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AgriSciences**

**Comparison of Agricultural Marketing
Information Services efficiency in the Philippines,
Vietnam and Cambodia**

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Declaration

I hereby declare that I have written presented master thesis “Comparison of Agricultural Marketing Information Services efficiency in the Philippines, Vietnam and Cambodia” by myself with help of the literature listed in resources.

Prague, 24 April 2015

.....
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Abstract

Rural growth is the main engine of the economy in developing countries and the use of Agricultural Marketing Information Services is the main factor of its development. The agricultural sector employs majority of inhabitants of developing countries although majority of farmers live in rural areas with lack of access to the markets and agricultural information.

This paper reveals findings of a study conducted in the Philippines (La Union Province), Vietnam (Cao Bang Province) and Cambodia (Kampong Cham Province) where existing Agricultural Marketing Information Services (AMIS) were evaluated towards small scale farmers and other market stakeholders.

The thesis is based on literature review where known data and materials were analysed. Furthermore, farmers were targeted by questionnaires combined with interviews as tools for data collection. The study yielded 80 answered questionnaires from all three observed countries which were analysed. The questionnaire was aimed at collecting data in the following key areas: existence of AMIS, access to the information sources, communication among farmers, type of information provided and personal opinions about existing AMIS and its benefits.

The Results of the questionnaire revealed that 83% of farmers have access to agricultural information, where majority usually get them from neighbours or market. In each country, awareness of existing AMIS completely varies. In selected region in Vietnam, all respondents did not know about AMIS, in Cambodia, 89% of respondents did not know either. Only in the Philippines 85% of respondents knew about AMIS operating in their region. The study also tested if age and sex of farmers influences other factors as AMIS awareness or preferred sources of information. The questionnaire furthermore indicated some weak points of all three existing Agricultural Marketing Information Services, and therefore were suggested recommended solutions.

Key words

Agriculture; Information Services; Information needs; Small-scale Farmers; Philippines; Vietnam; Cambodia

Abstrakt

Růst venkova je hlavním motorem ekonomiky v rozvojových zemích a využívání Zemědělských marketingových informačních servisů (AMIS) je jedním z hlavních faktorů jeho rozvoje. Většina obyvatel rozvojových zemí je zaměstnána v zemědělském sektoru, ačkoliv jich většina žije na venkově, kde není dostatečný přístup na trh a k zemědělským informacím.

Tato práce odhaluje výsledky studie, která proběhla na Filipínách (Provincie La Union), ve Vietnamu (Provincie Cao Bang) a v Kambodži (Provincie Kampong Cham). Ve všech třech oblastech byl zhodnocen existující AMIS z pohledu místních farmářů a dalších účastníků na trhu.

Diplomová práce je založena na literární rešerši, kde jsou analyzovány již existující materiály. Dále byly sestrojeny dotazníky kombinovány s rozhovory, cílené k místním farmářům jako zdroj dat. Dohromady bylo sesbíráno 80 zodpovězených dotazníků ze všech tří pozorovaných zemí. Dotazníky byly zaměřeny na sběr dat v oblastech: existence AMIS, přístup k informačním zdrojům, komunikace mezi farmáři, druhy poskytovaných informací a osobní názory na existující AMIS.

Výsledky dotazníků odhalily, že 83% farmářů má přístup k zemědělským informacím a nejčastějším zdrojem jsou obvykle sousedé nebo trh. V každé zemi se kompletně liší povědomí o AMIS. Ve vybraném regionu ve Vietnamu o něm nevěděli všichni respondenti. V Kambodži o něm nevědělo 89% dotázaných a na Filipínách naopak 85% dotázaných vědělo o existenci AMIS v jejich regionu a aktivně jej využívali. Ve studii bylo také testováno zda pohlaví a věk farmářů ovlivňuje další faktory, jako například povědomí o AMIS či preferované informační zdroje. Dále dotazník indikoval slabé stránky všech tří existujících AMIS a jejich případné doporučené vylepšení.

Klíčková slova

Zemědělství; Farmář; Filipíny; Vietnam; Kambodža; Informační zdroje

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Abbreviations

AMIS	Agricultural Marketing Information Services
AMO	Agricultural Marketing Office
ASEAN	The Association of Southeast Asian Nations
ASO	Agricultural Statistics Office
FAO	Food and Agriculture Organization
G20	Group of Twenty
GDP	Gross domestic product
ICT	Information and Communication Technologies
IFAD	The International Fund for Agricultural Development
IFPRI	The International Food Policy Research Institute
IMN	Instant Market News
LDC	Least developed country
MDG	Millennium Development Goals
MIS	Market Information System
OECD	Organisation for Economic Co-operation and Development
UN HLTF	United Nations High-Level Task Force
UNCTAD	United Nations Conference on Trade and Development
WFP	World Food Program
WTO	World Trade Organization

1. Introduction

Developing countries focus on investing in agriculture as it is an engine sector of economic growth having much higher returns than any other sector. Agriculture is usually larger contributor of GDP in developing countries and in addition generates labour, capital, export and domestic demand to support growth in other sectors. Agriculture also plays a key role in providing national food security. In developing countries, most of the inhabitants live in rural areas where agriculture plays a key role of their living. Improvement in agriculture has a direct impact on improving rural income and livelihoods which leads to rural growth. In general, increased agricultural productivity is a key factor of reducing poverty and improving subsistence in developing countries.

Despite the efforts to improve agriculture in developing countries, it has failed to benefit to rural farmers. Some failures include low policy support, long supply chain, limited infrastructure and inefficient information and knowledge. The rural farmers have low technical skills and limited access to information and training to be able to improve their production and bargaining power. The low incomes of agricultural produce to farmers are associated to lack of marketing information.

One way of facilitating rural growth is by using Agriculture Market Information Services. It helps farmers and traders to bargain with other parties and plan their strategy. It is supposed to help farmers to decide when, where and who to sell and plan production. Farmers should be informed about quality of produce sold on regional and national level.

Like most other developing countries, the Philippines, Vietnam and Cambodia depend mostly of agriculture. A large amount of inhabitants of those countries live in rural areas and grow food and raise livestock as a source of living. This paper is analysing and evaluating the nature and presence of Agriculture Market Information Services in all three selected countries as well as its challenges.

2. Literature Review

2.1 Agriculture and its importance

According to Richard Enfield (2006) from the University of California the term agriculture is defined as follows: *“Agriculture is the science, art and occupation of cultivating the soil, producing crops and raising livestock. Agriculture is the very basis of civilization. It is the food we eat, the clothing we wear, the material of our homes, the gardens around us and many of our traditions and values (Enfield et al., 2006).”*

But agriculture includes much more; it is also important to mention terms like financing, marketing and distribution of products, processing, farm production supply, food consumption, health and nutrition, the use of land and water resources, development and maintenance of recreational resources, and all related economic, political, sociological, environmental and cultural characteristics of the food system. In addition, most of the products people use every day come from animal and plant by-products used in all different branches such as in health care, manufacturing, education, personal care or construction (Enfield et al., 2006).

The partnership continues as farmers are dependent on industry such as manufacturing for tools used in agriculture or other equipment, health care for family and livestock, construction for their buildings and computers for tracking market information (Enfield et al., 2006).

Magesa et al. (2014) emphasis, that agriculture is a large contributor of GDP and generates export earnings, capital, labour and domestic demand to support growth in other sectors. The agriculture plays a key role in national food security.

Agricultural researches are very important for everyone's benefit. Thanks to biotechnology or genetic engineering researches there are new techniques increasing crop yields and farm productivity. Furthermore scientists gained more knowledge about DNA and chromosomes through plant researches. Researches using plants are less expensive than using animals or people. Biotechnology also promises benefits towards environment including conservation of topsoil, protection of water quality and improvement of waste management technologies and reduction of chemical pesticide application. Another output from the agricultural development is the pharmaceutical and surgical techniques developed

to enhance life quality and even live savings. Energy security is promoted by new bio-diesel fuels and ethanol which are made from corn and other grains which is beneficial to the environment (Enfield et al., 2006). Despite all the importance of agriculture, Godoy and Dewbre (2004) mention that people who live in developing countries and are dependent on agriculture as a source of money for living are typically much poorer than other people working in other sectors of the economy.

The world's demand for food increased with its population and agriculture became a key player in securing water storage and delivery to grant water for irrigation, human consumption, recreation, flood control and manufacturing (Enfield et al., 2006).

2.2 Agricultural Information

The agriculture sector is becoming increasingly knowledge intensive, especially in developing countries. Researchers at all the levels- global, national and regional continue to generate new information (Babu et al., 2012). According to FAO policy report (2011) enhanced agricultural information in developing countries enable to governments and the private sector to plan ahead. No one can know the information needed by all the farmers especially in an information dependent sector such as this one. There are new and complex problems farmers must face every day. Most of the information needed by small scale farmers rotates around the solution of problems such as weed control, soil fertility, pest hazards, moisture insufficiency, soil erosion, labour shortage and so forth (Ozowa, 1995).

The information needed can be divided into five groups: agricultural inputs; agricultural technology; agricultural credit; extension education and marketing.

The agricultural inputs are playing a key role in increasing farm productivity. These inputs may include the variety of the seeds, feeds, fertilizers, plant protection chemicals, equipment, agricultural machinery and water (Ozowa, 1995).

Agricultural technology for the farmer must help to minimize drudgery of farm chores. It is supposed to be labour-saving, labour enlarging and labour-enhancing. The farmer demands information about agricultural production technology that involves fertilizing, cultivating, pest control, harvesting and weeding (Easdown and Starasts, 2004).

The agricultural credit includes all loans and offers for borrowers to finance their service activities related to agriculture production, forestry and fisheries and also for marketing, processing, storing and distributing the products resulted from those activities. When farmers want to benefit of a credit they need information about sources of loan such

as name of lender, location and types of credit sources. They also need the necessary information about the loans such as the interest rates, mode of reimbursement and loanable amount. Small scale farmers usually get information about agricultural credit through channels such as friends, neighbours, credit banks and government officials (Ozowa, 1995).

The common lack of awareness amongst farmers can be assigned to the high level of illiteracy. This explains the low level of adoption of the agricultural production technology. Extension education is more functional rather than formal. It is usually provided by extension workers who transfer information to the farmers in a meaningful form. A common way is training a group of few farmers with the hope that they will come in contact with other farmers and spread information (Ozowa, 1995).

All farmers' activities involved in the commodity movement from production until consumption is called marketing. The information needs of the farmers are those which empower him to make relevant and rational decisions. Market information services collect and process market data systematically and make it available to all market participants in order to make their decisions (Ozowa, 1995). Market information needs of farmers include:

- Product planning information. This information advises what crops and varieties to grow at a current season with marketability of crop as a decision factor.
- Information about current prices
- Information about market trends forecasting. This information helps farmers in planning market products.
- Information about sales timing. This ensures farmers that they do not induce a market surplus. That enables them to spread harvest and quantity for marketing.
- Information about improved marketing practices. It contains information about improved harvesting methods.
- Information about group marketing. This allows small scale farmers to organise sales of marketable surplus and bulk transport of products (Ozowa, 1995; Mokotjo, 2010; Islam, 2010).

The value of agricultural information is momentary and depends upon the social and individual context as well as the environment policy. The individual value given to the information depends upon each farmer's appreciation but all farmers will use it after

efficiency has been proven. The value of information also depends upon the individual, the social context and the level that farmers perceive a need to learn. Information searching by farmers is strongly related to their education level, availability of information, risk preference, material possessions and extent of social interactions. Governments are providing funds for researches and extend services to develop agricultural information because it influences whole national wealth (Easdown and Starasts, 2004).

2.3 Agricultural Market Information Services

There is a growing agreement that in order to fulfil the Millennium Development Goals and eliminating the world poverty there is a need to focus on rural growth. Rural growth provides much higher returns than all other sectors and therefore it can be seen as an engine of the economy for an entire nation. One way of assisting the progress of rural growth is through the use of Agriculture Market Information Services (AMIS) (Islam and Gronlund, 2010). FAO in its policy report (2011) point out that recent activities have revealed weaknesses in the capacity of organizations producing consistent, timely and accurate agricultural market information, especially in response to weather shocks.

AMIS was defined by Shepherd (1995) as *“A service, usually operated by the public sector (Ministry of Agriculture or a dependent agency or institute), which involves the collection on a regular basis of information on prices, and in some cases quantities supplied, of widely consumed agricultural products, from wholesale markets, rural assembly and retail markets, as appropriate, and dissemination of this information on a regular basis through various means (bulletin boards, radio or television bulletins, newspapers, etc.) to farmers, traders, government officials, policy-makers and others”*.

According to survey of 120 countries completed by FAO during 1995 – 1996, there were 53 AMIS operated by governments, most of which were limited to data gathering and the association to the farmer’s and trader’s needs was only very little. The use of ICT in information processing in agriculture is necessary for a country where the economy is dominated by the agricultural sector. The information need is shifting from using the agricultural technologies towards participating and sharing of innovations in global and

national markets. This shift is important for economic performance, efficiency and equity (Islam and Gronlund, 2010).

As AMIS become more complex, farmer's access to relevant, timely, and reliable information sources becomes critical to their competitiveness. Information has to be relevant and meaningful to the farmer, moreover it has to be packaged and delivered a preferred way (Babu et al 2012). FAO in its policy report (2011) adds that lack of accurate information on market reduce efficiency and emphasise price movements. Public AMIS often fails as a result of inadequate consultation to the farmers about their information needs and weak understanding of their information search strategies. While implementing advisory services and extension programs, following questions need to be dealt with: Where and how do farmers search for information? What information do they need? How much are they able to pay for useful information? What factor decides their search behaviour? While the first and second question can be cleared up in the literature, third and fourth questions have not yet been addressed in the context of developing countries (Babu et al., 2012; Islam, 2010; Mokotjo, 2010).

2.3.1 Evolution of AMIS

Theoretically, history of AMIS goes back to the beginning of agricultural trade when the farmers and traders used to consider some degrees of temporal arbitrages while trading their surplus produce. This kind of trading appeared already in the 1st century BC in ancient Rome, nevertheless the process of the time in price information is not acknowledged. Later on in 12th century there was a recorded and organized price information system in England and Wales. By definition, the origin of AMIS can be traced in 18th century, when the Canterbury Farmers used to have regular meetings with their Club Secretary for discussing views regarding the agriculture prices.

The first institutionalized AMIS was in the USA on May 16th 1913, as Office of Markets. With the beginning of the current innovation after World War II, AMIS started to transform from passive into interactive and real-time service (Islam and Gronlund, 2010).

The first implementation of an active service was found in California in 1956, when the Agricultural marketing service installed the first Instant Market News (IMN) machine. The reports for agricultural commodities were disseminated by automatic telephone

answering device on a daily basis. Further on in 1980, also in the USA, the Science and Education Administration of the Department of Agriculture brought a new system named Green Thumb which was constructed for disseminating daily weather, commodity and other useful agricultural information by a special computer system connected with home televisions and telephones (Islam and Gronlund, 2010).

Out of the developed world, a systematic organized use of agricultural price information was found in several developing countries from 1950. These include the Indonesian monitoring system of prices in the 1950s, Marketing information services of Nepal in 1960, the Marketing information services in 1989 and Agriculture marketing information service of the Philippines in 1991 which was constructed for female farmers.

However, the characteristics and nature of AMIS have been changing with the adjustment of the economies in 1980s and after changes of the dynamic Market, with the progress of ICT and after changes in farming techniques. As a matter of fact, the definition of AMIS has been changing with regards to its contents, technology, management and geographical factors (Islam and Gronlund, 2010). As Magesa et al. (2014) say, during 1990s AMIS was very limited. There were different media involved in the provision of information such as TV, radio or bulletin boards. Agricultural information was disseminated periodically for selected markets. It caused that information was limited to few markets and small number of individuals. Radio could not cover large areas and information was not accurate. Collection of information was costly and remote farmers could not participate in marketing activities effectively.

2.3.2 AMIS implementation, functioning and main constrains

The absence of AMIS or its poor performance does not appear to be due to any lack of recognition of its importance. FAO continually receives request for assistance with improving Agricultural Market information services or setting it up. Problems with performing AMIS are still abundant. The main problem with AMIS appears to be lack of resources, surprisingly not to establishing an AMIS, where donors are usually prepared to assist, but to maintain it in effective operation after the donors have left. Especially nowadays when governments are facing strong pressure to cut expenditures, it tends to be

difficult to retain political support for such a service with just few visible benefits (Shepherd, 1997; (Islam and Gronlund, 2010).

2.3.2.1 Data collection

Agriculture Market Information Services stand or fall on the provided quality of their information. Nevertheless, there is surprisingly inadequate attention to this aspect of the service. Training of the data collectors is after the primary enthusiasm of setting up a new service frequently forgotten. Data collectors often have had no training and a lack of resources for transporting themselves to the markets. Donors frequently have provided transport vehicles as motorcycles but later on are not sufficient to meet maintenance and fuel costs on local budgets. Resources often restrict the training of data collectors and also do not use inspectors who would check on their work. In addition, salaries tend to be very low (Mokotjo and Kalusopa, 2010). All those facts lead to the point, where data collectors report prices mechanically, and paying little attention to the precision of their work. Moreover, the peak time for trading on the market is early in the morning, whereas officials prefer to work in the later morning and afternoon. This causes that staff is not visiting markets regularly but they just guess the prices. The question appears who should be in charge for collecting the information. Ideally, there should be people who are exclusively responsible for collecting data and have no other job (Shepherd, 1997).

Apart from overcoming the everyday suspicion of government officers when many traders try to avoid paying taxes, data collectors must face problems like calculating the production weight. In many countries traders use traditional measures which can vary widely or using measures as heap or pile which is different every time. To get the right price can also be a problem in societies which work on the bargaining basis. Many markets execute both functions, wholesale and retail. Mistaking those two prices is a common mistake in data collection. In addition, prices can vary significantly during the day, due to supply changes and the need of selling product before it gets unsaleable (Shepherd, 1997).

2.3.2.2 Data processing and transmission

Delays in transmission, processing and distributing price data can weaken the validity of an AMIS. Market information out of date has just little value to the market stakeholders. In the past, transmission of data between government officers in field and

major cities was done by radio, which presented many problems. Nowadays with using modern ICT, field officers communicate with central processing unit mainly by phone, fax and email (Mokotjo and Kalusopa, 2010). Nevertheless, although many developing countries own their proper sophisticated communication system, the government is often not able to have its own basic equipment such as computers and fax machines. In countries, where donors provided necessary equipment for working AMIS, there are usually problems with replacing it when it is broken, while donors have left. An additional problem can be with budget for paying phone calls and faxes, when phones are not strictly controlled and workers can use them for private purposes (Shepherd, 1997).

Some developing countries are still processing market information data by hand and pocket calculators. It is more than adequate implementing computers. The main problem with computers is the used software. While setting up new AMIS, donors usually provide a computer specialist who creates an own specific applicable software. Later on, when the specialist leaves, there is no software support and when problems occur the AMIS does not know how to solve them (Shepherd, 1997). Another problem with too many AMIS's is that they start to be obsessed by analysing and processing the data and they stop performing the main purpose of gathering data and providing quick and useful information to traders and farmers (Islam, 2010).

2.3.2.3 Dissemination

By itself, it would appear that daily information should be preconditioned for a relevant Agriculture market information system. The main problems with dissemination of agricultural information are associated to ensure that the information is available to the target audience and guaranteeing the information is in a form that can be understood. The major constraint to an effective dissemination is again the lack of resources. Many information services are facing a lack of financial resources to broadcast on the radio which is in most countries by far the most effective communication channel to the farmers. Radio stations, in general, do not broadcast agricultural market information as news but more as paid advertisements. The expenses of radio broadcast were so high that some countries had to use notice boards to publish their price information instead of using the radio broadcast. Some countries developed notice boards to publish information on demand, supply, local agricultural activities and market potential. In other countries notice

boards indicate the weaknesses of the AMIS, as they are not maintained and updated (Shepherd, 1997).

Appropriate channels of agricultural information dissemination:

Radio

Radio is one of the most popular and widespread tools of communication in developing countries. The strength of the radio in extension services is mainly the ability to reach illiterate farmers and support them with information related to agricultural production in a language they speak. The radio is the broadcast channel which almost all experts find the most appropriate for mass communication in the rural areas because it is providing information cheaply. The Radio has the advantage of demanding less intellectual effort than for example print media messages. Furthermore it is possible through radio signals to reach remote areas without extension agents. However although the radio cost is affordable in most developing countries the disseminated information is usually not tailored to the needs of the information needed by the farmer. In some countries in rural areas farmers have limited access to the radio due to the poor reception and area coverage. The most important factor while using radio as information channel is the broadcasting time. AMIS providers have to consider farmers schedule as they have to work on the fields and spend time on the markets (Mokotjo and Kalusopa, 2010).

Television

Television is another tool for disseminating information to farmers. Television is able to reach a large amount of people quickly and serves a valuable function in stimulating the interest of the farmer in new ideas. Although television is a popular media channel many people in developing countries cannot afford it. Unfortunately, some of the farmers do not see television as a source of information but more as entertainment media. Regarding constrains, many farmers in developing countries live in remote areas in highlands where TV coverage is inexistent and on top of that there is often a need of electricity which is not always available in the homes of farmers (Mokotjo and Kalusopa, 2010).

Cell phones

Cell phones are another tool enabling farmers to access the agricultural market information. Phones have reinforced the bargaining power of farmers as they have access to real time information. By tracking profiles and activities, this service becomes an important business and monitoring tool as well as a medium for advertisement. Farmers are

able to access information about prices and the market of their products. Farmers also profit from improved communications in terms of own farming activities and reduced time and costs of being connected with each other. Nevertheless in some developing countries the costs for making calls and sending messages is very high so not every farmer can afford the use of this communication channel (Mokotjo and Kalusopa, 2010). Mr Islam (2011) in his Thesis emphasises that knowledge and information are most important drivers of poverty reduction and cell phones can increase availability, exchange and impact of knowledge and information.

Computer

The amount of the internet service providers as well as the amount of internet users is becoming larger day by day in whole world. This fact led AMIS development to focus its systems to web technology. The internet use became a skill helping farmers to find the agricultural market information they require. Rapid development and use of ICT such as the Internet in agriculture means a new dimension in the transfer of agricultural data and shows how these technologies improved the provision of information amongst extension workers, agricultural researchers and other actors. Unfortunately, in most developing countries there is lack of ICT infrastructure, the cost of computers is too high and the monthly internet rates are too expensive for farmers (Mokotjo and Kalusopa, 2010).

Print media

Printed media are a suitable information channel in rural areas because they need relatively cheap and simple technology to be produced. Printed media allows a much higher accuracy of content and precision than other media. Many AMIS still use printed media even though it is expensive and not very effective in remote areas (Mokotjo and Kalusopa, 2010).

Public Campaign

The main task of a public campaign is to add to the extension service a way of planning and setting campaigns in extension areas throughout the developing country. The campaign section provides design, layout and maintenance of shows, newsletters and exhibition brochures. Usually the campaign involves a van moving into the villages at a previously set time, and AMIS staff does demonstrations, while they also spread leaflets (Mokotjo and Kalusopa, 2010).

Library and information services

A library is seen as an important element of any quality AMIS. Well-developed libraries should provide information support, books, reports, journals and other agriculture related materials. Each library should also offer internet services. Libraries in developing countries are usually managed by one person, in whose absence the library is closed. In addition, just a few farmers use the library and it seems that they are not aware of such an information services (Mokotjo and Kalusopa, 2010).

Extension services

Extension services are very important in the dissemination of information. The adopted information of technologies is transferred to the farmers through extension workers. Those workers in developing countries are the main information sources for the farmers and they assist them to increase their production. The trainings of farmers are also provided by the extension services (Mokotjo and Kalusopa, 2010; Shepherd, 1997).

Utilisation

The information needs to be appropriate to the target audiences. That means that AMIS workers must consider what type of price information they provide and if users find it useful. For example, small scale farmers may find data about prices in their local assembly markets more relevant than wholesale market prices in the major city because there is a lack of transportation to the major city market. Some services try to target consumers but in reality they broadcast only wholesale, and not retail, prices. Information about prices would be more useful if it was followed by a range of other data such as available quantities at the market, problems with transport and supply-demand trends (Shepherd, 1997).

Charging for Agricultural Market Information

The majority of AMIS in developing countries is public services. Obviously, public resources have limitations and if users want more than just basic information they should be willing to pay for it. In some countries immediate information is available by phone line where a farmer can call to get information for the price of phone call. On the other hand if the farmer does not want to pay he can just wait for the dissemination of the information through the radio which is free of charge. Farmers who are willing to pay for the market information require more information than is publicly available. They also need the information more rapidly (Shepherd, 1997; Islam and Gronlund, 2010).

Duplication of activities

While many countries are functioning without AMIS there are, on the contrary, several other countries working with a significant duplication of information activities. In some countries there are few national institutions which collect price information and disseminate it through bulletins and the internet causing confusion, especially when there is no consistency amongst the data sets. The first step of any improvement programme should be unification of existing activities (Shepherd, 1997; Islam and Gronlund, 2010).

2.3.3 International AMIS by FAO

During the last few years there have been volatile and high food prices. The stronger demand for animal production, food crops and bioenergy combined with low increase of agricultural production and little stocks will continue pressing the prices upward. Prices of food products fluctuate and become more extreme which makes food production forecasting difficult. Therefore it is important to provide effective global food market information system which can increase transparency and inform policymakers and other market participants. The idea of global AMIS came from the Ministries of Agriculture of G20 in 2011. Besides countries of G20, AMIS covers some developing countries, such as Philippines or Vietnam (AMIS, 2011).

Enhanced market functioning and improved transparency can be reached by better information of all market participants. Therefore reliable and actual information on crop demand, supply, stocks and export can significantly reduce volatility (AMIS, 2011).

AMIS is based on existing systems and improves worldwide food market information. It is not a new organization but just a platform used by countries, private sector and international organizations to strengthen collaboration in consideration of improving timeliness, frequency and data reliability. AMIS also consider developing countries and its capacity in the market outlook analysis and policy promoting. AMIS is mainly focused on the global food commodities as wheat, rice, corn and soybeans.

AMIS is managed by a FAO Secretariat, composed of nine international organizations (FAO, OECD, WFP, the WTO, UN HLTF, IFAD, UNCTAD, the World Bank and IFPRI) that provide collection, analysis and dissemination of information on regular basis. These international organizations assure that information provided by AMIS is objective and factual (AMIS, 2011).

2.4 Southeast Asia region overview

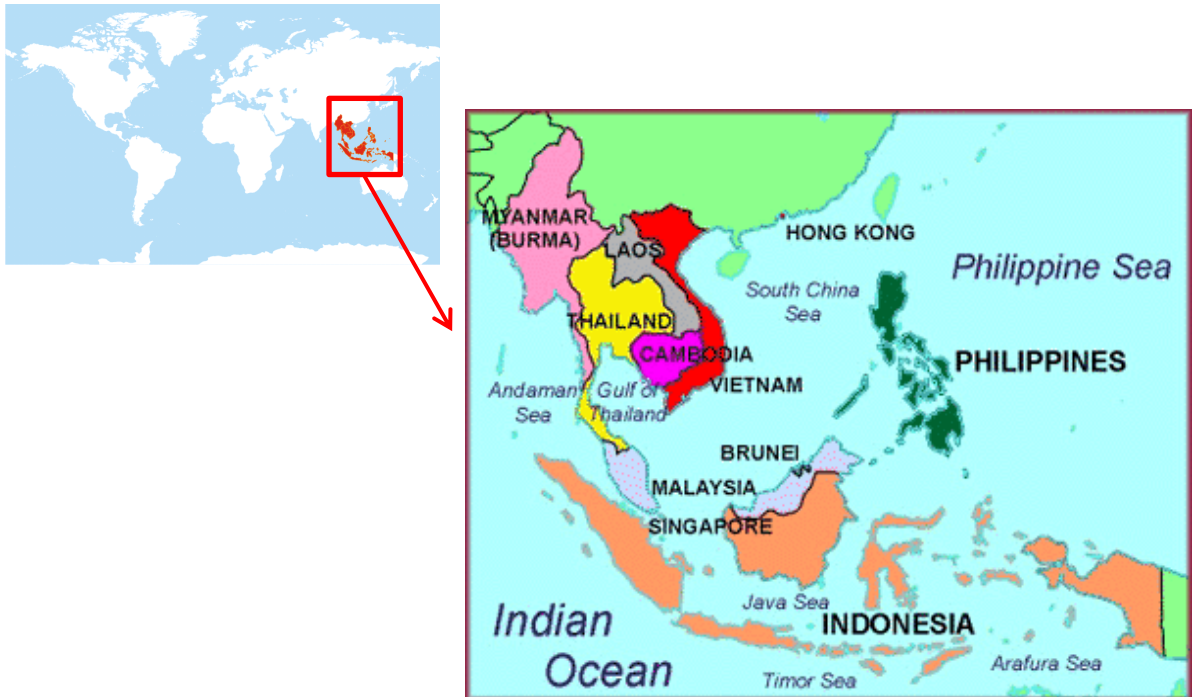


Figure 1: Map of Southeast Asia region. Source: <http://bodysmartinc.com>

Southeast Asia is a region, where the economic development is expected to overcome the global average in a foreseeable future. As Europe and the West were affected by a global economic downturn, it didn't have the same effect on Southeast Asia. A stable growth combined with friendly investors government policies are attracting more and more businesses keen to explore the new domestic markets rising in the Southeast Asian countries. The main advantages of the region are a rich diversity of natural resources, low-cost skilled labour, and Free Trade Agreement within its countries, called ASEAN (The World Bank, 2014). The region offers great opportunities especially in sectors including: infrastructure, gas and oil, mining, manufacturing, agriculture and information as well as communication technology.

The economic advantage of Southeast Asia is an increasing population of more than 600 million people that is estimated to be growing at a rate of around 1.45% per year, compared to a world rate estimated at 1.16%. Most of the population is young, around 66% in the working age (15-64) and a further 28% under 15 years of age (The World Bank, 2014). This young workforce contributes to Southeast Asia's current and future competitive advantage in the world economy. As the population of Southeast Asia grows

and national and individual wealth increases, the structure of population also changes. The entire large young workforce is driving investments in education and skills training. Furthermore the improved standard of living means that people live longer and healthier. In the future, when the current group of young workers transfers into older ages, the economic demands from young people's needs such as entertainment, food or education shifts into the needs of older people such as housing, health and aged care. Additionally, when wealth increases, family sizes decrease leading to a decline of the population (The World Bank, 2014).

The region faces rapid urbanization when more than 130 million people are living without access to electricity and 600 million people have almost no access to adequate sanitation. Quick migration into cities is putting more pressure on the delivery of services and leads to creating urban slums, pollution and environmental degradation. It is critical to reduce poverty and build shared prosperity by managing the effects of climate change and disaster risks, improving governance, encouraging private sectors to create new jobs and slow down urbanization (The World Bank, 2014).

2.4.1 ASEAN

All the countries in region are connected by association called ASEAN- The Association of Southeast Asian Nations, which was established in 1967 in Bangkok, Thailand, by Indonesia, Malaysia, Philippines, Singapore and Thailand. Later on Brunei joined in 1984, Vietnam in 1995, Laos with Myanmar in 1997 and Cambodia in 1999. That means that today ASEAN counts ten member states. The ASEAN community consists of three pillars, namely ASEAN Economic Community, ASEAN Political-Security Community and ASEAN Socio-Cultural Community (ASEAN, 2015).

Main purposes are to accelerate economic growth, cultural development and social progress within countries in region. Additionally it promotes regional peace and stability by using principles of the United Nation Charter. Cooperation also provides assistance to each other by trainings and research facilities in technical, educational and professional spheres and contributes to effective trading, including the study of the international commodity trade, improvement of their communication facilities and transportation (ASEAN, 1997).

The needs of ASEAN countries are incredibly diverse as those countries are on different levels of economy. For instance, countries such as Cambodia or Myanmar are among the world's 35 low income countries, according to World Bank, while Singapore is one of the richest countries in the world concerning GDP per capita. At the moment, the markets of the Philippines, Indonesia, Malaysia, Singapore, Vietnam and Thailand account for 95% of the Southeast Asian economy (ASEAN, 1997).

ASEAN offers a great opportunity for businesses but it is important to remember that ASEAN consists of ten different countries with diverse socio-cultural differences and also different legal and regulatory environments (ASEAN, 1997).

For the future, ASEAN leaders agreed on the ASEAN Vision 2020, for shared vision of ASEAN as an agreement of Southeast Asian nations, living in peace, outward looking, stability and prosperity, staying together in partnership in dynamic development and in a community caring societies (ASEAN, 2015).

2.5 Agricultural Marketing Information Services in the Philippines

2.5.1 Basic characteristics of the country

The Philippines are 12th biggest country worldwide according to its population which counts 107,668,200 (World Bank, 2014) people. Its islands cover area of 300,000 square kilometres. Capital city of the Philippines is Manila and official languages are Filipino and English (World Bank, 2014).



Figure 2: Map of the Philippines. Source: <http://www.yourchildlearns.com>

The Philippines, officially Republic of the Philippines, is a country situated in the Southeast Asia, with the Taiwan on the north, Indonesia and Malaysia on the South, Vietnam on the west and Philippine Sea on the east. It consists of 1,107 islands and lies on so called Pacific Ring of Fire. This makes the Philippines prone to constant earthquakes, typhoons and volcano eruptions (World Bank, 2014).

The Philippines belongs to the dynamically rising markets in the Southeast Asia with its highly skilled workforce and proper Economic fundamentals. Growth rate in the Philippines is significantly higher than in previous two decades, on average about 5% since 2002. Despite the calamities influencing the economy, including typhoon Haiyan, the economy reported 7.2% GDP growth in 2013, directed by the robust industry and services sector, and boosted by heavy government spending and household consumption. Growth power maintained at 6% during the first half of 2014 remained second fastest in Southeast Asia region surpassed only by Malaysia (6.3%) (World Bank, 2014).

The Philippines has earned investment grade ratings for the strong performance of the economy and the well-built governments' fiscal management. Stable remittances provided strong currency stability and a buildup of international reserves. A savings rate exceeds investment and at the same time Philippine human resources persist being high demand around the world. Recently, the Philippines enjoy stability and prove flexibility to fluctuation of food and fuel prices, the impact of typhoons and the global financial crisis (World Bank, 2014).

As regards the Millennium Development Goals, the Philippines are on track in reducing child mortality and improving gender equality. The country also makes progress in fighting with malaria, tuberculosis and other major diseases and providing access to drinking water. It is necessary to put more effort in reducing poverty, improving maternal and child health and achieving universal primary education. In addition, it is needed to create more good jobs among low income people, especially for those living in rural areas (World Bank, 2014).

The Philippines economy comprises four major industries: Manufacturing, Overseas Workers remittances, Agriculture and services. As most of the people live in rural areas they have to support themselves through agriculture. Agriculture sector employs around one third of the total labor force (FAO, 2014). The agriculture sector consists of four sub sectors: farming, livestock, fisheries and forestry. Agriculture contributes by 12% to total GDP of the Philippines, which is less than in previous years (FAO, 2014).

Amount of undernourished people in the Philippines is decreasing, as shown in Figure 6, food supply per capita is rapidly increasing so people are able to consume more nutritious food (Fujii. 2013).

Most important commodities consumed by Philippine inhabitants are rice, sugar and maize. Concerning meat it is pork (World Bank, 2014). Agriculture in the Philippines is producing mainly those three crops: Sugar cane, Rice and Coconuts (World Bank, 2014).

Big problem in agriculture the Philippines is deforestation. While one hundred years ago forest covered 70% of the Philippines, in 2000 only 18% of the country was covered by forests (FAO, 2014).

2.5.2 Overview of the Agricultural Marketing Information Services in the Philippines

2.5.2.1 Agriculture and Fisheries Market Information System (AFMIS)

According to its providers, the service is defined as: *“AFMIS is an efficient, integrated and cluster based system of collecting, processing, analyzing and packaging of market information for dissemination on a timely and regular basis to target clients through various media (AFMIS, 2010).”*

The AFMIS is a web based system formed by national and local market information systems. It integrates different information resources on the market into a single application system and database. Main goal is to benefit from existing information and communication technologies, such as the internet and SMS, to increase the delivery of the market information in the country (AFMIS, 2010).

The AFMIS offers three main agricultural services: Price bulletin, Directory of Buyers/Sellers and Market information.

In Price bulletin there can be found current prices of commodities which are commonly updated few times a week. Prices are per kilogram and can be found for each region separately. Price bulletin also offers price databases, where are saved all historical price data. This can be useful for predicting price evolution in the future.

The directory of buyers/sellers contains database of an agricultural business users. Anyone can find buyer (processor, exporter, supermarket, institutional buyer) or seller (producer, manufacturer, processor) saved in database. Search offers filtering by region or commodity. About every user there are saved data such as address, mobile number or email address (AFMIS, 2010).

Market information is available in national or regional division. There can be found documents relating to production, commodity profiles, trade-related statistics, supply and utilization data of various agricultural commodities and much more.

The AFMIS is covered by Market Development Support Services of the World Bank funded project. World Bank aims to stimulate employment, increase of farmer's income and rural growth. It supports the Department of Agriculture towards market demand driven approach in order to solve the problem of declining competitiveness of Philippine Agriculture (AFMIS, 2010).

The mission of the AFMIS is to help farmers in their marketing decisions and production. It aims to empower Filipino farmers through the provision on accurate, timely, and responsive information and efficient trading services. A market information system should be available for the use of the farmers, fishers, traders, processors, cooperatives and the Department of Agriculture.

In addition, AFMIS is not using only web system but also lunched Nokia Data Gathering Solution which apply mobile phones for gathering the data to get as fast and as accurate field data as possible for further analysis and actions (AFMIS, 2010).

2.5.2.2 Department of Agriculture

The Department of agriculture is the government agency responsible for the promotion of the agricultural development by providing public investments, the policy framework and support services needed for business enterprises (Department of Agriculture, 2012).

The primary concern of the Department of agriculture is to improve farm incomes and generate work opportunities for fisherman, farmers and other rural workers. It should encourage people to participate in agricultural development through sectorial representation in policy-making bodies so that the policies, programs and plans of the Department of agriculture are formulated and executed to satisfy their needs (Department of Agriculture, 2012).

It should also use bottom-up farm system approach that will emphasize equity, social justice, sustainability and productivity in the use of agricultural resources (Department of Agriculture, 2012).

The Department of Agriculture offers plenty of information which is connected to agriculture such as documentations, media resources, services including credits, researches and trainings, laws, price watch, calendar of events or job and investment opportunities. Price watch collects and distributes prices approximately once in two days and focuses main agricultural commodities in the Philippines divided into different markets in Manila. All the prices are retail and they are monitored by Agribusiness and Marketing Assistance Service (Department of Agriculture, 2012).

The Department of Agriculture has Regional field office in each region of the Philippines. Those offices are providing extension meetings, focused group discussions, trainings, publications and much more (Department of Agriculture, 2012).

2.5.2.3 The CountrySTAT Philippines

It is a web based system which integrates agricultural statistical data and national food to ensure harmonization of national data collections for analysis and policy making. In recognition of the existing CountrySTAT, the Philippine Statistical Association has taken the challenge of establishing the CountrySTAT Philippines. This has been possible through FAO funds which were provided in order to implement the project “Strengthening the National Statistical Systems in the Asian and Pacific region” (CountrySTAT Philippines, 2014).

The CountrySTAT provides statistical data about Volume of production and Wholesale, Retail and Supermarket prices of commodities in chosen date of collection (CountrySTAT Philippines, 2014).

2.6 Agricultural Marketing Information Services in Vietnam

2.6.1 Basic characteristics of the country

Vietnam is the 13th biggest country worldwide according to its population which counts 93,421,835 people (World Bank, 2014). It is laid on 33,210 sq. km. Its capital city is Hanoi, while largest city of the country is Ho Chi Minh City. Official language is Vietnamese. Vietnam remains one of the 5 countries on the world still under communist rule (Index Mundi, 2014).



Figure 3: Map of Vietnam. Source: <http://www.yourchildlearns.com>

Socialist republic of Vietnam is bordering Laos and Cambodia on the West, touching China on the North and its east coastline is in the South China Sea. Vietnam is covered by 42% by tropical forest and 40% of the country is situated in the mountains. Its coastline counts 3,444 km (CIA, 2014).

Vietnam is a successful developing country with big progress during last quarter of a century. Due to economic and political reforms launched in 1986, Vietnam was transformed from one of the poorest countries, with income below \$100 per capita, to a middle income country with income of \$1,960 by the end of 2013 (World Bank, 2014).

The global decline of economy affected Vietnam's export oriented economy. Its growth rate for the last decade has averaged at 6.4% per year but it started to slow down recently. In 2013, GDP growth was only 5.4%, which is the slowest rate since 1999 (World Bank, 2014).

Over the last few years, Vietnam has made big progress in reducing poverty. During 1990s there were almost 60% of people living in poverty, compare to under 10% people living in poverty today. The income of the bottom 40% of population has risen by an annual average of 9% (World Bank, 2014).

Since 2007, when Vietnam joined the World Trade Organization, the external sector is an important engine of growth. Export value has grown by 15.9% in the first half of 2014, outperforming all countries in the region. Traditional Vietnamese manufacturing exports such as furniture, clothes and footwear continue to grow. In addition, recently they have rapid growth at hi-tech and high-value products (World Bank, 2014).

Vietnam has significant decline of poverty, due to creating jobs meeting the challenge of a labor force, which is growing slightly more than a million people per year. Vietnam has reached four of its ten original MDG targets and is close to reach three more in 2015 (World Bank, 2014).

Share of agriculture on Vietnamese economy continues to decrease from about 25% in 2000 to less than 15% in 2014 (World Bank 2014). At the same time industry share of economic output increased from 36% in 2000 to more than 42% in 2014. Enterprises owned by state account about 40% of GDP (World Bank 2014).

Agriculture, fisheries and forestry employed over 47% of the Vietnamese population in 2013. Most of the agricultural production is produced on family farms of less than 0.5 ha. In Vietnam is labor cheap, most of the production is not industrialized and enterprises owned by state still play a big role in the distribution, production and processing of agricultural products (Macdonald, 2013).

Amount of undernourished people in Vietnam is rapidly decreasing, food supply per capita has increased about 18% in ten years from 2001 to 2011 (World Bank 2014). Among commodities which are consumed in Vietnam most, belong mainly rice, pork meat, sugar and maize. Considering volume of production, Vietnam is focused on producing mainly paddy rice, sugar cane, cassava, vegetables and maize (World Bank 2014).

2.6.2 Overview of the Agricultural Marketing Information Services in Vietnam

Vietnam Agriculture Extension and Market Information System is based on the research and application IT and communication in data collection, processing and dissemination to researchers, farmers, managers, government agencies and target participants in rural areas. The information system covers 100 selected districts of 20 provinces in Vietnam. It was established as sustainable and effective AMIS in 2006 with technical support and coordination of Ministry of Agriculture and Rural Development (Hoa, Dung, Son, 2008).

The AMIS is based on integrated computer network which connects the center with the local in order to update and manage market information. Important element is software which updates, search and corrects information and make reports and tables from collected data. After collection of data, followed by processing and analyzing there are provided market bulletins (weekly and monthly) and radio and TV programs. In 2007 there were achieved two new ways of dissemination, by a mobile phone and by teletext (Cuong et al., 2013).

AMIS in Vietnam supports the process of collection product price data at selected areas and the ongoing transmission of data to farmers through different uses of media and extension services. This project also supports capacity development for both the information and the use of the system. It is ensuring that capacity is sustainable and is institutionalized inside Vietnam government bodies and organizations (Trade and Development Canada, 2011).

The benefit of the AMIS is increased access to the market information. Farmers and farmer's groups in Vietnam should make better production decisions and therefore better business. It should improve productivity and potential of income earning (MARD, 2015).

Agricultural market information is important factor in the processes of selling and buying of agricultural outputs, inputs and services. Cuong et al. conducted research concerning AMIS in Vietnam. Primary data were collected in term of general farmer production, farmers' knowledge of AMIS, marketing conditions, farmers' market access and suggestions towards AMIS (Cuong et al., 2013).

AMIS in Vietnam is implemented, coordinated and organized among many departments and agencies. These departments and agencies cooperate with each other. They provide each other farmers' information regarding weather forecast, new technical procedures, disease prevention and market information. In investigated areas, the relation between the farmer's knowledge about AMIS and farmer's household income was significantly confirmed. In the research, there were 72% of households who agreed that it is easy to get market information from other farmers. Around 54% of households agreed that they have access to many programs providing information. Nevertheless, the quality of this information was often limited. There were about 72% of households complaining about markets in rural areas which were dominated by middleman and other traders. Around 67% of households suggested enhancing efficiency of AMIS by strengthening the roles of state and government in managing agricultural output and input markets (Cuong et al., 2013).

The need of smallholder farmers for improved access to AMIS with the aim to raise their productivity and living standards is limited by two major features. First, farmers are seen as their production operated under weak AMIS conditions with high level of remoteness and inadequate local government support. This is associated with high marketing costs, risks and willingness to access services. Secondly, there is lack of specificity about how good is AMIS. Concerning inaccurate and delayed market information, farmers in rural areas face lower output prices, higher input costs, and lower competition of buyers of their surplus (Cuong et al., 2013).

2.7 Agricultural Marketing Information Services in Cambodia

2.7.1 Basic characteristics of the country

Kingdom of Cambodia is a small country, 65th biggest one worldwide with population over 15,458,000 inhabitants (Index Mundi, 2014). Cambodia is spread on the total area of 181,035 square kilometers. Official language is Khmer and capital city is Phnom Penh. Cambodia is infamous as one of the most corrupted countries in the world. Nowadays around 20% of the population lives in poverty (World Bank, 2014).



Figure 4: Map of Cambodia. Source: <http://www.yourchildlearns.com>

Cambodia is situated in mainland of Southeast Asia with borders to Thailand on the West, Laos on the North and Vietnam on the East. Its land includes the low central plain, surrounded by mountain ranges. Most of the country lies in the tropical climate zone (World Bank, 2014).

Despite instability in neighboring countries and domestic uncertainty, economy of Cambodia keeps growing. Real growth for 2014 reached 7% driven by construction, garment and services sectors (World Bank, 2014).

Most important industry in Cambodia is garment industry which actually accounts for 70% of total exports and employs more than 400,000 people. Rapidly growing industry is tourism, which reached over 3 million foreign visitors in 2012 (Index Mundi, 2014). Nevertheless, Cambodia remains one of the poorest countries in Asia and economic development remains a challenge, constrained by corruption, high income inequality, limited educational opportunities and poor job prospects. There are still almost 4 million people in Cambodia living on less than \$1.25 per day and almost 40% of local children under 5 years old suffer from malnutrition. More than half of the population is aged less than 25. The population in general lacks education and skills, especially in the poor countryside, which lacks basic infrastructure (Index Mundi, 2014).

Out of the 2.8 million households in Cambodia, recorded in the 2008 Census, there are more than 81% inhabitants living in rural areas. As the majority of Cambodian people live in rural areas, their lives are strongly dependent of agriculture. The economy of Cambodia is growing considerably since it has been integrated into the global market economy (Thomas et al., 2013). This growth is based on four key sectors: garments, construction, tourism and agriculture. Various sources provide different numbers for the agricultural sector contribution to Cambodian GDP: World Bank (2014) reports that agriculture contributed 33.5%, while Index Mundi (2014) reports 34.8%. More than 55% of population works in agriculture (World Bank, 2014).

Production of rice is crucial to this sector. Majority of farmers in Cambodia depend on the success of the rice harvest every year. Other major crops are cassava, maize, sugar cane and other cash crops (Thomas et al., 2013).

2.7.2 Overview of the Agricultural Marketing Information Services in Cambodia

2.7.2.1 Cambodia Agricultural Market Information Service

Agricultural Market Information provides valuable information, helping traders and farmers to succeed in the Cambodian market places. It is divided into three sections- Agricultural Market Information Service (AMIS), Agricultural Marketing Office (AMO) and Agricultural Statistics Office (ASO) (CARDO, 2009).

AMO aims to develop an AMIS which provides consistent, timely and accurate market information to all concerned stakeholders. This is being done to help stakeholders to generate higher returns from their enterprises and assist increase economic growth and poverty reduction. AMO has offices in 24 municipal provinces in Cambodia (AMO, 2014). On contrary, Korean researcher Somany (2013) argues that all farmers and extension workers mentioned that extension system is not effective.

Agricultural marketing office monitors food and nutrition information, collect information on retail and wholesale sales in local markets, formulate strategies and policies for market development and give recommendations for strengthening the agricultural marketing system (AMO, 2014).

AMIS is helping to improve agricultural ability of all market stakeholders to gather, access, analyze and use information to cooperate better with the market. Market information targets two groups, first one is policy makers, and second one is producers, traders and consumers. AMIS provides information via following resources: Price reports, Radio and TV broadcasts and SMS market information system (AMIS, 2014; Solida, 2006).

Agricultural price information is collected by AMO with aim to assist policy makers, researchers, producers, planners, traders and consumers. Retail price is collected one time per week and wholesale price is collected three times a week. AMO collects information from 22 major markets in Cambodia. Reports are distributed to the government departments and can be downloaded on AMIS website (AMIS, 2014; Solida, 2006).

AMO is providing large number of TV programs and Radio stations. These inform on a range of topics from market prices to phone-in programs, where listeners are able to ask questions to AMO members. All types of programs AMIS is providing are: Radio call-in shows, regular price information, educational radio spots, educational TV shows, Talk shows and video documentaries (AMIS, 2014; Solida, 2006).

The SMS market information system was designed for the traders and producers of agricultural commodities. The system receives SMS from traders containing wholesale prices. On average it gives between 300 and 400 prices per day, for 20 products in 16 markets (FAO, 2012). Everyone can access these prices using SMS messaging. On a message requesting specific details is system responding with the current information. This helps to the system users in their decision making process. Currently AMIS receives up to 150 message requests every day (AMIS, 2014; Solida, 2006).

ASO was created to be major national body responsible for statistical work in agriculture. It is responsible for data collection and publication and cooperation with other departments of the ministry. ASO is focusing mainly of statistics on crops, fisheries and livestock (ASO, 2014).

In Cambodia, in 1996, information about market prices was collected by plenty of Government and semi-Government agencies who were often duplicating activities. Out of those information collected was disseminated only very little in any useful way. Most useful information for farmers was provided by a private radio station from Phnom Penh. The station was sending reporter each day to different market in the city, where he collected prices of 49 products which he reported immediately from the market and compared with the previous prices. After, he interviewed traders about the current market conditions. Exchange of the information was by mobile phone and whole program was sponsored by a mobile company. The radio station had a range of 150 km and high amount of farmers were following the price information (Shepherd, 1997; Solida, 2006).

Despite the service was very valuable for farmers, it suffered some problems which caused it to not become a substitute for a more formal Marketing Information Service. One of the problems was coverage of a country which was limited for the surroundings of the capital city. Then the effort of developing time series of prices information was denied by the fact that reporter visited different markets. Furthermore there were problems with

financing, when the exercise was not fully covered by a sponsorship. Finally, the program was an individual initiative of the station and could not be institutionalized in any way. Anyway, official AMIS in Cambodia should build on the pioneering work of the radio station and include it in new AMIS (Shepherd, 1997).

2.7.2.2 Cambodia Agricultural Market Information Project

CAMIP was a project held during 2006 and 2009. It was funded by Canadian International Development Agency and Royal Government of Cambodia. The aim of project was to improve ability to gather, access, analyze and use agricultural information to respond to market signals. Main purpose is to improve rural livelihoods and better access to agricultural services (Derksen, 2009).

Project was firstly focusing on improving existing information system of AMO, including the collection, analysis of the information, improving extension agents and dissemination of data. Secondly, it was focusing on applying price information in market development, like improving choices while selling during non-peak periods (Derksen, 2009).

To make sure about the success of the project, CAMIP needed a good knowledge about the traders, so they can be actively engaged in the project as sources of market information as well as actors in market development. CAMIP carried out a study of vegetable and fruit traders at six markets in Cambodia (Ypma, 2007).

The study involved 135 interviews with the traders and collectors in 6 earmarked markets in Phnom Penh, Kampong Cham, Kandal and Kampot. The interviews of 25 questions were developed by CAMIP and administered by AMO staff. At each market were interviewed 5 collectors and 20 traders, half of which were retailers and half wholesalers. Those traders who seemed interested in interview were invited to join a Focus Group Discussion. For each market was opened one discussion at a convenient time and place for traders (Ypma, 2007).

The results of the interviews and group discussions revealed few key issues facing traders that could be improved by CAMIP. Although most of the traders rely on collectors

and other trades for market information, results show general lack of sharing information between traders. Only 35% of traders share information with others. Most of the traders operate only within one market so they don't have contacts and networks in other markets to be able to expand. They are also concerned about the product quality and they requested information about improving the quality of products from local farmers. If the products have better quality, traders can get higher prices, they lose less to spoilage and they gain confidence of customer. However none of the traders checked for any kind of certification of quality of the produce they buy. Probably main constrain of trading is the cost of transport which usually includes many formal and informal fees (Ypma, 2007).

3. Objectives of the thesis

In any developing country including Philippines, Cambodia and Vietnam local agricultural producers, processors and traders dependent on good and quality agricultural information sources for improvement of their decision making process. Therefore it is necessary to provide appropriate and actual data and useful information through available information sources to guide especially small and medium scale farmers in their production planning and market access. However the question remains: if local farmers still have sufficient access to required information sources in necessary quality.

3.1 Main objective

The main objective of the thesis is to analyse the situation of Agricultural Marketing Information Services and compare its efficiency on performing its functions and operations in the framework of providing necessary information to local farmers in the Philippines, Cambodia and Vietnam.

3.2 Specific objectives

The main objective will be accomplished through the specific objectives as follows:

- (i) Analyse the farmers' access to information sources and their awareness of AMIS existence in the region.
- (ii) Analyse AMIS activities and the type of information provided to local farmers.
- (iii) Analyse the real information requirements of local farmers which will lead to better commercialization of their produce in comparison with information provided by local AMIS.

4. Methodology

4.1 Studied area

4.1.1 The Philippines

Research took place in the Region I. on the biggest island of the Philippines-Luzon. Region I (see figure 21). is composed of four provinces and counts 4,748,372 inhabitants (NSCB, 2010). Data were collected in La Union province. Capital city of the province is San Fernando, which is only city in the province. Total area of La Union province is 1,493 square kilometers and its population counts 741,906 inhabitants with density of 496.9 per square kilometer (NSO, 2010).

Data collection took place in rural countryside where households belonged to different villages, namely it was Rosario, Gumot, Santo Tomas and San Fabian. All households were located in southern part of La Union province, close to border with Pangasinan province and close to the coast of South China Sea.

Landscape of the area is hilly, covered by small forests. That gives great opportunity to farmers to grow paddy rice and breed cattle. Weather is changing between rainy and dry seasons. Despite the area is close to the sea, during the dry season farmers are not able to grow many crops.

Most of the residents of villages live in fields which are not centralized on one place but spread across the hills. All the villages are in motorbike distance from main asphalt road connecting capital city Manila and north of the Philippines. Inhabitants of all villages have access to the small grocery shops and little food markets as well as street food stands around the road. Each village has elementary school where all small children of farmers go and education is focused mainly on agriculture. Majority of village residents live in wooden houses with base construction made of bricks and most of them have full access to electricity. Most of the fields are not separated by fence, except of paddock with poultry or cattle. Each farmer has a field with paddy rice, which is also main source of nutritious food.

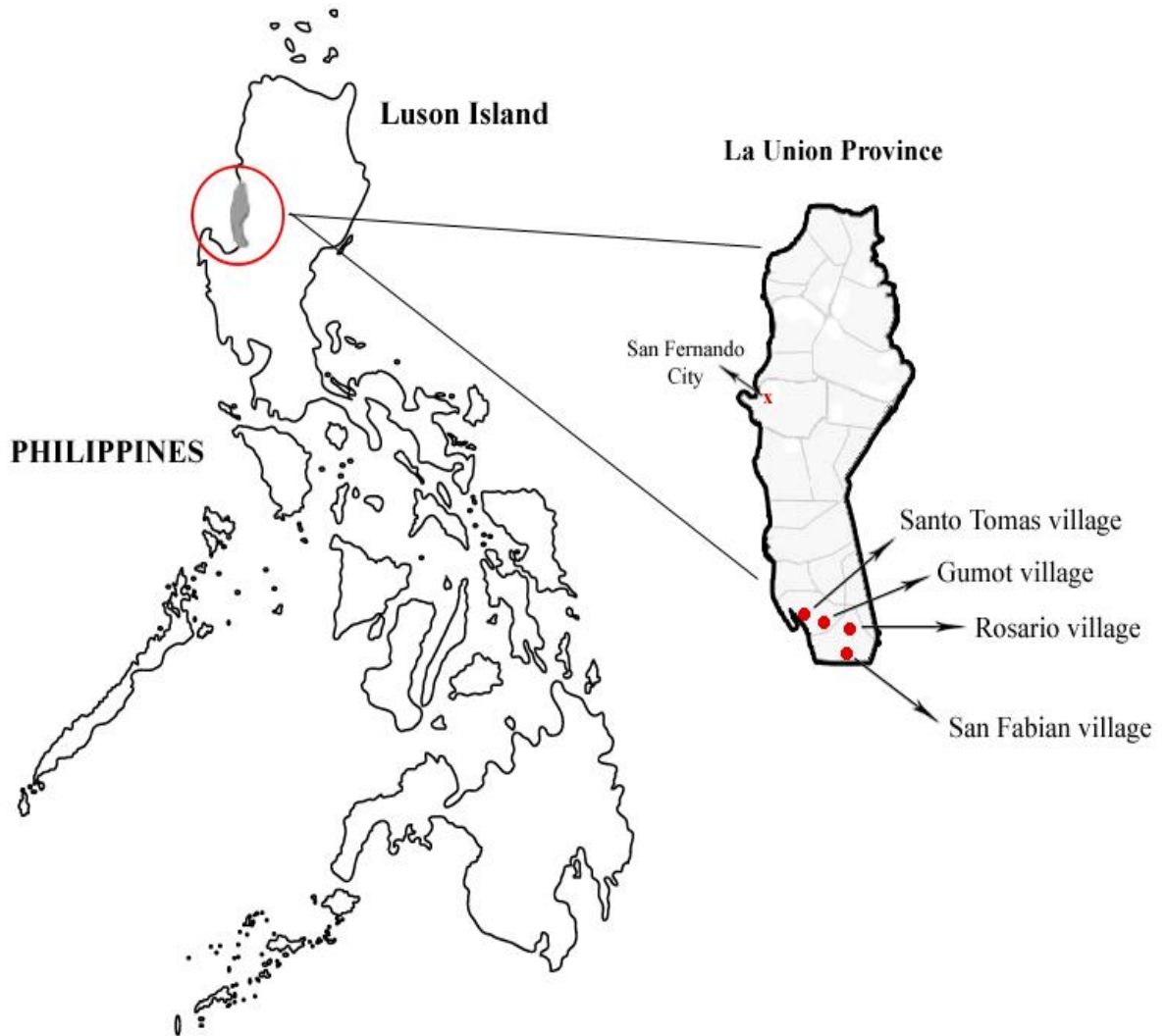


Figure 5: Location of La Union Province and villages where study was carried out in.

4.1.2 Vietnam

Research took place in Cao Bang Province which is located on the northeast of Vietnam, close to border with China. Cao Bang Province has also borders with 4 other provinces within Vietnam: Ha Giang, Tuyen Quang, Bac Kan, and Lang Son provinces. This province covers area of 6707.9 square kilometers. Its total population counts 517,900 people with population density of 77 people per square kilometer (GSO, 2013). Data were collected in Bao Lac District. Capital City of the district is Bao Lac. Total area of district is 919 square kilometers and its population counts 47,019 inhabitants (Law, 2003).

Data collection took place in rural mountainous countryside where households belonged to three different wards, namely it was Na Dang Ward, Tan Viet Ward and Ban Khuong Ward. All households are located in the western part of Bao Lac District.

All three villages are located in the mountains, covered by a lot of forests and nature. Weather conditions are much different from other part of the country which is located in lower heights, this area is much colder. Conditions are still suitable for growing paddy rice, as most of the farmers do. It is suitable also for breeding cattle and poultry.

Residents of Wards live spread around the mountains on the small farms surrounded by rice fields and paddocks with animals. Villages are situated close to the small road which is connected to the main road 34, connecting other districts together. As this is mountainous area, farmers have access to small rivers going down the mountains. Main river close to the villages is Song Nho Que. Small grocery shops and street markets are situated by the road. In the mountains there are few elementary schools, where are children from small villages going, usually by foot or bikes. Most of the farmers live in wooden houses with roofs made of leaves. Not all of them have access to electricity. Internet connection here is not available, if someone uses internet than its through mobile phone. Each farmer has field with paddy rice as a main source of food and farms are not located directly next to each other.



Figure 6: Location of Cao Bang Province and villages where study was carried out in.

4.1.3 Cambodia

Research took place in Kampong Cham province which is located in the central Cambodia, approximately 50 kilometers north from capital city Phnom Penh. Kampong Cham province borders with 6 other provinces, Kampong Thom and Kratie on the North, Tbong Khmum on the East, Prey Vent and Kandal on the South and Kampong Chhnang on the West. This province covers area of 9,799 square kilometers (NIS, 2008). Its total

population counts 1,680,694 people with population density of 172 people per square kilometer (NIS, 2008). Data were collected in Batheay district, which is located on the west of the Kampong Cham province. Capital city of the district is Phav town. Total population of the district counts 90,920 inhabitants (NIS, 2000).

Data collection took place in rural area of Cambodian lowlands where households belonged to three different villages, namely Baek peang village, Sambour village and Chea Lea village. All three villages are located in Batheay district, in two communes- Chealea and Sambour commune.

All three villages in Batheay district are located in the lowlands, covered mainly by rice fields and sandy roads. Weather conditions in central Cambodia are different according to season. There are switching dry and raining seasons. Both of them can lead to extremes- floods or extremely dry earth. Conditions are suitable for rice, cattle and poultry, and sometimes vegetable and other cash crops.

All villages lie at the junction between two major waterways of Cambodia, the Mekong River and the Tonle Sap. They are located around small roads which are connected to the National Highway 6 heading to Phnom Penh. As villages are located in lowlands, there is no need to have households far from each other so villages are more compact than previous two cases. Two big rivers offer water as source of irrigation, drinking water for animals and also transportation. In every village there are small shops with basic grocery, food stands and small markets with fresh fish, meat, vegetable and fruit. People are in general poorer than in two previous countries. Children have access to small primary schools situated in bigger villages. Most of the farmers live in wooden houses with access to electricity. The average household size in Batheay district is 5.1 people per household, which is same as rural average for Cambodia (NIS, 2008).

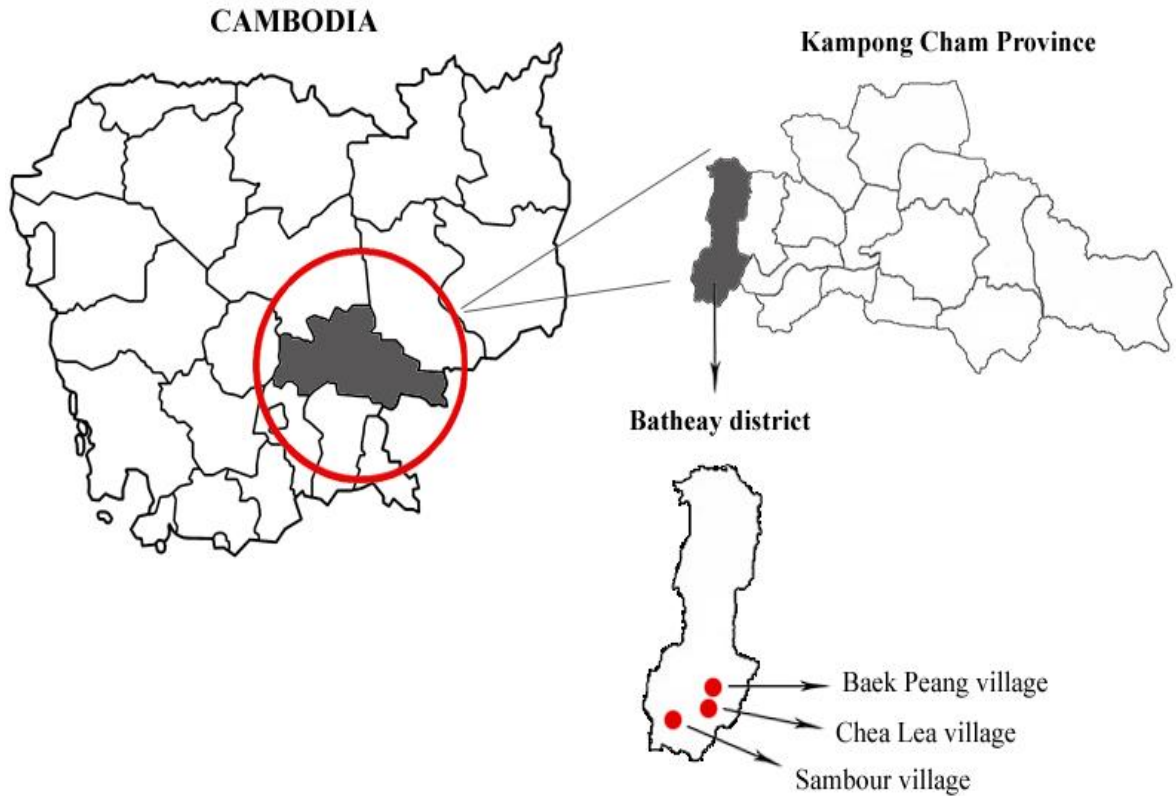


Figure 7: Location of Kampong Cham Province and villages where study was carried out in.

4.2 Timeframe

Total time allocated for preparation and data collection in the Philippines, Vietnam and Cambodia was six months since 5th September 2014 till 1st March 2015. Theoretical preparation for data collection started in March 2014. Questionnaire structure and composition was defined at the same time. Selection of the suitable area for data collection was done in November 2014. Finalization of questionnaires was done after pilot testing in the Philippines in the beginning of November 2014. Visit of the selected areas took place between November 2014 and January 2015 when data in structured questionnaires were collected.

4.3 Sample size

The sample size was dependent on the coverage of appropriate and available respondents, time and finance availability, respondent cooperation willingness,

infrastructure and environmental conditions of the selected areas. The aim was to get as many respondents as possible. Total sample size of 80 randomly selected respondents (households) using two stage cluster technique was determined as representative sample of approximately 190,000 inhabitants (Batheay district 90,000 + Bao Lac district 47,000 + Rosario province 53,000), with the confidence level equal to 95% and confidence interval equal to 10.95 (Source: Online sample size calculator). Gender distribution of respondents was almost equal; there were 55% of male and 45% of female respondents. Number of randomly selected respondents was approximately same in each country. Function of gained data is just informational and cannot be analyzed in order to reach proper statistical data applied to whole countries.

Table 1: Distribution of respondents. Source: author's questionnaire

District	Male	Female	Total	Percentage [%]
<i>Batheay</i>	14	14	28	35
<i>Bao Lac</i>	6	19	25	31.25
<i>Rosario</i>	24	3	27	33.75
Total	44	36	80	100.00

4.4 Data and data sources

For completion of the Thesis were collected and used two types of data, primary and secondary. Primary data and information were collected personally during November 2014, December 2014 and January 2015 from random respondents in countryside of local agricultural representatives of La Union province in the Philippines, Lao Bac district in Vietnam and Batheay district in Cambodia. Additional information was gained from Philippine Agricultural University teacher Dr. Frederick B. Camito, development assistant in ADRA Vietnam Ms. Vu Thu Trang and office assistant in Ecoland Cambodia Mr. Phoeurk Raksmeay. Secondary data and information sources were used to precisely describe the current situation in selected regions to bring accurate results. As a secondary data were used several articles, scientific journals, documents, books and statistical and other databases.

4.5 Data collection methods

For data collection were used several methods due to accuracy of collected data. Structured questionnaires, observations, interviews and transect walks were used and combined to get more accurate information for the thesis.

4.6 Pilot testing

Questionnaire was constructed with the thesis supervisor Ing. Alexander Kandakov PhD. during May 2014. Later on it was modified with a Philippino local university teacher Dr. Frederick B. Camito. After that, the questionnaire was applied to one farmer in La Union province in the Philippines to find out weaknesses. Then was questionnaire for last time modified as was appropriate for local conditions before collecting data itself.

4.7 Structured questionnaire

As a main data collection tool was chosen structured questionnaire as it's the easiest and most appropriate method to gather detailed information. It is widely used and recommended by Mokotjo (2010), Islam (2010), Fujii (2013) and Somany (2013) who were focused in their studies on Agricultural Market Information Services in developing countries.

Structured questionnaire was created for farmers living in areas chosen for research. Questionnaire was prepared in English, but due to the language barrier it was also translated into Vietnamese language by Ms. Lien Huong. Questionnaire consists of 20 questions. In order to get qualitative and quantitative primary data were used closed format questions, opened and semi-closed format questions. Questionnaire was divided into three parts. In first part there were collected personal data about respondent, in second part were collected data about respondent and agriculture and third part was focused on AMIS. Big amount of farmers who didn't have any information about existence of AMIS didn't answer third part of questionnaire.

4.8 Data analysis

All data collected from 80 filled farmer's questionnaires were rewritten into Microsoft Office Excel. Data were categorized and coded for further processing and analyzing. Prepared data were imported into statistical software SAS. Imported data were closely categorized and coded for proper analysis of dependence of single factors on age and sex. Data were analyzed by contingency table method using Chi-square that explores independence of two quantitative variables. Furthermore was calculated Cramer's V which defines power of dependency. For analysis were used following formulas:

Equation 1: Chi-square and Cramer's V formulas

$$\chi^2 = \sum_{i=1}^k \frac{(O_i - E_i)^2}{E_i} \quad \left| \begin{array}{l} \chi^2 \text{ is Chi-squared} \\ \sum \text{ stands for summation} \\ O \text{ is the observed values} \\ E \text{ is the expected values} \end{array} \right.$$
$$C = \sqrt{\frac{\chi^2}{n(L-1)}} \quad \left| \begin{array}{l} n = \text{number of observation} \\ L = \text{number of minimum row of column in contingency table} \end{array} \right.$$

5. Results

5.1 Descriptive part

Age

Average age of respondents from all three countries was calculated as 44.25 years. This fact is reflected in the percentage distribution of age among respondents (see Figure 8) where majority of them, 35% belong to the age group from 46 to 55, followed by younger generation 24% from 26 to 35 years. The lowest contribution has group under 25 years old, which is represented by only 5%. That is probably caused by setting up home and getting own household after marriage.

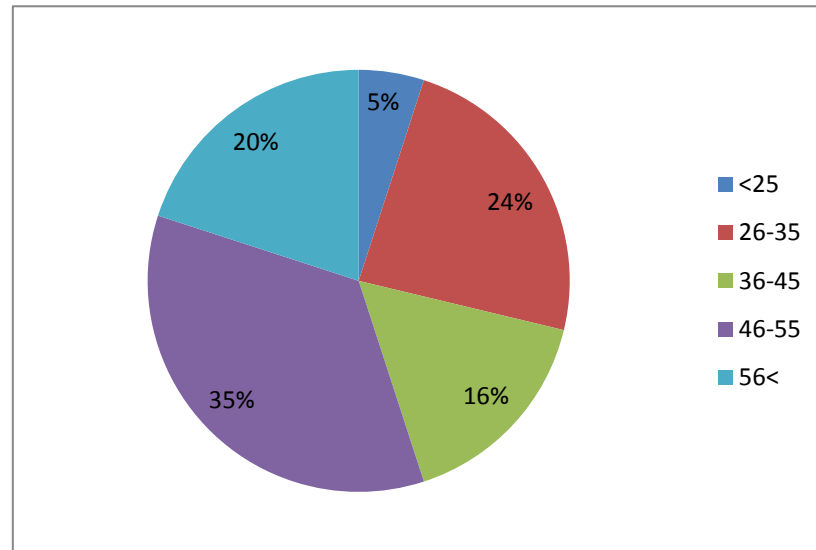


Figure 8: Respondents' age distribution (total)

Average age of the respondents by country vary significantly (see Figure 9). Meanwhile average age of respondents from the Philippines was 46.2 and from Cambodia 49.6, the average age in Vietnam was only 36.1 years. That might be caused by the fact that in Vietnam are for households responsible mainly women, meanwhile in the Philippines and Cambodia men who are generally older members of the family. In each country was dominating different age group. In the Philippines there were majority of farmers in the age between 46 and 55. In Vietnam was dominating younger group of people between 26 and 35. Contrary in Cambodia were in majority farmers older than 56 years, followed by age group from 46 till 55.

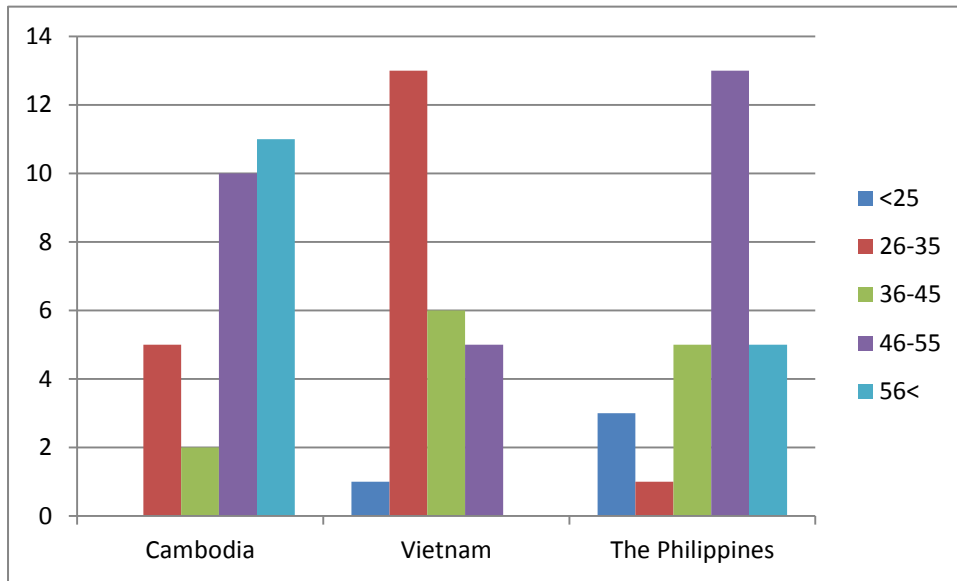


Figure 9: Respondents' age distribution (divided by country)

Sex

Respondents from all three countries together were almost balanced with 55% contribution of male and 45% contribution of female (Figure 10).

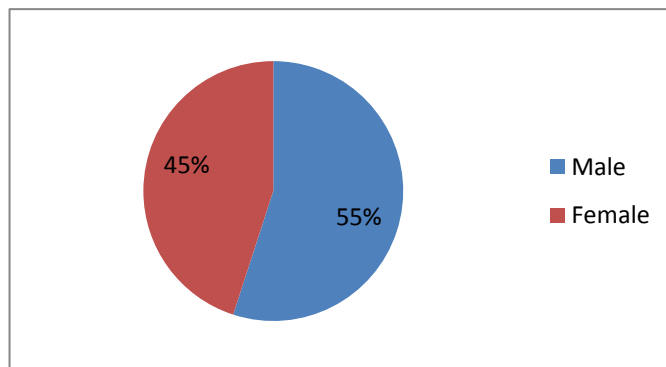


Figure 10: Respondents' sex distribution (total)

Balanced sex among respondents was only in Cambodia where were farmers exactly 50% of male and 50% of female. Completely different results were collected in the Philippines and in Vietnam (Figure 11). In the Philippines the head of the household is usually man, father or grandfather of the family. He is taking care of a farm, while children go to school and women go to market to sell their surplus. Contrary, in Vietnam, it is usually woman who is taking care of a household. Men are during the day in the mountains, on the further rice fields, taking care of cattle, getting wood in the forest or

fishing. Meanwhile women are usually taking care of a household, about children, about poultry and small field right at the farm. Quite often women do some other activity at home to get additional money, such as making clothes, jewellery etc. Women in Vietnam are generally managing household finance.

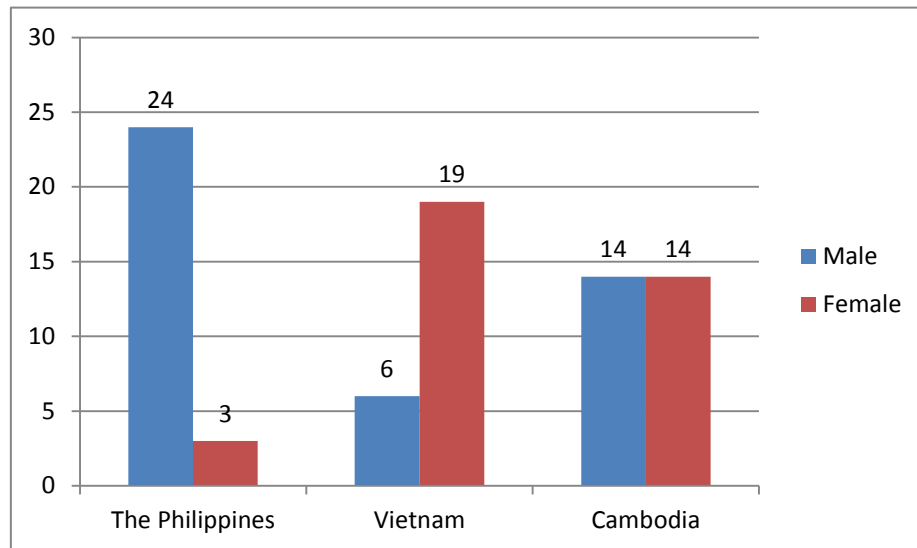


Figure 11: Respondents' sex distribution (divided by country)

Nationality

Concerning nationality of respondents there were no surprises. Except of one farmer, all of them had nationality of the country they lived in. One exception was a farmer in the Philippines who was originally from United Kingdom and had wife and family in the Philippines.

Profession

As all the respondents of the questionnaire were rural farmers, most of them stated their profession as a farmer or animal husbandry. Only two respondents stated their main profession different than farmer. First of them was farmer from the Philippines who said his main profession is running bio farm as a resort. Second one was a farmer from Cambodia whose main profession was being soldier.

Agricultural commodities cultivated

In all three countries is most cultivated commodity rice. From animals it is usually chicken and cow.

In the Philippines, there was only one respondent out of 27 who was not growing rice. Seven respondents were growing only rice and 19 farmers were growing rice combined with some other commodity. Out of those 19 farmers were 15 farmers growing bananas. Other commodities grown by farmers were coconuts, vegetable, sweet potato, peanuts, tapioca, corn, tobacco, mango, papaya and guyabano. Concerning animals, out of 27 respondents, 16 of them were breeding animals. Most of them had chickens and cows in smaller amount than goats and carabaos.

In Vietnam, there were 7 respondents out of 25 who were not growing rice. There was no one from the farmers, who would grow only rice as in the case of the Philippines. Everyone was combining commodities. Second most grow commodities are corn and sweet potato, which were both grown in 14 cases. In a smaller amount was grown also sugarcane and cassava. Out of these 25 respondents there were 13 of them, who are breeding animals. Out of these 13, there are 5 of them, who are only breeding animals, without any other agricultural commodity. Most bred animals are pigs, which were bred in 8 cases. Pigs are followed by ducks and chickens, and in one cases farmers had cow and buffalo.

In Cambodia, everyone out of 28 respondents of the questionnaire was growing rice. There was no one who would grow only rice. Typical respondent of the questionnaire was growing rice and breeding chicken and cows. Except of rice, there were only few farmers growing vegetable, bananas and mango. All the respondents were breeding animals on their farm. Every questioned farmer answered that they breed chickens. Second favourite animal is cow, which was bred in 20 cases. And the third most bred animal was buffalo, which was kept in 15 cases.

Access to information

As the Figure 12 bellow shows, 83% of the total respondents have access to any kind of information about agricultural markets in their region. In the Philippines and Cambodia, only 2 people answered no. Contrary, in Vietnam, 10 out of 25 respondents have no available information about agricultural markets in their region.

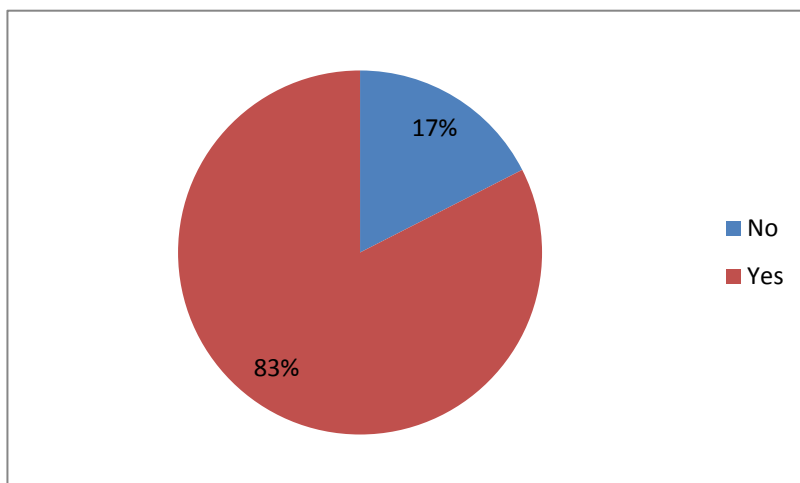


Figure 12: Access to agricultural information

Source of information

Respondents were asked where they usually get information. In each country were answers completely different. This question could be answered by multiple choices; therefore farmers could fill in more sources of information.

In Cambodia, answers were generally same. There were two respondents who said that they do not obtain any information. Rest of the farmers (26) said that they get information just from the communication with their neighbours. Five of those farmers also obtain information at the market place (Figure 13).

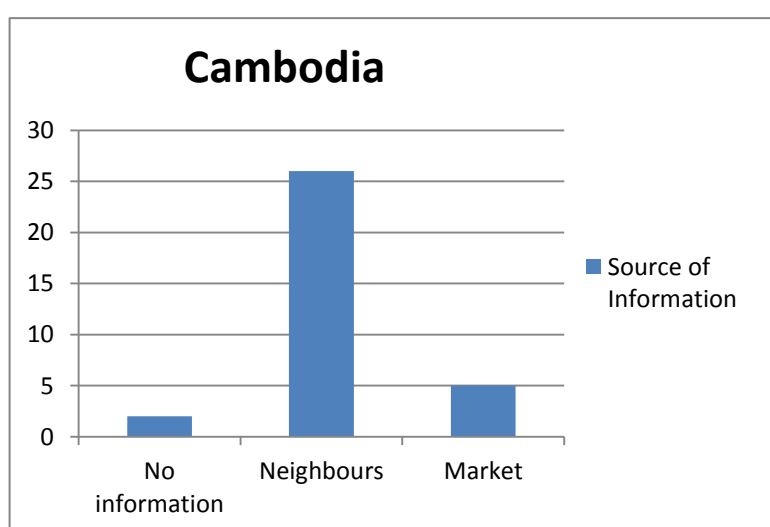


Figure 13: Sources of Information, Cambodia

In Vietnam, farmers are obtaining information from various sources (Figure 14). Most respondents (18) said they get useful information from Provincial department of agriculture, which provides training in their village two times a year. Everyday information respondents get from local sources such as neighbours, communication with other farmers, family members or from the market. Seven respondents said, they are sometimes watching TV and listening to Radio to get new information.

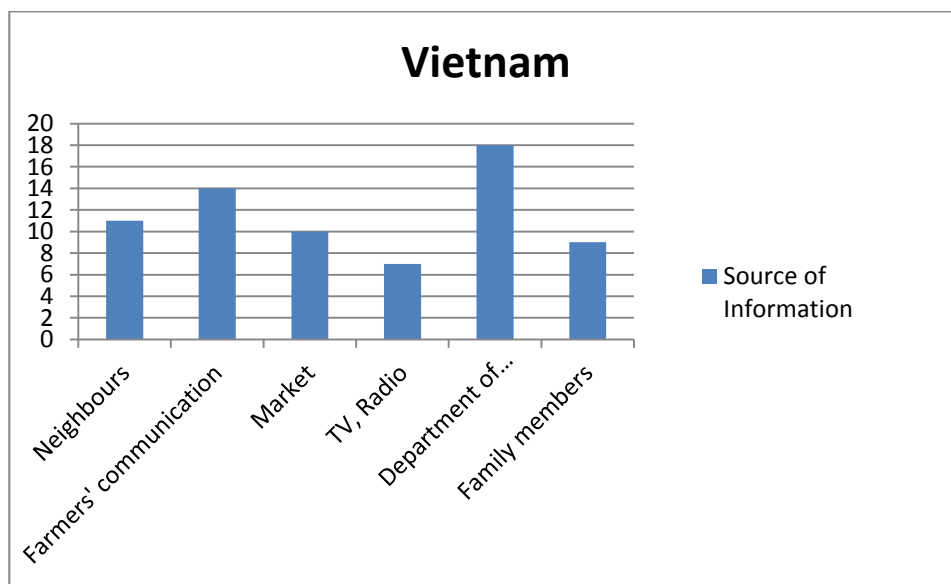


Figure 14: Sources of information, Vietnam

In the Philippines, respondents mentioned 6 different sources of information they use (Figure 15) and one respondent said, he does not use any information. Most respondents (16) are going to get new information at the market. Following source of information is communication with neighbours and other farmers. Farmers at the Philippines said they obtain useful information from Ministry of agriculture and Consultancy agency. Respondents from the Philippines were the only once, who use the Internet as a source of information (7).

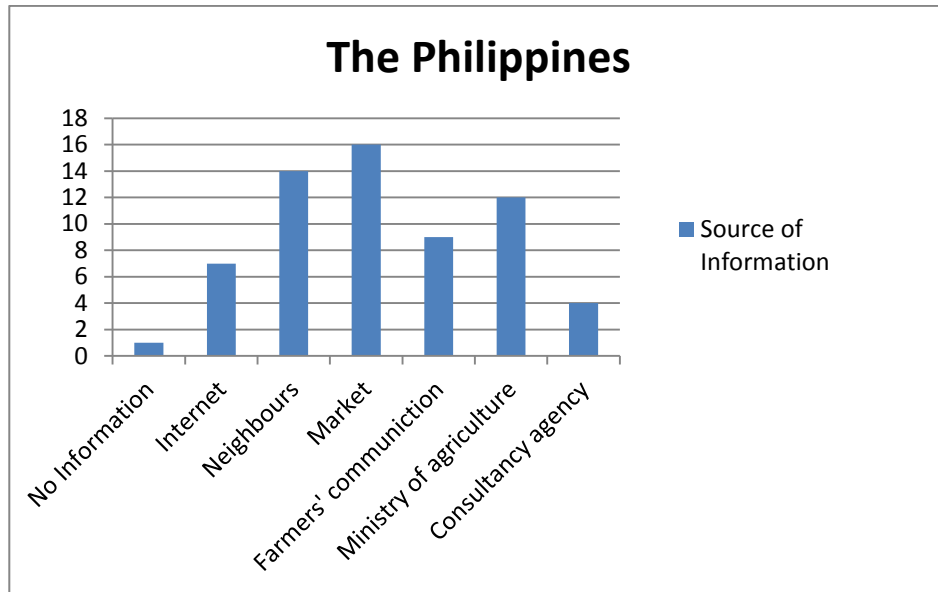


Figure 15: Sources of information, The Philippines

Existence of AMIS

Farmers were questioned if they know about existence of AMIS in their region and if yes, from which sources they know about it.

In Vietnam, all 25 respondents answered they have no idea about any AMIS operating in their region.

In Cambodia, 25 respondents answered that they have no idea about AMIS operating in their region. Remaining 3 respondents answered they know about existence of AMIS and all of them said they know it from neighbours.

In the Philippines, 4 out of 27 respondents do not know about existence of AMIS. Following 23 respondents know about it, from various sources (Figure 16). Farmers are familiar with the AMIS in their region thanks to the communication with other farmers, family, friends, neighbours, as well as through information channels as TV, Radio, Consultancy, Newspapers, the Internet or Market.

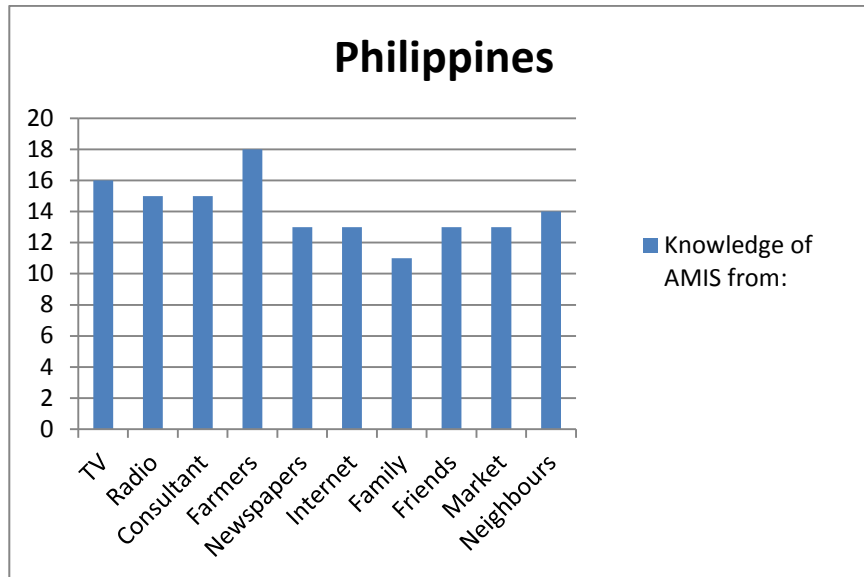


Figure 16: Sources of knowledge about AMIS in the Philippines

Farmers were questioned, if they use such AMIS services and if yes, how often. Answers were surprising. All respondents from Vietnam (25) and Cambodia (28) said they do not use AMIS. Therefore all those respondents finished questionnaire at this question because rest of the questionnaire was focused on the farmers' use of AMIS.

In the Philippines is AMIS more successful, 5 respondents out of 27 are not using it, remaining 22 farmers do. Most farmers (11) said, they use it many times, two farmers said they use it every cropping and one farmer use it every morning.

After were farmers asked who is responsible for AMIS in their region. Biggest amount of Philippine farmers (17) said it is Department of Agriculture. Other answers included Department of Trade and Industry, Don Mariano Marcos State University, Department of Agrarian Reform and Barangay officials (Figure 17). Most of the respondents (17), added, that the information are provided anytime when needed by farmer. Other 3 farmers said they get information from AMIS once a year. Remaining three answers were: every morning, twice a year and whenever there is new product on the market.

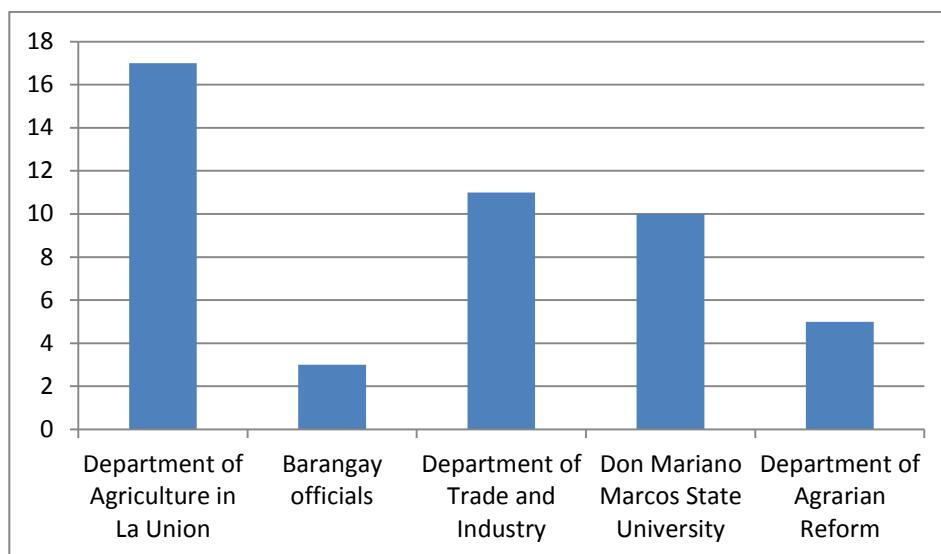


Figure 17: Information provider, the Philippines

Communication with farmers

AMIS in the Philippines communicate with farmers through active and passive communication channels (Figure 18). AMIS provides information actively through seminars and trainings, assembly meetings, agricultural extension meetings, cell phones and via Barangay captain, who spread information in the village. Passively, farmers get information through radio, newspapers, publications and TV.

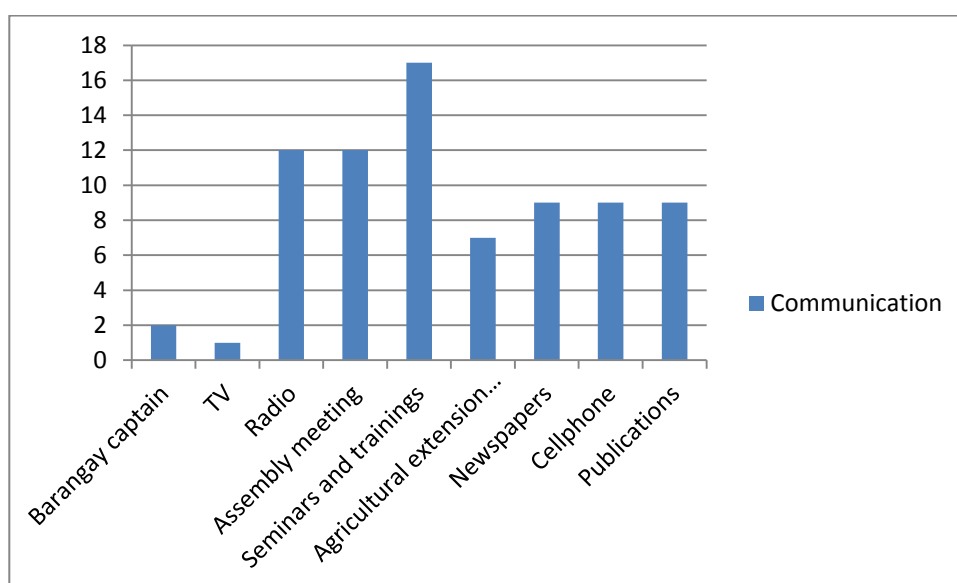


Figure 18: Communication between AMIS and farmers, the Philippines

Most of the farmers said that AMIS provides following information: New growing technologies; Agricultural products; Information about local markets and services; Information about monthly prices and Calculation of production and marketing costs. All the farmers from the Philippines who know about existence of AMIS agreed that AMIS is useful and valuable for them.

Information use

Farmers were asked what kind of information they usually use. As shown in Figure 19 bellow, there are many various answers. Most used information were farm product prices from public market (17) and Agricultural supply (14).

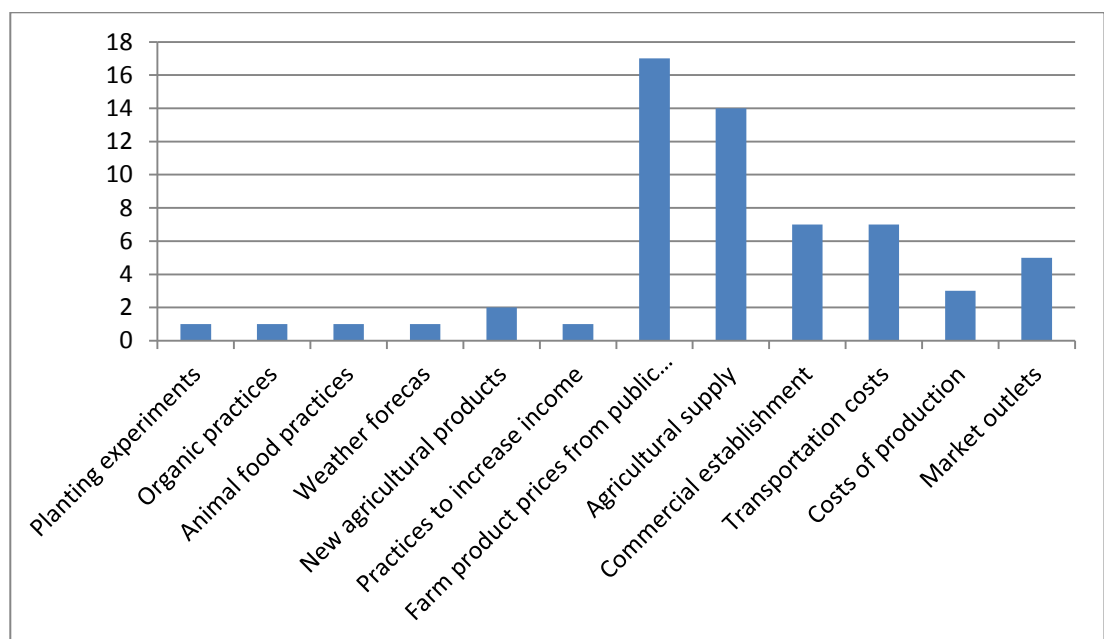


Figure 19: Information use, Philippines

Asking farmers what information is missing in AMIS which they could use were collected more or less same answers. Majority of farmers (17) would appreciate knowing agricultural product prices from whole country, eventually from neighbouring countries. One respondent was missing information about planting flowers and two respondents were not missing any information.

On the question, how will be affected sales of farmers' production in the future if they will receive information from AMIS they really need, 9 of them answered twice and 15 of them answered more than 4 times. Same answers were said on the question how will be increased their income after using required information provided by AMIS.

5.2 Analytical part

In this part of the Thesis was made analysis of the farmers' answers, how are answers affected by single factors. Analysis was done in software SAS. For evaluation of dependence were used contingency tables and Chi-square method. That explores independence of two quantitative variables. Furthermore was calculated Cramer's V which defines power of dependency, while 0 is independence and 1 is absolute dependency.

The Philippines

- Are the species and varieties of agricultural commodities cultivated by farmers' dependent on their sex?

No. On significance level of 95% is Chi-square value 18.3214 which is lower than critical value. Variables are independent; therefore type of cultivated commodities is not influenced by farmers' sex.

- Is the access to the information about agricultural markets dependent on farmer's sex?

No. On significance level of 95% is Chi-square value 3.3075 which is lower than critical value. Variables are independent; therefore access to information about agricultural markets is not influenced by farmers' sex.

- Is the access to the information about agricultural markets dependent on farmer's age?

No. On significance level of 95% is Chi-square value 1.8775 which is lower than critical value. Variables are independent; therefore access to information about agricultural markets is not influenced by farmers' age.

- Is the source of information dependent either on farmers' age or sex?

No. On significance level of 95% is Chi-square value for age 88.1885 and for sex 16.8750. Both values are lower than its critical value on given degrees of freedom.

Variables are independent; therefore the source of information is not influenced by farmers' sex or age.

- Is the knowledge about AMIS in farmers' region influenced by farmers' sex?
Yes. On significance level of 95% is Chi-square value 7.1902 on 1 degree of freedom. That is higher than critical value which is 3.841. Variables are dependent with Cramer's V equal to 0.516. Knowledge about AMIS in farmers' region is influenced by 51.6% by their sex.
- Is the fact whether farmers use AMIS influenced by farmers' sex or age?
Yes and no. On significance level of 95% is Chi-square value for age 1.9863 and for sex 5.1852. First value is lower than critical value and therefore variables are independent. Second value on 1 degree of freedom is higher than critical value and therefore variables are dependent. Cramer's V is 0.4382. Whether farmers use AMIS is influenced by 43.82% by their sex.

Vietnam

- Are the species and varieties of agricultural commodities cultivated by farmers' dependent on their sex and age?
No. On significance level of 95% is Chi-square value for age 44.4391 and for sex 18.1469. Both values are lower than its critical value on given degrees of freedom. Variables are independent; therefore type of cultivated commodities is not influenced by farmers' age and sex.
- Is the access to the information about agricultural markets dependent on farmer's age and sex?
No. On significance level of 95% is Chi-square value for age 2.9060 and for sex 0.1462. Both values are lower than its critical value on given degrees of freedom. Variables are independent; therefore the access to the information about agricultural markets in farmers' region is not influenced by their age and sex.
- Is the source of information dependent either on farmers' age or sex?
No. On significance level of 95% is Chi-square value for age 15.1575 and for sex 2.2348. Both values are lower than its critical value on given degrees of freedom. Variables are independent; therefore the source of information is not influenced by farmers' sex or age.

Cambodia

- Are the species and varieties of agricultural commodities cultivated by farmers' dependent on their sex and age?

No. On significance level of 95% is Chi-square value for age 32.3018 and for sex 16.9333. Both values are lower than its critical value on given degrees of freedom. Variables are independent; therefore type of cultivated commodities is not influenced by farmers' age and sex.

- Is the access to the information about agricultural markets dependent on farmer's age and sex?

No. On significance level of 95% is Chi-square value for age 0.7245 and for sex 0. Both values are lower than its critical value on given degrees of freedom. Variable are independent; therefore the access to the information about agricultural markets in farmers' region is not influenced by their age and sex.

- Is the source of information dependent either on farmers' age or sex?

Yes and no. On significance level of 95% is Chi-square value for sex 2.2286 and for age 9.9763. First value is lower than critical value and therefore variables are independent. Second value on 3 degree of freedom is higher than critical value and therefore variables are dependent. Cramer's V is 0.6194. Therefore the source of information is influenced by farmers' age by 61.94%.

- Is the knowledge about AMIS in farmers' region influenced by farmers' age?

Yes. On significance level of 95% is Chi-square value 10.2293 on 3 degree of freedom. That is higher than critical value which is 7.815. Variables are dependent with Cramer's V equal to 0.6044. Knowledge about AMIS in farmers' region is influenced by 60.44% by their age.

6. Discussion

6.1 The Philippines

According to Fuji (2013) agricultural households in the Philippines are very poor comparing to non-agricultural ones. That was not true in this case study, there were no significant differences between farmers and people working in for example services or manufacturing. Most of the people had farm with fields, cattle and access to the main road and to the city. Education was available in close distance so people were not undereducated and were able to absorb new information and spread them among other farmers. Of course, those farmers living in close to the city could access information more easily than farmers living in the remote houses among fields. According to Roache (2009), the Philippines has highest level of English literacy in the whole Asia (93%) which allows its population to easily access data from international sources. In the Philippines were usually men head of the farm and women were taking care of the family and visiting market. Villages were usually spread among the fields, typical household had between 4-5 people.

Farmers in the Philippines have generally good access to the information. That is also promoted by relatively good roads, access to the electricity and good coverage of radio and TV broadcast (Magesa et al., 2014). Bibangambah (2002), focusing on AMIS in Uganda highlighted the problem with poor roads which are limiting access to the market information. Main provider of AMIS is Ministry of Agriculture, Department of Trade and Industry and different consultancy agencies. Concerning providers, Magesa et al. (2014) mention problems formed by lack of supporting policies and regulatory frameworks. As in other countries, farmers tend to get information from relatives, market or neighbours but in the Philippines they also consider and use other information channels provided by AMIS. As Magesa et al. (2014) say, access to market information has positive impact on the welfare of farmers. In case of Uganda he dealt with, found that access to market information led to higher farm gate prices and improved farmer's bargaining position to local trades. Therefore, a lot of farmers in the Philippines listen to radio stations or watch TV on regular basis. They also buy agricultural newspapers and those who have access to the internet use AMIS website to get information.

Ministry of Agriculture provides seminars and trainings to the farmers once or twice a year. This could be improved and trainings could be provided more often to increase farmers' production. Data are available all the time so farmers can access any information anytime when needed as Ministry of Agriculture realizes that the Philippines food sector is the most dominant sector of the country (Roache, 2009). Recently, there is also availability of cell phone service for providing needed information. This communication channel is according to Mokotjo and Kalusopa (2010) not appropriate because phone calls and SMS are too expensive for rural farmers. AMIS provide necessary information concerning new growing technologies, new agricultural products, information about local prices and services, calculation of production and marketing costs (Islam and Gronlund, 2010; Mokotjo and Kalusopa, 2010, Babu et al., 2012) but some respondents said they miss information about agricultural products and prices in the whole Indonesia (Shepherd, 1997), and this statement also applies to findings from the target group of the research conducted in the Philippines. In addition farmers said they would appreciate information about agricultural product prices in neighbouring countries due to predicting price changes. Local farmers also miss any information connected to horticulture and flower cultivation.

6.2 Vietnam

Magesa et al. (2014) noted that poverty is limiting rural people in accessing information due to cost involved. All the people in the Bao Lac district are ethnic minority population. In general people with low education, are married really early and their live is based on agricultural activities by using traditional techniques (Cuong et al., 2012). As in most countries in Asia, also in Vietnam, farmers live close to the main road or the market, from which they get more information and more easily they can approach different channels (Magesa et al., 2014). These farmers with more information tend to be more open-minded and they seem to be more proactive to take initiatives. This is exactly situation observed in Bao Lac district, in Vietnam.

Hoa et al. (2008) emphasize that main strength of existing AMIS is its webpage and communication via email. That is actually not useful for citizens living in remote areas. Access to the information via electric devices is really limited (Hoa et al., 2008). The whole ward (an administrative unit, similar to the village with population about 50

households, with usually 4-5 people per household) set up an electricity grid, which provides electricity to each household. In villages where data were collected it was done recently, in 2013. That means local people are slowly starting to approach the information via TV and radio frequently. Same problem discussed Staatz et al. (2011) in Africa, that evolution of AMIS is slow due to poor access to ICTs and missing infrastructure as electricity. The official agricultural news is provided in the morning and in the noon. Ferris and Robbins (2004) while conducting survey in Uganda stated that in developing countries are most of the farmers reaching new information through radios. Contrary Shepherd (1997) highlights cases of Zambia and Ethiopia, where are information broadcasted at wrong times when farmers work on the fields. Some agricultural news is also included in weather forecast. Sometimes there are broadcasted some documentary movies about new techniques, market and successful or failure cases (Cuong et al., 2012). Main problem with this communication channel is language (Magesa, 2014). Lots of people from ethnic minorities speak dialect languages and do not use official language- Vietnamese. AMIS in Vietnam is provided only in Vietnamese language; therefore not everyone can use it. Same problem indicated Shepherd (1997) in Guinea Bissau, where prices were broadcasted in Portuguese and farmers speaking local language could not benefit from that information at all. In Vietnam, few telecommunication companies like Viettel started to offer services of agricultural news through sending SMS. It is necessary to increase awareness about those services among farmers living in remote areas.

Most of the people in selected villages said that main information source about agriculture is coming from the local authorities/officials working in Department of Agriculture. They organize every year about two trainings about new techniques and teach locals how to use them. Despite this effort, locals usually just follow their old habits and find excuses to not apply those trainings. For example, agricultural officials' advice to farmers to work on 2 seasonal crops and locals work just on 1 and say they do not have enough water. Actually they do not have money to invest in irrigation system but they have opportunities to improve the situation such as borrowing from social security banks or from local funds. Local farmers are more like self-subsistent than motivated to develop in bigger scale farmers. They are not aware of the economic model of farming. The agricultural information is usually circulated in the loop of family relatives and neighbours (Magesa et al., 2014; Islam and Gronlund, 2010; Mokotjo and Kalusopa, 2010). Shepherd (2011) criticizes government run AMIS because they usually do not reach the small scale

farmers and provide information late without any analysis. Local people in Vietnam are approached by different programs of Ministry of Agriculture and Rural Development but the national programs are normally with limited budget and have been seen with least efficiency. Tollens and Gilbert (2003) conducted survey in Africa, where they found out that only 13 out of 53 AMISs have daily transmissions of information, due to budget constraints and inadequate financing. It is necessary to invest into AMIS in Vietnam also to reach its potential. The economic model of calculating inputs, outputs and profit is still long way to be achieved by farmers, especially those in ethnic minority and under educated.

6.3 Cambodia

In general rural people in Cambodia are getting married really early and they have low education (Ypma, 2007). It would be appropriate to increase education level of rural people so they could calculate inputs, outputs, profits and start planning. Villages are usually compact and small, about 50-100 households with 4-5 people per household. Those who are not living in big cities are dependent just on agriculture or clothing industry (Somany, 2013). In family, man and woman are not diversified, both of them are farmers and both do house jobs. Local farmers are using just traditional techniques. Farmers living closer to the main road or public places have more information and they are more opened to take initiatives (Magesa et al., 2014).

AMIS in Cambodia can reach farmers easily by radio, TV or cell phones because there are not remote areas in mountains without electricity. Most of the people are able to afford radio or TV (Shepherd, 1997; Islam and Gronlund, 2010; Mokotjo and Kalusopa, 2010). Cambodian AMIS provides large number of TV programs and radio stations. Somany (2013) conducted survey in Cambodia and found out that even though many farmers have TV and radio, only small amount of them get agricultural information through mass media. Mainly it was because of inappropriate broadcasting time or techniques were not applicable in their areas (Shepherd, 1997). Therefore AMIS should focus on providing appropriate information to the farmers in the areas where they need it and at the right time. There are also available services via mobile phones such as call-in programs or SMS. The SMS market information system is well designed and offers up to 400 commodity prices a day. For comparison, Harrod and Jamsen (2011) investigated in

Zambia, there is successful SMS system providing marketing information to farmers which share new production, processing and marketing skills. Main problem of farmers not using AMIS is that they do not demand new information. They prefer to follow their old habits of agricultural techniques and when they need information about prices they use information from their relatives, neighbours or at the market place (Magesa et al., 2014; Islam and Gronlund, 2010; Mokotjo and Kalusopa, 2010). That leads to very low productivity. Farmers should be persuaded how useful are information provided by AMIS for them and AMIS should focus on better cooperation with farmers to extend their trust in provided information. Same problem indicated Mokone (1999) in Lesotho, that many farmers rely on their knowledge and most families discuss and advise each other concerning agriculture because of lack of mass media in their locality. In addition, Tshabalala (2003) explains that most farmers are not aware of the AMIS and their right way of use so for this reason they continue growing same crops every year despite the degrading soil leading to loss of productivity. Most of the people did not know about existence of AMIS and surprisingly those who knew about it were not using it. There should be higher investment into financial and human resources connected to promoting AMIS awareness. Chomba et al. (2002) discussed this problem while assessing AMIS in Zambia. He claimed that dissemination of market information in developing countries is done through radios, telephone calls, newspapers, TV and noticeboards, but still majority of small scale farmers rely more on word of mouth information from other farmers. Contrary, Mokotjo and Kalusopa (2010) revealed in their study of Lesotho, that 95% of farmers know about AMIS even without any promoting it and most of them tend to use it.

7. Conclusion

The main purpose of the Thesis was analysis of the situation of Agricultural Market Information Services in the Philippines, Vietnam and Cambodia. According to literature review should be the situation in all three countries very similar. Collected data in the field discovered significant differences among the observed countries.

Inhabitants of all three countries have opportunity to reach data from AMIS. It is provided by governments and other organizations, usually financed by state and existing for already several years.

In the Philippines is awareness and access to the AMIS in the region of farmers sufficient. Majority of farmers know about it and use in on daily basis. Most of them agreed on its contribution to their production and incomes. In Vietnam is situation completely different. All the respondents had no idea about existence of any AMIS in their region and therefore no one of them was using it. In Cambodia is situation similar to Vietnam. There was majority of respondents not aware about existence of any AMIS. Minority of farmers who knew about it were not using it anyway. Therefore the main problem of AMIS in Vietnam and Cambodia is awareness among its inhabitants. They have working well structured information services but they need to focus on people's knowledge about it.

Concerning its activities and information provided, all countries have developed well working AMIS. Farmers and other market stakeholders are able to reach all important information as farm product prices from public markets; agricultural supply; transportation costs; new products and techniques weather forecast; new practices and much more. Farmers are reached by many communication channels, from old printed bulletins or blackboards to radio broadcasts and cell phone services. Those channels are appropriate for the Philippines but contrary not Vietnam, where observed area lies in the mountains where people cannot reach any available channel. Concerning Cambodia, farmers need to be more encouraged to use new information sources as they usually keep using traditional techniques and they are not interested in new information.

Respondents in the Philippines mentioned they would like to get more information about commodity prices in the neighbouring countries to be able to predict price change. They also mentioned there is not available information about horticulture and gardening as it is important part of agriculture. In general productivity of farmers could be increased by providing trainings more often.

In Vietnam, information is usually circulated among the family members and neighbours in the village. Therefore if AMIS want to reach farmers, it has to be invested in its budget to increase its awareness among farmers. Big amount of farmers live in the mountainous rural areas without any available information. They have to be focused by radio or TV. In the case of farmers without electricity, there must be regular extension service visiting villages, printed bulletins or implementation of cell phones to farmers. AMIS have to provide information in local dialects as many farmers do not understand official language.

Cambodian AMIS offer various information on daily basis. The main problem is about awareness of farmers about it. Local farmers are not interested in searching new information because they do not realize how it could improve their production. Main improvement should be investment into financial and human resources in order to focus farmers' awareness about provided services and build better cooperation to extend farmers' trust in information provider. As soon as AMIS is reaching farmers, it should focus on education of rural people so they will be able to calculate inputs, outputs, profits and start plan their production.

8. Resources

AFMIS. 2010. About AFMIS. Available at <http://afmis.da.gov.ph/index.php/about-afmis.html>: Accessed 2015-03-10.

AMIS Secretariat. 2011. ENHANCING MARKET TRANSPARENCY. Rome: Food and Agriculture Organization of the United Nations. 30p.

AMIS. 2014. Agricultural Marketing Information Service. Agricultural Market Information. Available at www.agriculturalmarketinformation.org.kh/en/agricultural-market-information: Accessed 2015-03-18.

AMO. 2014. Agricultural Market Office. Agricultural Market Information. Available at www.agriculturalmarketinformation.org.kh/en/agricultural-marketing-office: Accessed 2015-03-18.

ASEAN Secretariat. 1997. ASEAN Economic Cooperation. Singapore: Institute of Southeast Asian Studies. 234p.

ASEAN. 2015. The Association of Southeast Asian Nations Overview. Available at <http://www.asean.org/asean/about-asean/overview>: Accessed 2015-03-07.

ASO. 2014. Agricultural Statistics Office. Agricultural Market Information. Available at <http://www.agriculturalmarketinformation.org.kh/en/agricultural-statistics-office/history>: Accessed 2015-03-18.

Babu SC, Glendenning CJ, Asenso-Okyere K, Govindarajan SK. 2012. Farmers' Information Needs and Search Behaviors. Washington: INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE. 48p.

Bibangambah JR. 2002. Review of Information on Marketing, Processing and Storage of Uganda's Agricultural Commodities. Final report for PMA sub-committee on agroprocessing and marketing. Kampala: FAO.

Central Intelligence Agency. 2014. The World Factbook: Vietnam. Available at <https://www.cia.gov/library/publications/the-world-factbook/geos/vm.html>: Accessed 2015-03-16.

Chomba G, Mbozi G, Mundia D, et al. 2002. Improving The Transfer And Use Of Agricultural Market Information In Zambia: A User Needs Assessment. Food Security Research Project, Working Paper No. 6. 51p.

Council for Agricultural and Rural Development Office. 2009. Cambodia Agricultural Market Information Service. Food Security and Nutrition Information System. Available at <http://www.foodsecurity.gov.kh/cambodia-agricultural-market-information-service>: Accessed 2015-03-18.

CountrySTAT Philippines. 2014. About the CountrySTAT Philippines. Available at <http://countrystat.bas.gov.ph/?cont=1>: Accessed 2015-03-16.

Cuon LV, Thuan NT, Anh NH. 2013. Market Information Access Capability of Rural Farmer in Nga Son, Thanh Hoa, Viet Nam. Greener Journal of Business and Management Studies Vol.3: 292-297.

Department of Agriculture. 2012. Mission/Vision. Available at <http://www.da.gov.ph/index.php/2012-03-27-12-02-11/2012-03-27-13-24-48>: Accessed 2015-03-16.

Derksen P. 2009. Cambodia Agricultural Market Information Project. Agriteam Canada. Available at <http://www.agriteam.ca/projects/profile/cambodia-agricultural-market-information-project-camip/>: Accessed 2015-03-18.

Easdown W, Starasts A. 2004. Constructing useful information for farmers– the role of IT. New directions for a diverse planet: Proceedings of the 4th International Crop Science Congress: 1-11.

Enfield R, George J. 2006. It came from planted earth. California: Science Experiences and Resources for Informal Educational Settings. 103p.

FAO. 2011. Price Volatility in Food and Agricultural Markets: Policy Responses. Policy Report including contributions by FAO, IFAD, IMF,OECD, UNCTAD, WFP, the World Bank, the WTO, IFPRI and the UN HLTF. 68p.

FAO. 2012. Exchanging Agricultural Market Information through SMS in Cambodia. Linking Information and Decision-Making to Improve Food Security. 5p.

Foreign Affairs, Trade and Development Canada. 2011. Project profile: Agriculture Market Information Systems. Available at <http://www.acdi-cida.gc.ca/cidaweb/cpo.nsf/vWebCSAZEn/B8DEF8A80FC2E4C5852571BE003C86E6#h2transparency>: Accessed 2015-03-17.

Fujii T. 2013. Impact of food inflation on poverty in the Philippines. Food Policy 39: 13–27.

Godoy DC, Dewbre J. 2010. Economic Importance of Agriculture for Poverty Reduction. OECD Food, Agriculture and Fisheries Papers No. 23: 1-27.

GSO. 2013. Area, population and population density in 2013 by province. General Statistics Office of Vietnam. Available at http://www.gso.gov.vn/default_en.aspx?tabid=467&idmid=3&ItemID=15751: Accessed 2015-03-20.

Harrod J, Jansen P. 2011. Module 8: Farmer Organizations Work Better With ICT. ICT IN AGRICULTURE: Connecting Smallholders to Knowledge, Networks, and Institutions. 30p.

Index Mundi. 2014. Socialist Republic of Vietnam. Available at <http://www.indexmundi.com/vietnam>: Accessed 2015-03-16.

Islam MS, Gronlund A. 2010. Agriculture Market Information Services (AMIS) in the Least Developed Countries (LDCs): Nature, Scopes, and Challenges. *Electronic Government*: 109- 120.

Islam MS. 2011. Creating opportunity by connecting the unconnected: mobile phone based agriculture market information service for farmers in Bangladesh. Örebro: Örebro Universitet. 185p.

Law G. 2003. Districts of Vietnam. Statoids. Available at <http://www.statoids.com/yvn.html>: Accessed 2015-03-20.

Macdonald M. 2013. Agriculture in Vietnam. 2013 Queen's Institute of Trade Policy Trans-Pacific Partnership Trade Negotiations. 3p.

Magesa MM, Kisangiri M, Jesuk K. 2014. Agricultural Market Information Services in Developing Countries: A Review. *Advances in Computer Science: an International Journal*, Vol. 3, Issue 3, No.9: 38-47.

Ministry of Agriculture and Rural Development, 2015. Mandate. Available at <http://www.mard.gov.vn/en/>: Accessed 2015-03-17.

Mokone G. 1999. Mass media in agricultural extension, does it really reach the farmers? Lesotho: National University, Faculty of Agriculture.

Mokotjo W, Kausopa T. 2010. Evaluation of the Agricultural Information Service in Lesotho. *International Journal of Information Management* 30: 350-356.

National Institute of Statistics, 2008. General population Census of Cambodia 2008. Ministry of Planning. 37p.

National Institute of Statistics. 2000. General population Census of Cambodia, 1998. Village Gazetteer: 32-33.

Ngan Hoa TTT, Dung DT, Son NH. 2008. Vietnam Agriculture Extension And Market Information System. WORLD CONFERENCE ON AGRICULTURAL INFORMATION AND IT 2008: 583-589.

NSCB. 2010. List of Regions. National Statistical Coordination Board. Available at: <http://www.nscb.gov.ph/activestats/psgc/listreg.asp>: Accessed 2015-03-19.

NSO. 2010. Census and Housing Population. Philippine Statistics Authority. Available at <http://web0.psa.gov.ph/>: Accessed 2015-03-19.

Ozowa VN. 1995. Information Needs of Small Scale Farmers in Africa: The Nigerian Example. Bulletin of the International Association of Agricultural Information Specialists v. 40, no. 1.

Roache T. 2009. Analysis of the Food Sector in Philippines - Opportunities for Victorian Exporters. FUTURE FARMING. Melbourne: Victorian Government, Department of Primary Industries. 16p.

Shepherd AW, Schalke AJF. 1995. An assessment of the Indonesian Horticultural Market Information Service. AGSM Occasional Paper No.8: 49.

Shepherd AW. 1997. Market Information Services: Theory and Practices. Rome: Food and Agriculture Organization of the United Nations. 58p.

Shepherd AW. 2011. Understanding and using Market Information, Marketing Extension Guide 2. Rome: Food and Agriculture Organization of the United Nations. 100p.

Solida K. 2006. Cambodia Agricultural Marketing Information Service. Ministry of Agriculture Forestry and Fisheries. Available at http://www.foodsecurity.gov.kh/sites/default/files/Cambodia-Agricultural-Marketing-Information-Service-AMIS-Eng_0.pdf: Accessed 2015-03-25.

Somany P. 2013. Development of agricultural technology and extension system in Cambodia. Phnom Penh: Ministry of Agriculture, Forestry and Fisheries. 54p.

Staatz, JM, Kizito AM, Weber MT, et al. 2011. Evaluating the Impact on Market Performance of Investments in Market Information Systems: Methodological Challenges. Michigan State University, Department of Agricultural, Food, and Resource Economics No. 108184. 14p.

Thomas TS, Ponlok T, Bansok R, De Lopez T, Chiang C, Phirun N, Chhun Ch. 2013. Cambodian Agriculture: Adaptation to Climate Change Impact. IFPRI Discussion Paper 01285. 64p.

Tollens EF, Gilbert CL. 2003. Does Market Liberalization Jeopardize Export Quality?. *Journal of African Economies* 12 (3): 303-342.

Tshabalala, BV. 2003. Agricultural information needs and resources available to agriculturalists and farmers in developing countries with special reference to Lesotho. Available at <http://etd.rau.ac.za/thisis/>: Accessed 2015-04-02.

World Bank. 2014. East Asia and Pacific Overview. Available at www.worldbank.org/en/region/eap/overview: Accessed 2015-03-07.

World Bank. 2014. Philippines Overview. Available at <http://www.worldbank.org/en/country/philippines/overview>: Accessed 2015-03-09.

Ypma P. 2007. Fruit and Vegetable Traders: Baseline Study. Cambodia-Canada Market Information Project Research report. Phnom Penh: Indochina Research Limited. 44p.

Annexes

Questionnaire example

1. Sex of farmer

Male Female

2. Age of farmer

< 25 26 – 35 36 – 45 46 – 55 56 <

3. Nationality

4. Region

5. Locality

6. What is your profession?

7. What species and varieties of agricultural commodities do you cultivate? (e.g. Rice, bananas, coconut, cows, chicken...)

8. Do you have any access to information about agricultural markets in your region?

Yes No

9. Where do you usually get information?

- Ministry of Agriculture
- Consultancy Agency (Advisory Services)
- Farm / Farmer communication,
- Neighbors
- Market (Market place)
- Internet
- Others

10. Do you know about the existence of AMIS (Agricultural Market Information Services or Ministry of Agriculture) in your region?

- Yes No

If yes, from which sources?

- Television Radio Newspapers Internet Consultant
 Family Friends Market Neighbors Farmers

11. Do you use such AMIS services?

- Yes No

If yes, how often do you use it?

12. Who is responsible for AMIS services in your region? Who provide information?

13. How often do they provide information to farmers?

14. How do they communicate with local farmers and provide information?

15. What kind of information do they provide to local farmers?

- New growing technologies
 Agricultural products
 Information about local markets and services (price for place, transportation, etc.)
 Information about monthly prices (minimum, maximum prices)
 Calculation of production and marketing costs
 Other

16. Do you think that information from AMIS is useful and valuable for you?

- Yes Other
- No

17. What kind of information do you usually use and why?

18. What kind of information is missing in AMIS? What kind of information should be provided by AMIS according to your opinion?

19. How it will affect the sales of your production in the future if you will receive the information from AMIS, that you really need?

- Twice Three times Four times
 No Other

20. In what scale your incomes will be increased after using the required information provided by AMIS?

- Twice Three times Other
 Four times No

Example of statistical results

The SAS System
The FREQ Procedure

Table of Q2 by Q10

Q2(Q2) Q10(Q10)

Frequency	No	Yes	Total
26-35	3	2	5
36-45	1	1	2
46-55	10	0	10
56<	11	0	11
Total	25	3	28

Statistics for Table of Q2 by Q10

Statistic	DF	Value	Prob
Chi-Square	3	10.2293	0.0167
Likelihood Ratio Chi-Square	3	9.5653	0.0226
Mantel-Haenszel Chi-Square	1	7.3205	0.0068
Phi Coefficient		0.6044	
Contingency Coefficient		0.5173	
Cramer's V		0.6044	

Photos from data collection



