

All messages posted from the FAO moderated e-mail conference on "Exploring the contribution of small farms to achieving food security and improved nutrition" that took place from 10-23 October 2016.

[This document contains all of the 99 messages that were posted during the FAO moderated e-mail conference on "Exploring the contribution of small farms to achieving food security and improved nutrition".

FAO hosted the e-mail conference as part of its contributions to an EU-funded Horizon 2020 research project on "Small Farms, Small Food Businesses and Sustainable Food Security" (SALSA, <http://www.salsa.uevora.pt/en/>). In this 4-year project, which began in April 2016, FAO is collaborating with 16 European and African partners to develop a better understanding of the current and potential contribution of small farms and small food businesses to sustainable food and nutrition security in an increasingly globalised and uncertain world.

The goal of the e-mail conference was to allow participants from around the world to share and discuss their experiences, lessons learned and perspectives on the contribution of small farms to food security and nutrition. The kinds of issues to be discussed included, inter alia, the characterization of small farms and the contribution of small farms to food security and its different dimensions.

Before the conference began, the 9-page Background Document, prepared by John Ruane and Karlheinz Knickel, was sent to all participants - <http://www.fao.org/3/a-bp488e.pdf> (110 KB). Its aim was to provide an easily-understandable introduction and brief overview to the conference topic.

After an Introduction, the document provided some background regarding food security and nutrition and small farms. Section 3 then described the questions that participants should address in the e-mail conference. Section 4 provided guidance for people wishing to post messages while Section 5 provided references of articles mentioned in the document, abbreviations and acknowledgements.

The 15 specific questions in Section 3 of the Background Document were grouped in four classes.

The first class (Section 3.1) included 3 questions related to defining small farms, such as the minimum or maximum size thresholds that might be used; other criteria that might be used to define them, apart from land area; and the criteria that might be used by policy-makers rather than researchers.

The second class (Section 3.2) included 3 questions about studying the contribution of small farms to food security and nutrition using the food systems approach.

The third class (Section 3.3) includes 7 questions about small farms and their role in food security and nutrition, looking at issues such as how small farms contribute now, and may do so in the future, to food security and the 4 dimensions of food security; the level (household, local, national etc.) at which food security should be studied; the impact of small farmers participating in the rural non-farm economy; the role that small farms can play in meeting the triple burden of malnutrition; and whether small farms are diversifying to meet the demand for more balanced, diversified diets.

The fourth class (Section 3.4) included 2 questions about how small farms can contribute to food security and nutrition in a sustainable way.

The conference ran from Monday 10 October to Sunday 23 October 2016. There were 462 subscribers and 59 of them (i.e. 13%) submitted at least one message. People were asked to introduce themselves in their first message and they typically provided their full work address and a description of their professional background and current occupation. Based on the address, an analysis was carried out of participation by country, geographical area and work place. Note, the analysis is based on where people were living when they posted the message and does not indicate where they come from originally.

Of the 99 messages, 31% came from people living in Africa; 28% from Europe; 22% from Asia; 9% from Latin America and the Caribbean; 8% from North America and 1% from Oceania. The majority of messages (62%) were posted by people living in developing countries. The messages came from people living in 29 different countries. The greatest number came from people living in India (15 messages), Nigeria (9), Mexico (7), Ghana (6) followed by Cameroon, Pakistan, Poland and the United Kingdom (all 5 each) and by Canada, Portugal, Spain, Uganda and the United States of America (all 4 each).

Participants in the conference also came from a wide range of work environments. Of the 99 messages, 50% were from people working in universities; 20% from people in research centres or research organisations; 11% from people working for private companies; 8% from people in non-governmental organizations; 4% from people who are farmers and/or work for a farmers organisation; 3% from people working for their government and 3% from a freelance journalist.

The conference was moderated by John Ruane, from the FAO Research and Extension Unit (<http://www.fao.org/nr/research-extension-systems/en/>). A synthesis of the discussions will be prepared and made available at <http://www.fao.org/nr/research-extension-systems/res-home/news/detail/en/c/434322/>

The Messages

Messages are numbered in order of their posting during the conference. Any messages without a number is from the Moderator.

Subject of Messages:

- : Background Document to the FAO e-mail conference on Small farms and food security and nutrition
- 1: Diversity of foods found in markets from small farms
- 2: Poverty and unawareness are major reasons for food insecurity among small farmers
- 3: Re: Diversity of foods found in markets from small farms
- 4: Contribution of small farms to the dimensions of food security
- 5: Small farms - crop diversification and livestock farming
- 6: Re: Diversity of foods found in markets from small farms
- 7: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition
- 8: Re: Poverty and unawareness are major reasons for food insecurity among small farmers
- 9: Defining small farms - Landless livestock keepers and share croppers

- 10: Constraints in establishing small agri enterprises
- 11: Small farmers diversifying the plants cultivated
- 12: Re: Defining small farms - Landless livestock keepers and share croppers
- 13: Defining smallholder farmers
- 14: Food security - Level of interest - individual, household, local, regional ...
- 15: How important is the contribution of small farms to food security and nutrition? Why?
- 16: Re: Defining small farms - Landless livestock keepers and share croppers
- 17: The claim that smallholder farmers produce around 70 per cent of the world's food
- 18: Re: How important is the contribution of small farms to food security and nutrition? Why?
- 19: Re: Contribution of small farms to the dimensions of food security

- 20: Re: Poverty and unawareness are major reasons for food insecurity among small farmers
- 21: Re: Poverty and unawareness are major reasons for food insecurity among small farmers
- 22: Defining small farms - semisubsistence farm
- 23: Defining small farms - In the southern African context
- 24: Re: How important is the contribution of small farms to food security and nutrition? Why?
- 25: Effect of food waste on small farms and food security
- 26: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)
- 27: Re: How important is the contribution of small farms to food security and nutrition? Why?
- 28: Contribution of small farms to food security and its 4 dimensions (Q. 3.3.1 and 3.3.2)
- 29: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

- 30: Re: Poverty and unawareness are major reasons for food insecurity among small farmers
- 31: Re: Poverty and unawareness are major reasons for food insecurity among small farmers
- 32: Questions about farm size and level for food security (3.1.1 and 3.3.3)
- 33: Defining small farms: Standard Output approach
- 34: Re: Questions about farm size and level for food security (3.1.1 and 3.3.3)
- 35: Re: How important is the contribution of small farms to food security and nutrition? Why?
- 36: Who we are talking about when we say smallholder
- 37: Re: Who we are talking about when we say smallholder

38: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

39: Re: Defining small farms: Standard Output approach

40: Re: Defining small farms: Standard Output approach

41: Re: Defining small farms - Landless livestock keepers and share croppers

42: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

43: Food security and farmers growing non-food crops

44: Definition of small farm

45: Defining small farms: Measuring farm output

46: Re: Defining small farms - Landless livestock keepers and share croppers

47: Points that could be also addressed in the last days

48: Re: Who we are talking about when we say smallholder

49: Drawing the boundaries of food systems

50: Definition of small farmer (Uganda context)

51: The importance of small farms in "a food system"

52: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

53: Definition of small farm

54: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

55: Re: Drawing the boundaries of food systems

56: Categories of farmers - India

57: High diversity multi-tiered small farms - how will they be classified?

58: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

59: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

60: Definition of small farms - Nigeria

61: HLPE consultation on critical and emerging issues in the area of food security and nutrition to inform the work of the CFS

62: Food systems approach (Question 3.2.1)

63: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

64: Small farms, food systems and food security in a developed economy

65: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

66: Re: Categories of farmers - India

67: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

68: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

69: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

70: Re: Categories of farmers - India

71: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

72: Re: Who we are talking about when we say smallholder

73: Comment on Question 3.1.1 - Malawi

74: Questions 3.3 related to small farms and their role in food security and nutrition

75: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

76: RAI Principles and Question 3.4

77: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

78: Re: Drawing the boundaries of food systems

79: The two questions focusing on sustainability issues (3.4.1-3.4.2)

80: Sustainable food security
81: Defining small farms // community food security // wider regional/national realities
82: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)
83: Question 3.4.1 in national & international level for food security through small farms
84: Including gender in the study and research of small farms and FNS
85: The two questions focusing on sustainability issues (3.4.1-3.4.2)
86: Question 3.4.1. How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?
87: Question 3.1.2 - What are the most important additional criteria that should be used to define small farms
88: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)
89: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

90: Definition of small scale farming (Nigeria context)
91: Responding to questions about small farms - Argentina
92: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition
93: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition
94: Contribution of small farms to food security and sustainability - Cameroon
95: Contribution to Questions 3.3.2 and 3.3.4 - Greece
96: The triple burden of malnutrition (Question 3.3.5)
97: Comment on Question 3.3.7 - Ghana
98: Comment on Question 3.1.1 - Nigeria
99: Thoughts about two questions 3.3.2 and 3.3.3 - Latvia
: End of FAO e-conference on small farms and food security and nutrition (1 message)

-----Original Message-----

From: AIS

Sent: 07 October 2016 14:26

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: Background Document to the FAO e-mail conference on Small farms and food security and nutrition

Dear Colleagues,

Welcome to all of you who have subscribed so far to this FAO e-mail conference on “Exploring the contribution of small farms to achieving food security and improved nutrition”!!

I am sending you here the Background Document to the e-mail conference. It provides information that you will find useful for the e-mail conference.

After an Introduction, the 9-page document provides some background regarding food security and nutrition and small farms. Section 3 then describes the questions that participants should address in the e-mail conference. Section 4 provides guidance for people wishing to post messages while Section 5 provides references of articles mentioned in the document, abbreviations and acknowledgements.

The document is provided below, and is also available on the FAO website at <http://www.fao.org/3/a-bp488e.pdf> (110 KB).

This conference is short, lasting only two weeks. We encourage you therefore to participate actively right from the beginning. Messages can be sent already but will only be posted to the conference from Monday 10 October onwards. The last day for receiving messages for posting will be Sunday 23 October 2016.

On joining the conference, subscribers received the Welcome Text which also contains the Guidelines for Sending Messages. Here, we would like to briefly provide a reminder of some of the main points about the running of the conference:

1. When sending their first message to the conference, participants should also introduce themselves briefly (2-3 sentences). They should also provide their full work address at the end of the message. When a message is posted, we will replace @ in the e-mail address with (at) to avoid potential spamming.

2. Messages should not exceed 600 words.

3. People posting messages are assumed to be speaking on their own behalf and not on behalf of their employers (unless they indicate otherwise).

4. Messages posted in the conference will also be made available on the web, at:
<https://listserv.fao.org/cgi-bin/wa?A0=Small-farms-L>

5. No messages will be posted with attachments. If you receive a message during the conference with an e-mail attachment, just delete it without opening the attachment.

Before sending a message, please read in particular Section 3 of the Background Document which describes the questions to be addressed in the conference. To contribute to the conference, send your message to AIS@fao.org

If any of your colleagues wish to subscribe to the conference, they should send an e-mail message to listserv@listserv.fao.org with only the following one line in the body of the message (i.e. leave the subject line blank and have no other text, such as an e-mail signature, in the message):
subscribe small-farms-L firstname lastname

Firstname and lastname refer to the person's first and last name. For example, if the subscriber's name is Joan Smith, then the line should be:
subscribe small-farms-L Joan Smith

After doing this, the person will be asked to confirm their request to subscribe. Once this is done, the person is subscribed.

We hope that the conference will be interesting, constructive and beneficial !

Best regards

John

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E-conference webpage: <http://www.fao.org/nr/research-extension-systems/res-home/news/detail/en/c/434322/#SmallFarms>

Background document to the FAO e-mail conference on "Exploring the contribution of small farms to achieving food security and improved nutrition"

John Ruane and Karlheinz Knickel

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1. Introduction

1.1 The global picture

In September 2015, world leaders gathered at the UN Sustainable Development Summit where 193 UN Member States adopted the Sustainable Development Goals (SDGs), a set of 17 aspirational objectives with 169 targets that will shape national development plans over the next 15 years to 2030. The SDGs commit countries to taking action to end world poverty and hunger and achieve sustainable development in its three dimensions (economic, social and environmental) in a balanced and integrated manner (UN, 2015).

Issues related to agriculture, food security and nutrition cut across the 17 SDGs. The second goal (SDG2) is to “End hunger, achieve food security and improved nutrition and promote sustainable agriculture”. In his plenary address at the UN Sustainable Development Summit, José Graziano da Silva, the Director-General of the Food and Agriculture Organization of the United Nations (FAO), underlined that SDG2 must be urgently pursued as rapid progress on that front is the key to the other goals (FAO, 2015).

Achieving SDG2 represents a formidable task. Worldwide, it is currently estimated that almost 800 million people are chronically undernourished, over two billion people suffer from micronutrient deficiencies (also known as hidden hunger) while, on the other side, over 1.9 billion adults are overweight, including 600 million who are obese.

Looking to the future, there are considerable challenges ahead which can exacerbate this already difficult situation. The world’s population is projected to increase from 7.3 billion in 2015 to 8.5 billion by 2030 and 9.7 billion in 2050, and nearly all of this increase will occur in developing countries (<https://esa.un.org/unpd/wpp/>). Incomes are also expected to rise in the future in developing countries, resulting in dietary changes where the proportion of grains and other staple crops in diets will decline, while the proportion of vegetables, fruits, edible oil, meat, dairy and fish will increase. With this larger, more urban and, on average, richer population, the demand for food is expected to increase substantially in future years.

Two other major drivers that are partly interrelated need to be taken into consideration. First, the agriculture sector, including forestry and fisheries, is also expected to produce more non-food products, including feed, bioenergy and bio-based materials and chemicals (e.g. European Commission, 2015). Second, the natural resources upon which agriculture depends, such as land, water and soil, are increasingly threatened by environmental degradation and climate change (FAO, 2011; OECD, 2012; EEA 2015).

In consideration of the above, it is imperative that there is a substantial shift towards sustainable food systems that produce more food, of greater nutritional value, and that manage natural resources in a way that maintains ecosystem functions to support current as well as future human needs.

Farms, and the food systems within which they operate, are extremely heterogeneous. FAO (2014) estimates that there are about 570 million farms worldwide and that the vast majority of them are small. Small farms are particularly important for low income and lower-middle income countries, where they occupy most of the farmland and are responsible for most of the food produced.

The importance of smallholders and their farms for food security has been underlined on many occasions in international fora, such as the Committee on World Food Security (CFS) which is the foremost inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all. The CFS reports to the main governing body of FAO (the ‘FAO Conference’) as well as to the UN General Assembly through the Economic and Social Council (ECOSOC). Documents and recommendations from the CFS’s work on smallholders in recent years can be accessed from www.fao.org/cfs/cfs-home/activities/smallholders/en/. In its upcoming annual session (17-21 October 2016), the CFS will discuss policy recommendations to address the key challenges and opportunities for improving smallholder access to markets (www.fao.org/cfs/cfs-home/plenary/cfs43/en/).

1.2 The e-mail conference

This FAO e-mail conference aims to take a fresh look at the contribution of small farms to food security and nutrition, allowing stakeholders worldwide to share their experiences and up-to-date knowledge regarding this important topic. FAO is hosting this e-mail conference as one of its contributions to an EU-funded Horizon 2020 research project on “Small Farms, Small Food Businesses and Sustainable Food Security” (SALSA, www.salsa.uevora.pt/en/). In the SALSA project, FAO is collaborating with 16 European and African partners to develop a better understanding of the current and potential contribution of small farms and small food businesses to food security and nutrition in an increasingly globalised and uncertain world. The project began in April 2016 and runs for 48 months.

This short Background Document aims to provide information that participants will find useful for this e-mail conference on “Exploring the contribution of small farms to achieving food security and improved nutrition”. Section 2 provides a brief overview of the different dimensions of food security; the global situation regarding food security and nutrition; small farms worldwide; and briefly discusses small farms within the context of regional food systems. Section 3 describes the main questions to be addressed in the conference. Section 4 provides guidance for people wishing to post messages to the conference. Section 5 provides references of articles mentioned in the document, abbreviations and acknowledgements.

2. Focus and basic understandings

2.1 Food security and its four dimensions

For FAO, food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life (FAO, 1996, 2008). There are four dimensions of food security, namely the availability of food; access to food; utilisation of food; and food stability. For food security objectives to be realised, all four dimensions must be fulfilled simultaneously (FAO, 2008).

The first dimension covers the availability of good quality and nutritious food from local, regional and international sources. It therefore includes issues such as food production and processing; food imports and exports; availability of food stocks and food aid.

The second dimension covers physical and economic access to food. This includes marketing and transport infrastructure, food distribution systems and markets; socio-cultural conditions enabling or hindering food access; purchasing power or having the money to buy the right food; social programmes to ensure access to nutritious food; and school meals which are nutritious and appealing to children. If food is available but people do not have the money to access it, they are food insecure.

The third dimension covers the safe and healthy utilisation of the food. This includes good health status, since healthy individuals can make proper use of food; having nutritious food choices for all age groups; food safety and quality; and access to clean water and sanitation.

The fourth dimension covers the fact that to be food secure, a population, household or individual should have adequate food at all times and should not face hunger as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (FAO, 2008). This dimension has become increasingly important because of economic fluctuations and climate change challenges that face the world, especially in developing countries, and it plays a major role in discussions about the resilience of agricultural systems (Garnett and Godfray, 2012).

Having described the four dimensions of food security, the other side of the coin is food insecurity, a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate storage or distribution, or inadequate use of food at the household level (FAO, IFAD and WFP, 2015; IFAD 2016). Food insecurity may be defined as chronic when it is long-term or persistent; transitory when short-term and temporary; or seasonal when there is recurrent, transitory food insecurity (FAO, 2008).

2.2 Global overview of food security and nutrition

The latest version of the FAO flagship report “The State of Food Insecurity in the World” indicates that some progress has been made in the fight against hunger. However, it nevertheless estimates that a staggering 795 million people (780 million in developing and 15 million in developed countries) are chronically undernourished in 2014-16, meaning that they are currently unable to consume enough calories in their food to give them the energy needed to conduct an active and healthy life (FAO, IFAD and WFP, 2015).

Figures vary considerably between world regions. The highest numbers for chronic undernourishment are in Southern Asia, Sub-Saharan Africa and Eastern Asia respectively. Southern Asia accounts for 281 million (35%) of the 795 million people. In this region, 16% of all people are undernourished. Sub-Saharan Africa accounts for 220 million (28%) of the 795 million and 23% of people in this region are undernourished. Eastern Asia accounts for 145 million of the world’s undernourished (18%) and 10% of people in this region are undernourished (FAO, IFAD and WFP, 2015).

However, even when people have access to sufficient amounts of food for their energy needs, it may not always provide them with all of the essential micronutrients, such as amino acids, minerals and vitamins, they require. For example, they may only have access to basic staple foods such as rice, which is the world’s most important source of food but is a poor source of many essential micronutrients. It is estimated that over two billion people are deficient in micronutrients such as vitamin A, iodine, iron and zinc (FAO and WHO, 2014). On the other side of the food consumption spectrum, the incidence of overweight and obesity is increasing in all regions. About 1.9 billion adults are overweight, of whom 600 million are obese (UN, 2016). Overweight and obesity increase the risk of, inter alia, cardiovascular diseases and diabetes.

While concerns about food security have historically focused on total calorie intake, today they encompass the so-called ‘triple burden’ of malnutrition - undernutrition, micronutrient deficiencies and overweight/obesity. In recent years, the importance of addressing these complex challenges has been increasingly recognized, generating fast-growing political support and commitment. This was highlighted by the FAO Director-General in his statement during the launch of the UN Decade of Action on Nutrition on 20 September 2016:

“We have seen an explosion of global interest since the onset of the world food crisis in 2008 calling for renewed action on food security and nutrition. Only in November 2014, we jointly organized with WHO at FAO Headquarters in Rome the Second International Conference on Nutrition, 22 years after the first one. This gives an idea how nutrition was neglected by the international community. At that conference, countries committed “to eradicate hunger and prevent all forms of malnutrition worldwide”. And to catalyze this process, the UN General Assembly proclaimed last April the Decade of Action on Nutrition for the period 2016-2025. The Decade constitutes a leap forward in galvanizing international attention to this fundamental issue” (www.fao.org/about/who-we-are/director-gen/faodg-statements/detail/en/c/434507/).

2.3 Small farms

The more specific goal of this e-mail conference is to explore the contribution of small farms to food security and nutrition. First, what do we know about the world’s farms? Recent analyses of national agricultural census data from 167 countries and territories, described in detail by FAO (2013) and Lowder et al. (2014, 2016) and summarized in FAO (2014), indicate that there are at least 570 million farms spread around the world.

Roughly three-quarters of these farms are in Asia. An estimated 35% are in China, 10% in the rest of East Asia and the Pacific, 24% in India and 6% in the rest of South Asia. An estimated 9% of farms are located in Sub-Saharan Africa; 9% in Europe and Central Asia; 4% in Latin America and the Caribbean; 3% in the Middle East and North Africa; and 0.5% in North America (FAO, 2013).

Analysis of land area data from national agricultural censuses in 111 countries and territories reveals large heterogeneity (FAO, 2013, 2014; Lowder et al., 2014 and 2016). For example, a small proportion of farms are very large; about 1% of farms exceed 50 hectares and they occupy roughly 2/3 of all farmland in the world. Large farms, some of which can exceed 1000 hectares, dominate agricultural production in high income countries and upper-middle income countries and in countries where extensive livestock grazing is important.

The vast majority of the world’s farms, however, are small in size. Globally, 72% of farms are less than 1 hectare in size (covering only 8% of farmland); 12% are between 1 and 2 hectares in size (covering 4% of farmland) and 10% are between 2 and 5 hectares in size (covering 7% of farmland). Thus, about 94% of farms worldwide have up to 5 hectares, occupying 19% of farmland (FAO, 2014).

FAO (2014) shows that small farms are particularly important in low and lower-middle income countries. Farms smaller than 5 hectares occupy about 70% of all farmland in low income countries and about 60% in the lower-middle income group and they produce the greater part of national food output in these countries (FAO, 2014). In high income countries, on the other hand, even though the number of small farms is high (67% of farms are up to 5 hectares), they are responsible for only 4% of the farmland.

Many small farms are associated with production for their own household food needs and with a low degree of market participation. For example, Davidova et al. (2013) report that in the European Union there are an estimated 5.8 million semi-subsistence farms (defined as "holdings from which less than 50% of the agricultural output is sold, with the remainder being consumed within the farm household"), accounting for almost half of all farms. About 70% of them have less than 2 hectares. The majority of the semi-subsistence farms are in Romania (61%), followed by Italy (11%), Poland (9%), Hungary (8%) and then Bulgaria, Greece and Lithuania with 3, 2 and 2% each respectively (Davidova et al., 2013).

Trends in farm sizes also vary by country income group. From 1960 to 2000, average farm sizes decreased in most low and lower-middle income countries whereas they increased in some upper-middle income countries and in nearly all high income countries for which information is available (Lowder et al., 2016). The authors indicate that average farm sizes are likely to continue to decrease in many low and lower-middle income countries.

2.4 Small farms within regional food systems

An important aspect of the SALSA research project is that small farms, and food businesses, will be studied within the context of the food system to which they belong. By carrying out in-depth analyses in 30 different geographical regions in Europe and Africa, the project aims to obtain a differentiated understanding of the role of small farms in very different food systems and situations. HLPE (2014) defines a food system as one which "gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socio-economic and environmental outcomes".

In its actual empirical analysis, SALSA will look at the food system (and its sub-systems) as expressed in each of the 30 regions (with boundaries defined in geographical terms, such as a district or province). As the related resource flows (e.g. of capital, production inputs, knowledge) and the exchanges of food products (raw, semi-processed or fully processed) can extend beyond the borders of the reference regions, it can be conceived that there might be flows into and out of each geographical region. The research approach briefly outlined here for SALSA is close to the more strategic territorial approach to food security and nutrition policy described in OECD, FAO and UNCDF (2016).

Having briefly provided some background in Section 2 regarding food security and nutrition and small farms, the next Section describes the questions that participants should address in this e-mail conference.

3. Main questions for discussion

The e-mail conference allows participants from around the world to share and discuss their experiences, lessons learned and perspectives on the contribution of small farms to food security and nutrition. The specific kinds of questions to be discussed by participants in the conference are described below. When addressing specific questions, it would be good if participants could discuss specific examples from their own work, experience or region as well as any lessons learned.

3.1 Questions related to defining small farms

As noted elsewhere (e.g. Davidova et al., 2013; HLPE, 2013; CFS, 2015), there is no universally accepted definition for a small farm (or a smallholder), although the most common criterion used for this purpose is farmland area. Availability of data for additional relevant criteria (e.g. farm income) may be a challenge. Furthermore, if wishing to compare results across regions, land is the most easily comparable criterion (HLPE, 2013).

3.1.1 The SALSA research project aims to study the current and potential contribution of small farms (and related small food businesses) to food security and nutrition. A key question will be the definition of the land size threshold to classify farms as small.

- What is the most appropriate threshold to use for such research purposes?
- Should the threshold be adapted to regional and national realities? (As pointed out in HLPE (2013), a farm of 50 hectares would be considered small in some countries, such as Brazil, but big in others, such as India or China).
- In order to capture as many small farms as possible which potentially contribute to food security and nutrition, it might be considered useful to set a low threshold in the research project. If so, what should it be? As for the upper threshold, should the lower threshold be adapted to regional and national realities? In addition, should the project aim to include the contribution of urban gardens and home gardens to food security and nutrition?

If possible, provide specific examples where you or others have applied certain land size thresholds in practice for research on small farms and share any lessons learned from the use of thresholds. In answering these questions, you may also wish to consider the kind of farming involved. For example, FAO (2013) shows that the criteria used by different countries for including holdings in their national census can include, inter alia, the area of cultivated crops, the number of cattle, sheep or other animal species and the size of fish ponds.

3.1.2 Ideally, when carrying out research on small farms in specific regions, additional criteria to land area would be used to determine whether they should be classified as small or not, such as the number of people working part- or full-time on the farm; the number of commodities produced and degree of specialisation; and farm income or sales. For example, farms with a lot of land and capital can be managed extensively and yield limited turnover, while small plots of land can produce high-value commodities, be intensively managed and give high economic returns.

- What are the most important additional criteria that should be used in such a research project? If possible, provide specific examples where you or others have used additional criteria in practice in research on small farms and share any lessons learned from using them.

3.1.3 The criteria used for classifying farms as small may differ for research or policy purposes. When policy-makers wish to make policies focusing on small farms (or smallholders), what criteria should they use to classify farms as small? Again, if possible, provide specific examples where you or others have applied such criteria in practice and share any lessons learned from use of the criteria.

3.2 Questions related to small farms within a food system

As described in Section 2.4, SALSAs will analyse the contribution of small farms to food security and nutrition in 30 specific European and African regions using the food systems approach.

3.2.1 Compared to other approaches, what are the advantages and disadvantages of applying this food systems approach to study the contribution of small farms to food security and nutrition?

3.2.2 What is the best way to define the boundaries and characteristics of a regional food system?

3.2.3 In quantitative terms, what methods would you use to assess the contribution of small farms in a particular region to meeting the demand for food within the same region?

3.3 Questions related to small farms and their role in food security and nutrition

3.3.1 How important is the contribution of small farms to food security and nutrition? Why?

3.3.2 As outlined in Section 2.1, there are four dimensions of food security, namely the availability of food; access to food; utilisation of food; and food stability. How exactly do small farms contribute to each of the dimensions of food security? If possible, provide specific examples from your own work, experience or region.

3.3.3 Food security can be studied at different levels/scales, such as the individual, household, local, national and global level. The level at which it is studied will influence the analytical instruments that are used (e.g. analysis of national statistical data or organization of local-level interviews) and the potential relevance of the results. Which is the most appropriate level to use when we wish to study the contribution of small farms to food security and nutrition?

3.3.4 Many small farmers participate in the rural non-farm economy to generate additional income. Does this increase the contribution of small farms to food security and nutrition?

3.3.5 As described in Section 2.2, policy-makers worldwide are seeking to tackle the ‘triple burden’ of malnutrition - undernutrition, micronutrient deficiencies and overweight/obesity. Do small farms have a particular role to play in meeting the challenges of any specific one or all of these three ‘burdens’? If so, how?

3.3.6 The importance of healthy, balanced, diversified diets is increasingly recognised (e.g. FAO and WHO, 2014). In view of this, some small farmers may undertake crop diversification or diversify out of crops into aquaculture and livestock. Developments may vary across different parts of the world. What are your observations? Also, do you think that in small farms the share of staples in the output is higher than in large farms?

3.3.7 As mentioned briefly in Section 1.1, the future presents a number of major challenges for humankind, including population growth, natural resource depletion and climate change. Given these major challenges, do you expect that small farms will make a greater contribution to food security and nutrition in the future than the present? If so, why?

3.4 Questions related to small farms and achieving food security and improved nutrition in a sustainable way

3.4.1 Driven by the SDGs, sustainability development is now central in the international development agenda. Sustainable development involves three dimensions - environmental, social and economic – and it is in manifold ways connected with food security and nutrition. How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?

3.4.2 Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition?

4. Instructions for sending a message

Before submitting a message to the e-mail conference (to AIS@fao.org), participants are requested to:

- a) Ensure that it addresses one of the questions in Section 3 (ideally, provide the question number).
- b) Limit its length to a maximum of 600 words.
- c) Follow the 'Guidelines for Sending Messages' contained at the end of the Welcome Text that participants receive when they subscribe to the conference. Among other things, the Guidelines note that participants: are assumed to be speaking on their own behalf and not on behalf of their employers (unless they indicate otherwise); should introduce themselves briefly in their first posting to the conference, providing also their full work address at the end of the message; and may not post libellous, insulting or defamatory messages or materials, or links to such materials and should exercise tolerance and respect toward other participants whose views may differ from their own.

5. References, abbreviations and acknowledgements

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ABBREVIATIONS: CFS = Committee on World Food Security; EEA = European Environment Agency; FAO = Food and Agriculture Organization of the United Nations; HLPE = High Level Panel of Experts (advises the CFS); ICN2 = Second International Conference on Nutrition; IFAD = International Fund for Agricultural Development; OECD = Organisation for Economic Cooperation and Development; SALSA = Small Farms, Small Food Businesses and Sustainable Food Security (a Horizon 2020 research project); SDGs = Sustainable Development Goals; UNCDF = United Nations Capital Development Fund; WFP = World Food Programme; WHO = World Health Organization.

ACKNOWLEDGEMENTS: This document was prepared by John Ruane (FAO Research and Extension Unit, www.fao.org/nr/research-extension-systems/en/) with support from Karlheinz Knickel (Instituto de Ciências Agrárias e Ambientais Mediterrânicas, Universidade de Évora, Portugal, www.icaam.uevora.pt/). The many constructive comments from the following people who reviewed a draft version of the document are gratefully acknowledged: Gianluca Brunori and Stefano Grando (both from University of Pisa, www.unipi.it); Catherine Darrot (Agrocampus Ouest, www.agrocampus-ouest.fr); Sophia Davidova (University of Kent, www.kent.ac.uk); Dominic Duckett (James Hutton Institute, www.hutton.ac.uk); Dominic Glover (Institute of Development Studies, www.ids.ac.uk/); Mark McGuire (Senior Programme Coordinator, Food Security and Nutrition, FAO); and Bill Vorley (International Institute for Environment and Development, www.iied.org). The authors are responsible for any errors.

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-----Original Message-----

From: AIS

Sent: 10 October 2016 15:11

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 1: Diversity of foods found in markets from small farms

I am Mr. Nchende Valentine, an agriculture and food processing engineer and currently working with the Cameroon Ministry of Agriculture and Rural Development as the Divisional Delegate of Agriculture in the Nkam division of the Littoral region. I am a trainer in farmer business school for the GIZ and have experience with a project that deals with improving the competitiveness of family own farming exploitations.

The diversity and abundance of food found in markets for human consumption originate from small farms. Each small or family own exploitation has its culture (history and ethics), aspirations and difficulties, that pushes them to produce a specific type of crops different from other producers leading to the diversity of food available in the market for human consumption thereby affecting directly food security and human nutrition.

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littoral Region,
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-----Original Message-----

From: AIS

Sent: 10 October 2016 16:56

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 2: Poverty and unawareness are major reasons for food insecurity among small farmers

Hello everyone, nice to share my experiences. I am Arbab Ghulam Qadir, an Agri. Economist (M.Sc.) and a community development professional with variety of over 16 years working experience. Currently, I am working with Management & Development Centre as Senior Monitoring & Evaluation Coordinator and am mainly responsible for conducting agriculture/livelihood based baseline surveys & end project evaluations. I am also doing my Ph.D in economics with a research focus on livelihood opportunities and issues of elderly people in Pakistan.

Based on my working experience in rural areas of Sindh, Province of Pakistan, I am of the opinion that the major reason for food insecurity among small farmers is economic access to food. In other words, poverty and awareness on nutrition needs are two main reasons behind the food insecurity among the rural community. More than 70% of the population in Pakistan resides in rural areas and they are directly or indirectly dependent on agriculture. Food intake habits depend mainly on their purchasing power. Therefore, since centuries, the small farmers are hand to mouth which leads them to survive on basic food items with vegetables and pulses. Eating meat or fish is considered to be a big luxury among those households. The majority of small farmers cannot even think to eat fruits because they cannot afford it.

Some of those small land holders who manage to save and reinvest in agriculture or livestock become comparatively larger farm holders. But still they continue same dietary pattern (food intake) due to their tendency to save more and less importance given to nutritious food. This shows their level of unawareness about nutrition needs and preference to balanced diet and saving. For example, I have seen families living in desert areas of Sindh province with small holding of two or three cows and eating simple food for living. And surprisingly the same eating patterns, I have observed among the family members of a household with more than 500 cows and other livestock animal holding.

Therefore, in my opinion, in addition to other efforts to eradicate food insecurity, the major focus should be to explore the dietary pattern among small land holders and dig out reasons behind those patterns so that solutions can be worked out to bring a change by creating awareness of the benefits of balanced diet in the long run.

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-----Original Message-----

From: AIS
Sent: 10 October 2016 17:28
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 3: Re: Diversity of foods found in markets from small farms

I am Julian Policetti, founder and director of Mother Teresa Rural Development Society, in the district of Nalgonda, Telangana state, India. I am glad to take part in the FAO e-mail conference on "Exploring the contribution of small farms to achieving food security and improved nutrition."

We are working for poverty alleviation through rural development programs like women empowerment and sustainable agriculture as main activities. We form the groups of women and farmers and train them in agriculture to grow various crops. These women and farmers are working as small associations and cooperatives providing various services to the individual and groups of farmers to grow various crops. The products are procured by the groups and cooperatives, store, and make the food grains and vegetables locally in the villages available for the people. The remaining products are sold in nearby markets. The small farmers also bring these products into nearby markets. These products are organic and nutritious and the food is secured for the local people so that it is not gone to the middle men, landlords and bigger shops.

Julian Policetti
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-----Original Message-----

From: AIS

Sent: 11 October 2016 14:46

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 4: Contribution of small farms to the dimensions of food security

My name is Nkwah Azinwi Ngum. I am an Msc holder in environmental economics, rural development and agrifood from the University of Yaounde II, Cameroon. I am a Commonwealth respondent and freelance community worker with focus on issues of rural women and business development manager at Union Farms of Africa.

I have been working with the rural communities for over three years and over this time I carried out a research to see if small farms which are mostly cultivated by women contribute to the food security needs (dimensions) of the household or community.

Food security, as we all know, is made of four principal dimensions, that is availability, accessibility, utilization and stability.

In Cameroon, where close to 8 million of its approximately 22 million population is rural and made of about 60.000 small farms, their contributions to food security are enormous.

1. Availability: Many of the high value nutritive food crops like pulses, fruits and vegetable that are labour intensive are mostly cultivated by small farm owners. This indicates that small farms are able to produce food crops that can contribute to food security.

2. Accessibility: Because small farms are labour intensive, they employ a majority of the rural population and incomes are strengthened when small farms expand their activities to integrate production and processing. For example, farmers of cassava in the South West region have been able to increase their income from the processing of cassava into starch and cassava flour which they can sell in the local market to make extra money to cater for the household.

3. Utilization: small farms have the ability to diversify their production to meet the food needs for the household and community. For example, a small farm with just 1 hectare of land will prefer to divide its land to cultivate 2 or 3 different food crops such that the food need of their family can be ensured. This ability of small farms is further strengthened by some training like the farmers business school to enhance food security.

Small farms therefore play a vital role in improving the dietary patterns both of the rural and urban population though they are consistently being limited by poor infrastructure like road network.

4. Stability: Price fluctuations and climate change are major factors that affect the stability component of food security, however small farms have been able to manage these situations. They can preserve a share of their harvest to feed the family in case of these situations. During the 2008 food riots in Cameroon, the rural community which are the custodians of small farms were relatively not affected.

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-----Original Message-----

From: AIS

Sent: 11 October 2016 14:47

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 5: Small farms - crop diversification and livestock farming

I am Morshed Alam, President of Bangladesh Animal Agriculture Society (BAAS). Personally, I had my graduation in Agricultural Science and involved in various organizations dealing in agriculture, especially livestock and poultry. The associations I worked for are World Poultry Science Association Bangladesh Branch

(WPSA-BB) as Vice-President; Animal Health Companies Association of Bangladesh (AHCAB) as founder Secretary General; Consultant for International Development and Research Centre (IDRC), Canada.

Small farmers are the driving force of the rural economy. The growing population of Bangladesh is affecting the size of farms and the average farm size is reducing and the scope of modern cultivation system narrowing. It is also affecting the deforestation and the ecosystem. Shifting of rural people to urban areas due to more job scope at urban areas is a big concern to the policy makers.

Two most important areas to overcome these are - crop diversification and livestock farming. Till now the cropping system is centred on cereals rather than others like horticultural crops and vegetables. To feed the ever growing population people will need more food, not to fill the stomach only but also to provide quality nutrition, especially the kids and women. Shift of a portion of the whole land occupied by the household to vegetables and livestock will add value to their livelihood to attract them to stay in the rural area rather than shifting to urban areas. Poultry is a very special farming to utilize per unit of land efficiently, less carbon footprint on earth, more women can be engaged in the scavenging and semi scavenging farming. It is also a source of daily nutritious food for the household. Also cultivation of vegetables will add value to their income and nutrition. Small dairy and cattle farming will utilize the uncultivable lands by growing forage. About 2.5 million cattle and equal number of goats are slaughtered in 7 days during the holy occasion Eid Ul Azha of 85% muslim community of Bangladesh and these come from small farmers who rear 2-10 cows per farm throughout the year for that occasion. Black Bengal Goat is a famous goat breed of Bangladesh which can't grow in large scale due to peste des petits ruminants (PPR) disease and the only alternative is small farming of average 2-5 goats per farm.

Bangladesh is a densely populated developing country and small farms are the best choice for the policy makers to face the poverty alleviation and malnutrition of the people.

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-----Original Message-----

From: AIS
Sent: 11 October 2016 14:48
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 6: Re: Diversity of foods found in markets from small farms

I am Mr. Yves Stephane Ngaleu and currently working with the Cameroon Ministry of Agriculture and Rural Development at the divisional delegation of Mfoundi - Center region - Cameroon. I am an extension for the GIZ and have experience with a project that deals with improving the competitiveness of family own farming exploitations (Le Programme d'Amélioration de la Compétitivité des Exploitations Familiales Agropastorales (ACEFA, <http://www.acefa.cm/en/>).

Family own farming exploitations have the possibility to have a good nutrition because most of the crops that are been sold in the big cities come from them. Where they have difficulties is the management of their finance and good knowledge on food nutrition.

Cooperatives and unions of cooperatives are being put in place to help farmers, these are very good initiative on which it will be more interesting if they add exchange section to empower farmers capacities on effective management of their revenue and good notion on food security and nutrition.

Yves Stephane Ngaleu
Cameroon Ministry of Agriculture and Rural Development
Mfoundi
Cameroon
E-mail: ngaleuyvesstephane (at) gmail.com

-----Original Message-----

From: AIS

Sent: 11 October 2016 14:49

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 7: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Bazyli Czyżewski. I am a researcher from the Poznań University of Economics and Business (Poland) dealing, inter alia, with the issue of sustainable agriculture and small farms.

There are 600,000 to 800,000 small farms in Poland according to different definitions. The question how small farms can contribute to the sustainable development (in which dimensions) is the tricky one. According to my research and observations I can say in which dimensions they'd rather not. Paradoxically, it is the environment. Small farms are not environment friendly. They cause relatively more damage than big ones, especially when they get money to enhance their production. It is the old question of inducing progress in agriculture. Small farms lack knowledge of ecologically friendly practices and lack ecological consciousness. It takes much more time to induce knowledge and awareness than to improve productivity. Even if small farms get means they implement in the first line the cheapest, old technology (fertilizers, machinery) which is not environmentally friendly. You can find our research results supporting these thesis here:

<https://www.researchgate.net/project/Environmental-Impact-of-Different-Models-of-Agriculture>. Thus, the aspect of social sustainability and vitality of rural areas is the more important here but these goals can be achieved unfortunately at some expense of the environment.

Bazyli Czyżewski, PhD. (hab.)

Associate professor

Department of Education and Personnel Development

Investigator in Research Group of Macroeconomics and Agricultural Economics Department

Poznań University of Economics

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-----Original Message-----

From: AIS

Sent: 11 October 2016 14:50

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 8: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

My name is Francisco Gurri, PhD. I work at the Colegio de la Frontera Sur (ECOSUR), Southern Mexico with Maya agriculturalists.

In response to Message 2 (by Arbab Ghulam Qadir):

I haven't been to Pakistan but I wonder if your impression about farmer diet and its nutritional value is based on systematic diet observations, 24 hour recalls, food frequency questionnaires etc., or are just impressions from the field. Some of your statements do not agree with most case studies showing that traditional food systems are highly complementary. Perhaps rather than judge their system a priori, it would be wise to see why it has survived. Trying to change food systems based on western commercial ideas has often lead to nutritional crisis.

Francisco D. Gurri García, Ph.D.

Investigador Titular C y Coordinador:

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-----Original Message-----

From: AIS

Sent: 11 October 2016 14:51

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 9: Defining small farms - Landless livestock keepers and share croppers

I am Mahesh Chander, Principal Scientist with Indian Council of Agricultural Research (ICAR) and currently, Head, Div of Extension Education at ICAR- Indian Veterinary Research Institute, Izatnagar, India. My job responsibilities include post-graduate teaching, research and field extension activities for livestock development. I consider this as one good opportunity to take part in this FAO moderated e-mail conference on "Exploring the contribution of small farms to achieving food security and improved nutrition".

We often encounter landless livestock keepers and share croppers, who don't own land but contribute to food production substantially. My question, thus, relate to defining small farms.

Food is provided not only by the land-owning family farmers, but millions of share croppers and landless livestock owners in countries like India contribute to food production. While land owners may be enjoying the rights on land like collaterals and choice on what to and what not to produce, the share croppers work in the field, actually producing food with their own hands but without much decision making opportunities. Where do such food producers stand in defining the categories of farmers? Is there a way to measure their contributions or policies to enhance productivity of such systems? Since they don't own land, credit institutions don't consider them for loans to expand their production activities more creatively or on business pattern. Is there a way to help out this category of farmers or to enhance their productivity? There have been some studies on share cropping and landless livestock keeping including by the forest dwelling communities. If we consider such systems important from the point of view of food production and even employment generation, should there be some policies to formally recognize them as food producers worth taking note of while shaping right policies? I would like to hear from participants on their experiences about these vulnerable contributors to food.

Mahesh Chander
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[Share cropping is a system of agricultural production where a landowner allows a share cropper to use the land in return for a share of the crop (or its proceeds) produced on the land...Moderator]

-----Original Message-----

From: AIS
Sent: 11 October 2016 14:52
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 10: Constraints in establishing small agri enterprises

I am Dheeraj Mishra, Assistant Professor (Agricultural Extension) currently working for the development of agripreneurship among the students of B.Sc. (Agriculture) of Gwalior region of Madhya Pradesh, India. Most of these students belong to families having small and marginal land holdings. It is my pleasure to share my experience at this forum.

Here, I mention the two major constraints I have faced during my work.

1. Strong belief in social customs: Small farmers of this region have very strong belief in social customs e.g. caste based farming enterprise, etc. The majority of students were not ready to leave their traditional family occupation/enterprise. 'Kushwahas', a caste of vegetable growers, generally ignore cultivation of ornamental crops which is more profitable. To overcome this problem, we are regularly organizing sensitivity training sessions for our students.

2. Marketing of small quantity product: The second major constraint is marketing of small quantity product. We are working on providing buy-back guarantee to our entrepreneurs by establishing a direct linkage between producers and retailers of Gwalior district.

Dheeraj Mishra
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-----Original Message-----

From: AIS
Sent: 11 October 2016 14:53
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 11: Small farmers diversifying the plants cultivated

I am Dr Praveen Kumar Shrivastava, Associate Professor, Department of Chemistry, D.B.S. Post Graduate College Kanpur UP India. I am glad to take part in this e- conference.

In my district, malnutrition is very common and prevailing in all sections of society. The main reason for this is we forget to use traditional knowledge of our forefathers. In modern parlance we call it tribal knowledge or ethnobotanical knowledge.

Each place has its own genus and species of plants and they are available for consumption. Due to lack of knowledge and awareness we are not using it. Use of these plants along with present food will help us to fight against hunger and malnutrition.

These plants are available in all places. To cultivate them by farmers in their meagre land, it is a crime. If we cultivate these plants there is no market and, for self-consumption, I as a farmer will never do it. Instead, I wish to cultivate these plants on land available in front of my house which belong to gram samaj government land or near street or any other unused land which is not cultivated so far.

It is possible some or all plants are not grown in area/place. Area-specific plant and their ethnobotanical survey is a must to combat malnutrition. Once self- consumption has started and then market will emerge so, in this way, small land holding farmer will gain additional money to sell unconsumed product.

There is district-wise survey for ethnobotanical plants and some important plant can be grown in that place to get desired materials. List is very long and it is very informative. For example *Asparagus racemosus* Wt.; *Bauhinia purpurae* Wt. & Arn.; *Bauhinia variegata* L.; *Oerrhravia diffusa* L.; *Butea monosperma* Kt.; *Cassia fistula* L.; *Dioscorea bulbifera* L.; *Embllica officinalis* Gearth.; *Ficus glomerata* L.; *Cassia floribanda* L.; *Jasminum auriculatum* L.; Lettuce (*Lactuca sativa*) - an annual plant of the daisy family Asteraceae; *Mahuhua Madhuca longifolia* ; *Moringa oleifera*; *Achyranthes aspera* L.; *Nymphea sentilla* L.

Some of above plants are cultivated and market is available but they are not a substitute of main crops. This way we have two types of food - one which we are familiar with and food items which we are not familiar. To use non familiar food items is a real challenge. This challenge can be overcome by use of internet, school, college and all medium to disseminate this knowledge including government machinery to use non familiar food items.

Research for keeping in mind to fight malnutrition and grow more food to eat will certainly help small and very small farmers. They will get additional material to sell and get money. This way we can solve problem "to small farms and their role in food security and nutrition"

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-----Original Message-----

From: AIS
Sent: 11 October 2016 16:43
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 12: Re: Defining small farms - Landless livestock keepers and share croppers

I am Loupa Pius, working with the Dodoth Agro-Pastoralist Development Organization (DADO), based in Kaabong, Karamoja region, Uganda. I work as the project coordinator for Conservation Agriculture project. DADO is a local, non-governmental, non-political non-profit making organization founded in July 1996 by the agro-pastoralist communities in Kaabong district. As a community based organization (CBO), DADO was to provide livestock extension services and other related efforts to bring peace and reconciliation among the ethnic groups in north Karamoja. After a decade of its operation as a CBO the organisation was formally registered as a national non-governmental organisation (NGO) with the NGO board.

Well on the pastoralist view. Small farms are generally contributing to food security sustainability across the global rural village. Actually they feed the poor and the urban world with comparatively cheap price commodity. So small farms cannot only be defined maybe by land size but can also be shared, by livestock keepers who are landless but equally share the natural resources and they equally contribute to world food security.

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-----Original Message-----

From: AIS
Sent: 11 October 2016 17:39
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 13: Defining smallholder farmers

This is Dick Tinsley, professor emeritus Department of Soil & Crop Sciences, Colorado State University. While based in the USA, my entire 30 year career has been working with smallholder farmers and their communities. A few years ago I synthesized my career into the text "Developing smallholder agriculture: A global perspective", which is now available from Amazon. I also manage the website <http://www.smallholderagriculture.com/> from which I hope to make various references during this e-conference.

As an agronomist, my concerns for nutrition is how limited nutrition will impact on crop production and food security. My concern is that if you are expecting smallholder farmers to put in a full day of agronomic field work they need a daily diet of some 4000 kcal. Anything less and they will have to reduce their hours or the diligence of their effort. Unfortunately they usually have access to only half that amount. This will severely restrict the work day, prolong the period it takes to complete various agronomic tasks with corresponding loss in potential yield and food security. I think and seek comments and advise from this forum that until the farmers have access to the 4000 kcal their priority will be access to calories rather than seeking a more balanced diet. If not, their work day will be shortened and food insecurity will be increased.

Part of this is a need to look at the operational feasibility of the innovations we propose for smallholders. This appears to be an administrative void between the biological and social scientists. Please visit the webpages below (*) from the mentioned website. You might even consider printing out the poster and posting it on your wall. It is not a pretty picture but a critical one.

Continuing my introductory theme of operational feasibility, one perhaps novel way to define smallholders could be their operational resources and how that might impact on farm size. In this case:

1. Hoe, when confined to hoes the land size would be restricted to 1.5 ha at most, and that poorly managed as it will take up to 8 weeks for the farmers to complete basic crop establishment. By this time, the Time of Planting decline will make it improbable they will even come close to meeting food security needs. The bottom line is you cannot hoe your way out of poverty!
2. Enhance this to access to contract tillage for basic land preparation and the prospects improve immensely, and you have a reasonable chance to meet food security needs plus diversify into value chain crops. This mostly from more timely planting and not taking into consideration the potential to expand the area cultivated.
3. Similarly, look at what happened in Thailand with the shift from water buffalo to power tillers, this more than halved the crop establishment period and, with rice security established, the farmers diversified into such things as poultry over fish ponds. Case study on this at: <http://smallholderagriculture.agsci.colostate.edu/basic-premise-was-something-overlooked/> One might also consider that as Thailand became one of the Asian Tiger economies, you could have land ownership continue to fragment with inheritance while actual operational holding expanded. As people moved to more economically valued jobs in the cities, they left the land to their siblings under a share cropping arrangement so shortly after harvest they would return to the village to get a few bags of rice as their share, most likely 30% of the yield.

Just an alternative means of defining smallholder farmers.

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Reference:

Tinsley, R.L. Developing smallholder agriculture: A global perspective. AgBé Publishing
<http://www.smallholderagriculture.com/>

* <http://webdoc.agsci.colostate.edu/smallholderagriculture/OperationalFeasibility.pdf>
<http://smallholderagriculture.agsci.colostate.edu/calorie-energy-balance-risk-averse-or-hunger-exhasution/>
<http://webdoc.agsci.colostate.edu/smallholderagriculture/DietPoster.pdf>

-----Original Message-----

From: AIS
Sent: 11 October 2016 17:44
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 14: Food security - Level of interest - individual, household, local, regional ...

This is Dick Tinsley, again, responding to Question 3.3.3 regarding the level of interest for food security - individual, household, local, regional...:

The most critical would be local or community level. Traditionally this has been the household, but I think that might have misled the effort. Smallholders usually operate and interact in communities which would be the area and production lands over which the mobile resources like labor or contract tillage migrate. If you will excuse the Christian proverb of "Robbing Peter to Pay Paul", the problem is that you can concentrate your mobile resources such as labor on one farm to demonstrate substantial potential, but if the laborers are actually smallholder farmers you will be denying them the opportunity to work their own land, and what is easily demonstrated may not be extended.

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-----Original Message-----

From: AIS
Sent: 11 October 2016 17:45
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 15: How important is the contribution of small farms to food security and nutrition? Why?

My name is Phelix Oyath. BA Economics/Sociology. I work at One Acre Fund (Western part of Kenya for 6 years now).

In response to Question 3.3.1 ("How important is the contribution of small farms to food security and nutrition? Why?"):

From my own understanding of small farms based on where I come from, refers to greater population of rural households with less than 1 acre piece of land. These larger cohort whose greater population comprises women and children is able to fight hunger and poverty through meaningful training on good crop production techniques, availability and accessibility of quality seeds and fertilizer through credit scheme cum well organized work group labor.

Through such initiative, I have witnessed tremendous improvement in yield of these farmers in such a way that they have produced more food to feed themselves and their family as well as having surplus to sell to the local market towns hence earning income to improve their livelihood.

We therefore cannot rule out the fact that small farms in sum whole contribute a lot to solving the problem of food insecurity and nutrition first to farmers themselves and their households then to the larger population through sale of their surplus produce.

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-----Original Message-----

From: AIS
Sent: 12 October 2016 11:21
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 16: Re: Defining small farms - Landless livestock keepers and share croppers

This is Mahesh Chander, again.

I agree with Loupa Pius (Message 12) that "small farms cannot only be defined maybe by land size but can also be shared, by livestock keepers who are landless but equally share the natural resources and they equally contribute to world food security". Someone having just 1 ha of land may own a herd of over 200 goats or nomads with a herd of 500 sheep or other species, how are we going to classify them? There can be a basis of livestock units equivalent to decide size of farms based on livestock units owned by a family. A large farmer may own only a few livestock units while a small holder has a big number of livestock units - large farmers (landholders) often keep fewer livestock but small holders routinely keep more livestock comparatively in India at least.

I wish to emphasize also the diversity of food products contributed by small farms unlike large farms which often are specialized and more focused on monocultures than being diversified. The livestock units contribute cowdung/farmyard manure needed for growing crops organically substituting chemical input use in agriculture-

environmentally safe foods and less polluting the environment. The large farms tend to be more dependent on chemicals compared to small farms which often supply organic foods with huge diversity. In India, over 650,000 (largest number in any single country) small scale farmers are engaged in organic food production. Thus, when we say contribution of small vs large farms in terms of quality of food produced, the small farmers may be much ahead. Can quality, including nutrition profile of food produced, be criteria to classify small & large farmers?

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-----Original Message-----

From: AIS
Sent: 12 October 2016 11:22
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 17: The claim that smallholder farmers produce around 70 per cent of the world's food

My name is Dominic Glover. I'm a Research Fellow at the Institute of Development Studies (IDS, Brighton, UK) (www.ids.ac.uk) and a member of the STEPS Centre (www.steps-centre.org), which investigates technical, social and ecological pathways towards sustainability. My work focuses on technology and technological change in small-scale agriculture in low- and middle-income countries. I have carried out research on rice cultivation systems and the commercialisation of transgenic crops in various countries, notably the Philippines, India, Nepal, and Madagascar. I'd like to thank the organisers for convening this e-conference.

My contribution relates to question 3.3.1 from the background document, 'How important is the contribution of small farms to food security and nutrition?'. On this question, participants might be interested to look at a discussion that took place online, on the ResearchGate professional network, some months ago (I launched the discussion in July 2014 but the most recent contribution is dated 9 September 2016).

The discussion focused on the claim that smallholder farmers produce around 70 per cent of the world's food, and whether there is a clear and reliable source for this statistic.

The question attracted more than 35 followers and more than 30 contributions but, as you will see, we did not really identify a reliable source for the claim. This raises questions about how such a 'factoid' comes into existence, as well as more technical issues such as how to define the question and key parameters such as 'smallholders', and how to gather and analyse the data needed to answer the question.

Despite not finding a source for the claim, a number of useful source documents and references were cited by the contributors, and it also became evident that quite a few international researchers are actively investigating this issue and related topics, or are interested in doing so.

I think that new contributions to the ResearchGate (RG) discussion would still be welcome (although I do not want to divert traffic away from the current e-conference!). Non-members of the RG network can view the discussion but you have to have an RG account in order to post messages there.

You can find the discussion at https://www.researchgate.net/post/Smallholder_farmers_produce_70_per_cent_of_the_worlds_food_Whats_the_source_for_this_number

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ResearchGate: http://www.researchgate.net/profile/Dominic_Glover

-----Original Message-----

From: AIS
Sent: 12 October 2016 11:24
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 18: Re: How important is the contribution of small farms to food security and nutrition? Why?

This is Francisco Gurri, again, responding to message 15 by Phelix Oyath:

I would argue that what Phelix Oyath is observing was true long before the availability of credit schemes, western seeds and fertilizers. In the Yucatán (Mexico), small farmers have been supporting themselves and paying taxes to maintain elite classes for at least four thousand years, and for many more years in other parts of the world. It would be wise to maintain a historical perspective to avoid giving economists and modern agronomists credit for what small householders have been doing since before the origins of banks and universities.

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-----Original Message-----

From: AIS
Sent: 12 October 2016 11:25
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 19: Re: Contribution of small farms to the dimensions of food security

My name is Georg Andersson, and I have a Msc in Biology and a PhD in Environmental Science from Lund University, Sweden. I mainly do research in ecosystem services in agriculture.

I agree with Nkwah Azinwi Ngum (Message 4) in that small scale farms are important as a buffer against economic turbulence and in times with trade limitation etc. They will be an important safety net against such fluctuations.

Furthermore, I think that small scale farms hold higher potential to preserve local varieties and crops, perhaps orphan crops, which will be important in times of climate change etc.

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-----Original Message-----

From: AIS
Sent: 12 October 2016 11:27
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 20: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

This is Arbab Ghulam Qadir, again, in response to Message 8 (by Francisco Gurri):

I have also conducted several nutrition surveys. In order to avoid irrelevant detail I have given my conclusions/observations derived from those studies. During nutrition surveys, the majority of the respondents informed that they rely on less preferred food, borrow food items from relatives or purchase on credit from local shop.

In most of the cases, in rural areas of Pakistan (I do assume it may be like this in most developing countries), small farmers consume grain (wheat and rice) stored for annual consumption with vegetables and pulses or butter etc.

Your point is correct that the traditional food systems are highly complementary i.e. usage of milk and its by-products with those small farmers who have also livestock holdings. But in reality in rural areas, these are old days when small farmers have surplus milk, and now rarely we see small farming households consuming milk and its by-products at home in rural areas. They sell it mainly due to extreme poverty.

My opinion is simple that due to poverty, the rural community (small farmers, small livestock keepers and share croppers) consume less preferred food items and it has become their eating routine over a long period and developed into habits. Even if some of these people become financially better off - they continue following old eating habits. Therefore, main focus should be on eradication of poverty among small farmers and creating awareness on nutritious food.

Poverty can be reduced through several ways and I do agree as pointed out by Phelix Oyath [message 15] that hunger and poverty can be fought through meaningful training on good crop production techniques, availability and accessibility of quality seeds and fertilizer through credit schemes etc.

I also strongly agree with Mahesh Chander [message 9] wherein he has suggested inclusion of landless livestock keepers and share croppers who also constitute major portion of rural and agri based population. They should not be ignored in any food security project interventions.

Once we are successful in eradicating poverty by increasing farm income leading to surplus income with small farmers, they can easily be induced to consume nutritious food items and for this, we will need to create awareness. I totally agree with the opinion of Dick Tinsley [message 13] who has given deep insight into daily agronomic field work and need of 4000 kcal. And by consuming less than this - will reduce their working capacity by prolonged work etc.

Hope I am able to explain my opinion, but please feel free to guide and correct me on any point.

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-----Original Message-----

From: AIS

Sent: 12 October 2016 15:29

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 21: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

This is Nkwah Azinwi Ngum, again. Just to add to the reactions of Arbab Ghulam Qadir (Message 20):

It is very true that small farmers have grown into the habit of consuming less nutritious food even in the face of increased incomes.

In Cameroon, based on my observations, rural communities would prefer consuming cereals like corn on a daily base instead of vegetables or having a mix and the consequences of this are malnutrition in all its forms, especially among the children.

I would also strongly suggest that efforts to eradicating food insecurity should involve aspects of raising awareness on nutritious food in rural communities (small farmers)

As a freelance community worker, I have sometimes now engaged with communities especially women to educate them on nutritious feeding habits so that they can be food secured even in the face of poverty

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-----Original Message-----

From: AIS
Sent: 12 October 2016 15:31
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 22: Defining small farms - semisubsistence farm

This is Bazyli Czyzewski again.

I agree with Loupa Pius (Message 12) that "small farms cannot only be defined maybe by land size...". But what is wrong with the definitions that we use in Poland which are grounded in many papers concerning the European Union (EU) agriculture? According to this approach, there are the following possibilities:

- 1) based on the Farm Accountancy Data Network (FADN) typology as a unit with SO (Standard Output) below or equal 25,000 euros,
- 2) as "microfarm type" for farms smaller than the FADN above mentioned threshold,
- 3) as a "semisubsistence farms" where less than 50% of the agricultural output is sold, with the remainder being consumed within the farm household.

The last one is usually used in Polish research

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-----Original Message-----

From: AIS
Sent: 12 October 2016 15:32
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 23: Defining small farms - In the southern African context

My name is Daniel Nkomboni and I work as a livestock & rangelands researcher in the semi-arid areas of Zimbabwe. My work encompasses developing research based technologies for small farms although it also caters for commercial farms. I am currently based in South Island of New Zealand.

Defining small farms: In the southern African context, they may be rural family run farms with land areas of approximately 6 ha (this varies with agroecological regions). The definition should include land carrying capacities, livestock units and go beyond to include cultural & religious norms. Most of these farms are characterized by poor access to market information and markets. However, they are the drivers of rural economies and are supported by non-farm economies, e.g. formal employment and remittances play crucial roles in drought situations. These farms are normally non specialized (are crop-livestock systems with inter-dependency). Small peri-urban farms are also part of small farms but these differ from those mentioned earlier as they are closer to markets and production could be market oriented & transportation costs are low.

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-----Original Message-----

From: AIS
Sent: 12 October 2016 15:34
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 24: Re: How important is the contribution of small farms to food security and nutrition? Why?

I am Loupa Pius once again from Uganda, Karamoja Region.

I will always refer my comments in regards to livestock production and some basics of the crop producer. Looking at the world food security status, I agree with Phelix Oyath (Message 15) and Mahesh Chander (Messages 9, 16). First off, I am literally from Karamoja where more people are shifting from crop farming to their native practice of livestock production (cattle keeping) large herd pastoralism. To my own understanding of the contribution of small farms to world food security and nutrition, I make a focus onto the practice itself. The small farms are rural based in Uganda as a country. And when they are rural based, they produce a multiple of products (various crops types) which are useful to the urban peripherals. They feed the whole rural community with all nutritive food products.

Looking at the production cost in the small farms, they would be labour intensive. We should understand that they are not just produced for intensive marketing. They produce for household upkeep and some produce, if more is realized, can be sold to the local markets not to international markets which may result in high cost of business executions where they will face new challenges of marketing. Remember the food product produced in Sub-saharan Africa local commodity food markets are not from commercial farmers. It's from small farmers who substantially produce for household upkeep.

Looking at the livestock economy and small farms (crop farms), many livestock products available in rural markets are not produce/products of commercial livestock keepers. Let's remember that many rural livestock keepers are pastoralists and own large number of herds, and occasionally offer this for marketing in the form of live animals. But other animal products which are highly nutritious like milk, butter and other useful services which support the ecological environment for crop production are also enhanced by livestock.

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-----Original Message-----

From: AIS

Sent: 12 October 2016 15:34

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 25: Effect of food waste on small farms and food security

I am Olumide Odeyemi, a Nigerian and doctoral candidate with research interest in microbial food safety, sustainable farming, microbial ecology and shelf life extension at the University of Tasmania, Australia.

It is of great interest that many researchers have contributed and stressed the importance of small farms in food security and nutrition. However, food waste at household levels cannot be overemphasised. A large proportion of food produced is never consumed but rather wasted due to poor handling, transportation, processing and postharvest storage among other factors.

Minimizing food waste at all levels especially during harvesting and post harvesting can help food security and nutrition.

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-----Original Message-----

From: AIS

Sent: 13 October 2016 13:17

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 26: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

My name is Carolina Vargas, a master's student at El Colegio de la Frontera Sur, México. My research is in a Mennonite colony called Salamanca, the approach is about their agricultural system in family and community scale.

In response to Question 3.3.4 ("Many small farmers participate in the rural non-farm economy to generate additional income. Does this increase the contribution of small farms to food security and nutrition?"), I want to say:

First of all food security is defined by FAO as: "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life."

The multi activity now is a common practice for many of the Mennonite families (small farmers). It represents an opportunity to satisfy their needs, for example, buy food. Even though this access doesn't guarantee quality food, but in some cases, the extra income allows them to continue with their own agriculture. They produce grains like sorghum, soybeans, beans, corn and peanuts. All of them are sold to national and international corporations because is a fact that they can sell it.

The Mennonite families are contributing to food security for their members but also for other people and market.

However, there are some questions:

- 1.- What is the relationship between the market and food security?
- 2.- If families have access to food but nutritional requirements are not satisfied, do they still have food security?
- 3.- If they produce some grains for the market, they have to compete with other producers and a common practice is to use agrochemicals for a successful harvest. Do the crops offer the nutritional requirements?

Carolina Vargas Godínez

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-----Original Message-----

From: AIS
Sent: 13 October 2016 13:17
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 27: Re: How important is the contribution of small farms to food security and nutrition? Why?

My name is Lizzy Igbine. I am a graduate farmer and National President of the Nigerian women agro allied farmers association (Niwaafa). I am a practicing farmer and I work in rural communities in Nigeria and Africa.

The contributions of small farms cannot be over emphasized. It ranges from growing vegetables at home to planting grains and tubers in small community farms. This produce adds to families daily meals and is found at the tables of the rich and the poor.

The farm produce of the small farms adds nutrition to the meals of many and help give nutrition to growing babies and nursing mothers. We are currently under studying the actual percentage contribution of small farms to total countries GDP.

In summary the total contribution of small scale farmers farm produce is between 75%-80% of available foods in the market and these go to support the government food security goals for all. Presently, the small scale farmers are working to increase the rice availability in Nigerian markets to support existing shortages.

The contributions of small farms cannot be over emphasized.

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-----Original Message-----

From: AIS
Sent: 13 October 2016 13:18
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 28: Contribution of small farms to food security and its 4 dimensions (Q. 3.3.1 and 3.3.2)

I am Ahamed Tijjani Abdullahi, agriculturalist. Research technician at the Lake Chad Research Institute, Maiduguri, Borno State, Northeast Nigeria.

As an agriculturalist working in an agricultural research institute in northern Nigeria, I have the opportunity to interact and witness the positive contribution of small farms to food security and nutrition.

In Nigeria, almost 90% of food consumed is produced by small farm holders. Since attempt to define small farms can only be confined to a region, in my view a small farm is any farmer that produces for his consumption and sells the rest to meet his family's needs e.g. medical care, school fees, clothes and other basic human needs with the exemption of food.

The contribution of small farms to food security:

Small farmers harvest their produce, keep some for consumption and sell the rest in the village market where buyers come every market-day to buy and take it to the urban areas for further processing and utilization. Without small farmers, food insecurity would have manifested itself in all areas of Nigeria.

For example, here in Borno State Maiduguri, an area devastated by the activities of BokoHaram insurgency hindering agricultural production. As this year, only 18% of the agricultural land was used for crop production. The impact of small farmers contribution is now being felt across the State as hunger and food insecurity had been the order of the day. If not for the effort of government intervention and other humanitarian agencies, over 400 children died because of hunger and malnutrition and the crisis is still on.

Therefore, in developing countries like Nigeria, small farm is directly proportional to food security and without their contribution the impact will be felt across the country and the economy in general.

The four dimensions of food security:

The availability of food can be attributed to the activities of small farm holders and access to food by rural communities which form 70% of Nigeria's population comes from small farm holders. Utilization of food can only be achieved when there is availability as the major marketers buy from the small farm holder they come to urban areas for onward processing and other industrial use. Food stability can also be achieved with increase in number of small farm holders as 80% of farm holders in Nigeria are above the age of 40. Youth involvement in agriculture is crucial toward attaining global food security and agricultural development and sustainability.

As such the contribution of small farm holders towards food security across the value chain cannot be over emphasised.

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-----Original Message-----

From: AIS
Sent: 13 October 2016 13:19
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 29: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

This is Loupa Pius once again.

I generously agree with Arbab Ghulam Qadir's statement (Message 20) about poverty in small farm holders and small livestock keepers. There is concrete need to address poverty living among the small world feeders (small farms). These communities are equipped to come out of poverty including malnutrition aspects. However, we cannot zero our understanding maybe on that it is because they are not utilizing the available resources they have, they are exploiting them more ignorantly and hence they could not be responsible for their own poverty more of it is contributed by their national governments (looking at the programme design).

Poverty is also supposed to focus on the land tenure security of most pastoralists and agro farmers, land, value addition and livestock marketing, government policies in promoting other crop and livestock product is bound to be leading source of poverty in smallholder farmers and livestock keepers. Smallholder (small farms) have answers to keep the world food secure except that they may not be recognized by large scale investors and national governments.

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-----Original Message-----

From: AIS

Sent: 13 October 2016 13:19

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 30: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

This is Dick Tinsley again,

Sitting in Colorado at the western end of the e-conference means I don't get to see most posting before John our faithful moderator is trying to call it quits for the day and head home. This allows me to review all the day's posting before making leisurely replies. Thus please allow me a few comments

1. Thanks to Arbab Ghulam Qadir (Message 20) for his endorsement of my 4000 kcal/daily calorie requirement for undertaking a full day of agronomic field work (Message 14).

2. This does bring into question what I see as a lack of quantifying information on what diets and nutrition are like for most smallholders. I see a lot of conceptual reports on the fact of under-nutrition and malnutrition but few on what the actual diets are. The information I mention on my webpages and some article actually comes from one source which only listed about 5 countries or districts. I think the source is FAO. Does anyone have any more detailed references? The FAO reference I used was discouraging as it was in the order of only 2000 kcal/day, or half the estimated 4000 kcal. In the same line, has anyone done any surveys on subsistence stock of grain or tubers farmers are holding for their own consumption. This would provide at least an estimate of dietary energy.

3. I also noted a lot of interest in training programs. I know how much we like training programs. They are great for easy monitoring & evaluation proof of accomplishment. However, this might need some careful review. I think training is only good if:

a. The beneficiaries lack the knowledge of what is being trained, and

b. Have the means to utilize the information once they have received it.

In the case of nutrition I will question if either of these 2 conditions occur. I would contend that most beneficiaries have a modest to reasonable knowledge of what is being offered, but more likely don't have the means to take advantage of this. Thus, before jumping into a massive training program, take some time to survey the inherent knowledge of your trainees and what would hinder their taking full advantage of the information. With regards to nutrition I would venture they don't have the monetary means to purchase or labor to divert to produce it.

4. In addition I noted the interest in diversification of crops. Be careful and make certain they have the operational means to do so. Please note most smallholders are most likely maxed-out or even overextended with the limited labor and other operational resources placing a major drag on the physical potential as usually promoted by my agronomic colleagues. Thus, in order to diversify the crop selection into more nutritious crops, something must give, either in area being cultivated to other crops, or quality of crop management. Please note that farmers are not really interested in maximum yield or maximum return to land, they are more interested in maximum returns to their labor, which represent a disconnect between farmers and research/extension personnel. Also, their ultimate interest in to "maximize the total returns to all farm enterprises" often compromising the management of one enterprise or crop to enhance the management on another enterprise.

5. This also gets back to my major concern that I will restate: "until you have the 4000 kcal needed for a full day of agronomic field work, which is the higher priority, producing the calories needed to extend the work day that will minimize your food insecurity, or diversifying you cropping system for more nutritious balanced diet". I have been promoting the need to address this issue for a couple years now, but no one has responded. Can someone in this conference address it? My thoughts are that until you can put in a full day of work, calories trump balanced diet. But then I am just a humble agronomist.

6. It also gets back to my concern for operational limits and while I don't mean to harp on it will again call your attention to the article Operational Feasibility as I think it is a game changer in that it can shift focus from extension/education to facilitating access to the resources needed to improve implementation. The link:

<http://webdoc.agsci.colostate.edu/smallholderagriculture/OperationalFeasibility.pdf>

7. Finally, at least for this evening, the mention of animals. I realize and appreciate animals as part of smallholder systems, but from the time & effort perspective they can be time consuming and a major interference to agronomic production. In Ethiopia with the massive animal numbers, farmers can spend up to 4 hrs per day on animal husbandry. This then limits the time they can spend with their crops. Please look at webpage on Ethiopia diet which contains some estimate of dietary energy and work day divided between animal and crop activities. The link: <http://smallholderagriculture.agsci.colostate.edu/ethiopia-diet-analysis/>

Thank you for indulging this unrepentant heretic.

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-----Original Message-----

From: AIS
Sent: 13 October 2016 13:22
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: Moderator: Important message about the questions to be addressed in the conference

Dear Colleagues,

Thank you all for joining, especially those who have sent in messages to this FAO e-mail conference on “Exploring the contribution of small farms to achieving food security and improved nutrition”.

The conference runs for a short amount of time. It began on 10 October and the last day for receiving messages is 23 October. The questions that are being covered in this short e-mail conference are quite specific. They are presented in Section 3 of the conference background document (reproduced below). The 15 questions are grouped in four classes.

The first group (described in Section 3.1) includes 3 questions, numbered 3.1.1 to 3.1.3, related to defining small farms, such as the minimum or maximum size thresholds that might be used; other criteria that might be used to define them, apart from land area; and the criteria that might be used by policy-makers rather than researchers.

The second group (described in Section 3.2) includes 3 questions, numbered 3.2.1 to 3.2.3 about studying the contribution of small farms to food security and nutrition using the food systems approach.

The third group (described in Section 3.3) includes 7 questions, numbered 3.3.1 to 3.3.7, about small farms and their role in food security and nutrition, looking at issues such as how small farms contribute now, and may do so in the future, to food security and the 4 dimensions of food security; the level (household, local, national etc.) at which food security should be studied; the impact of small farmers participating in the rural non-farm economy; the role that small farms can play in meeting the triple burden of malnutrition; and whether small farms are diversifying to meet the demand for more balanced, diversified diets.

The fourth group (described in Section 3.4) includes 2 questions, about how small farms can contribute to food security and nutrition in a sustainable way.

In these first 4 days of the conference, some of the messages posted have centred on issues that are very important (e.g. the causes of food insecurity and malnutrition among small farmers; energy needs of small farmers; ways to improve production/efficiency of small farms; food waste) but which are not the focus of this specific e-mail conference. Threads of these discussions are now cut.

Participants sending messages to the conference from now on are urged to ensure they focus on one or more of the questions below.

Best regards

John

3. Main questions for discussion....

-----Original Message-----

From: AIS

Sent: 13 October 2016 13:23

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 31: Re: Poverty and unawareness are major reasons for food insecurity among small farmers

This is Birhanu kagnew from Hawassa University, Ethiopia.

It is true that poverty and lack of awareness are the main reasons for food insecurity among small farmers. But, beside this, the key technological innovations such as improved seeds can increase the economic resilience of small farmers in the developing world, especially if these technologies prove tolerant to a wide range of conditions. Yet the adoption of improved seeds is itself negatively affected by climate shocks and therefore the intensity of diffusion remains sub-optimal. Institutional changes, and possibly even deeper structural changes, are required to correct this. For example, to support technology diffusion in improved seeds varieties is important not only to invest the development of such technology, but also in experimentation and use at the production (farmer) level.

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-----Original Message-----

From: AIS

Sent: 13 October 2016 17:16

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 32: Questions about farm size and level for food security (3.1.1 and 3.3.3)

This is Arbab Ghulam Qadir, again.

In response to Dick Tinsley (Message 30) - I have gone through links given by you. Great work on small holders and I, being an agri economist, think mainly from the economic point of view but you being an agronomist have given great detail and I will go through these pages to grab the new knowledge.

In response to moderator John's request - I have given below my opinion on some questions and will appreciate if scholars like Dick Tinsley and others may add from their research experience. However, I have not done any research on following issues, but will like to suggest some measures. There are so many senior and scholars in this e-conference and hopefully, they will add from their rich research working experience.

Question 3.1.1 (about the definitions to classify farms as small):

A uniform definition of farm size cannot be adopted globally. Rather it should be based on availability of water and access to market. Both have direct impact on farm profitability. For example, in one of the districts a small holder with 1 ha of land has abundant water and easy way to market is financially better off than a farmer of even greater holding in another district that has scarce water resources and no link roads to market.

Moreover, it should also define limits for irrigated and rain fed areas.

Question 3.3.3: ("Food security can be studied at different levels/scales, such as the individual, household, local, national and global level....Which is the most appropriate level to use when we wish to study the contribution of small farms to food security and nutrition?")

The main focus should be to study food security on household level which can later be summarised as regional and national.

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-----Original Message-----

From: AIS
Sent: 14 October 2016 10:49
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 33: Defining small farms: Standard Output approach

This is Bazyli Czyżewski again.

As Arbab Ghulam Qadir (message 32) said, a uniform definition of farm size cannot be adopted globally.

But why don't we use the approach elaborated in Europe to define it, I mean the notion of 'Standard Output' (SO). The SO is the average monetary value of the agricultural output at farm-gate price of each agricultural product (crop or livestock) in a given region. It can differ in each country and regions over the world. According to this notion, small farms in Europe are defined as:

1. The farms would be included in the FADN survey, and they have a SO below or equal to 25,000 euros per year
2. The farms would not be included in the FADN survey, and they have a SO below or equal to 25,000 euros per year.

The Farm Accountancy Data Network (FADN) is an instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The services responsible in the European Union for the operation of the FADN collect every year accountancy data from a sample of approx. 80,000 agricultural holdings in the European Union covering 90% of agricultural production in member countries (http://ec.europa.eu/agriculture/rica/concept_en.cfm).

My point of view is not to impose the threshold of 25,000 euros to define small farms but to establish on the basis of the SO own ranges for your countries.

There are 600,000 to 800,000 small farms in Poland. The classification based on FADN gives similar results as the definition of "semisubsistence farms", where less than 50% of the agricultural output is sold, with the remainder being consumed within the farm household.

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-----Original Message-----

From: AIS
Sent: 14 October 2016 12:40
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 34: Re: Questions about farm size and level for food security (3.1.1 and 3.3.3)

This is Mahesh Chander, again.

Regarding farm size criteria:

In case it is not already addressed, soil type and availability of irrigation infrastructure, dryland vs wet lands could also be the criteria to define farm size. In India, about 65% of farmland is under rainfed dryland conditions which contribute only about 35% of food, while 35% of irrigated land contributes roughly 65% of food. Large farm size in drylands may be contributing even less than the small farms located in irrigated areas. Can there be different classification depending on the purpose - food security vs nutrition security vs environmental quality? Some countries are looking to produce enough food to feed the population but some countries have switched focus to nutritional security and some have gone even farther by including environment safety in production technology. The level of external inputs used in agricultural production, thus can be the criteria too!!

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-----Original Message-----

From: AIS
Sent: 14 October 2016 13:12
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 35: Re: How important is the contribution of small farms to food security and nutrition? Why?

This is Daniel Nkomboni, again, presenting Southern Africa agricultural perspectives on Question 3.3.1 - How important is the contribution of small farms to food security:

Small farms are a source of national food security stores, e.g. government normally buys food crops, e.g. maize grain, for national stores. This complements national food coffers and is an important gap bridging process. Because farming is not specialised, diverse crops (from cereals to pulses) are produced and this ensures near balanced meals at village and national level. Small farms still grow traditional open pollinated varieties that are used by breeders to come with improved varieties to increase productivity and hence food security & nutrition.

In terms of livestock, although productivity (kg meat/area) is low, the total population of small farmers is large and therefore their livestock numbers are larger than those in the commercial sector and this constitutes an important national asset. This safeguards national food security. In Zimbabwe and Botswana, for example, over 90% of goats that are resilient to droughts, disease & climate change are produced by the small farmers. In the semi-arid areas where these animals are produced, they constitute the main source of protein and income for purchase of other food and non-food items. This boosts the economy of the rural areas. Due to the small farmers' livestock contribution, governments are now crafting national livestock policies that would motivate farmers to produce livestock for various markets.

As in crops, livestock from small farms grow under rigorous unfavourable conditions, and through natural selection the fittest survive and form the good genetic material for breeders to work on to improve breeds. Please refer to FAO farm animal genetic survey reports in southern Africa to check on the diversity of genetic material found in the small holder farming sectors.

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[Regarding the last sentence of Daniel's message: In January 2016 FAO launched "The second report on the state of the world's animal genetic resources for food and agriculture". The 562-page report, edited by B.D. Scherf and D. Pilling, provides a comprehensive assessment of livestock biodiversity and its management. The core of information used in preparing the report came from 129 governments that submitted country reports. See

<http://www.fao.org/news/story/en/item/380661/icode/> for the FAO press release marking the launch of the Report and <http://www.fao.org/3/a-i4787e/i4787e01.htm> to read the 129 country reports (including those from southern African countries)...Moderator]

-----Original Message-----

From: AIS

Sent: 14 October 2016 14:28

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 36: Who we are talking about when we say smallholder

My name is Siera Vercillo and I am a Doctoral Candidate at the Geography Department at the University of Western Ontario, Canada, focusing my research on gender, smallholder agriculture and food security in northern Ghana. I have also worked for five years as an agriculture development consultant and project implementer in West Africa, mostly in Ghana and Sierra Leone.

My contribution is related to question 3.3.1 on 'How important is the contribution of small farms to food security and nutrition?'

I think it is important to clarify, as some have begun to do in this conference, about who we are talking about when we say smallholder. Do we mean someone working on a particular land size? Someone who grows for subsistence purposes first before commercial? Someone who uses a specific type of technology, has a specific amount of capital or level of market integration? There has been a lot of thinking done on this in the peasant farmer and agrarian change literature. Myself, I have asked qualitatively who the smallholder farmer is in the context where I am working and based on that participatory definition, moved forward with reference to quantitative classifications. I would be interested in knowing what people here think about that strategy.

I also think it is critical that policy and programs define who it is they want to target and incorporate evidence of class and gender based differences so that interventions are not leaving behind vulnerable populations, or as in many instances making the farming situation worse for particular kinds of smallholders. There is a lot of missing basic demographic data and evidence about who the smallholder actually is in contexts where I work. Worse, there are a lot of myths in aggregated, global statistics about who the smallholder is, which policy, programs and advocacy are founded upon. For example, recent advocacy and analysis has finally recognized important contributions women make to agriculture and food security, but there are many factoids quoted that do not have reliable sources. We need to continue to question whether women in Africa provide 60-80 percent of the labour in agriculture and grow the majority of the world's food, when evidence put this at less than 50%. Important statistics like women owning only a few percent of the world's land is also not really meaningful without understanding how much of that land is actually owned by men and which types of women or men are land owners.

We should not deter efforts to recognize, represent and redistribute resources to smallholders, like women in agriculture, but just the opposite. We need to gather more evidence to better explain the intersections of who these smallholders are, what they are doing and the purpose or rationale, so that we can better understand who is being left behind in farming and why they are vulnerable to better address this.

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Recent Publication: Does the New Alliance for Food Security and Nutrition impose biotechnology on smallholder farmers in Africa? *Global Bioethics*, 26(1), pp.1-13.

-----Original Message-----

From: AIS

Sent: 14 October 2016 18:12

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 37: Re: Who we are talking about when we say smallholder

This is Siera Vercillo, again.

Encouraged by John, the moderator, I am expanding upon the strategy regarding smallholders mentioned in the first paragraph of my earlier contribution (#36). I am glad to hear there is interest as I did not want to make my earlier contribution too long to read. This is in relation to answering the question of how to define 'small farms' – questions 3.1.1-3.1.3 - with an example of how I am doing so in my doctoral research focused on gender relations and differences in smallholder farming and food security in northern Ghana.

I have conducted the first phase of my research - which is a series of qualitative methods, mostly in-depth, semi-structured interviews and focus group participatory methods based in two rural communities - in a particular district in northern Ghana where I have worked for a few years in the agriculture sector. After deciding to focus this in two communities for comparison purposes based on a number of theoretical qualities, I situated myself in each community and asked to speak with 'women small farmers' by those contacts I had previously (staff with Ministry extension and private agribusiness extension) (convenience sampling).

Then after interviewing the farmer, they would introduce me to other 'small scale farmers' (snowball sampling). It is important to note that I intentionally biased my sampling to ask to speak with female farmers. This is because my research is specifically about gender and I know that the sector is biased towards men (as said in the literature and as experienced in my previous work which very rarely engaged women, despite their recognized contribution).

While intentionally biasing my sampling, I still had almost half of respondents being women, which is closer to the stated demographic of farmers in the country and on the continent. In my interviews with them, I spent the first 15 minutes getting to know who they were and why they were small scale. Points typically raised were about what crops they grew, on how much land, for what purpose, how much 'improved' technology they used, what practices, and their barriers or challenges. Sometimes the snowball sampling led me to other farmers who were commercial and they would tell me in those first 10 or so minutes that they were not small scale (there were about 5/6 of these in total).

After reaching saturation in each community at around 25 interviews with small scale farmers in each (around 50 in total), I could then compare their definitions of small scale farming. Socially specific definitions are recognizable - many participants did not discuss their livestock or production of vegetables in backyard gardens and such, pointing to me that this might not be something people see as farming. There were a few participants who mentioned that they were farmers even though they only had animals and not crops. I am not sure how to interpret this. So if you ask participants about farming and you do not specifically ask about soup ingredients or animals in this context, then they will likely be excluded in any method you use (alongside any method that does not ask about women's farming, for example in interviewing a household head who is male). To clarify, asking about food ingredients or subsistence ingredients was not enough, soup ingredients specifically were left out.

Focus groups were with small scale farming based organizations or community based organizations male only and female only who typically included husbands and wives from the same households. I used these qualitative methods to get a better sense of what socio-cultural values and meaning are behind things like land, certain crops, animals, technology and what it means to be a woman / man farming and how men and women are different and engage with each other to farm. Notably, women's farming was much smaller in land size, but almost entirely grown for money.

In the second phase of my research (which I have not yet conducted), I am going to conduct a representative structured survey of individuals across the district where these two communities are based. The statistical measures of association will be classified based on descriptions and trends provided by the 50 farmers who define small scale. The land range in this context, for example, included between 1-12 acres. Anything above that was not considered small. Yields or production amount per acre was considered not relevant as a marker of difference between small scale or large scale farming. Having animals was also considered a marker of difference, but I have yet to decide how to classify this. I do intend on dis-aggregating the different kinds of farmers (based on socio-demographics like age, ethnicity etc.) and measure if there are any significant correlations between them and food insecurity and poverty (quantified by measures recommended by the FAO). Any measure of association will also be explained by the qualitative methods or the way different kinds of

participants described food insecurity, poverty, well-being, barriers to farming etc. which also differed based on their gender, which was also explained to me why there are differences.

Any feedback or recommendations you have on this strategy is very welcome as I am attempting to maintain the scientific rigour in this after years of doing research for NGOs and practice, which tends to care less about those sorts of things, despite their importance.

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-----Original Message-----

From: AIS
Sent: 15 October 2016 13:08
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 38: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

This is John Poveda, B.Sc. in biology with postgraduate studies in ecological agriculture and technical studies in horticulture production. I come from a long tradition of farmers in Colombia (Latin America) where I've had the opportunity to experience first-hand some of the strengths and struggles of small scale agriculture in a poor to medium rent country. I presently live in Quebec, Canada, along with my family where we have decided to develop our own small scale farming project based on the model of community supported agriculture (CSA). Having this experiences from both sides of the spectrum (from a low income to a high income country), I would like to humbly share some of our thoughts.

In order to keep my messages organized I will try to participate in the conference in a "question by question" basis.

Question 3.3.6: "The importance of healthy, balanced, diversified diets is increasingly recognised (e.g. FAO and WHO, 2014). In view of this, some small farmers may undertake crop diversification or diversify out of crops into aquaculture and livestock. Developments may vary across different parts of the world. What are your observations? Also, do you think that in small farms the share of staples in the output is higher than in large farms?"

From what I have observed in Colombia, crop diversification has been broadly recommended by different government agencies i.e. (<http://www.repository.fedesarrollo.org.co/handle/11445/61>) and also recommended by international organizations i.e. (http://agris.fao.org/agris-search/search.do;jsessionid=B71BD17786B2A3251B7B081F64338703?request_locale=en&recordID=CO1999000624&sourceQuery=&query=&sortField=&sortOrder=&agrovocString=&advQuery=¢erString=&enableField=). The general idea is to improve competitiveness and increase revenue for farmers. *[The first reference is to J.J. Perfetti et al (2013). Políticas para el desarrollo de la agricultura en Colombia. Published by the Sociedad de Agricultores de Colombia (SAC) and La Fundación para la Educación Superior y el Desarrollo (Fedesarrollo). The second is to J.B.D. Robinson et al (1979). Desarrollo de la zona cafetera en Colombia: diversificación del cultivo, extensión e investigación agropecuaria. A report for the Ministry of External Development, London and the Government of Colombia...Moderator].*

When it comes to implementing these recommendations, the adopted model has been mostly the substitution (whether direct or gradual) of one crop for another one, or sometimes the substitution of one cultivar (variety) for another one recognized to be more productive. Such practices are, in essence, the reproduction of the monoculture paradigm in which is said that "biodiversity reduces yield and productivity, and monocultures increase yield and productivity". In this context, the contribution of small farmers towards a healthy, balanced, diversified diet is only marginal and in the best scenario, it only contributes to a diversified diet out of the farm, where the "new" products are commercialized.

In my perspective, the idea of crop diversification aimed to expand diversified, healthy diets would be better addressed encouraging crop diversification without the need of substitution. In other words, the approach would be to increase biodiversity in the farm not only to self-consumption but also with the perspective of commercializing the remaining harvested crops.

It is clear that there are some challenges to put into practice this idea but there are progressively more examples in which the growth in biodiversity inside the farm also improves other aspects of healthy living for both farmers and consumers. Some documented advantages of this approach are provided at the end of this message.

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Food sovereignty: https://nature.berkeley.edu/kremenlab/wp-content/uploads/2014/04/Ecosystem-Services-in-Biologically-Diversified-versus-Conventional-Farming-Systems_-Benefits-Externalities-and-Trade-Offs.pdf
Resilience: <http://bioscience.oxfordjournals.org/content/61/3/183.short>
Pest control: <http://ee.oxfordjournals.org/content/12/3/625.abstract>
Ecosystem services: https://nature.berkeley.edu/kremenlab/wp-content/uploads/2014/04/Ecosystem-Services-in-Biologically-Diversified-versus-Conventional-Farming-Systems_-Benefits-Externalities-and-Trade-Offs.pdf
Peasant empowering: <http://www.tandfonline.com/doi/abs/10.1080/03066150.2011.582947>

-----Original Message-----

From: AIS
Sent: 15 October 2016 13:09
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 39: Re: Defining small farms: Standard Output approach

This is Arbab Ghulam Qadir, again.

I was waiting for a reply of Dick Tinsely. I will appreciate highly his input on all questions in the background document because Dick is extensively involved in research on small holders.

I have enjoyed reading Message 36 of Siera Vercillo. Great writing style. She can contribute well on all questions and on the issue of definition to classify farm as small because she has good working experience in Ghana. Other e-conference participants from Africa can also contribute on this.

In response to Bazyli Czyżewski (Message 33):

The background document under heading of 2.4 of this e-conference explains that: “An important aspect of the SALSA research project is that small farms, and food businesses, will be studied within the context of the food system to which they belong. By carrying out in-depth analyses in 30 different geographical regions in Europe and Africa, the project aims to obtain a differentiated understanding of the role of small farms in very different food systems and situations....In its actual empirical analysis, SALSA will look at the food system (and its sub-systems) as expressed in each of the 30 regions (with boundaries defined in geographical terms, such as a district or province).”.

Bazyli Czyżewski (message 33) suggested the SO approach for all countries. As seen from above, the SALSA project will focus on 30 European and African countries. Therefore, the definition of small farms in Europe and Africa should be different and should be on different criteria for each region.

As I have already given my opinion (Message 32) that farm size should be based on availability of irrigation water and access to market. There should be certain area of land to be fixed as the ceiling for a small farm in irrigated areas and in rain fed areas - for example 1-5 hectares in irrigated areas and 10-20 hectares in rain fed areas.

I conditionally agree for Europe only with Bazyli Czyżewski (message 33) as I understood – the farm with standard output below or equal to 25,000 euros per year will be included in FADN survey. Means these will be considered a small farm. If I convert this amount into local currency it is almost near to 2.8 million rupees per annum - that a large farmer in most of the developing countries would not even dream to have. Therefore, this is correct that every country will have to define this limit on the ground reality. But due to strong feudal system in our country, and I assume in most of the developing countries, the farming community hide their income to evade income tax. Therefore, I feel that standard output (SO) approach will not practically work in those countries. The friends from Africa can point out on this issue in relation to ground reality into their countries.

Europe and Africa are two different areas. Therefore, SO criteria may work well in Europe but not in developing countries.

I would like to hear from Loupa Pius about how the small farmer is defined in Uganda and other African countries and impact of different definitions of small farmer.

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-----Original Message-----

From: AIS

Sent: 15 October 2016 13:10

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 40: Re: Defining small farms: Standard Output approach

I am Teresa Pinto-Correia, a geographer from the Institute for Mediterranean Agriculture and Environmental Sciences (ICAAM) at Evora University in Portugal, coordinator of the project SALSA – the project within which this e-conference has been launched.

I am extremely grateful to all your comments and suggestions.

I have a question to Bazyli Czyżewski (Messages 22 and 33) who has proposed different ways of approaching the definition of small farms.

Small farms as semi-subsistence farms, where up to 50% of agricultural output is sold and the remainder is being consumed in the household. We can discuss this, as the 50% threshold does not really mean the divide is there. But more, how do you know this? From our experience, we can only have information on this once we interview the farmer. But we can never get this information from existing datasets or any type of territorial or other source. Do you have any suggestion?

Bazyli's other suggestion is: "But why don't we use the approach elaborated in Europe to define it, I mean the notion of 'Standard Output' (SO). The SO is the average monetary value of the agricultural output at farm-gate price of each agricultural product (crop or livestock) in a given region. It can differ in each country and regions over the world. According to this notion, small farms in Europe are defined as:

1. The farms would be included in the FADN survey, and they have a SO below or equal to 25,000 euros per year
2. The farms would not be included in the FADN survey, and they have a SO below or equal to 25,000 euros per year."

My question to this is: but how do you know how many and where are the farms not included in the FADN survey?

Teresa Pinto-Correia

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-----Original Message-----

From: AIS
Sent: 15 October 2016 13:11
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 41: Re: Defining small farms - Landless livestock keepers and share croppers

This is Teresa Pinto-Correia, again.

In messages 9 (by Mahesh Chander) and 12 (by Loupa Pius) there was reference to the need for us to consider also small farmers with no land. Please can you clarify how exactly you will identify a small farmer with no land? What is the indicator and what is the threshold for separating small from other farmers? Where do you get the data from? Any examples of already applied methods will be useful.

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-----Original Message-----

From: AIS
Sent: 17 October 2016 10:27
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 42: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Francisco Gurri, from ECOSUR Capeche again:

Bazyli Czyżewski's observations (Message 22) regarding Question 3.4.2 give us a surprising look at how small farmers are conceptualized in what once was a communist area of influence. According to Bazyli, householders are classified first based on their income, and eventually on how much of their production goes to the market.

While it is truly a testament to the resilience of small householders that they didn't disappear after years of Stalinist persecution, I wonder how such a thorough repressive regime modified them. Bazyli's statement (Message 7) that: "Small farms lack knowledge of ecologically friendly practices and lack ecological consciousness" rings hollow in a world where small farmers are leading an ongoing battle against GMOs, use of toxic weed killers etc. It also contradicts years of worldwide research into traditional knowledge and the sustainability of traditional subsistence strategies that have survived for thousands of years, and the communities of small producer's organization for the sustainable management of common resources. Nevertheless, it may be saying something about Polish public policy and the lasting effects of Soviet repression.

In southern Mexico, we found that unsustainable practices amongst migrant small householders were linked more to those who turned agriculture into a business than to those who practice agriculture as part of a sustainable diversified subsistence strategy. The former were not agriculturalists before migrating while the latter came from traditional agricultural households (Gurri, 2010). Considering Bazyli's contribution, I would guess that a loss of skill and traditional knowledge may have been part of the prize paid by rural Polish families that

either survived or returned to practicing agriculture after the dismantling of the Kolkhoz's. Also, it is apparent that the new householders are being encouraged to do business. Not a very sound formula for sustainability.

Do widzenia!

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Reference:

Gurri FD (2010). Smallholder land use in the southern Yucatán: How culture and history matter. Regional Environmental Change; Vol. 10 (3): 219- 231; DOI:10.1007/s10113-010-0114-8.

-----Original Message-----

From: AIS
Sent: 17 October 2016 10:28
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 43: Food security and farmers growing non-food crops

This is Mahesh Chander, again, on diversification.

If a farmer chooses to grow non-food crops in his entire land or keeps a larger chunk for non-edible products like cotton, tobacco, poppy, flowers, medicinal plants etc., where does s/he stand in farm size vs food security? His/her contribution to food production per se might be nil or little, but s/he might be depending on market for his/her food needs.

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-----Original Message-----

From: AIS
Sent: 17 October 2016 10:29
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 44: Definition of small farm

I am Richard W. N Yeboah, PhD, Senior Lecturer, University for Development Studies, Tamale, Northern Ghana. I represent the Ghana team on the SALSA project (<http://www.salsa.uevora.pt/en/>).

I have followed the discussion and can see the dimensions that are being introduced to the definition of small farm. I think that in an attempt to answer question 3.1.1, it is important to first define a "farm" as many people will have different definitions of it.

The farm could be considered as a piece of land on which a crop is cultivated, or a parcel of land divided into plots of several crops. It could also be considered as a combination of crops and animals. It could also be considered as an animal farm where either a single animal or more than one animal are kept. Then we can consider the estate type of farm where the farm goes beyond just crop production and animal rearing but includes improvements. We also have the concept of a compound and bush farm where a farmer has up to 1 or 2 ha around the house but has more than 2 ha in a distant place far from the community.

The farm could also be in an urban or peri-urban area where land is scarce but high valued crops are cultivated and hence bring in more money. There are irrigation farmers on small plots of land less than 0.1 ha. on the developed irrigated sites but produce quite a lot in the dry season and make more money than those with large farms.

Using size alone as the base for the definition will be deficient because in areas where we have high population density their small will be very small as compared with areas with low density. We need to include in the definition the type of crop. By the operations and demand, some crops demand larger land sizes than others to be considered large.

Again in using size we cannot use land owned but rather land cultivated since in Africa, for example, and some people have also mentioned this in the e-mail conference, many farmers do not own land - "landless farmers". I also think that "smallholder" is not "small farm" neither is "peasant farmer" nor "subsistence farmer".

Also Message 23 (by Daniel Nkomboni) says 6 ha is a small farm but in Ghana it is a medium farm.

These then make me think that we need to define the term based on regions or blocks: developing countries as against developed, Sub-Saharan Africa, Southern Africa, etc. So we need to find some similarities to give groupings.

Message 24 (by Loupa Pius) mentioned the shift from crop production to animals due to climate change. This is a new concept gaining recognition and in Northern Ghana it is being discussed to help farmers in the arid regions who have regular crop failures.

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[In this message, Richard described some of the types of farms that can be found, including "the estate type of farm where the farm goes beyond just crop production and animal rearing but includes improvements". When I asked him what he meant by 'includes improvements' he clarified that: "In developing countries the concept of value chain approach is being adopted and one of the proposals is forward or backward integration. Many farmers are now adding value to their produce so that they do not only sell fresh or raw food/produce but processed in a way. In addition they are more business-like hence they practice Integrated Soil Fertility Management (improve the soils of their lands). I will not consider these types of farms as small they may fit more into medium farms"...Moderator].

-----Original Message-----

From: AIS

Sent: 17 October 2016 10:30

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 45: Defining small farms: Measuring farm output

My name is Abubakar Shaibu-Salami. I am a telecoms (microwave transmission) engineer by profession. I am also a farmer and cofounder of Agriteer, a youth-led organisation that is working on increasing the role of youths in agriculture and climate change initiatives in Nigeria and across the African continent. I am glad to be a member of this conference.

3.1 Questions related to defining small farms

3.1.1 What is the most appropriate threshold to use for research purposes?

3.1.2 Should the threshold be adapted to regional and national realities?

Can farm output be measured (in tonnes) for a systematic approach to be taken in classifying small farms based on the four dimensions of food security: Availability of food; access to food; utilisation of food; and food stability.

Questions listed below could be asked and established per farm:

1. What crop/livestock does the farmer produce? What is the quantity of daily or yearly output?
2. What is the target market? Food processing companies? Secondary markets (wholesalers/retailers)? Direct consumers?
3. How does the farm output (profits) affect the farmer's (including his/her family's) access to proper nutrition, health services, education, safe drinking water and a decent accommodation?
4. What is the frequency of output? Daily? Weekly? Monthly? (over a period of three months, six months or all year round?)

Setting thresholds to classify small farms in terms of total output (tonnes) per crop or quantity per livestock will be more appropriate for research and I believe that this can be adapted to regional and national realities for policy and planning purposes.

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-----Original Message-----

From: AIS

Sent: 17 October 2016 10:31

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 46: Re: Defining small farms - Landless livestock keepers and share croppers

This is Mahesh Chander, again, replying to the specific question of Teresa Pinto-Correia (Message 41).

Most of the farms in India, Pakistan, Bangladesh and Nepal are crop-livestock mixed farms unlike specialized farms commonly seen in other parts of the world. These mixed farms follow integrated farming systems where income comes from diverse sources, namely cereal crops, fruits, legumes, fruits, cash crops and livestock and at times fisheries too. In addition, landless livestock keepers contribute substantially to milk and meat production. The majority of the people in rainfed regions of India depend on livestock, owing to low productivity and high uncertainty in crop production. Here, the smallholders and landless together control over 75% of the country's livestock resources and livestock wealth is largely concentrated among the marginal and small landholders in India. This generally means that any growth in the livestock sector would bring prosperity to the small holders. In the events of drought and crop failures, livestock help sustain the families in India's drylands. Livestock contributed 16% to the income of small farm households. Livestock provides livelihood to two-third of rural community. It also provides employment to about 8.8% of the population in India. Therefore, any classification of farms must consider such country specific situations, wherein, contribution of livestock is substantial in households.

The question of Teresa Pinto-Correia may be partly answered in the article "A classification of livestock production systems" by H. Steinfeld and J. Mäki-Hokkonen (1995), along with references. It states that "The Livestock production systems are considered to be a subset of farming systems. A review of the literature (Ruthenberg, 1980; Jahnke, 1982; FAO, 1980; De Boer, 1992; FAO, 1994) revealed that most farming systems classifications are not backed by quantitative criteria, which would enable cases to be clearly allocated to one class. These classifications are closer to typologies. No attempts at developing a classification of world livestock systems by using quantitative statistical methodologies (cluster analysis and related methodologies) could be located in the literature. This probably relates to the lack of appropriate data sets for such approaches on a global scale". In the article, the landless livestock keepers (large scale specialized livestock producers who buy feed and fodder from outside of the farm) defined are appropriate more to those which exist in developed countries, since landless livestock keepers in India are different.

Finally I would say that, though it is important, identifying a small farmer with no land, indicators thereof and the threshold for separating small from other farmers remains a challenge to development practitioners. The data is lacking and examples of already applied methods are hard to find!!

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Steinfeld, H. and J. Mäki-Hokkonen. 1995. A classification of livestock production systems. Article in the World Animal Review, Volume 84/85. FAO. <http://www.fao.org/docrep/v8180t/v8180t0y.htm>

-----Original Message-----

From: AIS
Sent: 17 October 2016 17:53
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 47: Points that could be also addressed in the last days

I am Stefano Grando, a researcher in rural sociology and food studies and a member of the team of the University of Pisa involved in the SALSAs project.

First, I want to thank all the contributors who gave very valuable comments and suggestions and engaged in deep debates on several important points which greatly enrich our work adding different regional, professional and scientific perspectives.

Following on comments by Teresa Pinto-Correia (Messages 40 and 41), I would just like to add a few indications on how the debate could be integrated in these last days.

We noticed that the comments focused on some of the Background Document questions, whereas others have not been addressed yet, or only to a limited extent. This is perfectly fine. However, since we are in the final phase of the e-mail conference, I would also encourage contributions with regard to Q. 3.2.1 and 3.2.2 (food systems perspective), 3.3.5 (small farmers' role to address the triple burden of malnutrition) and 3.3.7 (small farmers' expected contribution to food and nutrition security in the future) and also about the 2 questions focusing on sustainability issues (Q 3.4.1-3.4.2).

Second, many comments comes from/are focused on the situation of small farmers in developing countries. This is great, as the majority of SALSAs teams may have a European-biased perspective. Yet, comments related to the European context would be more than welcome.

Similarly, most comments dealt with small farmers as vulnerable groups. This is very interesting in itself. However, I was wondering whether some further contributions (see Q. 3.3.1) could comment on other vulnerable groups whose food and nutrition security could be improved thanks to small farming.

Finally, a note related to specific comments. Two usually uncontested observations are interestingly presented as factoids in comments 17 (by Dominic Glover) and 36 (by Siera Vercillo): related to the amount of food produced by small farmers and women's role in agriculture and food security. Is any participant willing to give his/her opinion on this and/or add or suggest other data/sources?

That's all. Thanks again to everybody for this very rich debate that is hopefully of interest for all the participants beyond SALSAs's work.

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-----Original Message-----

From: AIS
Sent: 17 October 2016 17:53
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 48: Re: Who we are talking about when we say smallholder

My name is Mark Redman and I am living and working in Romania. Most of my work is related to various aspects of policy-making for rural development – both at national and European level. My private consulting company is a partner in the SALSA project (the project within which this e-conference has been launched). Many thanks for the rich diversity of experience and perspective shared with the e-conference so far.

I'd like to briefly return to message #36, in which Siera Vercillo highlighted a number of interesting questions related to “who we are talking about when we say smallholder”. More to the point, Siera clearly stated that it “is critical that policy and programs define who it is they want to target” adding that “there are a lot of myths in aggregated, global statistics about who the smallholder is”.

This issue of accurately targeting policies, programmes and other relevant interventions (e.g. research funding) in the context of the huge diversity of small-scale food and farming systems at all levels (from local to global) is very important and to my mind implies the need to work with structured “typologies of small farmers” rather than just “definitions”.

I'm already aware of some basic “typologies of small farmers” (e.g. from the Consultative Group on International Agricultural Research (CGIAR)) used / proposed for use in a policy-making context. I'd be very interested to collect more – especially any which are actively in use.

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-----Original Message-----

From: AIS
Sent: 17 October 2016 17:54
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 49: Drawing the boundaries of food systems

My name is Lee-Ann Sutherland. I am a social researcher at the James Hutton Institute in Scotland. As part of the SALSA consortium, we will be looking at small farms and food security in Scotland, UK.

Regarding Question 3.2.2 on the boundaries of food systems:

Small farms in Scotland are often ‘crofts’, small holdings of poor quality land, which historically were tenanted to employees of large estates, so employees could provide their own subsistence and cheap labour to the estate at the same time. They are now legally protected, and tend to produce primarily beef and sheep through extensive grazing (the holdings are small, but they usually have access to tens of hectares of common grazing). Until a couple of decades ago, crofts produced vegetables and marginal grain crops but this is no longer financially

viable, although there have been some recent attempts to introduce greenhouses for fruit and vegetable production.

Crofts raise a number of issues in relation to food security – they produce very little of their own food, but have easy access to food through shops etc. Superficially, they do not appear to be food insecure – like most people in Scotland, much of what they eat comes from supermarkets. There is very little local processing – for many crofts, the abattoirs are several hundred miles away. Although there is a demand for locally produced food, beef and sheep grown locally have to be shipped outside of the locales for processing, and then shipped back in, making them very expensive and not truly 'local'. Crofters typically work part-time in other jobs, and are subsidised by the government to encourage people to continue to populate remote areas. It seems fairly obvious that crofts would be more food secure if they had local processing facilities, but in an environment where they still have ready access to food, this is not enough of an issue to raise the government support needed.

My question is how to define the boundaries of a regional food system for people who are highly dependent on processors and food sources distant from their locales. Where should we draw the boundaries? A geographical area where most of the smallholders produce the same thing? A radius around villages or an urban centre? A radius around supermarkets? A radius around abattoirs?

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-----Original Message-----

From: AIS

Sent: 17 October 2016 17:55

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 50: Definition of small farmer (Uganda context)

I am Loupa Pius once again, from Uganda.

I am responding to Arbab Ghulam Qadir's request (Message 39): "I would like to hear from Loupa Pius about how the small farmer is defined in Uganda and other African countries and impact of different definitions of small farmer".

I personally don't think there is a clear definition of the small farmer in Uganda. What is available in the Uganda context and elsewhere in Africa is the definition of smallholder farmer/subsistence farmer with a practice of subsistence agriculture.

Smallholder farmers in Uganda also known as small farmers: this is a category of farming system of who do not produce on a large scale but more seemingly for domestic/household consumption with less or even none for export or marketing. On livestock production, livestock keepers in Uganda keep large herds of cattle many of which are pastoralists and a few groups practice ranching and dairy production. The small farmer is one who practices small farm production with less effect of decision of marketing/sale but to store/keep for household food security purposes on daily basis. However, in Uganda, small scale flourish - the rural commodity markets inform of door to door purchase of food products an example of practice in Karamoja (where locals bring products to their potential buyers directly without access to other opportunities).

From ETI (2005, page 13), here are some few characteristics of smallholders:

- They produce relatively small volumes of produce on relatively small plots of land.
- They may produce an export commodity as a main livelihood activity or as part of a portfolio of livelihood activities.
- They are generally less well-resourced than commercial-scale farmers.
- They are usually considered to be part of the informal economy (i.e. may not be registered, tend to be excluded from aspects of labour legislation, lack social protection and have limited records).
- They may be men or women.
- They may depend on family labour, but may hire workers.
- They are often vulnerable in supply chains.

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Reference:

ETI. 2005. ETI smallholder guidelines: Recommendations for working with smallholders. Ethical Trading Initiative. <http://www.ethicaltrade.org/resources/eti-smallholder-guidelines>

-----Original Message-----

From: AIS
Sent: 17 October 2016 17:55
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 51: The importance of small farms in "a food system"

I am Karlheinz Knickel, a member of the SALSA project coordination team at the Institute for Mediterranean Agriculture and Environmental Sciences (ICAAM), Evora University in Portugal. I have also supported John Ruane in the compilation of the background document for this e-conference.

Before I come to the points that I want to raise, I would like to thank already now all who have contributed with highly relevant experiences and suggestions. This will all really help with the transdisciplinary research work we are carrying out!

The issues I am currently particularly interested in relate to the importance of small farms in "a food system" (Section 3.2 in the background document). In SALSA, we have the ambition to express the relative importance of small farms in quantitative terms in our 30 reference regions. I should say first that we will also provide a more differentiated qualitative description of the food system in each reference region with consumption patterns, nutritional issues, interrelations, food governance, limiting and enabling factors, etc.

Now: Imagine that our reference region is a rural district. My idea is that for this district we can have (estimate) the number of people (each person with a minimum food requirement), the total number of farms, thereof the share and number of small farms (say those below 3 or 5 ha), the 7-10 main food products that are obtained from these farms within the district (with hectares and yields for an average year), and again thereof the share of and quantities for small farms. Theoretically, I can then draw up a first balance sheet (using a suitable common denominator for total food production and total food consumption like kcal), and conclude how much needs to be imported into the region or can be exported. I would also be able to say how much small farms contribute to the food balance. This is obviously simplified and it is based on estimates. In many of the reference regions, rural towns might be included but this does not change the estimation process (let us ignore for now that the question is quite different with respect to megacities whose needs are not covered in our assessment).

Maybe we can go further than that in the food system analysis in our 30 reference regions. For each district, I can probably estimate the number of food businesses (traders, processors, retailers) and describe also in quantitative terms how they are connected with small farms. Some of them will be responsible for importing/exporting food into/out of the district. Others will have most of their transactions within the district. Certain proportions will be home-consumed or appear only in informal markets. My assumption is that for each district we can estimate the related proportions and quantities. Data/estimates, I think, can be derived from available local statistics complemented by 12-15 interviews with local experts and triangulation. And all data could enter a not overly complicated balance sheet.

If the approach works we can, for each reference region (or district), draw a distinct picture of the particular food system, with its subsystems, the role of small farms in the district etc. While this exercise is obviously simplified and it is based on estimates, it provides us with the opportunity to illustrate the diversity in situations and possibly identify patterns, commonalities and differences. And, maybe more importantly, it might also show that small farms do actually play a very significant, sometimes underestimated role in many African and European regions - also in quantitative terms.

My two related questions to the participants of this e-conference are:

1. Have you tried something like this already, maybe for one particular region, and what was the experience?
2. Do you think it can work or what do you think we need to pay attention to when implementing this approach?

Karlheinz Knickel

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-----Original Message-----

From: AIS

Sent: 17 October 2016 17:56

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 52: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Bazyl Czyzewski again.

I would like to comment on Francisco Gurri's statement (in Message 42):

" "Small farms lack knowledge of ecologically friendly practices and lack ecological consciousness" rings hollow in a world where small farmers are leading an ongoing battle against GMOs, use of toxic weed killers etc. It also contradicts years of worldwide research into traditional knowledge and the sustainability of traditional subsistence strategies that have survived for thousands of years, and the communities of small producer's organization for the sustainable management of common resources."

I think we are talking about different economic reality. It is not a problem that small farms shall survive looking for a subsistence strategy but how to include small farms into market processes. I agree that subsistence farms live in harmony with the nature. But there are not such farms in Europe because farmers have growing aspiration in money-commodity economy. They wish to participate in economic growth and in consumption patterns from well-developed countries. They must improve productivity and they do so with any available methods which usually don't care sufficiently about environment. The environment friendly technology is too expensive for them, hence they use old machinery, obsolete fertilisers and all that stuff of industrial agriculture which have been abandoned in Western Europe.

I have never seen these small farmers leading in battle against excessive use of fertilisers and pesticides. I've seen farmers fighting for higher incomes which they are willing to spend on those fertilisers and old tractors, and whatever, to enhance production.

I would appreciate if you give me any references on the research proving that small commodity farms (not only subsistence) are more environment friendly than big farms in well developed countries, i.e. in Western Europe, Australia, USA, for example in terms of GHG emission.

And we have never had kolkhozes in Poland. Even in the former communist regime the individual farms dominated in agriculture.

Bazyli Czyzewski, PhD. (hab.)

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-----Original Message-----

From: AIS

Sent: 17 October 2016 17:57

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 53: Definition of small farm

My name is Dionisio Ortiz-Miranda. I am an agricultural economist in the Department of Economics and Social Sciences at the Technical University of Valencia (Spain). I am also involved in the SALSA project, and thank all the participants in this e-conference for their valuable contributions.

I have been following closely the exchange of messages. I would like to make a point that have somehow arisen in the previous contributions.

I agree we need a definition of small farmers able to:

(i) include pastoralists and landless farmers (#9 Mahesh Chander; #12 Loupa Pius; #44 Richard W.N. Yeboah) and

(ii) adapt to the different situations regarding productive assets and natural resources base (#23 Daniel Nkomboni; #32 Arbab Ghulam Qadir; #34 Mahesh Chander).

Therefore, rather than using a definition based on the land base of the holding, I suggest that a measurement of the economic dimension of the agricultural activity would allow us to consider these elements. This is much in line with the proposal from Bazyli Czyżewski (#33) to use the Standard Output to define small farms. Although, as pointed out by Arbab Ghulam Qadir (#39), the criteria to measure the economic dimension used for this definition would have to be adapted to the reality in each region. I know that the different countries' available statistical information and the thresholds to be used would require a flexible approach but, do you think this could be feasible in the countries in which you are based?

Dionisio Ortiz-Miranda

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-----Original Message-----

From: AIS

Sent: 17 October 2016 17:58

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 54: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

This is Dionisio Ortiz-Miranda, again.

I would like to reply to the message by John Poveda (38):

I find particularly interesting the debate about the relationship between the diversity of on-farm production and farm households' nutrition. My point is that there seems to be significant scientific evidence showing little impact of production diversity of smallholders' farms on the improvement of households' nutrition status. Rather, the relationship between market oriented production (either diversified or not) and nutrition seems to be more significant (I add some references below). This raises some questions regarding the most effective way to improve the small farm households' nutrition.

Dionisio Ortiz-Miranda

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<http://vital.environmentalgeography.nl/project/>
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References:

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- Koppmair, S., Kassie, M. and Qaim, M. (2016) 'Farm production, market access and dietary diversity in Malawi', Public Health Nutrition, pp. 1–11.
- Steve Wiggins & Sharada Keats (2013) Smallholder agriculture's contribution to better nutrition. Report commissioned by the Hunger Alliance, ODI

-----Original Message-----

From: AIS

Sent: 18 October 2016 10:37

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 55: Re: Drawing the boundaries of food systems

My name is Dele Raheem. I am a Food Scientist and currently a Visiting Researcher at the Arctic Centre, University of Lapland in Finland. Many thanks to the participants for their inputs on the contribution of small farms to food and nutrition security globally.

The global demand by consumers for local and traditional foods has to be responded to, which requires that small farms will need to be supported in several ways to meet this demand and in effect help to reduce food insecurity. By taking advantage of innovative technology that helps in diversifying the crops and their processing locally will help sustainability.

I can see a parallel in the message from Lee-Ann Sutherland (message 49), about the Scottish crofts in relation to boundaries of food systems, which was also captured by Häkkinä (2002) when he wrote about the farms of northern Finland:

“In Finland, farm originally denoted a homestead with at least one hectare of field (in official statistics from the 1969 agricultural census onwards). A growing percentage of farms has gradually become uncultivated, although the farm register still quotes them as independent farms. As a result, since 1990 official agricultural statistics have used two different concepts: farm and active farm. The introduction of the new term has not influenced the definition of the old one; rather, the new one complements it. An active farm is a farm with more than one hectare of arable land that practices agriculture or other entrepreneurial activity (SVT 1996: 7). Forest is an integral part of the Finnish farm and nearly all farms, active or not, have a forest holding, which is often considerably larger than the fields, up to tenfold in the north (Häkkinä 1991: 42). In the year 1998, all Finnish farms had an average of 16.3 hectares of arable land and 44.3 hectares of forest land, whereas the figures for Lapland were 7.8 hectares and 81.8 hectares, respectively. To solve the problems of the crofters and, later, those of other landless workers, the state became increasingly involved in rural settlement following the independence of Finland in 1917”

There has been on-going discussion on how to resuscitate the farms in northern Finland (as in other remote and circumpolar regions) and probably link it to tourism which is the main source of revenue in the region. One way will be to encourage small scale processing through value addition at the local farms and generate income by marketing these products to visitors.

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Reference:

- Häkkilä, Matti (2002). Farms of northern Finland. Fennia 180: 1-2, pp. 199-211.
<http://www.helsinki.fi/maantiede/geofi/fennia/demo/pages/hakkila.htm>

-----Original Message-----

From: AIS
Sent: 18 October 2016 13:20
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 56: Categories of farmers - India

This is Mahesh Chander from India, again.

About categories of farmers. In India, farmers are categorised into the following categories based on land owning status. Most of the researchers use this classification. It is also common in research projects and students thesis:

1. landless: No land in his or her name.
2. marginal: less than 1 ha land
3. small: 1-2 ha land
4. Large: >2 ha

Still many have several sub-divisions for farmers owning over 2 ha, as follows:

4. Semi-medium: 2-4 ha land
5. Medium: 4-6 ha land
6. large: above 6 ha

If we compare the above classification with the European Union, South America & North American and Australian farms, it would look drastically non-comparable, where farms less than 50 ha could in fact be small!!

Even within India there could be difference in drylands & wetlands with respect to per ha productivity so the concept of classification merely based on size of land may be impractical. Classifying farmers merely based on size of land, than on its net productivity/net returns from it which is more inclusive of allied activities like livestock and fishery, appears to be unjustified. Yet, it is a commonly accepted way of classifying, probably for the want of a valid method. I wonder about the outcome of research projects when they are classifying farmers based on the land they own and comparison made across regions! (1 ha land in the desert of Rajasthan and 1 ha farm in Punjab will have varying output from the land).

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-----Original Message-----

From: AIS
Sent: 19 October 2016 09:20
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 57: High diversity multi-tiered small farms - how will they be classified?

I am E.M. Muralidharan, working with a forestry research organization in Kerala, India. I am not professionally involved with any aspect of farming but live in a region where small farms are the norm due to the high density of population and the topography.

Mahesh Chander (Message 16) mentions about diversity of food products contributed by small farms. I wish to bring attention to the particular kind of small farm represented by the multi-tiered home garden systems that are typical of monsoonal climates like in the western coast of India and other parts of the tropics. These often combine a high diversity of crops with a high level of productivity. As the topography changes from the coastal plains to the hills, the mix of crops may change. Often plants, livestock and fish are also found, contributing to a much more balanced nutritional status for the farmer and the community when compared to other small farms typically described in this e-mail conference.

How will such a complex and flexible farming system be classified or compared to the much less diverse systems elsewhere which probably form the majority of small farms?

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[Mahesh Chander (Message 16) wrote: "I wish to emphasize also the diversity of food products contributed by small farms unlike large farms which often are specialized and more focused on monocultures than being diversified"...Moderator].

-----Original Message-----

From: AIS

Sent: 19 October 2016 10:16

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 58: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Francisco Gurri, again.

I write in response to Bazyli Czyzewski's request (Message 52) for references regarding small farmers leading the "battle against excessive use of fertilisers and pesticides".

The four references below are good examples, not only of a battle against but also of the promotion of sustainable practices, and a little bit about small landholders struggle.

I have very little experience with developed nations. In the US, a "small farmer" is not the same as a small landholder in Mexico. However, if you define small householder as Bob Netting did, and consider it a farm worked by the farmer and his family that uses limited hired labor, then in the US agroecological production, organic farming and lately local farmer's markets were created and promoted by "small farmers". So, I would suggest you google local farmer markets in the US and agroecological farms and organic farms. I don't think you will find Monsanto amongst them.

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References:

- Bezner Kerr, Rachel. 2013. "Seed Struggles and Food Sovereignty in Northern Malawi" *Journal of Peasant Studies* 40: 867–897. doi:10.1080/03066150.2013.848428.
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- McMichael, Philip. 2016. "Commentary: Food Regime for Thought" *The Journal of Peasant Studies* 43 (3): 648–70. doi:10.1080/03066150.2016.1143816.
- La Via Campesina. 2010. "Sustainable Peasant and Family Farm Agriculture Can Feed the World"

[Bazyli Czyzewski (Message 52) wrote:

"I have never seen these small farmers leading in battle against excessive use of fertilisers and pesticides. I've seen farmers fighting for higher incomes which they are willing to spend on those fertilisers and old tractors, and whatever, to enhance production.

I would appreciate if you give me any references on the research proving that small commodity farms (not only subsistence) are more environment friendly than big farms in well developed countries, i.e. in Western Europe, Australia, USA, for example in terms of GHG emission"...Moderator].

-----Original Message-----

From: AIS

Sent: 19 October 2016 10:16

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 59: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

This is Francisco Gurri, again.

I write in response to Dionisio Ortiz-Miranda's message (Nr. 54) on the relationship between the diversity of on-farm production and farm households' nutrition.

Dionisio's suggestion that there is "significant scientific evidence showing little impact of production diversity of smallholders' farms on the improvement of households' nutrition status" surprised me, so I looked up the references he provided in his message.

While not a single one of these references tests nutritional status, every single one of them finds positive associations between farm diversity and food diversity and even food security. Most of them find a weak link but when they couple it with market diversity they find even more significant associations. Studying single elements of small household producers may be misleading. Household agriculture is only part of a traditional subsistence system that includes many productive activities allowing the family to survive. Altering these strategies has usually led to deteriorations in nutritional status. This was observed by Wiggins and Keats (2013) referenced by Dionisio.

They wrote: "Under some conditions, however, nutrition may be impaired by cash crops; as, for example, when the demands of these crops mean that women working in the fields have too little time to feed and care for infants" (page V).

They also conclude: "Promote home gardens and small-scale livestock rearing for increased diversity of production and consumption. Children's nutrition often improves: effects that are stronger when these programmes are combined with education on diet, child care and hygiene" (page V) - in other words increase diversity to promote better nutrition.

This knowledge is not new. The negative effects of commercial agriculture, particularly mono-cropping, on the nutritional status of traditional societies was well documented since last century. This is not just because it alters food production, but because it alters proven survival systems that have lasted for generations. While there are many case studies from last century, I will only give you two that do study nutritional status - Baer (1987) and Fleuret and Fleuret (1980).

Francisco D. Gurri García, Ph.D.

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References:

Wiggins, S. and S. Keats (2013). Smallholder agriculture's contribution to better nutrition. Report commissioned by the Hunger Alliance. Overseas Development Institute. <https://www.odi.org/publications/7317-smallholder-agriculture-nutrition-food-security>

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Fleuret, P. and A. Fleuret. 1980. Nutrition, Consumption, and Agricultural Change. Human Organization 39 (3): 250–60.

-----Original Message-----

From: AIS

Sent: 19 October 2016 13:55

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 60: Definition of small farms - Nigeria

This is Tunrayo Joseph-Adekunle with a senior colleague Jonathan Atungwu. We are involved in running an organic farm which runs on sustainable practices. It takes into consideration environmental issues, health and nutrition of the community. The scheme started in April 2014. The immediate community enjoys weekly supply of produce that ensures their health. The farm is small scale but productive.

Responding to Question 3.1.1:

The definition for small farms is not a straightjacket one, variations abound from countries, regions, cultures etc. For instance in Nigeria, most farming activities are carried out at subsistence level. Farm lands are fragmented usually less than 0.25 ha per farmer. Yet they are the hands that feed the nation - not the large ones. We state that many small farms have the potential to contribute to food security and nutrition. The lower threshold should be adapted to regional and national realities. Also the contribution of urban gardens and home gardens is akin to food security and nutrition especially where many school leavers and graduates are unemployed.

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-----Original Message-----

From: AIS

Sent: 19 October 2016 13:56

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 61: HLPE consultation on critical and emerging issues in the area of food security and nutrition to inform the work of the CFS

This is Andrew Fieldsend, of the Research Institute of Agricultural Economics in Budapest, Hungary. The Moderator has informed us that the impressive total of 460 persons have subscribed to the conference, and the contributions have been stimulating. If it is not deemed to be too much off topic, some of you may be interested in the following information:

The University of Hohenheim and the High Level Panel of Experts (HLPE) of the UN Committee on World Food Security (CFS) organized a high-level international event with the participation of 200 scientists and experts on 27 September 2016. They identified and discussed research priorities for food and nutrition security. Documentation of the event is available on the website <https://gfe.uni-hohenheim.de/events>. There you will find the video recordings of the speakers' presentations and the corresponding presentation slides. Further documents, such as the press release, articles and the condensed written report of the event have already been uploaded as well or will follow soon.

Furthermore, people might like to consider making a contribution to the consultation of the HLPE on "critical and emerging issues in the area of food security and nutrition to inform the work of the CFS". The open inquiry will run until 31 October 2016. People can suggest and document any issue they might find worthwhile to be presented, up to 10 in total. You can download the questionnaire and related information here: <http://www.fao.org/cfs/cfs-hlpe/critical-and-emerging-issues/en/>

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[The central role that the CFS plays as an international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition was underlined in the e-mail conference background document, so this information from Andrew is very timely. The annual session of the CFS is currently ongoing (17-21 October) and yesterday afternoon it dealt with the item on "Connecting Smallholders to Markets: Policy Recommendations". See <http://www.fao.org/cfs/cfs43/en/> for all details...Moderator].

-----Original Message-----

From: AIS
Sent: 19 October 2016 14:34
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 62: Food systems approach (Question 3.2.1)

This is Daniel Nkomboni again, with my brief general comments on 3.2.1 ("Compared to other approaches, what are the advantages and disadvantages of applying this food systems approach to study the contribution of small farms to food security and nutrition?").

This approach allows for identification of quantities and food produced within a farming system; it follows pathways of food/product movement to disposal. As it explores the reverse flow of inputs into the system and out to consumers, it can use the value chain analysis tools to highlight flow of goods and inputs; actors involved and their competitiveness. It can be used to develop food requirement models for specific populations/regions and help in better defining who a small farmer is in terms of the productivity of their source of livelihood (as opposed to using just land areas or livestock numbers as determinant factors). This process may also identify value addition options. In southern African small farms, value addition is limited at farm level, and this may limit the amount of food /feed products consumed there as they are expensive when bought externally. Value addition may be important in developing infrastructure like rural service centres and also attracting some urban buyers to come and purchase. In Ghana in the past years, cocoa producers could not access chocolate when cocoa was processed elsewhere!

Food systems can establish quantitative & qualitative methods to assess farmers contribution (3.2.3) using tools like field surveys and on farm research.

This system assesses the environment and the people e.g. the socio-political factors that may be enabling or otherwise, the culture and religion may be a barrier to production of certain food items.

The only disadvantage about this system is that it is robust and may not be as accurate as e.g. evaluating a less diverse food system as in a commercialised system. Food systems in small farms are dynamic and change with climate and therefore constant evaluations may be necessary.

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[Just to ensure I understood fully his final point, I contacted Daniel who confirmed that he was saying there that the only disadvantage of the food systems approach is that it may be less accurate for small farm systems (which are dynamic and change with climate) than for commercial farm systems (which are less diverse)...Moderator].

-----Original Message-----

From: AIS
Sent: 19 October 2016 15:05
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 63: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

This is Mahesh Chander, again.

My comments relate mostly to Question 3.3.6 (i.e. “The importance of healthy, balanced, diversified diets is increasingly recognised (e.g. FAO and WHO, 2014). In view of this, some small farmers may undertake crop diversification or diversify out of crops into aquaculture and livestock. Developments may vary across different parts of the world. What are your observations? Also, do you think that in small farms the share of staples in the output is higher than in large farms?”):

The available reports by nutrition experts and economists suggest that in India, falling protein intake of rural Indians should be of greater concern than declining calorie consumption or rising fat content in urban diets. The low consumption of protein rich diets among rural Indians might mean that the majority of small scale producers are concentrating on growing grains like wheat and paddy or cash crops, ignoring legumes or keeping expensive pulses/legumes for marketing (rather than consuming self) to meet household requirements of cash incomes. This relates much to the food security policies of the concerned countries, which often emphasize grain production over protein rich pulses. The deficiencies of protein in diets have serious health implications. The nutrition-sensitive policies being promoted by the FAO including some countries is one step in the right direction. There is growing impetus to pulses production in India recently due to rising prices of pulses.

With this background, sensitivity to nutrition in farm production profile of households could be one of the criteria to judge the farms - whether they aim to meet food security or the nutrition challenge of the household or the country on the whole. The countries or the farms may be mapped for meeting food security or nutrition security or balanced, meeting both the requirements.

The last part of Question 3.3.6 also asks whether in small farms the share of staples in the output is higher than in large farms. There are references that small farmers contribute more to staples than pulses.

According to BIRTHAL et al (2011), small farmers in India contribute to both diversification and food security, but they allocate larger proportion of land to rice and wheat than other farmers. In terms of production, small and marginal farmers also make larger contribution to the production of high value crops. They contribute around 70% to the total production of vegetables, 55% to fruits against their share of 44% in land area. Their share in cereal production is 52% and 69% in milk production. The Indian small and marginal farmers allocate lower

proportion of land to pulses and oilseeds and only in the cases of pulses and oilseeds, their share is lower than other farmers. While there is self-sufficiency in staples in India, the government is compelled to import pulses and edible oils. This indicates that the concern has always been more on food security, especially at the level of small scale farmers, than nutritional security until recently when nutritional hunger is increasingly being talked about in India.

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Reference:

Birthal, P.S., PK Joshi and AV Narayanan (2011), "Agricultural Diversification in India: Trends, contribution to growth and small farmer participation", ICRISAT, mimeo. Cited in M.S. Dev (2012, <http://www.igidr.ac.in/pdf/publication/WP-2012-014.pdf>)

[Just a reminder that 2016 is the International Year of Pulses. See <http://www.fao.org/pulses-2016/en/> for news, events, recipes, resources and much more...Moderator]

-----Original Message-----

From: AIS
Sent: 19 October 2016 15:09
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 64: Small farms, food systems and food security in a developed economy

I am Ashoke Bose, Founder of Sustainable Energy & Agriculture Technology, LLC (SEAT), a private company located in Arizona, USA. We are involved in developing Near Zero Carbon (NZC) emission greenhouse technology and micro-greenhouses which should allow farming in a semi-controlled environment. Our project is located in Sahuarita, a rural community, which is approximately 20 miles north of Nogales at Arizona-Mexico border.

I find the information shared in this conference very interesting and thought provoking. I would like to share my opinion on food security in USA, a highly developed economy.

Role of supermarkets and online e-commerce platform:

In USA, consumers in urban as well as in rural communities buy basic food, vegetables, and fruits from supermarkets like Walmart, Target etc. Even the ranchers buy meat from the supermarket. I have seen very few farmers' markets in our communities. These supermarkets adopted centralized warehouses as distribution centers, and use "Just-in-Time" ordering system via Point of Sales (POS) to deliver goods daily to stores to reduce inventory cost and improve profit margin. For example, assume the shelf capacity of a certain brand of cereal is set at 20 boxes based on past sales data; the POS will keep track of how many boxes of that brand of cereal is sold on a specific day, and if the count reaches a threshold, say 18, then POS will place an order to the distribution center, and on next day the delivery will be made. This system reduces the inventory cost significantly. However, if there is no delivery truck for a couple of days for any reason, many shelves will be empty.

Based on my personal experience at Walmart, the distance between the central distribution center and a store could be as high as 300 miles. In rural community, like in Sahuarita, consumers may drive 25/30 miles to shop at a supermarket like Walmart. The distance between the producing farm and the central distribution center may vary significantly. For example, some of the produce are grown in Mexico; and some are grown in local farms within 50-70 miles of radius.

In recent years, many consumers have adopted online services like Amazon.com (Amazon Fresh) for their daily food supply. These online service providers also use a centralized warehouse based distribution model. This centralized distribution model has two side effects: a) the distance between producing farms and actual consumers has increased; and b) the carbon footprint of consumed food/vegetables has gone up.

Sources of food insecurity in a centralized distribution model:

In this centralized distribution model, the possible sources of food insecurity are the following:

1. Natural calamity – drought, flood, earthquake etc.
2. Logistic failure – major accident in the highway, interruption in gas supply, labor unrest etc.
3. Infrastructure failure – electrical grid failure, network failure
4. Import failure - Political issues in the exporting countries
5. Terrorist attack in the food supply chain

Role of small farms in urban/rural communities in USA:

In the community supported farming, small farms should be located within the community that they serve. At SEAT, we have designed and built a pilot micro-greenhouse (20 ft X 12 ft) using wooden frame and corrugated plastic roof and walls are made of material which allows air flow but restricts direct sunlight. We are growing common vegetables like tomatoes, squash, bell pepper and water melon. This micro-greenhouse could be erected in the back yard of any house. The production capacity of a micro-greenhouse is sufficient to supply vegetables to a family consisting of two adults and two children. Further, it is possible to install three to five micro-greenhouses in the community owned land, and this cluster of micro-greenhouses could support a community of ten to twenty households. A more detailed description on the micro-greenhouse project is available from the Facebook link below.

We would like to envision the role of micro-greenhouses similar to that of micro-computers in early eighties when centralized computing powered by main frame computers dominated the computing market. In the computing industry, we have realized that a network of small computers could replace a main frame computer. The centralized warehouse based distribution system has a single point of failure. A network of small farms, powered by micro-greenhouses, could eliminate the single point of failure issue. Further, by bringing the producing farms closer to the actual consumers, we can reduce transportation cost and carbon footprint. We believe that technologically well designed urban/rural small farms may address some of the above issues as listed 1-5.

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-----Original Message-----

From: AIS

Sent: 19 October 2016 15:26

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 65: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Bazyli Czyżewski again, in response to Francisco Gurri (Message 58).

I agree with the opinion that if "you google local farmer markets in the US and agroecological farms and organic farms. I don't think you will find Monsanto amongst them". The same, if we consider agroecological farms in Poland or in different European countries. They get support in Europe from the EU Common Agricultural Policy for being agroecological, and they have to meet specific ecological requirements. But there is less than 1% of

such farms in Poland. In Austria which is leading in ecological production - less than 10%. The market share for the ecological farm's food accounts from 5% to the maximum 20% in the EU. So, it is the minority.

The question is whether subsistence and semi-subsistence farms in less developed countries would use capital intensive practices (GMO feeding stuffs and seeds, fertilisers etc.) if they could afford to purchase it and to maintain adequate production scale. Perhaps, they are now forced to be agroecological because they don't have any choice or any opportunity to become capital intensive? What would happen when they will? Do you really think that they will choose ecological path of development which is less competitive? In my opinion, agroecological practices in USA and in Europe are possible only thanks to the specific policy support for such farms. Without this support, these farms would be forced to become capital intensive if they wanted to survive on the market or they would disappear. This is called "market treadmill" - the theorem elaborated by Willard Cochrane in the 1950s.

We estimated agricultural greenhouse gas (GHG) emission models for the panels of countries on the different development level which proves that the increase in agricultural income in less and medium gross domestic product (GDP) countries translates into higher GHG emissions. Only in well developed countries do higher incomes result in lower GHG emissions from agriculture (as I mentioned previously, these models can be found here: <https://www.researchgate.net/project/Environmental-Impact-of-Different-Models-of-Agriculture>)

And if we consider, for example, the average farm GHG emissions per ha in such countries as Greece, Cyprus, Japan, Korea, Malta, Poland, Russia, Slovenia, Taiwan, Hungary, Italy in 1995-2009 it is more than 6289 kg CO₂ eqv. per ha, while in the well developed countries (such as Austria, Australia, Belgium, Czech Republic, Denmark, Finland, France, Spain, Netherlands, Ireland, Canada, Luxembourg, Germany, Portugal, Sweden, USA, UK) only 4152 kg CO₂ eqv. per ha.

Bazyli Czyżewski, PhD. (hab.)

Associate professor

Department of Education and Personnel Development

Investigator in Research Group of Macroeconomics and Agricultural Economics Department

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-----Original Message-----

From: AIS

Sent: 19 October 2016 18:09

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 66: Re: Categories of farmers - India

This is Dr. BL Jangid, working as Principal Scientist (Agricultural Extension) under ICAR-Central Arid Zone Research Institute, Regional Research Station, Pali 306401, Rajasthan, India.

I would like to respond to Message 56 by Dr. Mahesh Chander, about classification of land in India. As per Government of India (2015), the operational holding are classified as below-

S. No. Size-group

I. Marginal

1. Below 0.50 ha,

2. 0.50 ha – 1.00 ha (0.50 < 1.00)

II. Small

3. 1.00 ha – 2.00 ha (1.00 < 2.00)

III. Semi-Medium

4. 2.00 ha – 3.00 ha (2.00 < 3.00)

5. 3.00 ha – 4.00 ha (3.00 < 4.00)

IV. Medium

6. 4.00 ha – 5.00 ha (4.00 < 5.00)

7. 5.00 ha – 7.50 ha (5.00 < 7.50)

8. 7.50 ha – 10.00 ha (7.50 < 10.00)

V. Large

9. 10.00 ha –20.00 ha (10.00 < 20.00)
10. 20.00 ha and above

And accordingly the holders of the lands are classified for all revenue and administrative purposes in India. The all government subsidies under various development programmes are made available to the farmers on this basis. The recent trends shows that the number of marginal holding are increasing day by day at the fastest rates due to continuous fragmentation of medium and large size holdings, followed by small holding. The average size of holdings had shown a consistent decline over the year. In 1970-71 it was 2.28 hectares, which reduced to 1.15 hectares in 2010-11. Thus, it indicates that marginal and small farms are increasing.

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Reference:

Government of India (2015). All India Report on Agriculture Census 2010-11. Agriculture Census Division, Department of Agriculture, Cooperation & Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India. <http://agcensus.nic.in/document/ac1011/reports/air2010-11complete.pdf> (15 MB)

-----Original Message-----

From: AIS
Sent: 19 October 2016 18:10
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 67: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

This is Jahi Chappell, Senior Research Fellow, Agroecology and Agricultural Policy at the Centre for Agroecology, Water and Resilience, Coventry University, UK.

Regarding production diversity and household nutrition, I would say the most rigorous assessment is that there is insufficient evidence to make conclusive statements either way. There is even *less* evidence with regards to how contingent the relationship is – that is to say, it could be that in a condition of isolation, poor infrastructure, and/or predominance of large farms, for example, there is a weaker - or stronger - relationship between production diversity and nutritional status. And that when there is significant socioeconomic stability, relative equality, politically empowered farmers, and strong local markets, there may be a different relationship.

There simply is not a significant enough source of reliable data, I would say, to be definitive, and there are valid theoretical reasons to argue about the relationship from perspectives of political economy, historical development, current conditions, and path dependency, as well as human ecology. There is certainly qualitative evidence that there is a relationship:

Burlingame, B., & Dernini, S. (Eds.). (2012). *Sustainable Diets and Biodiversity: Directions and solutions for policy, research and action*. Rome: Food and Agriculture Organization of the United Nations.

Chappell, M. J., Wittman, H., Bacon, C. M., Ferguson, B. G., Barrios, L. G., Barrios, R. G., . . . Perfecto, I. (2013). Food sovereignty: an alternative paradigm for poverty reduction and biodiversity conservation in Latin America. *F1000Research*, 2, 235. doi:10.12688/f1000research.2-235.v1

Frison, E. A., Smith, I. F., Johns, T., Cherfas, J., & Eyzaguirre, P. B. (2006). Agricultural biodiversity, nutrition, and health: Making a difference to hunger and nutrition in the developing world. *Food and Nutrition Bulletin*, 27(2), 167-179.

Heredia, B., Medeiros, L., Palmeira, M., Cintrão, R., & Pereira Leite, S. (2006). Regional impacts of land reform in Brazil. In P. M. Rosset, R. C. Patel, & M. Courville (Eds.), *Promised land: Competing visions of agrarian reform* (pp. 277-300). New York: Food First Books/CDS.

Isakson, S. R. (2009). No hay ganancia en la milpa: the agrarian question, food sovereignty, and the on-farm conservation of agrobiodiversity in the Guatemalan highlands. *Journal of Peasant Studies*, 36(4), 725-759.

Jaffee, D. (2007). *Brewing justice: Fair trade coffee, sustainability, and survival*. Berkeley, CA: University of California Press.

Johns, T., & Eyzaguirre, P. B. (2006). Biofortification, biodiversity and diet: A search for complementary applications against poverty and malnutrition. *Food Policy*, 32, 1-24.

Méndez, V. E., Bacon, C. M., Olson, M., Morris, K. S., & Shattuck, A. (2010). Agrobiodiversity and Shade Coffee Smallholder Livelihoods: A Review and Synthesis of Ten Years of Research in Central America. *The Professional Geographer*, 62(3), 357-376. doi:10.1080/00330124.2010.483638

Remans, R., Flynn, D. F. B., DeClerck, F., Diru, W., Fanzo, J., Gaynor, K., . . . Palm, C. A. (2010). Exploring new metrics: Nutritional diversity of cropping systems. In B. Burlingame & S. Dernini (Eds.), *Sustainable diets and biodiversity: Directions and solutions for policy, research and action* (pp. 134-149). Rome, Italy: Food and Agriculture Organization of the United Nations.

It would seem a preponderance of evidence points to a positive association.

M. Jahi Chappell, Ph.D.
Senior Research Fellow, Agroecology and Agricultural Policy
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UK

-----Original Message-----

From: AIS

Sent: 19 October 2016 18:11

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 68: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Jahi Chappell, again.

There are ample examples of small farmers leading in “battle” against excessive use of fertilizers and pesticides. Whatever one thinks of La Via Campesina, they surely lead in such battles, and they are not exclusively subsistence farmers. Indeed, within the United States, you can look at the variety of farmers represented by the National Family Farm Coalition, and many of its member organizations fight excessive use of fertilizers and pesticides, including Iowa Citizens for Community Improvement, which has prominent farmer members; many of the farmers in Julie Guthman’s book *Agrarian Dreams*; the research and work of Guntra Aistara in Costa Rica in Latvia (with a diversity of responses documented there); and the Southeastern African-American Farmers’ Organic Network. Among others. I suggest a thorough reading of the literature, especially in critical agrarian studies and rural sociology, as there will be examples of small farmers with many different attitudes, from pro-fertilizers and pesticides to vehemently against. One can easily find both.

M. Jahi Chappell, Ph.D.
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-----Original Message-----

From: AIS

Sent: 19 October 2016 18:12

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 69: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Francisco Gurri, again, in response to Bazyli Czyżewski (message 65).

Bazyli suggests that “subsistence and semi-subsistence farms in less developed countries would use”...non sustainable.. “capital intensive practices” to be competitive in the market. I agree, and they actually do. The minute small householders embrace national policies and start practicing agriculture as a business, they increase their use of fertilizers, weed killers, they reduce biodiversity and become all together less sustainable. Their adoption of a market-oriented agriculture is usually celebrated by local authorities. Unfortunately, peasants soon start reducing diet diversity, increase their dependence on store food items and eventually it affects their nutritional status. It is particularly damaging when the crop they decided to specialize on no longer provides profits or there are downsides to the market. In the tropical forests I work in southern Mexico, where the jungle is what provides soil fertility, intensification for the market soon leaves peasants out of options. Men are forced to migrate and abandon agriculture and food production. Women stay behind, and they buy small animals that may overgraze the already damaged fields.

Household agriculture can provide a sustainable living, and as many have shared in this e-mail conversation, they can feed entire provinces. They are not, however, good businesses. As a farmer once told me “la Milpa (the particular polyculture practiced in Mexico) is what we poor people do”. The solution, as shown many times over, is not turning them into commercial agriculturalists. As Bazyli and others point out in this conversation and most case studies show, this just makes things worse: environmentally and nutritionally.

Specific policies can be developed to encourage food production and increase household income without transforming their survival strategy into a business. More tax money should be directed towards small producers. God knows we have enough agricultural policies and agricultural subsidies to make “big agriculture” profitable and competitive, I don’t understand why anyone should expect that only small householders should be competitive in the market on their own. Maybe, if they had lobbying power their purchasing power would not be as poor.

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From: AIS
Sent: 19 October 2016 18:13
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 70: Re: Categories of farmers - India

I am ONIMA V T, PhD Scholar, Department of Extension Education, Navsari Agricultural University, Navsari, Gujarat, India. I am glad to take part in this e- conference.

For the research studies we usually follow this criteria prescribed by Ministry of Rural Development, Government of India, Circular No. 250-12/10/19/RD-III (Vol. V) dated 15th November 1991, the land holders were classified into five categories, one hectare as wetland shall be deemed to be equal to 2 as dryland.

No	Category	Score
1	Marginal farmer	Up to 2.5 acres
2	Small farmer	2.51-5.00 acres
3	Semi-medium farmer	5.01-10 acres
4	Medium farmer	10.01-25 acres
5	Big farmer	Above 25 acres

Majority of Indian farmers fall under small to medium category. Majority of them continue farming as a part of tradition or they do not have another option of job, which is applicable only to the older generation. The younger generation are behind city life which is a major threat to Indian farming. Due to urbanisation, and influence of city life, the land price is increasing at high rate, small farmers are trapped in this and are ready to sell their agricultural land for construction purposes.

Status of small farmers in the society is too low, so they prefer to migrate and settle in cities doing menial jobs rather than performing laborious job in farm for low income life.

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-----Original Message-----

From: AIS

Sent: 20 October 2016 17:46

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 71: Re: Small farmers undertaking diversification as a response to increased focus on balanced diversified diets (Q. 3.3.6)

Hello, this is John Poveda one more time.

I would like to keep the line of contributions around the question 3.3.6 given by Dionisio Ortiz-Miranda (# 54) and Francisco Gurri (# 59).

I agree with Francisco in the position that there is an increasing amount of information that reports a very positive impact on the “on farm” diets related to the increase of diversity in the farm. An interesting “review-like” report was made by Heywood (2013). The author concludes amongst other things that “There is abundant evidence that edible plant and animal diversity contributes substantially to human diets in terms of energy intake and also helps alleviate problems of malnutrition in developing countries through the supply of vitamins and micronutrients”. However, he recognizes that “...there is still a lack of knowledge about the species that are involved”, and in particular lots of research is needed around the question of nutritional value of these diverse elements on the local diets where crop diversification is a common practice. In this part, it’s clear that regional differences in the nutrition habits of small holders are the main factor who limits our capacity for making worldwide generalizations.

From a more on the field perspective I’ve had the opportunity to observe in Latin America and in particular in Colombia that small farmers with diversified gardens (whether for market or not) are more likely to include those items on their diets and therefore their nutrient intake has perceptibly increased.

From our recent experience in Canada we have never eaten a more diverse diet since we started our community supported agriculture (CSA) project in 2014. This year, for example, we managed to plant, harvest and consume over 40 different items in our 1 acre garden. Since our project only includes plants, we informally organized with other local producer the exchange of vegetables for cheese, eggs etc. throughout the season. As an example of the impact of small scale diversified agriculture in a developed country, our project belongs to the biggest network of family farms (small scale) with over 100 participants who produce food for 35000 people in Quebec (http://www.equiterre.org/sites/fichiers/divers/annual_report_2013_en.pdf).

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Reference:

Heywood, V. H. (2013). Overview of agricultural biodiversity and its contribution to nutrition and health. In D. Hunter, T. Borelli, F. Mattei, & J. Fanzo (Eds.), *Diversifying Food and Diets Using Agricultural Biodiversity to Improve Nutrition and Health*. (pp. 384): Earthscan from Routledge.
http://www.biodiversityinternational.org/uploads/tx_news/Diversifying_food_and_diets_1688_02.pdf (7.4 MB).

-----Original Message-----

From: AIS
Sent: 21 October 2016 09:49
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 72: Re: Who we are talking about when we say smallholder

This is Rachid Serraj. I am a Senior Agricultural Research Officer at the CGIAR Independent Science and Partnership Council (ISPC) Secretariat in Rome.

Responding to Mark Redman (Message 48):

I am afraid I can't speak on behalf of the CGIAR regarding smallholder typologies, but I know that several CGIAR Research Programs (CRPs) have done work on that; e.g. Humidtropics (Alvarez et al, 2014) or the International Food Policy Research Institute (Fan et al, 2013).

You may also find it useful to check the recent ISPC study on farm size and urbanization - Masters (2013).

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References:

- Alvarez, S., Paas, W., Descheemaeker, K., Tittonell, P., Groot, J.C.J., 2014. Constructing typologies, a way to deal with farm diversity: general guidelines for the Humidtropics. Report for the CGIAR Research Program on Integrated Systems for the Humid Tropics. Plant Sciences Group, Wageningen University, the Netherlands.
http://humidtropics.cgiar.org/wp-content/uploads/downloads/2015/04/Typology-guidelines_v2.pdf (2.8 MB)

Fan, S., J. Brzeska, M. Keyzer and A. Halsema. 2013. From Subsistence to Profit: Transforming Smallholder Farms. IFPRI Food Policy Report. <http://www.ifpri.org/publication/subsistence-profit-transforming-smallholder-farms>

Master, W.A. 2013. Urbanization and Farm Size in Developing Countries: Implications for Agricultural Research. Synthesis of a Foresight Study of the Independent Science and Partnership Council.
www.ispc.cgiar.org/sites/default/files/ISPC_StrategyTrends_FarmSize_Synthesis.pdf (800 KB)

-----Original Message-----

From: AIS
Sent: 21 October 2016 11:28
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 73: Comment on Question 3.1.1 - Malawi

My name is Harriet Gausi. I work in the Ministry of Agriculture, Irrigation and Water Development at Lilongwe Agricultural Development Division in Malawi. I am currently a PhD in Agriculture Student at the University of New England, Australia.

Comment on Question 3.1.1:

I have worked with communities at grass root level for over ten years and when we read in literature on land holding sizes, it looks like a mere statistic, but as one goes to the communities, it is when it becomes evident that this is real; it is not just as any other statistic. Most of the farmers that we work with own less than a hectare of land and others with no piece of land at all, and female-headed households are the most affected.

Having said this, I feel Message 70, from Onima V.T. from India, has answered question 3.1.1: defining of the land threshold to classify farms as small. The categories in Message 70 are clear, straight forward and encompassing (includes the 94% of farms worldwide that have up to 5 hectares, as indicated in the e-mail conference background document). If anything, maybe the big farmer category from message 70 could further be categorized as lower, medium and upper scale 'big farmer' to take into account that in some countries, 50 hectares could still be regarded as a small farm. If further classifications are included in this definition, such as crops grown, livestock kept, income from sale of crops/livestock, estate farming, irrigation farming, farm mechanization, etcetera, the definition will become complicated and leave out some 'small farms' that may not fall under any of these classifications.

Yes, the project should include the contribution of urban gardens and home gardens to food security and nutrition because these gardens play a role in food security and nutrition of the masses.

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[Regarding the farm size categories described by Onima (70) to classify Indian holdings as marginal, small, semi-medium, medium and large: these are the same as those described by Jangid (66), except that Jangid used different units (hectares vs acres) and included two further sub-groups for each of the 5 categories. The classification provided by Mahesh Chander (56) differed slightly as it mentioned a threshold of 6 ha between medium and large farms. In further correspondence with Mahesh, he has indicated that at times slight variations in land size classification are followed by various agencies and federal states; that Onima (70) and Jangid (66) have rightly used the criteria followed by Ministry of Rural Development, which is appropriate in the context. Their classification, with the 10 ha threshold between medium and large, follows that of the National Sample Survey Organisation (NSSO) approved for all government surveys - most of the official data are based on this classification only. The NSSO 2014 report on 'Key indicators of land and livestock holdings in India' is available at http://mospi.nic.in/mospi_new/upload/KI_70_18.1_19dec14.pdf (2.8 MB)...Moderator].

From: AIS
Sent: 21 October 2016 15:07
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 74: Questions 3.3 related to small farms and their role in food security and nutrition

My name is Ana Afonso from Spain, a researcher linked to GESPLAN Research Group at the Technical University of Madrid. My research lines are Human Development, Food Security and Rural Development.

My contribution addresses the third set of questions 3.3 regarding the role of small farms in food security and nutrition.

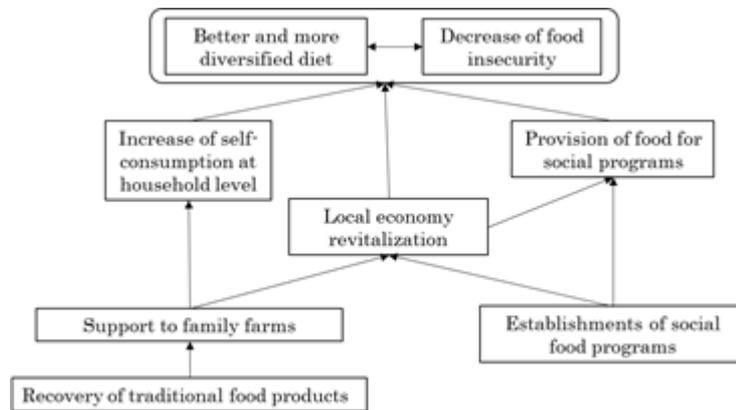
As stated in the background paper, small farms are important to achieve food security contributing to all the four dimensions as well as addressing the triple burden of malnutrition. But my view is that they have a particular role to play in some specific aspects:

- With regard to the level/scale (question 3.3.3), the focus should not only be individual or household, but also local level.
- With regard to the four dimensions of food security (question 3.3.2), the focus is in the second dimension, access to food, more specifically “physical access” including “social programs to ensure access to nutritious food”

- With regard to the triple burden of malnutrition (question 3.3.5), family farms have a role to play when tackling the increasing concern of the so-called hidden hunger or micronutrient deficiency, contributing to a more diversified diet.

The combination of these three aspects may be on the basis of policy measures to be implemented at local level as shown in the figure below.

Figure: Goals tree for policy makers at local level



Quite often, social food programs are addressed to subsidise staple foods (such as rice or wheat) to make them more accessible for low-income families. This measure can help to increase energy food intake for these poor families contributing to lower undernutrition. But by doing so, the micronutrient deficiency issue is being neglected. Usually, poor families that are eligible for food social programs have an unbalanced diet with too many cereals and lacking vegetables and fruits that could be provided by local family farms. Giving them staple foods results in an even more unbalanced diet “hiding their hunger more and more” (question 3.3.6).

Implementing local policies within the framework described in the above figure could help to a better and more diversified diet of the poor small farmers by encouraging self-consumption and by increasing their incomes as providers of fruits and vegetables for food social programs. In this way, social food programs tackle the issue of micronutrient deficiency which used to be a challenge for poor people whose diet is strongly unbalanced and depends only on staple foods (question 3.3.6).

Promoting the recovery of traditional food products is also a way of maintaining the world’s agro-biodiversity and the sustainable use of natural resources.

The implementation of the policies within the framework described above would require:

- A previous diagnosis and assessment of the diet of both, the farmers and the beneficiaries of food social programs, to identify what they are lacking
- A study of the feasibility to cultivate the desirable products to improve the diet in the local small farms.

The two variables should be considered in a multi-criteria analysis to identify which products should be promoted for cultivation in small farms to improve the diets at local level.

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-----Original Message-----

From: AIS

Sent: 21 October 2016 16:14

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 75: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

My name is Elisha Otieno Gogo from Kenya, a Ph.D student at Humboldt-Universität zu Berlin (translated as Humboldt University of Berlin), Germany. My research topic (preharvest and postharvest treatments (e.g. UV-C, UV-B) for quality assurance of African indigenous leafy vegetables) is under interdisciplinary research project addressing food security in East Africa (HORTINLEA).

I am contributing to question 3.3.4 ("Many small farmers participate in the rural non-farm economy to generate additional income. Does this increase the contribution of small farms to food security and nutrition?"):

During my Ph.D. research work, I have had the opportunity to interview farmers growing African indigenous leafy vegetables who are mainly small scale farmers. I would like to concur that small farmers participate in the rural non-farm economy to generate additional income as I found out in my study and for sure this can help increase the contribution of small farms to food security and nutrition.

In fact, food security has been defined by the FAO not only in terms of access to, and availability of food, but also in terms of resource distribution to produce food and purchasing power to buy food where it is not produced. Therefore, this extra income generation helps small scale farmers to have that purchasing power to afford that food which they don't produce.

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-----Original Message-----

From: AIS

Sent: 21 October 2016 17:07

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 76: RAI Principles and Question 3.4

This is Ana Afonso from Spain, again.

Some reflection on Question 3.4 and the RAI Principles:

Small farms and small producers are acknowledged as very important actors to implement the CFS Principles for Responsible Investment in Agriculture and Food Systems (RAI Principles) that were approved by the Committee on World Food Security (CFS) in October 2014 and aim to contribute to food security and nutrition and to the improvement of sustainable livelihoods for small producers, with a comprehensive, responsible and respect for the environment approach.

The RAI Principles are in line with the questions 3.4 raised in the conference: "How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?". In particular this issue is linked to the following Principles

Principle 2: Contribute to sustainable and inclusive economic development and the eradication of poverty

Principle 6: Conserve and sustainably manage natural resources, increase resilience, and reduce disaster risks

Principle 7: Respect cultural heritage and traditional knowledge, and support diversity and innovation

We have found some examples in Spain and Ecuador of how some small farmers' behaviours lead to the achievement of the RAI Principles and contribute to food security in a sustainable way involving the three dimensions of sustainability: environmental, social and economic. Although they are widely known, some of these behaviours deserve to be reminded.

- Small farms are suitable to occupy the market niche which represents organic and biodynamic food crops. This involves the implementation of an integrated technology of care for the environment and plant health. Organic and biodynamic agriculture are a means to strengthen both the environmental and economic dimension of sustainability.
- By operating in association, small farm cooperatives increase competitiveness and ability to negotiate strengthening the economic and social dimensions of sustainability
- Small farmers should be aware of the importance of sharing their experience to each other and to researchers and civil society. Information and transparency are a powerful source of communication that empowers people and reduces their vulnerability.

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[The objective of the RAI Principles is "to promote responsible investment in agriculture and food systems that contribute to food security and nutrition, thus supporting the progressive realization of the right to adequate food in the context of national food security". The Principles are "global in scope and have been developed to be universally applicable, acknowledging the particular role and needs of smallholders worldwide, in combination with other stakeholders, in addressing food security and nutrition". The Principles are available in all UN languages from <http://www.fao.org/cfs/cfs-home/activities/rai/en/>. An FAO press release which marks their endorsement by the CFS in October 2014 notes that agreement took over two years of consultations and negotiations and that "The Principles are voluntary and non-binding, but represent the first time that governments, the private sector, civil society organizations, UN agencies and development banks, foundations, research institutions and academia have been able to come together and agree on what constitutes responsible investment in agriculture and food systems" - <http://www.fao.org/news/story/en/item/260518/icode/> ...Moderator].

-----Original Message-----

From: AIS
Sent: 21 October 2016 17:34
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 77: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

I am Sarah Edewor, a Nigerian and a Doctoral student from the Department of Agricultural Economics and Farm Management of the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria.

During the course of my research, both as a student and on the various projects that I have been opportune to be a part of, it has been determined that farmers are smallholder farmers when they cultivate less than 2 hectares of land. Despite these small farm sizes, a large portion of them still happen to be the ones responsible for contributing immensely to the food security in the country.

I would like to contribute to question 3.3.4 which states that "many small farmers participate in the rural non-farm economy to generate additional income. Does this increase the contribution of small farms to food security and nutrition?"

I will say yes to this question. This will arise as a result of the fact that most farmers tend to diversify into non-farm activities so as to boost their incomes. Additional income from the non-farm activities they are involved in

also has the capacity of increasing farmer's access to a wide range of goods and services that were previously outside their budget.

Also, the proceeds from these non-farm activities are often times introduced back into their farms which in turn have a way of increasing their scale of production and boosting their productivity.

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-----Original Message-----

From: AIS
Sent: 23 October 2016 13:29
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 78: Re: Drawing the boundaries of food systems

This is Teresa Pinto-Correia, from ICAAM – University of Evora, again.

I am much impressed and thankful for all suggestions and comments exchanged during the conference so far.

We are in the last days, but I would like here to reinforce the question raised in message 49, by Lee-Ann Sutherland, and touched in message 62 by Daniel Nkomboni.

It is about defining the boundaries of the food system, when we want to have a linkage to a region and thus a territorial approach.

Do you or any of the participants have examples of analysis of the territorial food system, or specifically about boundaries, where we could get inspiration for the SALSA work?

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:44
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 79: The two questions focusing on sustainability issues (3.4.1-3.4.2)

My name is Rose Aduol-Sigar, a consultant with extensive experience in food security, environmental management and rural development. Many years of experience working with international non-governmental organisations (INGOs) and national NGOs. Currently engaged in organisational capacity building of a start-up national NGO called Action for Change and Progress.

Regarding Question 3.4.1 ("Driven by the SDGs, sustainability development is now central in the international development agenda. Sustainable development involves three dimensions - environmental, social and economic - and it is in manifold ways connected with food security and nutrition. How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?"):

Small farms have a higher potential of practicing mixed farming in which farmers keep a few herds of animals, some birds and do cropping. With commitment and dedication, it is possible for farmers in these set-ups to limit the use of external inputs and lay emphasis on use of on-farm generated organic inputs. Though labour intensive, in the long run a farmer would save money that would otherwise be used to purchase external inputs. With proper farm planning, environmental management and sustainability would be assured. In small farms, it is also possible and highly likely for farmers to support each other especially in times of high labour intensive season. It is possible for farmers to mobilise and work on each other's farms in a merry-go-round sort of way. This enhances social cohesion and improves social networking. Exchange of seeds works best in a small farm set up. Sharing of ideas, experiences and information is effectively achieved in small farm context.

Regarding Question 3.4.2 ("Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition?"):

Personally, I think and believe that small farms do/would contribute in equal measures to all the 3 sustainability dimensions. As explained above, encouraging the use of organic material to improve soil fertility, facilitating effective farm planning and resource use and encouraging enterprise diversification will promote environmental sustainability. Mobilising neighbouring farmers into groups and facilitating group savings that eventually grow into village financial associations will facilitate economic growth and enhance social cohesion. All the 3 dimensions must go hand in hand to realise sustainable development.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:44

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 80: Sustainable food security

This is Arbab Ghulam Qadir again. It was a really great opportunity and I learnt a lot from the fruitful discussions in the e-conference.

Regarding Question 3.4.1 ("Driven by the SDGs, sustainability development is now central in the international development agenda. Sustainable development involves three dimensions - environmental, social and economic - and it is in manifold ways connected with food security and nutrition. How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?"):

Unfortunately, small farmers are free slaves of the world. They are working from their ancestors to feed the world with no change into their own living standard and no promise and hope of a bright future of their children. Small farms can achieve food security and nutrition in a sustainable way if:

- Access to institutional credit is ensured
- Problem of water scarcity is resolved
- Drought resistant and saline tolerant crop varieties are introduced and tested properly
- Small farmers have proper access to better health and education facilities
- The role of women in rural areas is balanced with home keeping and their involvement in agriculture
- Home-based women economic empowerment interventions are introduced through skills based trainings because when women have direct income and control on it, they spend more on family food.

For any pilot research on introduction of new crop variety, either drought resistant or saline tolerant, the land of small farmers should not be used. Even if it is used, then minimum crop produce money should be insured so that the small farmer should not be a loser if the pilot test does not provide expected results.

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:45
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 81: Defining small farms // community food security // wider regional/national realities

My name is Aisling Murtagh, a postdoctoral researcher at National University of Ireland, Galway. I have carried out research looking at the linkages between less mainstream trends in food and agriculture in Ireland, such as farmers' markets and community gardens.

My contribution ties most closely with the questions related to defining small farms and the most appropriate threshold for research purposes (3.1.1). I think this is a complex question without one clear universally applicable answer. It seems very context dependent.

Farm type is potentially important to consider in assessing the definition of small farms. The average farm size in Ireland, identified in the 2015 Teagasc National Farm Survey, was 46 hectares. Farm size varies by type of farm. Tillage farms were on average 63 hectares, while farms rearing cattle were 35 hectares. Also in the wider context of food security and small farms, farm type in itself could be an important issue. Mixed farms potentially produce a wider variety of foods and have higher levels of biodiversity and synergies across food production systems such as horticulture and livestock production.

The idea of community food security (CFS) is also interesting in the context of small farms and food security. Allen (1999) notes that CFS seeks to connect production and consumption, which can support small-scale farmers. However, Allen (1999) is also uncertain of the capacity of such an approach and argues that caution is needed when working on food security problems with community based efforts focusing on local food production and consumption. It is argued they "can be at best supplements, not substitutes, for state-guaranteed food security" (Allen, 1999: 126).

Understanding wider regional and national realities also appears very important. In Ireland, for example, agriculture is highly export oriented. Food security is reliant on international trade and local food production on small farms is perhaps under-valued and little explored. Critics argue there is little focus on the wider social, environmental and cultural impacts of the agriculture industry in agri-food policy. For example some of the criticisms of Food Harvest 2020, the Government's strategy for agri-food development until 2020, highlight this. Food Harvest is focused on productivity growth.

Commenting on Food Harvest 2020, Wilde (2011) highlights the need for social, nutritional and environmental impacts of the food system to become part of how performance is evaluated and that Ireland doesn't have a formal policy statement outlining how food security is assessed. In a submission to Food Harvest 2020, An Taisce, the National Trust for Ireland, highlights that meeting targets could lead to competition for land between dairy and other farming sectors such as tillage, beef, sheep and horticulture. Food Harvest includes a target of increasing milk production by 50%. An Taisce questions if this could leave Ireland too reliant on one agricultural sector and that Food Harvest lacks vision on enhancing Ireland's food security and our reliance on imported grain, animal feed, fertilizer, fruit and vegetables (An Taisce, 2012).

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:46

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 82: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

I am Oladeinde Kayode Benjamin, a Nigerian and a MSc research student from the Department of Agricultural Economics and Farm Management of the Federal University of Agriculture, Abeokuta, Ogun State, Nigeria.

It's been an insightful time on this platform and I want to thank all contributors and our esteemed Moderator for his comments.

Inferring from cobweb theory, Message 1 (by Nchendeh Valentine), Message 77 (by Sarah Edewor) and others: The diversity and abundance of food found in markets for human consumption originate from small farms and so the contribution of small farms to rural and national development and food security is enormous. From cobweb theory, it can be ascertained that, as a result of information failure, where producers base their current output on the average price they obtain in the market during the previous year. A lot of Nigerian farmers rush in to produce food crops like cassava in effect when prices fall and their income also falls and, in order to make their livelihood sustained, these small holders diversify their labour and resources into non-farm or off-farm activities.

Secondly, I strongly believe that policies that can induce farm production decisions and production intent based on (season, cash or food crop) will go a long way in making the contribution of small farms more efficient and effective in tackling malnutrition, food insecurity and provide more access to a more diverse diet.

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[According to Wikipedia: "The cobweb model or cobweb theory is an economic model that explains why prices might be subject to periodic fluctuations in certain types of markets. It describes cyclical supply and demand in a market where the amount produced must be chosen before prices are observed. Producers' expectations about prices are assumed to be based on observations of previous prices"...Moderator].

-----Original Message-----

From: AIS

Sent: 24 October 2016 18:46

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 83: Question 3.4.1 in national & international level for food security through small farms

This is Dr. Raja Rathinam from India. I am a food related specialist served as G.M/MD in NDDDB, World Bank, ADB, Reliance Projects for helping rural families through dairy farming with proven abilities and awarded for the contribution of my work. I am working for small producer organisation in rural areas of India. The place is located near Varanasi which is the most backward area. UNDP initiated this project to increase the income of underprivileged rural women through dairy farming. Main objective of this project is to develop food security, poverty alleviation, sustainable management of natural resources with the intensification of production and improvement in rural livelihoods with the given situation of the small farmers.

Regarding question 3.4.1:

I am very happy to see the involvement of nearly 500 participants to help the underprivileged small farmers in the world as a whole. I am here to share the experience of mine as well as a team to contribute for the improvement in economic, social and environmental dimensions of small farmers. You might know the white revolution created by Dr. Kurien in India which had made proven result of helping the small farmers in food security especially in milk through livestock and agriculture indirectly. This has been achieved with the initial support of world communities and international organisations like FAO. But it is going to be tough in the future due to various reasons like urbanization, climate change and other factors in developing countries which will affect the whole communities in future if action is not taken.

Implementation may vary from country to country. But making efforts may remain the same. Therefore, at the end I request John to kindly include the recommendation of this conference to select coordinator from interested, experienced and committed candidate from each country as FAO coordinators to support the small farms for sustainable improvement on economic, social and environmental dimensions for food security. Then only the purpose of this conference can be fulfilled on the subject.

Once again, I am thankful for all the participants and contact me for helping the underprivileged small farmers as I used to spend my times with them for the past 35 years. Let us serve for the needy to bring happiness to all.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:47

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 84: Including gender in the study and research of small farms and FNS

This is Richard Yeboah from Ghana, again.

There is a gender dimension to food and nutrition security (FNS) especially in the developing countries. The small farms are normally run by poor households where mostly men are heads. The men are the owners of the farm and the wives and children are workers on the farm. When the crop is harvested it is, in most cases, the man who decides on the distribution as to what to sell, keep for food etc. On a daily basis, or periodically, the women are supplied with the grain for preparation to feed the home.

The nutrition of the food served on the table is dependent on what the man provides. The women in order to provide a balanced diet cultivate vegetables around the borders of the farm or on some small part of the farm to supplement. In some cases, the women produce more than they could consume so sell some to buy other ingredients.

The resourcefulness and knowledge of the wife determines the quality of food provided for the household. The men do not in many cases provide enough cash for protein in the form of meat, fish etc. These are of concern to the contribution of small farms to FNS.

It is therefore important that a gender dimension is included in the study and research of small farms and FNS not only the production.

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:48
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 85: The two questions focusing on sustainability issues (3.4.1-3.4.2)

This is Richard Yeboah, from Ghana, again.

Regarding Question 3.4.2:

Small farms contribute to all three dimensions of sustainability. In Ghana, for example, most of the food that feeds the nation is said to be from small farms hence it contributes so much to economy as well as social. Their operations contribute negatively to the environment because of the practices. Continuous use of the land has made many land marginal. Fertility is low. In the dry season, grazing and wild fires destroy the vegetation and expose the soil to all the forms of erosion. Where tree crops, e.g. mango, cashew are cultivated they contribute to the environment. But, in general, in Ghana they contribute more to the social dimension (household food security).

Regarding Question 3.4.1:

How can small farms contribute to sustainable food and nutrition security (FNS)? There are two major ways.

First, the need to increase yield. Yields are quite low. The average yield of maize, for example, in Ghana is 1.5 tons per ha and other crops are also low. This must be improved so as to contribute to sustainable food security.

Second, there is the need for education, increase in knowledge of women who prepare the food in balanced diet and a good combination of the produce available to achieve sustainable nutrition security. Small farmers should not only keep animals for sale but should also develop the use of these animals for household consumption.

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:48
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 86: Question 3.4.1. How can small farms specifically contribute to achieving food security and improved nutrition in a sustainable way?

My name is Patrick N. Jellason, a third year PhD researcher in the Royal Agricultural University, Cirencester, UK. I am currently working on enhancing resilience and food security of northern Nigerian dryland smallholders in the era of climate change.

In response to question 3.4.1:

Taking examples from my research and field engagement, smallholders with 2 hectares or less have evolved with their local approaches to soil fertility and rain water management in those areas. However, results from baseline

studies indicate some practices critical to resilience enhancement and food security in dry areas to be lacking in those areas such as rain water harvesting for small scale irrigation, mulching and other conservation farming practices. Also, women were not involved with farming in the study communities due to cultural and religious reasons as opposed to reports in the literature that show women to be big contributors to agriculture in sub-Saharan Africa and other developing countries.

After group engagement with women, men and youth groups separately, good agricultural practices that are climate smart (that ensure environmental sustainability, food security in a socially, economic and environmentally friendly way) were selected from a set of options reviewed from the literature. The women's group believed they have so much to contribute to household food security and improved nutrition if their husbands could allow them to participate in farming activities.

That informed the idea of mainstreaming gender in the selection of practices. Bio-intensive vegetables gardening that contains all the essential food items for enhanced nutrition was identified by the women themselves from a selection of options. These gardens were established inside their houses or in the backyard for those with space using rain water collected to irrigate the gardens. The men's consent was separately sought in a focus group with benefits of their spouses involvement in farming highlighted. This made them accept to allow their wives since it does not involve the women leaving their homes which they said was not culturally acceptable. The women have since reported success with their gardens.

In summary, this was a successful participatory approach to engaging smallholders in ensuring sustainable food production that is socially acceptable, economically viable (saving costs of buying vegetables) and environmentally sustainable (using locally made compost and harvested rain water). By so doing, improved family nutrition was ensured in a sustainable way.

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:49
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 87: Question 3.1.2 - What are the most important additional criteria that should be used to define small farms

My name is Talis Tisenkopfs, I am a sociologist and researcher at the Baltic Studies Centre in Riga, Latvia. Our institute is a partner in the SALSA project.

My contribution relates to defining small farms, specifically Question 3.1.2 ("What are the most important additional criteria that should be used in such a research project? If possible, provide specific examples where you or others have used additional criteria in practice in research on small farms and share any lessons learned from using them"):

I would like to refer to the study of small farms we carried out in Latvia in 2014-2015 within the framework of the European project RETHINK (<http://www.rethink-net.eu/home.html>).

There is no 'official definition' of small farms in Latvia; however policy makers need one for the government support programme for small farms. The governing institutions use three quantifiable criteria measured also in agricultural census: farm standard output (less than 25 000 EUR); size of the agricultural land (a fuzzy criterion as many small farms in Latvia possess relatively large farmland – 10, 15 and more hectares); and employment, expressed in agricultural labour units.

We started the study with a workshop with representatives of the Ministry of Agriculture and farmers' organisations to inquire about their interests and expectations from our project. The stakeholders wished that the RETHINK study would come up with a more holistic definition of small farms. Therefore, we focused the study

mostly on qualitative aspects of small-scale farming, paying attention to their market, territorial and social relations. We used the concepts of resilience, prosperity and learning to understand different activities and outcomes of small farms. The results are summarised in a case based practitioner handbook “Latvijas Mazo Saimniecību Dzīvotspēja” (Resilience of Small Farms) published in Latvian and available at: http://www.bscresearch.lv/content/projects_files/gramata_latvijas_mazo_saimniecibu_dzivotspeja.pdf

Several key findings might contribute to a more holistic definition of small farms.

First, we observed that small farms follow diverse economy principles and pathways, not a purely capitalistic path.

Second, there was no link between ‘smallness’ and ‘poverty’ and ‘exclusion’ which challenges the widespread assumption in post-communist countries that small farms are left-over from the past which should fade during modernisation of agriculture.

Third, in many cases, small scale farming ensured decent levels of well-being, income, quality of life, self-efficacy, time-control, and life satisfaction of farmers. Prosperity construction of small farmers went far beyond merely economic aspects.

Fourth, many small farms demonstrated surprising resilience and, in the meantime, innovativeness; both processes were related to the farmers’ active involvement in learning and social networking.

Fifth, a notable role behind success, prosperity and resilience of small farms was played by family factors (marital ties, gender and generational relations, farm succession).

At the final workshop we proposed an extended definition of small farms including additional criteria to the above mentioned economic ones, like: family labour; family land ownership; prosperity; well-being; resilience; knowledge and learning. Stakeholders appreciated these qualitative criteria; however they felt that further clarification and discussion was needed.

This experience suggests that definition and criteria of small farms is an object of multiparty discussion and agreement in a given national context and they depend on the vision of small farms’ role in rural development and agri-food systems.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:49

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 88: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

This is Scott Justice, CIMMYT Nepal office. I am an agricultural and rural mechanization specialist (not an agricultural engineer) working in mechanization research and development for last 20 years.

In Asia and Africa over the last 15-20 years, there has been a growing avalanche of old and new models of agri machinery, in large and small agri machinery, in all sectors (production, protection, harvest and post-harvest). And new ideas and innovations are coming into the markets the time. Again, both in large scale but especially in small scale lower horse power machinery. And mostly, for good or bad, coming out of China (but other countries like India, Thailand, Vietnam, etc. are picking up).

Prior to this, the choice of technology for farmer or for development professional or policy maker in the developing world was to choose from European / US / Japanese made large scale tractors etc. or bullock/manual

equipment. There was little or no middle path in small scale appropriate and, just as important, "price appropriate" machinery. Then entered Chinese 2-wheel tractor (12-18 horsepower tiller r) and irrigation pumpsets (in the case of Thailand, Thai-made power tillers tractors with subsidized Japanese engines). In places like Bangladesh and Vietnam, the new pumpsets and later small tractors were via vibrant rural service markets, able to bring winter / dry season fallows not only into production but, especially in Bangladesh, the winter rice area grew 3 times and yields nearly doubled and it now produces 2 times more than main season rice! Similar story in Vietnam.

That all said, I want to respond to Question 3.3.4 ("Many small farmers participate in the rural non-farm economy to generate additional income. Does this increase the contribution of small farms to food security and nutrition?"):

There is a growing body of evidence that in many Asian countries that have considerable growth in the rural non-farm sector, a strong and scale appropriate agri mechanization process preceded it. And as Elisha Otieno Gogo (Message 75) and others have previously said, with growth in the non-farm sector these additional full and part time jobs create additional income sources that not only contribute to household food security but overall livelihood improvements.

In the 1970s and 1980s, Bangladesh was the basket case of international development. But with growth in food production and increases in non-farm sector, more than 60% of farm household income comes from off the farm. And with major growth in the spread of irrigation pumpsets and 2-wheel tractor/power tillers to where averaging cropping intensity is well over 200% and Bangladesh is a net exporter of food in the 2000s. I know this alone does not mean access to food but in Bangladesh they have done very well nutrition goals. And with the improved rural roads, reports are coming that the large garment factories (garment factories are a 25 B USD business there) are moving into rural areas where there are high population levels, so even more formal sector work opportunities are coming to rural people-part time farmers.

With similar but earlier mechanization processes in Thailand and Vietnam, these two countries have been in the top three exporters of rice in the world for the last 15 years. And they do so mostly with small scale power tillers and even small scale combine harvester- machinery that can get easy access to, and manoeuvre within, small fragmented holdings. To the point that even with India as #1 producer of four-wheel tractors in the world, they have less than 60 % of their farmers with access to mechanized tillage. In Bangladesh, it's over 90%. Even with this high level of mechanization and concomitant high levels of productivity, these countries face labor shortages and increasing wage rates. This is no longer the 1980s where fear of mechanization - American style - kept many governments and donors from programming in this area.

That all said, I know that many countries don't have the water resources that Bangladesh/Asia have but, even up to 1990 without the pumps and without the shallow tube wells, Bangladesh was in constant food crisis. There needs to be a much more serious look at irrigation but also at small machinery for rainfed agriculture capable of conservation agriculture (no till reduced till systems) that can make much better use of water and get more crop per drop.

As I have started work in Africa recently, I am very concerned with government and private sector attitudes towards small scale machinery. Many senior folks even joke about farmers using small scale machinery while holding national ambitions that their agricultural mechanization process should look like the west's or even worse the Punjab's, both facing major environmental and water crises.

Sorry to have gone on so long, but I'll just add in parting that in many cases and arguments for increasing food security and improved livelihoods and selection of the technology that a nation uses to promote improvements, size matters!

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:50
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 89: Re: Small farmers participation in rural non-farm economy & FSN (Q. 3.3.4)

My name is Gabriel Adukpo from Ghana. I am an Agriculturist with specialization in Extension and Adult Education. I have spent 25 years working with farmers as District Agricultural Extension Officer and Municipal Director of Agriculture in the public sector. Having been additionally trained at Writers Bureau, UK, I am settling down as a Freelance Journalist on retiring a couple of weeks ago.

I would like to join the conversation on operators in the rural non-food sector and their contribution to food security and nutrition.

Non-food crops such as cotton, kola and para rubber are part of the rural economy. Even cocoa producers hardly feed on the produce they cultivate. Where land is available, non-food producers also grow arable crops, rear animals and go fishing.

Incomes from the sale of non-food items enable households to have economic access to nutritious food. It was found out that nutrition improves among cotton farming families when cotton production and prices increase.

In a Sustainable Livelihoods Project carried out in three districts in the Eastern Region of Ghana, we identified income earning ventures such as soap making using cocoa pods, pomade making, weaving, carpentry and bricklaying.

As farming is seasonal, non-food production activities tend to fill in as worthwhile interval between seasons. We observed that those who earn additional incomes were capable of hiring labor and constructing storage facilities thus increasing yields and availability of food items.

Yes, non-food production enhances the local economy leading to thriving farming communities in which food production, processing, utilization and storage take place.

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-----Original Message-----

From: AIS
Sent: 24 October 2016 18:50
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 90: Definition of small scale farming (Nigeria context)

I am Chidinma Peter-Onoh Ph.D, a lecturer in the Department of Crop Science and Technology, Federal University of Technology, Owerri, Imo state, Nigeria.

In Nigeria, farming is basically done on a small scale. Most farmers produce for their family alone and, in some cases, a little for others. A characteristic feature of the agricultural production system in Nigeria is that a disproportionately large fraction of the agricultural output is in the hands of these small holder farmers whose average holding is about 0.1-3.0 hectares.

According to Federal Office of Statistics Lagos (1999), small holder farmers are farmers whose production capacity falls between 0.1- 4.99 hectares holding. They operate at subsistence smallholder level, with intensive

agriculture being uncommon. There is very limited access to modern improved technologies and their general circumstance does not always merit tangible investments in capital, input and labour.

In this type of farming, different crops, such as vegetable, fruits etc. are planted and the farmers also engage in animal husbandry such as keeping goats, bees, sheep and birds. They are in recent times involved in fish, snail farming and pigs amongst others. They generate their income for farming from several sources as pensioners and artisans.

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Reference:

Federal Office of Statistics (FOS). (1999). Poverty and Agricultural Sector In Nigeria, Poverty Incidence of Farmers by Region. FOS Lagos, pp 22-23.

-----Original Message-----

From: AIS

Sent: 24 October 2016 18:50

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 91: Responding to questions about small farms - Argentina

My name is Marisa Gonnella. I work as professor of Rural Sociology and in projects about Rural Extension and development.

Regarding Q. 3.2.1 (Compared to other approaches, what are the advantages and disadvantages of applying this food systems approach to study the contribution of small farms to food security and nutrition?), Q. 3.2.2 (What is the best way to define the boundaries and characteristics of a regional food system?) and Q. 3.2.3 (In quantitative terms, what methods would you use to assess the contribution of small farms in a particular region to meeting the demand for food within the same region?):

The size of small farms in the Pampas region is very dissimilar. Small farms are under 100 ha, because the extension is in relation to the model of production, which is mainly soybean. But the same size for other activities as horticulture turns out to be completely different, with between 1 and 50 ha being the biggest producers.

There are several issues:

All cases form part of the food system but the small farms sell their produce to the local markets and the biggest producers are among the links in the agribusiness chain.

It is frequently said the small farms can produce safe food for the local markets but they need guarantees about the form of marketing. In addition, they need good credit and infrastructure. One question refers to the small farms "One issue refers to the category of small farms" as theory category and "the second issue is the small farms as beneficiaries" of policy programs. I think that the question about food security and the relations with small farms needs state policies and guarantees for the population.

The criteria taken by the states should emerge from both the needs of the small farms and the states while considering the contextual situations in the countries and the regions. In this way, it is possible that the small farms can work with the right conditions for the production of safe food.

The small farms are only part of the problems regarding food security.

Who is guaranteeing the access to food at the market?

The small farms have a culture of production that allows them to market their produce but with very many difficulties which include the social relations and their position in the rural structure.

The urban production, the production in the cities, is another issue when the agrarian and the structural questions are considered.

The small farms from the beginning of their production contributed to food security but in general they are considered as an informal sector, however, they are very important for the vulnerable population. In this question, the states are in debt to them.

Regarding Q. 3.3.1 ("How important is the contribution of small farms to food security and nutrition? Why?"):

The small farms are important contributors to nutrition because they can produce fresh food daily and in addition they can decrease the use of agro toxics. But the states are needed to identify the markets for their products. On these questions, it is necessary to know the local nutritional conditions of the population and work together with interdisciplinary groups.

Regarding 3.4 ("Questions related to small farms and achieving food security and improved nutrition in a sustainable way"):

The small farms present in the great majority the social situation with relation to the agrarian structure. So, before these issues, the forms of working for their sustainable development can be proposed, but is this concept the same for all?

The question is how to work with the small farms and listen to them, for their production can be more sustainable or more agro ecological with relation to the nutritional level of the local population.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:51

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 92: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

This is Mahesh Chander again, this time on entrepreneurial small farmers, an issue raised in discussions involving Francisco Gurri (Message 69) and Bazyli Czyżewski (Message 65).

There is growing realisation among farming communities that they won't be able to sustain and compete unless they treat farming as business. This realisation is leading to small scale farmers forming producer groups, cooperatives, part of contract farming etc. These farmers wish to be linked up with markets including opportunities for exports to maximise farm profits collectively. They are able to do things better by being part of producer groups which they couldn't do alone. Many small scale farmers especially those which are catering to the specific needs of the consumers like organic food products or cosmetics are able to enhance their returns from farms. Farming is no business as usual or way of life but a profit making venture for this new breed of farmers called Agripreneurs. They would grow & process only those crops which give them profit!!!
<https://blog.gfar.net/2016/08/26/minting-organic-money/>

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:51

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 93: Re: Question 3.4.2 - Of the three sustainability dimensions, to which one do small farms contribute most to sustainable food security and nutrition

I am Olubode Olusegun, from Nigeria, addressing question 3.4.2.

In my own response, small farms contribute immensely to availability of food, requires intervention in access to food, although obtain food in the fresh state regularly but requires knowledge in terms of what comprises a balanced diet and the minimum food calorie to consume daily, and faces pressures which may affect food security.

Small farms are traditional farms that evolve due to lack of support in funding, technologies and land ownership. Most lands are acquired through family inheritance and shared to family members or rented out to tenants who farm on subsistence basis for family maintenance and some engage in other rural economies. These farm sizes range between 0.5 to 1.5 hectares.

The farming methods are normally by intercropping systems, where farmers cultivate more than 2 or 3 crops at the same time, share seeds, join hands to do major farm operations and in turn go round to individual farm members (communal farming methods called 'Aaro' that ensures speedy operations and save cost) to carry out such major farm operations as clearing, sowing, heaping and weeding while harvesting is done by the family members.

Because little profit is realized, there is little or no room for expansion at the coming season and the cycle is repeated year after year. However, in recent times, farmers hire between one to ten farm labours depending on farm size, and these are paid at the end of the planting season in cash or kind. In the cropping system, the main crop is the target crop for profit while the array of vegetable intercrops, usually short duration crops, are for family maintenance. Hiring labour ensures more profit is made for farm expansion but this is also limited by the area of land owned by family members or available for rent. Moreover women that engage in farm operations have no direct access to land but usually through the male family members of the immediate family.

For produce that is destined for the market, profit is limited by losses incurred from poor handling methods, poor means of transport and lack of storage facilities. Furthermore, among the array of crops adopted as intercrops, certain crops as staple food, e.g. maize, or utilized in local diet, such as okra and amaranthus, fetch little income while intensively cultivated crops such as pepper or high turnover crops such as cucumber fetch higher premium.

Although the intensity of cropping times differs for each crop, small farms engage in one or two cropping times but can be maximized at three cropping times. In the assessment of a fruit-vegetable cropping system for instance in pawpaw, vegetable crops improved farmers profit by 60, 72 and 78% at one, two and three cropping times respectively for cucumber compared to 48, 52 and 62% respectively for okra indicating that higher intensity provides better income to small farm holders. See Olubode et al (2012).

Moreover, since they lack access to fertilizer, unlike large farms, small farms contribute more to sustainability in the environment and social dimensions than the economic dimension, because environmental sustainability is top priority to preserve the land. The social provides stability in food to the immediate community but in economics they fall short of expectation and often cannot go beyond the local market. For Instance, how much of the fresh produce in West Africa gets exported under a standard organization label? Small farms need capacity building to achieve that feat and this rubs off on the economic input.

Dr. Olusegun O. Olubode

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Reference:

- Olubode, O.O., Aiyelaagbe, I.O.O. and Bodunde, J.G. (2012) Responses of “Sunrise Solo” Pawpaw, Okra and Cucumber Components of Pawpaw Based Cropping System to Time of Intercropping. *Scientia Horticulturae*, 139, 71-78. <http://dx.doi.org/10.1016/j.scienta.2012.03.003>

-----Original Message-----

From: AIS
Sent: 24 October 2016 18:52
To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
Subject: 94: Contribution of small farms to food security and sustainability - Cameroon

I am Eyongetta Njieassam, a Ph.d candidate at the University of dschang, Cameroon and I also take part time lectures at the University of Buea, Cameroon.

I am writing about small farm holders and their contribution to food security and sustainability.

Here in Cameroon, small farm holders are limited to people who practice peasant agriculture. They live in the rural environment and they carry out their activities mainly using family labour. Small farm holders manage 80 percent of land and they contribute to food security through the following ways:

* Food production: primary production of food is carried out by small farms through agriculture, livestock, poultry and aquaculture etc. Small farms are central players in the production of food. These food resources include cereals, tubers, corn, livestock and chicken. In many rural families aquaculture and artisanal fishing is carried out. Due to their huge population, their activities has provided huge amount of food available for consumption through sales.

* Stage of processing: small farms contribute in food processing. They tend to convert primary products to semi-finished products and consumables. Like in the northwest and southwest regions in Cameroon, rural women harvest cassava tuber plant and process it to flour, garri and even fufu. Livestock products are harvested and preserved in parts of north west north and western region such as pasturised milk and meat for direct consumption or further processing.

*Supply to markets: the high energetic farmers and peasants make it possible to bring their goods to local evening markets and junctions with the help of trucks and motorcycles. This makes it easier for these goods to be accessed and transported to international markets and border countries like Nigeria, Congo, Gabon, Equatorial Guinea etc.

Despite the challenging situations, this talented group of people has a good sound practice approach for the environment. Their mode of farming and their lack of resources has made them be able to adapt a sound practice for a sustainable development.

They merely produce organic waste and they are not engaged with only one perspective of cultivation hence they tend to recycle natural resources and preserve the environment. Peasant farmers inherited the practice of agro-forestry. They cannot fell all the tress in the farm land due to lack of resources hence they practice cultivation with trees. Most of their organic waste is used to make compost manure with waste from poultry and cow manure which is used to re-fertilise the soil with organic nitrate. More and many of their activities help secure the world and provide more food to the world with a sound practice to the environment

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:52

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 95: Contribution to Questions 3.3.2 and 3.3.4 - Greece

My name is Pavlos Karanikolas. I am an Assistant Professor in the Agricultural University of Athens-Greece, Department of Agricultural Economics and Rural Development.

Regarding Questions 3.3.2 and 3.3.4:

I would like to present briefly some research findings from field surveys in Greece, including more than 300 farms. These farms are representative samples of local farming systems, including mainly olive groves, as well as orange trees, arable farming (e.g. wheat) and sheep rearing.

Beyond a minimum threshold of farm size, i.e. except tiny farms, in all other scales (small, medium, large and very large farms) the average total cost of production does not vary significantly. This means that small farms are not less efficient compared to large farms. This finding indicates also the prevalence of increasing and constant returns to scale. The vast majority of small farms are economically sustainable in both the short and long run, because with their revenues they can cover their variable and total costs, respectively.

Having such a cost structure for their products, small farms manage to be resilient for long time periods, using two additional mechanisms. First, alternative marketing channels for their products (including an own network of customers, producer groups, producer-consumer cooperatives, etc.). Second, flexible combinations of family and hired labor on-farm and of family labor both on- and off-farm. Thus, whenever their farm income is not sufficient to support the standard of living of the farm family (including access to food), they use off-farm sources of income.

Macroeconomic stability and integration into local and regional markets are also prerequisites for the smooth functioning of this model; these conditions are at risk within the severe ongoing crisis.

Since 2010, the GDP in Greece has decreased by 27 percent, while disposable income has fallen by 40 percent. Also, in the context of hard austerity policies applied to the Greek economy, bank lending to agriculture (for both working capital and investments) has decreased by two-thirds, whereas a series of measures have been established in 2015 concerning the agricultural sector: cessation of exemptions on diesel fuel; rise of value-added tax (VAT) to 23% on agricultural tools and inputs; removal of the tax-free income threshold of 12,000 euros; doubling of the taxation on revenue which will reach 26% in 2017; payment of this tax on an anticipatory basis; and an increase in social welfare contributions. Consequently, according to our recent estimations, a large part of small and medium sized farms are not going to survive.

Also, small farms use a part of their produce for self-consumption. We have seen that, especially within this crisis, this part of farm production mitigates the problem of poverty, by reducing poverty rates by several percentage points.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:53

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 96: The triple burden of malnutrition (Question 3.3.5)

This is Gabriel Adukpo from Ghana, again.

I am contributing to the role of small farms in solving the triple burden of malnutrition (Question 3.3.5).

When children are severely malnourished, health authorities refer them to rehabilitation centers established at the hospitals where food is used to treat the “ailment” of malnutrition. Certain prescriptions go with the instruction: “eat before taking this drug”. Policy makers interested in a healthy society would naturally be concerned with the triple burden of malnutrition.

Small farms need to apply improved farming methods in order to increase crop yields to meet the energy requirements of the growing population. Rearing of local poultry and small animals does not only improve nutrition at household and community level but also alleviates poverty for the farmers.

Small farms in many developing countries employ rudimentary tools for farm operations and a system of mixed cropping. These, in a way, preserve biodiversity especially indigenous plant species that are rich in micronutrients. Small farmers need to disabuse their minds, for example, that local leafy vegetables are for the poor and that farmers can only make money by cultivating and selling exotic vegetables that in any way require the use of much pesticides. Through nutrition education – demonstrations, food bazaars – smallholder farmers can be consciensitized to diversify their produce to fight micronutrient deficiency. Food fortification and bio-fortification might be more costly.

Appropriate dieting is used to manage overweight and obesity. Consumption of processed food does not help in matters of overweight. Fresh and diversified produce from small farms can be employed in diets that can reduce the burden. Also medicinal plants conserved in situ on small farms can be used in food preparation to reduce obesity.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:53

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: 97: Comment on Question 3.3.7 - Ghana

This is Gabriel Adukpo from Ghana again, this time on the challenges and future prospects of small farms.

The challenges of food security and nutrition are well-known and documented. A new development in Ghana is the destruction of vast tracts of land through illegal mining for alluvial gold in certain communities. All these paint a bleak future for agriculture as a whole and small farm in particular.

In order to count on small farms to contribute to food security and improved nutrition in the future, small farms and farmers should not be left on their own. Policy makers need to invoke all the elements in the food system. As part of the holistic approach, one may propose the following:

- Land and water management projects
- Climate-smart agriculture
- Community development including provision of water and electricity to promote agribusiness
- Agricultural infrastructure – feeder roads, storage facilities, intermediate means of transport, etc
- Extension and advisory support services
- Rural financial services
- Nutrition education

- Protective laws, regulations and policies
- Research support
- Fair trade, etc, etc

The burden should not be on governments alone but there should be an enabling environment for the participation of development partners, NGOs and the private sector.

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-----Original Message-----

From: AIS
 Sent: 24 October 2016 18:54
 To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
 Subject: 98: Comment on Question 3.1.1 - Nigeria

This is Lizzy Igbine, again.

I want to consider the threshold for small farms.

As a practitioner, we classify in my country small scale farmers as having one plot to maximum of 5 hectares. This is also equated to the harvest and outputs. This is our yardstick in classifying the government's interventions in input distributions and assistance to small scale farmers by government. Any production above this scale is considered commercial or big farms.

I hope this will be adopted as our threshold in this research.

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From: AIS
 Sent: 24 October 2016 18:54
 To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>
 Subject: 99: Thoughts about two questions 3.3.2 and 3.3.3 - Latvia

My name is Sandra Sumane. I am a researcher at the Baltic Studies Centre in Riga, Latvia. My thoughts relate to two questions about the role of small farms role in food security and nutrition.

Regarding Q. 3.3.2 ("As outlined in Section 2.1, there are four dimensions of food security, namely the availability of food; access to food; utilisation of food; and food stability. How exactly do small farms contribute to each of the dimensions of food security? If possible, provide specific examples from your own work, experience or region"):

In terms of food availability, small farms contribute to food and nutritional diversity by producing great variety of crops and other food products, not only local crops and varieties, they adopt also 'foreign' ones.

With regard to food access: economically most active small farms distribute their products in conventional chains. But small farmers participate also in many alternative, local, short food chains - so, the access in terms of diverse food channels is improved. However, prices can be higher than in conventional chains and as for

imported food stuff and this negatively impacts food access. It is characteristic that small farmers distribute food also in informal networks - to their extended families, friends, neighbours.

As for food utilisation – small farms are capable to react quickly to consumer demand in diverse, local, fresh products thus contributing to spread of healthy diets.

In terms of stability - small farms seem economically more vulnerable, their numbers are reducing in Latvia and this negatively impacts food and nutrition security (FNS) aspects they contribute to.

Regarding Q. 3.3.3 ("3 Food security can be studied at different levels/scales, such as the individual, household, local, national and global level...."):

About FNS levels to which small farms contribute: all levels, from individual to global, are linked, of course. It is evident that small farms contribute to FNS at individual/household level, by producing food for self-consumption and also by generating income to buy other food. Small farms employ mostly family members, but they can have also some permanent or seasonal employees - which means income generation which is linked to FNS for other rural families. Most of small farms seem to operate at local/regional level and contributing to FNS at this level, although some of them have access to international markets.

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-----Original Message-----

From: AIS

Sent: 24 October 2016 18:55

To: 'small-farms-L@LISTSERV.FAO.ORG' <small-farms-L@LISTSERV.FAO.ORG>

Subject: End of FAO e-conference on small farms and food security and nutrition

Dear Colleagues,

The last messages have just been posted (numbers 79 to 99), so this FAO conference on “Exploring the contribution of small farms to achieving food security and improved nutrition” is now officially closed.

I would like to very sincerely thank all of you who participated actively and enthusiastically in this conference. I have certainly learned a lot and I hope that you too have benefited from all of the knowledge, experiences and insights that so many people around the world shared with the conference.

I will send another message tomorrow with some analysis of the conference and links to all related materials.

All messages are available on the web at <https://listserv.fao.org/cgi-bin/wa?A0=Small-farms-L>

With best wishes

John

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