer organizations' capacity through providing better technical support for effective involvement in the

agriculture policy issues (skills development and management trainings) (see UD1 of appendix 3).

Agriculture Department of Australia (DAWS) is using an effecting way to involve farmers view and problems through a feedback mechanism (Figure 11). However this mechanism is used for feedback on agriculture policy issues but it's not focused on organic agriculture sector (see AD2 of appendix 1). However, CAP of Italy has not significantly incorporated the views and problems of organic agriculture farmers in the policy process (see ID4 of appendix 2).

According to third indicator (Table 4.6), Agriculture Policy of Pakistan has introduced some steps to increase farmers' participation in the policy as: support public-private partnership and group farming in the agriculture product's value addition at their door step, improvement in skills of farming community, enhance support for the small scale farmers. However these steps are not specifically for organic agriculture sector but indirectly can provide benefit to that (see PD1 of appendix 5).

Sri Lanka's agriculture policy has promoted the participation of farmers (Figure 11). Policy has offered some steps: increase involvement of youth organizations in the agriculture sector, increase support to the crops of high value and small and medium agriculture enterprises for the improvement of agriculture base and employment generation at rural level, encourage new businesses in agriculture sector through introduction of incentives (rewards and discounts). However these steps are indicated for general and not specifically for organic agriculture but it could help organic farmers indirectly (see SD1 of appendix 4).

Agriculture policy of Uganda has shown intention to increase interest of farmers toward agriculture. These initiatives are: provide training and skills opportunities related to agriculture, inclusion of agriculture courses in educational system, improve coordination among different government departments (MAAIF, Health department and others) for the betterment of health and nutrition condition of farm households, improving agricultural research and technical facilities for farmers to strengthen the decision making capacity. In fact all these initiatives are general and not specifically for organic agriculture (see UD1 of appendix 3).

Agriculture Policy of Australia is providing financial incentives to increase farmer's participation in the agriculture sector (Figure 11). It is allowing farmers to use Farm Management Deposits (FDM) in order to offset loans. It is an instrument (used by government department and banks) to save at good time and utilize at hard times for agriculture sector.

In Italy, the financial support measures of CAP are providing incentive to increase participation of farmers in the agriculture. It is providing financial support for the enhancement in rural job market and to compensate for high cost of production of organic agriculture (see ID1 of appendix 5).

One private organization (Good Earth) of Pakistan is providing facility to connect farmers for sharing the agriculture machinery (tractor) to improve the farmer's participation in the farming (see PW5 of appendix 5).

The other organizations of Sri Lanka are not significantly providing incentives related to increase farmer's participations in organic agriculture.

Uganda has one non-government "National Farmers Federation" which is responsible for the policy advocacy for farmers and institutional capacity development for the inclusion of farmer's views in the agriculture policy but it's not specifically focused on organic agriculture (see UW9 of appendix 3).

Farmers of Australia have prominent representative in agriculture sector to address the farmer's problems and views. It is National Farmer's Federation (NFF) which is involved in advocacy to national governing bodies and international organizations. But apparently, it's not focused on organic farming. NFF is working for assistance in the areas of environment, marketing, agriculture productivity, farmer's issues, domestic and international trade. It is striving to produce unique policy solutions and innovative ideas through producers, consumers and other stakeholder's input and coordination (see AW15 of appendix 1).

In Italy, private and non-profit organizations (FederBio, AIAB, and IAMB) are working on the projects in which organic farmers and consumers are involved: in market activities, advocating policy recommendations to MiPAAF, national and EU standards implementation in the organic farming sector.

According to fifth indicator results (Table 4.6), Pakistan agriculture sector has not introduced any comprehensive feedback mechanism to involve agriculture stakeholders in the policy making process (see PD1 of appendix 5). However agriculture department are involved in the field surveys to record feedback of farmers and guide them to resolve problems but this is mostly done for conventional agriculture (see PW7 and PW9 of appendix 5).

Sri Lanka has not introduced any comprehensive feedback mechanism for the agriculture practitioners to participate in the agriculture policy making and implementation (see SD1 of appendix 4).

Agriculture sector of Uganda has not any comprehensive feedback mechanism to engage agriculture stakeholders for policy making and implementation process. But it has mentioned indirect intention in the agriculture policy, to introduce national platform for effective coordination among different stakeholders of the agriculture sector (see UD1 of appendix 3).

Australia has a unique feedback mechanism for the agriculture sector. The Australian agriculture sector has introduced a "Green paper" and "White paper" (Table 4.6). These documents provide an opportunity for various stakeholders from agriculture sector to play a role in the policy formation process. Green paper carrying questions regarding different agriculture area presented to stakeholders (farmers, private sector, exporters, etc.) and they have to provide their views on the agriculture sector issues. Government is using this unique feedback mechanism for the agriculture sector but not specifically for organic sector policy (see AD2 of appendix 1).

Italy has not prominent feedback mechanism to directly involve farmer's view and response in the policy process but it has policy support from CAP for the policy intervention knowledge dissemination to producers (Figure 11).

Synthesis

In summary agriculture policies of all the five countries have introduced strategies to provide awareness to farmers on the policy measures and increase participation in the

policy making and implementation. Pakistan has indicated to improve coordination on policy measures among agriculture stakeholders. Sri Lanka, Uganda and Italy have indicated to increase knowledge dissemination and training session on new policy measures. Australia has 'Green Paper' to aware farmers on new policy interventions and involves the feedback in the policy. Additionally, Uganda, Sri Lanka and Australia have included views and problems of farmers. Australia (DAWR) is incorporating farmer's comments on the 'Green Paper' and tries to address in 'White Paper'/agriculture policy. However Pakistan and Italy has not included any prominent initiative to involve farmers' views in the policy making (Table 4.6).

Secondly organizations (other than the agriculture policy) of the Pakistan, Uganda, Australia and Italy are working for increasing farmer participation in agriculture sector. As Good Earth (Pakistan) is providing agriculture machinery (tractor) sharing facility among farming community. National Farmer Federations of Australia and Uganda are working for the improvement in farmer's participation (advocacy to government bodies) in the policy making process of the country and development of agriculture sector. However organizations (non-government) of Sri Lanka are not much involved in increasing participation of farmers in the policy process (Figure 11).

Thirdly Australia has a unique feedback mechanism to involve agriculture stakeholders in the policy making process. Agriculture department of Australia (DAWR) has introduced 'Green Paper' (on its website) carrying questions related to the emerging issues of agriculture sector and policy then agriculture stakeholders (farmers) provide comments on it. This feedback is then incorporated in the 'White Paper' of Agriculture to implement in agriculture sector. This is effective mechanism used in the conventional

agriculture sector but not in the organic agriculture issues. However Pakistan, Sri Lanka, Uganda and Italy have not any comprehensive feedback mechanism to involve agriculture stakeholders in the policy making process (Table 4.6).

Table 4.6: Feedback Mechanism

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
Initiatives for Farmer's awareness on policy measures	Yes	Yes	Yes	Yes	Yes
Inclusion of Farmers' problems and views in the policy	No	Yes	Yes	Yes	No
Initiatives for encouraging farmers participation (by government)	Yes	Yes	Yes	Yes	Yes
Initiatives for increasing farmers participation (by other organizations)	Yes	No	Yes	Yes	Yes
Feedback mechanism to involve stakeholder in policy making process	No	No	No	Yes	No

Source: Document Review

Figure 11: Feedback Mechanism

4.9 Extension and Marketing Services

The first indicator has explained that Pakistan's Agriculture Policy has introduced some initiatives for extension services to: improve the extension services and research activities for Integrated Pest Management (IPM) through farmer field school, promote one window operation for farming community in the governmental activities related to agriculture, increase coordination among government agricultural tiers for the enhancement in research and knowledge sharing on agriculture (Table 4.7). However these initiatives are not specifically for the promotion of organic agriculture (see PD1 of appendix 5).

Agriculture Policy of Sri Lanka has shown interest to provide extension services for the agriculture sector (Figure 12). These are focuses to: provide effective information through application of latest Information Communication Technology (ICT), enhance the use of extension services, research and latest technologies related to agriculture with the involvement of agriculture practitioners (farmers, agriculture organization and others) in the process, equip the courses of educational and training institutes with latest knowledge regarding agriculture technologies and practices to compete in the dynamic world food market, equip farmers and scientist with national and international agricultural trainings (see SD1 of appendix 4).

Uganda has shown intention to provide extensions services in agriculture policy (Table 4.7). Some initiatives are mentioned in the policy to provide: cost effective and suitable agriculture knowledge, new technologies, formal and non-formal agriculture education, extension and agriculture trainings, increase investment for extension services

through concerned agriculture departments (MAAIF, education sector and local government) and research data to farmers for progressive agriculture sector and fine products. In contrary, all these steps are mentioned for general agriculture that can indirectly affect organic sector but not any specific program has mentioned for the promotion of organic agriculture (see UD1 of appendix 3).

The Agriculture Department of Australia (DAWR) is not incorporating extension service programs in the policy for the promotion of organic farming (Figure 12). Government policy is providing incentives for agriculture sector but not specifically for organic sector includes: better counselling facility for financial matter, Industry skill fund financial support (664.1 million dollars) for labor training and conservation management training to green army through financial support (700 million dollars) (see AD 2 of appendix 1).

Italy has prominent public institutions and policy support for the extension and market services in the field of organic farming (Table 4.7). The training and extension services in Italy were provided though measures of EU Rural Development Policy 2007-2013. Some measures are vocational training and information (measure 111), advisory service use by farmers and entrepreneurs (measure 114), development of advisory service, relief and administration of farm (measure 115). Public institutions, agriculture development agencies have also taken some steps for the development of this sector (See ID1 of appendix 2). MiPAAF has launched SINAB for the Information collection and sharing on organic farming. IAMB and ISMEA are managing the SINAB and participating for the development of the organic sector of Italy (See IW8 of appendix 2).

According to second indicator, Pakistan has some other departments to provide extension services (Table 4.7). As NIOA is providing trainings and knowledge sharing services on the use and production of organic fertilizers and pesticides, on the international certification procedure of organic products, organic agriculture practices (see PW4 of appendix 5). Moreover, Extension department of Pakistan are working under the provincial governments and in different universities of Pakistan. Which are also providing extension services and trainings on the organic agriculture practices (kitchen gardening) for the promotion of this sector in the farming community. Additionally they are providing "Seed Kits" to the households (especially to urban areas) of Punjab for the promotion of organic agriculture and food safety (see PW7 of appendix 5). Furthermore, National Agriculture Research Center (NARC) of Paksitan is providing research data (theoretical and Practical) on the organic agriculture which is being used for the training and knowledge dissemination process by the extension and agriculture departments (see PW12 of appendix 5).

One Sri Lanka's government institution, EDB is providing knowledge dissemination facility for the agriculture practitioners through providing information on: organic agriculture, certification, exports and legal regulation for the promotion of organic agriculture (see SW2 of appendix 4). Additionally another government department Regional Agricultural Research and Development Centre of Sri Lanka is providing extension services (awareness sessions and trainings) on the production and use of organic fertilizer for the benefit of agriculture stakeholders (producers, consumers, NGOs and other institutions). It is providing theoretical and practical knowledge for the promotion of organic agriculture in the Sri Lanka (see SW5 of appendix 4). Furthermore,

Lanka Organic Agriculture Movement (LOAM) of is a professional organization and pioneer movement in Sri Lanka which is providing extension services (awareness campaigns on the benefits of organic agriculture) to the community (producers, consumers, organizations and others) for the promotion of organic agriculture in the country (Table 4.7) (see SW3 of appendix 4).

In Uganda, NOGAMU is providing extension services in the field of organic sector to organic agriculture stakeholders (farmers, NGOs and companies) by providing: training workshops, organic knowledge data, marketing skills and opportunities, quality assurance tactics, exchange visits and agriculture tourism (see UW7 of appendix 3). Moreover, In Uganda: NGOs, research institutes and associations (RUCID, SATNET, Kulika Uganda, Caritas Uganda, ACODE and PELUM) are also providing extension services in the field of organic agriculture through providing organic educational courses, trainings, information sharing for the promotion of organic agriculture (see UD6 of appendix 3).

In Australia: NASAA Certified Organic (NCO), Australian Organic Limited (AOL), Organic Federation Australia (OFA) and Bio-dynamic Research Institute (BDRI) are providing awareness, research and publication, and training services to the producers and consumers for the organic sector promotion (Figure 12). Their organizations are promoting organic method through arranging different events (trainings, seminars and research knowledge sharing etc.) for the participation of the agriculture department and other stakeholders (Producers, consumers and certification bodies) (see AW18 of appendix 1). Fertilizer Australia is also providing training services, and knowledge sharing to the players of the fertilizer supply chain, to improve productivity considering

the environmental and food safety risks for sustainable ecosystem. But these services are not focused toward organic sector promotion (see AW8 of appendix 1).

National Farmer's Federation (NFF) of Australia is also involved in the agriculture extension services. It is providing training, skill development programs and educational services to producers and consumers in the field of agriculture. It is working in different projects with the government bodies and the private sector to strengthen the agriculture sector. NFF is also contributing to minimizing the trade barriers in the international market (see AW15 of appendix 1).

Private and non-profit bodies of Italy are also providing extension and services for the development of this sector. FederBio and AIAB and IAMB are providing technical knowledge, educational training, bureaucratic support, school courses, organic canteens, bio districts, organic catering (in Emilia Romagna) and other services on the organic farming (Table 4.7). These bodies are working prominently for the promotion, innovation and knowledge dissemination in the organic industry of Italy and practicing some unique projects as discussed above (See IW9 of appendix 2).

According to third indicator (Table 4.7), Pakistan's Agriculture Policy has indicted some steps for better market functioning as: enhance sharing of agriculture market information through Internet communication technology (ICT), support a system of agricultural products' marketing involving farmers directly, increase the government's subsidy and procurement measures to support small scale farmers, support the innovative business plans for value addition under CPEC, technical support to rural farming community and new businesses (see PD1 of appendix 5).

Sri Lanka has discussed some steps for the betterment of market functioning (Table 4.7). These are given in the policy to: increase government intervention (especially in price stabilization) in the agriculture sector to minimize market discrepancies, improve market infrastructure through attracting private investments. Some more initiatives are provided to: promote agricultural export (of high value crops) to international markets, attract international markets through branding based on the targeted market's demands, make agriculture sector competitive in the light of international trade agreements, increase the public and private investments on the agriculture sector based on the requirements of the small farmers, improve supply chain mechanism (see SD1 of appendix 4).

Uganda has mentioned some steps in the agriculture policy for the efficient market functioning but these steps are general and not specific to organic agriculture sector (Figure 12). Some of the initiatives are: improve food management, marketing opportunities (market sites at suitable locations, favorable atmosphere and infrastructure) and distribution channels in the local and international market, create a transparent market information system for agriculture practitioners, improve agriculture infrastructure and utility facilities for progressive trade (better transport and availability of energy inputs), financial support to agriculture training institutes, improve coordination among government departments and private sector involved in agriculture sector (see UD1 of appendix 3).

Australia government has indicated the national standards, approved certification bodies and import and export formalities for organic products on the website of DAWS to maintain transparency in market (see AW5 of appendix 1). Government has allocated

some resources to improve market functioning of agriculture sector (Table 9). Some incentives are mentioned in the Australian Agriculture Competitive White Paper as: Financial support (11.4 million dollars) to ACCC for improving agriculture market functioning, financial support (1 billion dollar/ year) to minimize bureaucratic cost in agriculture sector, improve market information mechanism in agriculture sector through financial support (29.5 billion dollars) for broadband services (see AD2 of appendix 1).

For the efficient and smooth function of the agriculture market, Italy has public body ISMEA which is working with the MiPAAF for the implementation of CAP 2014-2020 Rural Development Plans in the country (Table 4.7). ISMEA is responsible for the monitoring of agriculture markets based on EU and national legislation: regular price transmission of agriculture commodities, market information provision to stakeholder and institutions for transparency, financial support for the marketing of agriculture and organic products. It also provides assistance for measures (measure 1: transfer of knowledge and information action) of Rural Development Programs and business plans for food supply chains (see IW12 of appendix 2).

According to fourth indicator (Table 4.7), Agriculture policy of Pakistan has indicated some steps for the innovation and knowledge dissemination in the agriculture sector. Some of initiatives are given in the policy as: support innovation in agriculture i.e. Precision agriculture, incorporation of updated agriculture knowledge from the world related to technology and methods, media campaign of government for the innovative knowledge dissemination, opening of new local radio channels to keep updated the farming communities with latest updates, enhance electric weather forecasts system, opening of new agriculture channels, increase the number of agricultural training bodies

in different areas, increase benefiting from the Internet Communication Technology (ICT) in agriculture sector, and support the private sector in the provision of extension services related to agriculture sector. Whereas these steps are not specifically for organic agriculture but it can indirectly help out (see PD1 of appendix 5).

Sri Lanka's agriculture policy has incorporated the importance of innovation and knowledge dissemination (Table 4.7). It has shown interest to modernize the system of extension services to improve the efficiency of innovation and knowledge provision which can be more beneficial for the agriculture practitioners. It is also interested to promote the local level diffusion of marketing information through introduction of district based entities (see SD1 of appendix 4).

Uganda has shown some steps in the agriculture policy for the knowledge dissemination but these are general and not specific to organic agriculture sector (Figure 12). Some of these points are mentioned as: develop a mechanism of collection and dissemination of agriculture sector knowledge and information across different agriculture stakeholders, support the development of farmer's organizations and educational programs to improve coordination among farmers and other stakeholders for an efficient agriculture market, improve research facilities for the production of new technologies and agriculture knowledge for an efficient agriculture sector (see UD1 of appendix 3).

Government bodies of Australia have not introduced prominent mechanism to promote innovation and knowledge dissemination in the organic sector (Table 4.7). But some steps are indicated in the Agriculture Competitive White Paper as: financial support

(13.8 million dollars for two years) to pilot project for knowledge and data sharing on new business techniques including innovation and bargaining practices in the agriculture industry, improving agricultural weather forecast accuracy through financial support (3.3 million dollars), Research and development fund (100 million dollars) for practical application in agriculture. Additionally, Australian non-profit bodies (OFA, NASAA, AOL, and BDRI) are working prominently for innovative practices and knowledge dissemination through school education programs (of AOL), research and publication related to the field of organic sector. These are linked to producer and consumer organizations, certification bodies, national and international trade unions and government bodies to promote organic industry through increasing awareness and application of organic standards (see AW18 of appendix).

One government body of Italy (SINAB) is working prominently for the innovation and knowledge dissemination for the promotion of the organic agriculture sector through providing all the updated information on its online website (Figure 12). It is supporting the collaboration of government with the organic agriculture stakeholders (see IW8 of appendix 2). Moreover, AIAB, FederBio and IAMB (organic bodies of Italy) are working prominently to promote innovation and knowledge dissemination related to the organic agriculture sector through providing training session, awareness campaigns and educational activities in institutions (see IW6, IW7 and IW11 of appendix 2).

Synthesis

In summary, Agriculture Policy of Pakistan and Sri Lanka are providing extension services for the promotion of organic agriculture sector through extension department's

awareness campaigns of Pakistan (kitchen gardening), awareness sessions on organic agriculture, fertilizers, and pesticides, for the promotion of production and use of organic and bio-fertilizer and pesticides. Similarly Uganda's agriculture policy has also indicated to enhance extension services but not directly for organic agriculture. In case of Italy, legal regulation of EU has promoted knowledge sharing among the agriculture stakeholders on organic agriculture i.e. vocational and information sharing (measure 111) and advisory service for farmer (measure 114). SINAB (government body) is also providing a huge amount of information on the organic agriculture situation in Italy. In contrary Australia's agriculture policy is not providing extension services for the organic agriculture sector.

Secondly, other organizations (rather than policy) of all the five countries are providing extension services for the promotion of organic agriculture. In Pakistan: NIOA, Extension Departments of Agriculture Division and NARC are providing research data; knowledge on the organic agriculture practices; production and use of organic fertilizer (and pesticides); certification guidance; Kitchen gardening kits. In Sri Lanka: EDB, Regional Agricultural Research, and Development Centre and LOAM are providing knowledge sharing and training on organic agriculture practices; organic certification; exports, standards; production and use of organic fertilizers. In Uganda: NOGAMU, RUCID, SATNET, Kulika Uganda, Caritas Uganda, ACODE and PELUM are providing knowledge sharing on the organic agriculture practices, trainings, educational courses and certification guidance for the promotion of organic agriculture. In Australia: NASAA Certified Organic (NCO), Australian Organic Limited (AOL), Organic Federation Australia (OFA) and Bio-dynamic Research Institute (BDRI) are involved in the

awareness sessions, research data production, and trainings on the organic agriculture sector for the participation of the agriculture department and other stakeholders (Producers, consumers and certification bodies). Furthermore National Farmer's Federation (NFF) of Australia is also providing training, skill development programs and educational services to producers and consumers in the field of agriculture. However Non-profit bodies of Italy are providing very unique type of services which makes its performance better than the other countries. As FederBio and AIAB and IAMB are providing: awareness sessions, educational courses, knowledge on organic agriculture practices, research data, making organic canteens, creation of bio districts (AIAB), for the promotion of organic agriculture promotion.

Thirdly, Agriculture Policies of all the five countries have included initiatives for the improvement in market functioning of agriculture sector. However these initiatives are general and can indirectly provide benefit for organic agriculture. Some initiatives are given here: use of ICT in agriculture for better market information sharing (Pakistan), involvement of farmer in the marketing system (Pakistan), improve government role in price stabilization of agriculture commodities (Sri Lanka), increase product branding to compete in international market (Sri Lanka), provide more market facilities based on suitable location (Uganda), enhance coordination among agriculture practitioners (Uganda), financial support to minimize bureaucratic cost in agriculture sector (Australia), improve broadband facilities for better market information sharing though monetary support (Australia), ISMEA (government institute of Italy) is providing: service for sharing the price agriculture products, market information sharing to agriculture

practitioners for transparency, financial support for the marketing of agriculture and organic products.

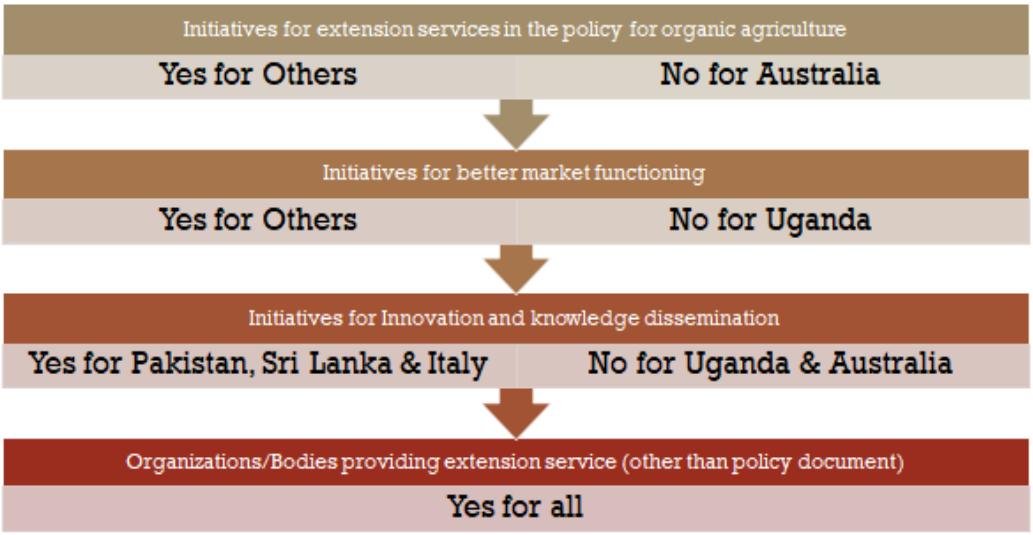
Fourthly Agriculture policy Pakistan, Sri Lanka and Italy has shown positive attention in the innovation and knowledge dissemination for organic agriculture but Uganda and Australia are not much incorporating. Agriculture policy of Pakistan is providing knowledge on: precision agriculture, updated world data on technologies and practices, media support through forming new channels (electronic and radio) on agriculture, on time weather forecasts, more agriculture training agencies, use of ICT, increase private participation in extension services domain. These steps can indirectly provide support for organic agriculture sector. In case of Sri Lanka, agriculture policy is interest to improve the knowledge dissemination capacity of agriculture bodies through introduction of local bodies in deferent areas for sharing of information at local level in less time. Moreover in Italy, SINAB (government body) is working prominently for the innovation and knowledge dissemination and providing huge amount of information only for organic agriculture. In contrary Agriculture policies of Uganda and Australia are not supporting knowledge dissemination in the organic agriculture sector but these are focused on the increased productivity of convention agriculture. However organizations (rather than policy) are also providing services for the organic sector. As in Australia: NASAA, AOL, OFA are supporting innovation and knowledge dissemination through providing, educational courses, research knowledge and awareness sessions among agriculture practitioners.

Table 4.7: Extension and Marketing Services

Indicators	Response				
	Pakistan	Sri Lanka	Uganda	Australia	Italy
Initiatives for extension services in the policy for organic agriculture	Yes	Yes	Yes	No	Yes
Initiatives for better market functioning	Yes	Yes	No	Yes	Yes
Initiatives for Innovation and knowledge dissemination	Yes	Yes	No	No	Yes
Organizations/Bodies providing extension service (other than policy document)	Yes	Yes	Yes	Yes	Yes

Source: Document Review

Figure 12: Extension and Marketing Services



4.10 Cumulative Score

In this section the score of different countries is discussed based on the comparative analysis of policies done in this research. The score represents the total number of 'Yes' in favor of organic agriculture i.e. extent of support of the agriculture sector (of the concerned country) for organic agriculture. According to the results (Table 4.8): Italy has the highest score (31), then Australia has second position (27), Uganda and Pakistan are on third position with same score (25), Sri Lanka is on fourth position

(23) out of total possible score of 39. However the score of this analysis is providing limited idea about the situation of concerned countries. In fact, the detail of analysis behind the score is explicating the actual ground of organic sector in the relevant countries.

In essence some countries are performing better in one criterion but not in the other criteria. As Pakistan, Sri Lanka and Uganda are lacked behind Australia with minor difference in score but actually Australia has strong network of local organic organization (NASAA and OFC) and certification bodies which are providing services to local community and other regions of the world. Conversely the agriculture policies of Pakistan and Sri Lanka are incorporating organic agriculture but Australia and Uganda are not incorporating organic agriculture directly in agriculture policy. Furthermore Italy is following the CAP of EU and EU standards which is indirectly promoting organic agriculture in the absence of national organic agriculture policy but performing better than the other four countries (in this analysis). So the theoretical results of this analysis (given in above sections) together with the score can provide the actual condition of policy support of the organic agriculture sector in the concerned countries (Figure 13).

The five countries have different score (no. of 'Yes' in support for organic agriculture) for each criteria (as shown in Figure 13). The findings in Figure 13 has shown that one country is performing good in one criteria but also lacking behind in another one. As Pakistan and Sri Lanka is moving forward with inclusion of organic initiatives in their agriculture policies but lacking behind in the criteria of organic standards and certification agencies (due to their absence). On the other side, Italy and Australia are having little difference in the score but Italy is performing better in political

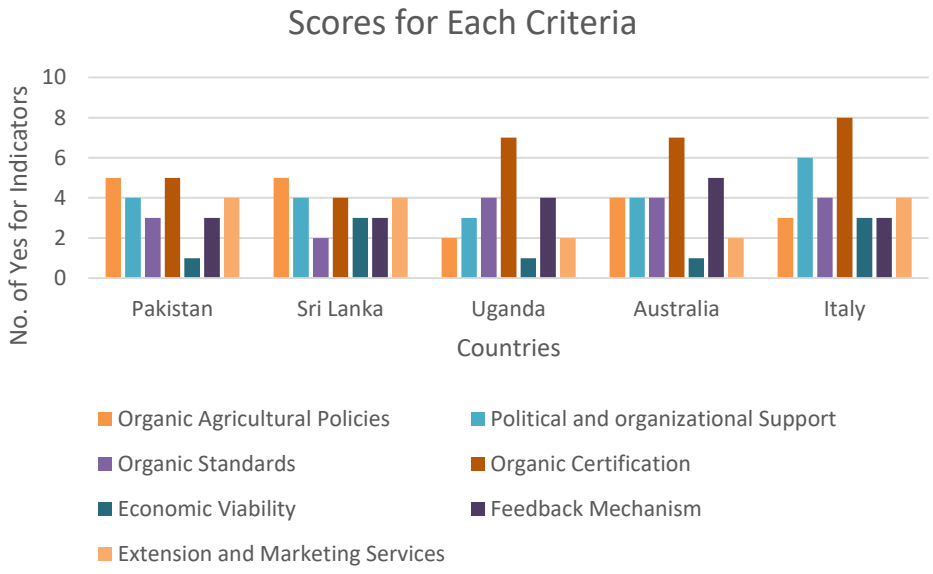
and organization support and extension and marekting services. In contrast Australia is performing better in the criteria of feedback mechanism in comparison to all other countries. Furthermore Uganda together with Italy and Autralia, is also perforoming better in the criteria of orgnaic certification and standards (due to the presense of national organic standards and certification bodies). However all the countries are not performing enough in the criteria of economic viability i.e. not providing enough financial support for strengthening of the organic agriculture sector (Figure 13). In conclusion Italy and Australia is leading the organic agriculture sector which can offer good practices to be followed by Pakistan.

Table 4.8: Cumulative Score

Country	Obtained Score (number of 'Yes')/39
Pakistan	25
Sri Lanka	25
Uganda	23
Australia	27
Italy	31

Source: Document Review

Figure 13: Scores of Each Criteria



4.11 Discussions

What Pakistan can learn from other countries?

All the selected counties (Pakistan, Sri Lanka, Uganda, Australia and Italy) have their unique perspectives to deal the organic agriculture. Some features are common but others are different from one another. An independent organic agriculture policy which is aligned with the agriculture policy and fertilizer policy can help for the development of organic agriculture sector in Pakistan and other four countries. However this aspect is missing in the agriculture policies of all countries.

Furthermore the presence of government bodies for the development of organic standards and accreditation of certification services is very important aspect which is not much efficient in Pakistan. Pakistan has specific organic Institute (NIOA) but it is not much efficient in the development of organic agriculture sector. While this could be the reason for the absence of local certification agency and local organic standards which is putting higher cost of certified organic production on the organic producers. Additionally customers are price conscious so the higher cost of organic production leads to higher prices of organic products and ultimately customer's demand decreases with it. Likewise Sri Lanka has also not developed national organic standards. In contrast Italy, Australia and Uganda have national organic standards and their government bodies and organic organizations are working prominently for the development of organic sector. However Pakistan and Sri Lanka has not developed a network of local certification agencies which is prominent in Australia and Italy and to some extent in Uganda where strong network of local and foreign certification agencies is providing services more efficiently to the organic practitioners. Additionally all the certification bodies of five countries are

following the IFOAM standards for the international recognition of the organic products. Especially this factor is very important because due to the strong network of local organic movements (e.g. NOGAMU of Uganda) and certification bodies, it is providing support to policy making for the development of organic agriculture sector. In conclusion Pakistan and Sri Lanka can support organic agriculture sector through developing local certification bodies, organic movements with the help of government bodies and private sector stakeholders.

Pakistan can learn from the system of green payments of CAP and credit facilities (ISMEA of Italy) of Italy for the promotion of organic sector, which has provided support to the producer specially when converting from conventional to organic farming. Australia has also system of 'farm management deposits' which can be used for organic farm managements. But the financial support for the organic practitioners (both farmers and customers) is not enough in the five countries which could provide security to the organic producers because certified organic requires 3-5 years of conversion time and high risk management to the weather and disease attack. In conclusion more efforts are required in the financial incentives and credit market of Pakistan and other four countries, for the organic sector from the government and as well as from the private sector.

Pakistan can develop a feedback mechanism which is practiced in the Australia (but using it for conventional agriculture) where all the stakeholders of agriculture and organic agriculture sector can me engaged for the policy making process. This bottom to top approach is beneficial for the adoption of the policy measures regarding organic sector. Other countries (Sri Lanka, Uganda and Italy) can also practice this kind of approach in the organic agriculture sector.

The agriculture department (including the regional extension departments) of Pakistan are providing extension services for the agriculture sector. These departments are also involved in organic agriculture promotion through kitchen gardening campaigns and bio fertilizers but their services are not enough to meet with the changing demands of the organic agriculture sector. However Italy has a well-developed system (SINAB) which is handled by research institutes and providing a huge amount of information (online) on the organic farming (legal rules, certification agencies, standards etc.). In fact Pakistan can develop this kind of system to facilitate the organic sector practitioners by linking this system with the research institutes and academics to disseminate the latest developments in the organic sector. Other countries (Sri Lanka, Australia and Uganda) can also adopt this strategy for the promotion of organic agriculture.

What other countries can learn from Pakistan?

Pakistan has incorporated organic agriculture in its agriculture policy. Whereas Uganda and Italy has not but they can add organic agriculture in polices directly and indirectly for the promotion of organic agriculture until the finalization of independent organic agriculture policy. Moreover Sri Lanka should create organic institute to deal with the issue of organic agriculture sector as Pakistan has a specific organic institute. Additionally national logo for organic products can increase the trust of customers and export markets. So Sri Lanka, Uganda and Australia should recognize a national logo for organic products as Pakistan (NIOA logo) and Italy (EU logo) did. Furthermore Uganda and Australia should provide more credit services for the organic agriculture producers as Pakistan (ZTBL) and Italy (ISMEA) is providing financial services. However these

countries are not providing adequate credit services. In fact all the countries should enhance financial support for the development of organic agriculture sector.

The government bodies of Australia should improve extension services for the promotion of organic agriculture sector and provide more services for the knowledge and innovation dissemination because awareness of the stakeholders (farmers, customers, private sector, organic organizations, policy makers) can play a vital role in the increase in the demand of organic products and ultimately in the development of organic agriculture sector. Moreover Uganda should also improve its services in the market functioning and knowledge dissemination as Pakistan and Italy is providing through extension departments, research institutes and online portals (SINAB of Italy).

Finally all the countries can learn from the experiences of each other in the organic agriculture sector and adopt the unique practices suitable with their local situation based on the findings of this study. This way of collective learning can help to develop the organic sector on a fast pace.

Chapter 5:

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The intent to practice organic agriculture is varying in different countries due to the contradiction with the existing conventional agriculture practices (organic vs inorganic inputs). The comparative analysis of the organic agriculture policies of different countries (Pakistan, Sri Lanka, Uganda, Australia, and Italy) has provided lessons to be learned from the experiences in organic farming. In this research, nine criteria and thirty-nine indicators of comparative analysis (of concerned countries) have provided data (theoretical and score) on organic agriculture policies, political and organizational support, organic standards and certification status, financial support, feedback mechanism, and extension services.

The total score (number of 'Yes') of the comparative analysis has provided an idea on support of organic agriculture. As Italy has first position in score (31), Australia on second (27), Pakistan and Sri Lanka on third (25), Uganda on fourth (23) out of total possible score of 39. However this score cannot explicit the actual performance of the concerned countries in organic sector. In fact theoretical results (of this comparative analysis) in combination with the score (mentioned above) can facilitate to understand the whole condition of organic agriculture sector in the concerned countries.

Firstly, a few countries (out of five concerned countries) are performing better in one criterion but not in the other. Firstly, All the five countries do not have independent

organic agriculture policies but Agriculture Policies of Sri Lanka and Pakistan has incorporated organic agriculture directly (use and production of organic fertilizers; Kitchen gardening; extension services). Similarly Agriculture Policies of Italy (CAP agri-environmental payments and Rural Development Plans of EU) and Australia (import/export rules of organic fertilizers and Organic standards recognition with Agriculture Department) have incorporated organic agriculture indirectly but Uganda has not included in the agriculture policy.

Secondly, Pakistan has included Food Security, Agriculture Policy and organic Agriculture in one document which is, directly and indirectly, supporting organic agriculture through promotion of organic fertilizer and pesticide and practices which are good for human health and environment. In contrast, the food security policies of other four countries (Sri Lanka, Uganda, Australia, and Italy) have not incorporated organic agriculture directly. However some measures can indirectly support organic agriculture methods which are beneficial for human health (zero hunger programs etc.), resource conservation and environment.

Thirdly, the Fertilizer Policies of Australia and Sri Lanka have promoted the organic agriculture through the promotion of production and export of organic fertilizer (Australia); issuing of certificate for organic fertilizer producers (Sri Lanka) and promote the production and use of organic and bio-fertilizer and pesticide (Sri Lanka). On contrary, Fertilizer policy of Pakistan, Uganda, and Italy has not supported organic agriculture. The fertilizer Policy of Pakistan (2001) has supported the use of inorganic fertilizers (N, P, and K) and the goals of fertilizer policy of Pakistan are not aligned with the agriculture policy which is hindering the development of organic agriculture sector in

Pakistan. Furthermore some EU regulations in Italy have put some limitations on the use of fertilizers in organic agriculture.

Fourthly, the score (of analysis) of Pakistan and Sri Lanka and Uganda is close to Australia. Compared to that the Australian network of organic organizations (NASAA and OFC) and local certification bodies (NCO, ACO, and BDRI) in connection with agriculture departments is much strong and effective as compared to the three countries. These bodies of Australia are also providing services to international organic market. However Italy has highest number of local certification bodies (thirteen local and three foreign recognized with MiPAAF) and active government and non-profit organic organizations (AIAB, FederBio, IAMB, SINAB) which are working prominently for the strengthening of organic agriculture through the involvement of agriculture stakeholders (in awareness sessions, trainings, involvement in bio districts and canteen). Moreover government institutes of Pakistan (NIOA) and Sri Lanka (EBD and SLSI), and non-profit organization of Uganda (NOGMAU) are also involved in the promotion of organic agriculture through knowledge sharing and training on the organic practices and certification; use and production of organic fertilizer; standards development). But these bodies have not achieved much success in comparison to Australia and Italy due to the weak government and stakeholders' (producers, customers and government bodies) intention to adopt organic agriculture. Moreover the private sector of Pakistan, Sri Lanka, Uganda, and Australia is not much involved in the policymaking process but Italy has involved the private sector in the policy-making (CAP). However private sector of all the five countries is involved in the promotion of organic agriculture (other than the policy-making) through providing awareness campaigns, training sessions and certification

services. On the other hand, Australia and Uganda have National Organic standards but Pakistan and Sri Lanka don't. As well as Italy is following EU Organic Standards due to the member of EU. Additionally all the five countries have positive intentions to follow IFOAM standards for organic agriculture (product certification etc.).

Fifthly, one barrier in the strengthening of the organic agriculture sector is economic feasibility which is restricting stakeholders (producers, consumers, agriculture department) to adopt due to the high cost of organic agriculture (certification cost, handling cost, high prices of organic products) and limited financial support of government. Another reason is time consuming organic certification process (3 to 5 years of conversion period from conventional to organic). According to this study, Italy (ISMEA and CAP agri-environmental payments and EU Rural Development Plans) is providing huge financial benefits for the strengthening of organic agriculture sector but other four countries (Pakistan, Sri Lanka, Uganda, and Australia) are not providing adequate financial support directly to organic agriculture sector.

Sixthly, Australia (DAWR) is using a unique feedback mechanism in the agriculture sector i.e. Green Paper and White Paper for the inclusion of agriculture stakeholders' feedback in the policymaking and financial benefits but this mechanism is not used in the organic agriculture sector which can improve the policymaking process. However other four countries have not introduced this kind of comprehensive feedback mechanism in agriculture.

Seventhly, in case of extension services, mostly non-profit organization and limited government bodies are involved in the provision of extension services and

knowledge dissemination. Different bodies are providing extension services for organic agriculture as: In Italy: SINAB (government), FederBio (non-profit), AIAB (non-profit); In Pakistan NIOA (government), extension departments of agriculture department (government); in Sri Lanka: EDB (government) and LOAM (non-profit), in Australia: NASAA (non-profit), AOL (non-profit) and OFA (non-profit), in Uganda: NOGAMU (non-profit). However Italy has unique and more effective government institution (SINAB) for the knowledge dissemination for organic sector which is offering huge amount of information on organic agriculture (on its website).

In conclusion all the countries have some unique aspects for the strengthening of the organic agriculture sector which is providing opportunity to learn lessons and implement in their country. Pakistan can adopt the unique aspects of other countries which are learned from this study and other countries can also adopt from the unique aspects of Pakistan organic sector, for the development of organic agriculture sector.

5.2 Policy Recommendations

- There is need to devote a comprehensive part for organic agriculture promotion in the agriculture policy of Pakistan and align these policies with the fertilizer policy for the application of strategies in one direction.
- Government institutes of Pakistan should make sure the application of policy measures through the unique promotion strategies (organic awareness campaigns, minimize the cost of certification, tax exemptions in the conversion period from conventional to organic farming, increase availability of organic fertilizers and pesticides through providing incentives to the organic inputs production industry)

- Develop a comprehensive feedback mechanism (e.g. Green Paper and White Paper of Australia) in Pakistan, to increase participation of agriculture sector stakeholder and effectively use it for the development of organic agriculture policy
- Introduce an institute (for example SINAB of Italy) in Pakistan and other three countries, for the provision (online) of all the information and knowledge regarding organic agriculture activities (legal regulation, authorized certification bodies, organic organization, and practices), of the country to make the dissemination of information easy and time-consuming
- Enhance the development and implementation of National Organic Standards and local certification bodies to minimize the cost of certification in Pakistan and Sri Lanka
- Develop the national organic institutes and organic organizations (especially non-profit) in Pakistan to improve coordination among national (farmer and consumer associations, government bodies, and other stakeholders) and international bodies (IFOAM, etc.)
- Align national policies (on agriculture, food security, fertilizer) of Pakistan and other four countries, into one direction for the development of an independent organic agriculture policy because contradiction on the use of organic and inorganic inputs is creating confusion among the agriculture practitioners
- Promote an approach in Pakistan to initially develop organic agriculture sector (parallel to conventional) for the purpose of exports rather than shifting completely from conventional to organic methods due to its high-profit margin

- Increase financial support for the organic agriculture sector in Pakistan and other four countries through prioritizing organic agriculture in loan schemes of financial institution, tax exemptions, the inclusion of private sector investment and insurance schemes (e.g. Farm Management Deposits of Australia)
- Incorporate unique ideas in Pakistan for the promotion of organic products in the community i.e. Bio districts, bio canteens, organic catering in institutes, organic shops in supermarkets, educational courses in different areas

5.3 Limitation of the study

The limited availability of agriculture policy documents on the agriculture departments' websites has made difficult for this study to analyze more documents. Secondly the language barrier (in the case of Italy and Sri Lanka) has resulted in the form of limited access to the data collection sources. Thirdly scattered information availability can lead to misleading results. Fourthly inconsistency in the development of agriculture policies has made difficult for this study to analyze same year's policies.

5.4 Future Perspectives

This study is purely quantitative in nature which has analyzed the five countries on the criteria and indicators. The quantitative analysis of economic viability is an important indicator which is missing in this study due to the limited time and out of the scope of this study which should be done in future to provide clearer picture of the current scenario in organic agriculture sector. Moreover the customer response is included in feedback mechanism but not discussed in detail due to the limited time and data availability which needs to be discussed in the future studies of researchers because

customer is an important stakeholder of the organic sector. Furthermore ‘fair trade’ is also a potential part for the export market of organic products which should be analyzed in future studies.

BIBLIOGRAPHY

Al-Bitar, L. (2008). Organic farming in the Mediterranean: towards further development. *CIHEAM Analytical notes*(30).

Anjum, A. S., Zada, R., & Tareen, W. H. (2016). Organic farming: hope for the sustainable livelihoods of future generations in Pakistan. *Journal of Rural Development and Agriculture, 1*(1), 20-29.

Badgley, C., Moghtader, J., Quintero, E., Zakem, E., Chappell, M. J., Aviles-Vazquez, K., . . . Perfecto, I. (2007). Organic agriculture and the global food supply. *Renewable agriculture and food systems, 22*(2), 86-108.

Bilsborrow, R. E. (1987). Population pressures and agricultural development in developing countries: A conceptual framework and recent evidence. *World development, 15*(2), 183-203.

Bolwig, S., Gibbon, P., & Jones, S. (2009). The economics of smallholder organic contract farming in tropical Africa. *World development, 37*(6), 1094-1104.

Bourn, D., & Prescott, J. (2002). A comparison of the nutritional value, sensory qualities, and food safety of organically and conventionally produced foods. *Critical reviews in food science and nutrition, 42*(1), 1-34.

Campbell, H., & Liepins, R. (2001). Naming organics: understanding organic standards in New Zealand as a discursive field. *Sociologia Ruralis, 41*(1), 22-39.

Conacher, J., & Conacher, A. (1998). Organic farming and the environment, with particular reference to Australia: a review. *Biological Agriculture & Horticulture, 16*(2), 145-171.

De Ponti, T., Rijk, B., & Van Ittersum, M. K. (2012). The crop yield gap between organic and conventional agriculture. *Agricultural systems, 108*, 1-9.

Dimitri, C., & Oberholtzer, L. (2005). Market-led versus government-facilitated growth: development of the US and EU organic agricultural sectors.

Fairweather, J. R. (1999). Understanding how farmers choose between organic and conventional production: Results from New Zealand and policy implications. *Agriculture and human values, 16*(1), 51-63.

Faruqee, R. (1995). *Government's role in Pakistan agriculture: major reforms are needed* (Vol. 1468): World Bank Publications.

Giovannucci, D. (2006). Salient trends in organic standards: opportunities and challenges for developing countries.

Gomiero, T., Pimentel, D., & Paoletti, M. G. (2011). Environmental impact of different agricultural management practices: conventional vs. organic agriculture. *Critical Reviews in Plant Sciences, 30*(1-2), 95-124.

González, A. A., & Nigh, R. (2005). Smallholder participation and certification of organic farm products in Mexico. *Journal of Rural Studies, 21*(4), 449-460.

Guthman, J. (1998). Regulating meaning, appropriating nature: The codification of California organic agriculture. *Antipode, 30*(2), 135-154.

Hanson, J., Dismukes, R., Chambers, W., Greene, C., & Kremen, A. (2004). Risk and risk management in organic agriculture: Views of organic farmers. *Renewable agriculture and food systems, 19*(4), 218-227.

Lélé, S. M. (1991). Sustainable development: a critical review. *World development, 19*(6), 607-621.

Lernoud, J., & Willer, H. (2019). Organic Agriculture Worldwide: Key results from the FiBL survey on organic agriculture worldwide 2019 Part 3: Organic agriculture in the regions

Maxey, L. (2006). Can we sustain sustainable agriculture? Learning from small-scale producer-suppliers in Canada and the UK. *The Geographical Journal, 172*(3), 230-244.

Memon, J. A., & Thapa, G. B. (2016). Explaining the de facto open access of public property commons: Insights from the Indus Delta mangroves. *Environmental Science & Policy, 66*, 151-159.

Meulenberg, M., & Viaene, J. (1998). Changing food marketing systems in western countries *Innovation of food marketing systems* (pp. 5-36): Wageningen Pers.

Michelsen, J. (2001). Organic farming in a regulatory perspective. The Danish case. *Sociologia Ruralis, 41*(1), 62-84.

Pacini, C., Wossink, A., Giesen, G., & Huirne, R. (2004). Ecological-economic modelling to support multi-objective policy making: a farming systems approach implemented for Tuscany. *Agriculture, Ecosystems & Environment, 102*(3), 349-364.

Padel, S., & Foster, C. (2005). Exploring the gap between attitudes and behaviour: Understanding why consumers buy or do not buy organic food. *British food journal, 107*(8), 606-625.

Panhwar, F. (1998). *Women and organic agriculture in Pakistan.* Paper presented at the World Conference on Horticulture Research.

Perez, M. R. (1990). Development of Mediterranean agriculture: an ecological approach. *Landscape and Urban Planning*, *18*(3-4), 211-219.

Pimentel, D., Hepperly, P., Hanson, J., Douds, D., & Seidel, R. (2005). Environmental, energetic, and economic comparisons of organic and conventional farming systems. *BioScience*, *55*(7), 573-582.

Piyasiri, A. G. S. A., & Ariyawardana, A. (2002). Market potentials and willingness to pay for selected organic vegetables in Kandy. *Sri Lankan Journal of Agricultural Economics*, *4*(1381-2016-115738), 107-119.

Premanandh, J. (2011). Factors affecting food security and contribution of modern technologies in food sustainability. *Journal of the Science of Food and Agriculture*, *91*(15), 2707-2714.

Pretty, J. N. (1995). Participatory learning for sustainable agriculture. *World development*, *23*(8), 1247-1263.

Raynolds, L. T. (2004). The globalization of organic agro-food networks. *World development*, *32*(5), 725-743.

Rigby, D., & Cáceres, D. (2001). Organic farming and the sustainability of agricultural systems. *Agricultural systems*, *68*(1), 21-40.

Samie, A., ABEDULLAH, AHMED, M., & KOUSER, S. (2010). Economics of conventional and partial organic farming systems and implications for resource utilization in Punjab (Pakistan). *Pakistan Economic and Social Review*, 245-260.

Senaratne, D. M. A. H. (2003). Three decades of sustainable agricultural systems (SAS) in Sri Lanka: A review of institutional and policy issues. *Journal of sustainable agriculture*, *21*(3), 61-83.

Scialabba, N. (2000). *Factors influencing organic agriculture policies with a focus on developing countries.* Paper presented at the IFOAM 2000 Scientific Conference, Basel, Switzerland.

Scialabba, N. E.-H. (2007). Organic agriculture and food security in Africa. *Oslo, AiT AS e-dit*, 214-228.

Taylor, A. (2006). *Overview of the current state of organic agriculture in Kenya, Uganda and the United Republic of Tanzania and the opportunities for regional harmonization*. UN.

Ullah, A., Shah, S. N. M., Ali, A., Naz, R., Mahar, A., & Kalhoro, S. A. (2015). Factors affecting the adoption of organic farming in Peshawar-Pakistan. *Agricultural Sciences, 6*(06), 587.

Vengadaramana, A., & Jashothan, P. (2012). Effect of organic fertilizers on the water holding capacity of soil in different terrains of Jaffna peninsula in Sri Lanka. *J. Nat. Prod. Plant Resour, 2*(4), 500-503.

Viaggi, D., Raggi, M., & y Paloma, S. G. (2011). Understanding the determinants of investment reactions to decoupling of the Common Agricultural Policy. *Land Use Policy, 28*(3), 495-505.

Willer, H., Lernoud, J., & Home, R. (2011). The world of organic agriculture 2011: Summary. *The World of Organic Agriculture. Statistics and Emerging Trends 2011*, 26-32.

Zulfiqar, F., & Thapa, G. B. (2017). Agricultural sustainability assessment at provincial level in Pakistan. *Land Use Policy, 68*, 492-502.

APPENDICES

Appendix 1 Australia

These are the policy documents used in the analysis of this research:

Code	Documents	Source
AD1	Australian Agriculture Policy Review 2007	http://www5.agr.gc.ca/resources/prod/doc/pol/pub/oecd-oced/pdf/aust_e.pdf
AD2	Agricultural Competitive White Paper 2015	https://agwhitepaper.agriculture.gov.au/white-paper/white-paper-at-a-glance
AD3	National Standard for Organic and Bio-Dynamic Produce 2016	http://www.agriculture.gov.au/export/controlled-goods/organic-bio-dynamic/national-standard
AD4	Australian Organic Growth-Prospects for Growth 2004	https://organicindustries.com.au/sites/default/files/Library/Research/RIRDC03-112.pdf
AW5	Department of Agriculture and Water Resource Australia	http://www.agriculture.gov.au/ag-farm-food
AW6	Policy Recommendations 2018 of "The Greens"	https://greens.org.au/policies/agriculture
AW7	Agriculture and Food Security Initiatives	Australian Government-Department of Foreign Affairs and Trade
AW8	Fertilizer Australia	https://www.fertilizer.org.au/Fertilizer-Industry/Regulations
AW9	National Association of Sustainable Agriculture Australia (NASAA) Website	https://www.nasaa.com.au/about-nasaa.html
AW10	Organic Federation of Australia (OFA)	http://www.ofa.org.au/ofa_strategic_plan
AW11	ACO Certification Ltd	https://aco.net.au/Pages/Operators/ACOStandards.aspx
AW12	Australian Organic Ltd. (AOL)	https://austorganic.com/about-us/
AW13	Organic Industry Standards and Certification Council (OISCC)	https://oiscc.org/
AW14	International Organic Accreditation Service (IOAS)	https://ioas.org/about-ioas/
AW15	National Farmer's Federation (NFF)	https://www.nff.org.au/our-members.html

-**Appendix 1 Australia (continued)**

Code	Documents	Source
AW16	Organic Mark-IP Australia-Australian Government	https://www.ipaustralia.gov.au/tools-resources/certification-rules/1265566
AW17	Discussion Paper-from Nature to the Table-Environmental Economic Accounting for Agriculture 2015-16	https://www.abs.gov.au/ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/631a36791474cf16ca2581e6000fb26a!OpenDocument
AW18	Organic Agriculture Report by Parliament of Australia 2002	https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/Publications_Archive/archive/organic
AW19	Australian Organic Brands Pty Ltd.	https://www.australianorganicbrands.com/certified-organic/certification
AW20	Legal Vision Pty Ltd.	https://legalvision.com.au/organic-labelling-legal-requirements/
AW21	Australian Competition and Consumer Commission (ACCC)	https://www.accc.gov.au/about-us/consultative-committees

Appendix 2 Italy

These are the documents used for policy analysis of Italy:

Code	Documents	Source
ID1	Bio report 2012 Organic Farming in Italy	https://www.reterurale.it/flex/cm/pages/ServeBLOB.php/L/EN/IDPagina/10616
ID2	Organic Farming in Italy Paper	https://www.researchgate.net/publication/228581575_Organic_farming_in_Italy
ID3	Report on FAO + Italy: Partnering for food security and prosperity	http://www.fao.org/documents/card/en/c/CA2912EN
ID4	CAP in Your Country	https://ec.europa.eu/info/publications/cap-your-country_en
IW5	Ministry of Agriculture, Food, Forestry, and Tourism Policies (MiPAAF)	https://www.politicheagricole.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/202
IW6	Italian Association of Organic Agriculture or Italian Association of Agricultural Biology (AIAB)	https://aiab.it/organismidicontrollo/
IW7	FederBio (Italian Federation of Organic and Biodynamic Agriculture)	https://feder.bio/federbio/
IW8	National Information System of Organic Agriculture (SINAB)	http://www.sinab.it/content/cos%C3%A8-bio
IW9	IFOAM Report on Italy	https://www.ifoam-eu.org/en/italy
IW10	Article on "Italian Standards joins Family of Standards of IFOAM Standards"	http://www.greentrade.net/Articles61.html
IW11	CIHEAM–IAMB, Mediterranean Institute of Agronomy, research and teaching on organic farming	http://www.iamb.it/en/about/bari_institute
IW12	Information service on Agricultural Markets (ISMEA)	http://www.ismea.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/8976

Appendix 3 Uganda

The documents which are used in the analysis are given here:

Code	Documents	Source
UD1	National Agriculture Policy (2013)	https://www.agriculture.go.ug/
UD2	Uganda Organic Standards (UOS)	https://nogamu.org.ug/wp-content/uploads/2015/10/Uganda_Organic_Standards.pdf
UD3	National Fertilizer Policy (2016)	http://extwprlegs1.fao.org/docs/pdf/uga172925.pdf
UD4	Global Food Security Strategy (GFSS)-Uganda Country Plan (2018)	https://www.feedthefuture.gov/wp-content/uploads/2018/11/Uganda_GFSS_Country_Plan_Public_Version_Final.pdf
UD5	Research Report: Organic Agriculture in Uganda (2005)	http://www.thinktankinitiative.org/think-tanks/ACODE
UD6	Thesis on Organic Agriculture Development Strategies in Tunisia and Uganda	https://lib.dr.iastate.edu/cgi/viewcontent.cgi?article=4939&context=etd
UW7	National Organic Agriculture Movement Uganda (NOGAMU)	https://nogamu.org.ug/
UW8	Ministry of Agriculture, Animal Industry and Fisheries	https://www.agriculture.go.ug/
UW9	Uganda National Farmers federation	http://www.unffe.org/

Appendix 4 Sri Lanka

These documents are used in the analysis:

Code	Documents	Source
SD1	National Agricultural Policy (2015)	http://www.agrimin.gov.lk/web/index.php/en/downloads/policy
SW2	Sri Lanka Export Development Board (EDB)	http://www.srilankabusiness.com/organic/
SW3	Lanka Organic Agriculture Movement (LOAM)	https://directory.ifoam.bio/affiliates/306-lanka-organic-agriculture-movement
SW4	Sri Lanka Standards Institution (SLSI)	https://www.slsi.lk/index.php?option=com_content&view=article&id=59&Itemid=302&lang=en#organic-certification-scheme
SW5	Ministry of Agriculture, Rural Economic Affairs, Irrigation and Fisheries and Aquatic Resource Development	http://www.agrimin.gov.lk/web/index.php/en/our-services
SW6	Lanka Organics (Private Company)	https://www.lankaorganics.com/index.html
SW7	Article on the Organic Farming in Sri Lanka	http://www.colombopage.com/archive_14A/Feb25_1393314787CH.php

Appendix 5 Pakistan

These documents are used in this analysis:

Code	Documents	Source
PD1	Food Security Policy (2018)	http://www.mnfsr.gov.pk/policiesDetails.aspx
PD2	Fertilizer Policy 2001	http://www.nfdc.gov.pk/policy.html
PW3	Ministry of Industry and Production	https://fp.brecorder.com/2018/03/20180321353385/
PW4	National Institute of Organic Agriculture (NIOA)	http://www.parc.gov.pk/index.php/en/nioa-scientific-staff
PW5	Good Earth Pakistan	https://goodearthpakistan.com/what-we-do
PW6	IFOAM Accredited Certification Bodies	https://www.ifoam.bio/en/ifoam-accredited-certification-bodies
PW7	Extension and Adaptive Research (Director General Agriculture) Punjab	http://ext.agripunjab.gov.pk/
PW8	Ministry of National Food Security and Research	http://www.mnfsr.gov.pk/policiesDetails.aspx
PW9	Pakistan Council for Science and Technology	http://pcst.org.pk/functions.php
PW10	Pakistan Standards and Quality Control Authority	http://mail.psqca.com.pk/index.html
PW11	Pakistan National Accreditation Council	http://pnac.org.pk/product-certification-courses/
PW12	National Agriculture Research Centre (NARC)	http://www.parc.gov.pk/index.php/en/2013-04-11-06-13-50/narc-islamabad
PW13	Organic Bazaar at Pakistan	https://www.youlinmagazine.com/story/organic-bazaar-20-lahore/MTE2Nw==