AN ANALYSIS OF PHYTOSANITARY POLICIES AND PRACTICES IN KYRGYZ REPUBLIC

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LIST OF ABBREVIATIONS

CBD – Convention of Biological Diversity

CIS - Commonwealth of Independent States

CPM - Commission on Phytosanitary Measures

EPPO - European and Mediterranean Plant Protection Organization

ESCAP - United Nations Economic and Social Commission for Asia and the Pacific

FAO - Food and Agriculture Organization of the United Nations

GATT - General Agreement on Tariffs and Trade

GDP - Gross domestic product

GOST - Government standards (CIS standards system)

IPPC - International Plant Protection Convention

ISPM - International Standard for Phytosanitary Measures

NPPO - National Plant Protection Organization

OIE - World Organization for Animal Health

PPP - Phytosanitary Policies and Procedures

PRA - Pest Risk Analysis

RPPO - Regional Plant Protection Organization

SPM - Sanitary and Phytosanitary Measures

SPS - Agreement on the Application of Sanitary and Phytosanitary Measures

TBT - Agreement on Technical Barriers to Trade

UNDP - United Nations Development Programme

UNEP - United Nations environment Programme

USAID - United States Agency for International Development

WHO - World Health Organization

WTO - World Trade Organization

ABSTRACT

This research attempts to describe the phytosanitary policies and practices in the Kyrgyz Republic. The study also aims to analyze the strengths, weaknesses, opportunities and threats of the phytosanitary system and to propose recommendations and strategies for improving its efficiency. Quantitative approach was used in this study to gather the relevant data. The research participants were the staff working for the phytosanitary security office of the Kyrgyz Republic. Forty-one out of seventy-three members of the phytosanitary service participated in the survey. The findings revealed that the phytosanitary policy was not effectively carried out in various actions including internal monitoring functions, emergency management, trainings, etc. These were the consequences mainly come from the lack of knowledge, inadequate staff training, insufficient management, and out-of-date technology and equipments. This implies that the phytosanitary system in the Kyrgyz Republic was facing various challenges and difficulties to ensure a meaningful and an appropriate level of control and management to prevent the nation from the penetration of pests and other hazardous quarantine.

CHAPTER 1: INTRODUCTION

1.1 Introduction

The improvement of the technology has significantly decreased the physical distances among countries or continents, and created the favorable conditions for cultural and trade exchanges. Technological development, on the other hand, has damaged the biological balance of the natural habitats and organisms.

The elimination of international trade barriers among countries with the subsequent expansion of international trade markets makes the movement through globe easier. This creates more difficulties and challenges for the national quarantine organizations in the world including Kyrgyzstan. The overgrowing in the volume of transported goods, the increasing of transportation efficiency and speed, the advancing in the technologies such as containerization, and the expansion of trade agreements are the key components of the phenomenon.

After the end of the Cold War and the subsequent unification of the countries, a single predictable center was created to meet the key principles of the trade liberalization through the establishment of the World Trade Organization (WTO). In order to comply with a number of requirements including the SPS Agreement[1] and the arising out of membership in the organizations, the center enforces the rules for the development and adoption of sanitary and phytosanitary measures affected by the international trade.

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[1] Sanitary and Phytosanitary Agreement (SPS Agreement)

After the declaration of Kyrgyz Republic on its sovereignty, public policy organizations quickly took a course on the path of market economy and become trade alliances with foreign countries through oriented import-export operations. This changing has gradually become a threat to the possibility of introduction and spread of the adventitious high-risk quarantine pest insects such as pathogenic microorganisms, plant diseases and malicious weed seeds on the territory of the Kyrgyz Republic.

Together with the circulating of imported and exported products, agricultural sector of Kyrgyzstan may face the penetration of the new pests which are not desirable in economic and environmental terms. A key policy to prevent the plant quarantine service from the spread of harmful organisms, hazardous quarantine pests, plant diseases and weeds has been tasked with national interests and objectives for the protection of the territory of the Kyrgyz Republic and her plant resources.

The rapid pace of commercial product exchange threatens the spread for various types of pests, diseases and weeds. Some particular types of quarantine pests, diseases and weeds included (*Grapholitha molesta Busck & Quadraspidiotus perniciosus Comst*), that originated or were previously limited presence in the country, have already appeared in larger scale. The main feature of these species is their ability to cause mass propagation and damage to the country.

The increasing of international passenger and freight transportation to Kyrgyz has complicated the phytosanitary. Due to the inefficiency of the phytosanitary system, the quarantine organisms and their subsequent acclimatization have increased remarkably. In

accordance with the law namely *On Plant Quarantine*, phytosanitary regulation is under the jurisdiction of the Kyrgyz Republic and is carried out on the basic of international standards and WTO agreements between members of WTO and Kyrgyz Republic about the basis of legislation of the Kyrgyz Republic on the state regulation of foreign trade.

Phytosanitary regulations consist of a set of methods and tools to ensure the movement of goods and vehicles across the border to be under the regulations, prohibitions and restrictions to in accordance with the legislation of the Kyrgyz Republic and the state regulation of foreign trade activities. The Government of the Kyrgyz Republic set up 251 sets of articles in the attempt to create the conditions for the transferring of persons, vehicles, cargoes, goods and animals across the state border of the country including customs control, exercises, and other controls including quarantine pests.

Article number 21 of the *On Plant Quarantine* requires that the importation of regulated products including plants, plant products, packaging, packing, mold or other organisms, objects or materials that may harbor pests or contribute to the spread of harmful organisms into Kyrgyz must go through the documentation clearance from quarantine phytosanitary offices including inspection at the temporary storage. In case of necessary, another thorough examination of the commodities would be applied at the destination. According to *On Plant Quarantine* law, a large volume of products imported into the country is subject to quarantine phytosanitary control at the border and the execution of these works must comply strictly in accordance with international regulations.

Article 279 of the Customs Code of the Kyrgyz Republic states that no contradictory laws and customs clearance can be completed only after the implementation of all kinds of state control of the importation of goods into the customs territory, including quarantine pests. However, there are many gaps in all the actions of the present policies and practices relating to the phytosanitary.

A special place where the development and implementation of legislative and regulatory acts in the field of phytosanitary regulations can be to facilitated belongs to international organizations for plant protection in the face of the International Convention on Plant Protection (IPPC). The basic guidelines are prescribed and notified by the International Standards for Phytosanitary Measures (ISPMs) approved by Food and Agriculture Organization of the United Nations (FAO), the main donors for the implementation of technical assistance for Phytosanitary Service of Kyrgyzstan. The requirements of the Convention text revision, according to the WTO SPS Agreement, can only be done by attracting the opposite parties to take into account their legal phytosanitary regulations in subsequent harmonization through international methodological regulations and standards.

1.2 Significance of the Study

The level of volume of import and export of controlled goods that are subject to the service of plant quarantine in the last 15 years has increased dramatically. These included seeds and planting materials considered as carriers of unwanted quarantine objects. These unwanted quarantine objects are recorded and compiled in the list of quarantine harmful organisms in

accordance with the recommendations of experts of the European and Mediterranean organizations for the protection and quarantine of plants (EPPO).

Over the past ten years, the plant quarantine service in the Kyrgyz Republic has changed significantly in terms of organization and the structure of the governance. This is mainly due to weak attention and misunderstanding of the scope of the development of various reforms in the state structure. These changes also worsen the phytosanitary system through endless reorganization, restructuring inside of the system. As a result, the service is not effective and the phytosanitary situation has worsened in Kyrgyzstan by storing hazardous quarantine objects. This not only requires additional financial costs for agricultural production but also threatens the unique biodiversity of Kyrgyzstan.

The main tasks of the State Quarantine Service of the Kyrgyz Republic are to protect country from the penetration of the harmful organisms and to control the importation these pests into the territory of the country. The significance of this research is to set an alarm for the Quarantine Service organizations about the importance to protect the country as well as the agricultural sector from the penetration of the hazardous pests and unwanted weeds. The research also help the policy makers of Kyrgyz Republic understand the strengths as well as the weaknesses of the current policies and practices relating to the phytosanitary service. In addition, this study helps in understanding the effectiveness of current phytosanitary measurement by using a research questionnaire to access the Kyrgyz quarantine service and gain experiences from other foreign quarantine organizations through policy evaluation.

1.3 Research objectives

The transition of Kyrgyz Republic from a centrally planned economy to market economy has radically changed the system of quarantine regulations in the country. The increasing in the number of transporting passengers, freight, and exchange products of small and medium-sized businesses brings more challenges and difficulties for the phytosanitary organization.

This research identifies strengths, weaknesses, opportunities and threats relevant to the present phytosanitary policies and practices in the Kyrgyz Republic. Specifically, the study seeks to address the following objectives:

1) to describe the phytosanitary policies and practices in Kyrgyz Republic;

2) to identify the strengths, weaknesses, opportunities and threats pertinent to phytosanitary policies and practices; and

3) to propose recommendations and strategies for making phytosanitary policies and practices more effective in Kyrgyz Republic.

1.4 Research questions

The research attempts to address the following questions:

1. What is the nature of phytosanitary policies and practices in the Kyrgyz Republic?

2. What are the positive and negative factors and actions affecting the efficiency of Phytosanitary Service of Kyrgyzstan?

1.5 Methodology

Quantitative approach with as questionnaires was used in this study to gather the relevant primary and secondary data. As the research needs to access many variables related to the phytosanitary activities. Furthermore, the applying of quantitative approach will be more appropriate when searching for causes and effects of a phenomenon.

The research participants were the staff working for the phytosanitary security office of the Kyrgyz Republic. A total of 41 out of 73 members of the Phytosanitary Service participated in the survey accounting for 60.3%.

This quantitative approach is the most suitable in this case because of the diversity of phytosanitary procedures in different situations. Upon collecting the data, careful analysis was carried out to evaluate the strengths, weaknesses, opportunities and threats of the phytosanitary activities in the country.

1.6 Limitation of the study

There have been several limitations that the research encountered. Firstly, as the number of people working in the phytosanitary security office was limited, the research could not have bigger research participants. A small number of research informants might limit the generalization of the findings.

Secondly, conducting research in phytosanitary systems faced several difficulties in terms of confidential issues. Thus, it was relatively hard to gather primary and secondary documents from the organization.

Finally, as there was a lack of researches previously conducted this subject, this creates some difficulties in looking for secondary materials relating to phytosanitary policy in Kyrgyzstan.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

This chapter presents the review of the literature relevant to the topic of phytosanitary policy including the challenges coming from the globalization and the solutions that the country applies to deal with their phytosanitary problems. Finally, the chapter provides an overview about the sanitary and phytosanitary agreement, the principles of plant quarantine, risk assessment regulations, and the international standards for phytosanitary measures that should be taken into consideration in the context of the Kyrgyz Republic.

2.2 Effects of global and liberal trade

Due to the increasing number of threats, globalization and liberalization of the trade, and the demand for exotic species and climate change is crucial to ensure quarantine phytosanitary security. The key role is in the ensuring the coordination and minimizing the pest risks assigned by the National Plant Protection Organization (NPPO).

According to FAO (2008), the consequences of the spread of invasive pests, diseases and weeds not only affect food safety, but also threaten biodiversity and environmental resources, which in turn has a negative impact to the crops. Kyrgyzstan joined WTO to assess the free market economy system and committed herself to the IPPC and SPS Agreements. The openness of the economy has increased the international trade relations, but also increases the threat of entry of quarantine pests into Kyrgyzstan.

2.3 Globalization in the trade

Anthony McGrew (1998) argued that "globalization is a process which generates flows and connections, not simply across nation-states and national territorial boundaries, but between global regions, continents and civilizations. This invites a definition of globalization as 'an historical process which engenders a significant shift in the spatial reach of networks and systems of social relations to transcontinental or interregional patterns of human organization, activity and the exercise of power" (cited in Al-Rodhan & Stoudmann, 2006, p. 7).

Globalization, international economy and free movement of people are the core components of free trade and reduction of state-enforced barriers and regulations to promote free trade (Chomsky, 2006). Perrings, Dehnen-Schmutz, Touza & Williamson (2005) mentioned that during the time of globalization, the protecting of the national border becomes more challenging with the biological invasions as these invasions have their legal responsibility.

Larsson (2001, p. 9) stated that globalization: "is the process of world shrinkage, of distances getting shorter, things moving closer. It pertains to the increasing ease with which somebody on one side of the world can interact, to mutual benefit, with somebody on the other side of the world." The term of g*lobalization*, according to Herman (1999), "refers to global economic integration of many formerly national economies into one global economy, mainly by free trade and free capital mobility, but also by easy or uncontrolled migration. It is the effective erasure of national boundaries for economic purposes".

Free trade and corporations can be a positive process in democratic countries. However, they promote narrow political discourse and even support the dictatorships and the instability to the detriment of the majority of people in the world (Shah, 2007).

2.4 Role of WTO in shaping foreign trade policy

After the World War II, the acceleration of globalization began in the two main factors of connectedness technological progress and increasing liberalization of trade and capital markets. The creation of international institutions including the WB, IMF and the GATT, and the operation of WTO in 1995 has played a major role in the development of free trade against protectionism (Soubbotina & Sheram, 2000). Nowadays, the role these organizations has increased significantly and WTO has become the main body of the international free trade process (Shah, 2007). One of the main tasks of WTO not only the promote free trade zones but also protect consumers or prevent them from the spread of diseases (World Trade Organization, 2008).

2.5 Penetration of pests through of international trade

Human activities through the history of the movement of plants around the world, according to Diamond (1998), consciously or unconsciously carry the food and feed the plants to which they are accustomed to, and supported them and their livestock. Since the development of trade relations between Asia and Europe across the *Silk Way*, facilitated the spread of many pests through the fruit from east to west, and wheat and barley from west to east (Ebbels, 2003).

Hallman (2002) believed that the penetration of exotic pests may result in the losses of plants and the losses of crops. The huge growth of the movement of plants and its products has increased over the last half century with the establishment of maritime, air transport systems, as well as tourism leading to the spread of many events pests (Ebbels, 2003). Stephane (2010) suggested that the limitations of agricultural products in the late nineteenth and early twentieth century's prevent the circulation of agricultural products in the world market. The reproduction and heterogeneity increase the burden on exporters and importers.

In each country, which considers an essential component for secure trade within the country and outside it must have a competent service for regulation on the movement of goods through the crossing of border. In this direction, there is a lot of potential and experience in countries that have multiple lines. Every country should consider the necessity of creating regulation components for secure trade and for the movement of goods through border.

2.6 International plant quarantine, organizations and regulations

The fight against pathogens of plants and invertebrates harmful to plants began to protect food security all around the world. In 1878, just only seven countries made their effort to concatenate in regulation against the spread of plant pests, particularly against grape *phylloxera Vastatrix*. At the current time, 177 countries have agreed to participate into the International Plant Protection Convention (IPPC), aiming at preventing the spread of plant pests to promote appropriate measures for their control (MacLeod., Pautasso, Jeger & Haines-Young, 2010).

According to a Strange & Scott (2005), every year is an issue about the problems in the global food security. Among the 5.8 billion people of the world population, more than 800 million people do not have enough food, and the 1.3 billion poor people live on less than US$1 a day. James (1998) argued that despite the technological advances in agriculture the world still lost a significant part of the crop. James believed that the plant diseases, insects and weeds reduce the global food at least one third, despite the fact that $ 32 billion of pesticides used in crop at year. Plant diseases alone reduce global food production by more than 10 percent.

Currently, relatively few regulated agreements and organizations participate in the activities of the international phytosanitary. Some of the main participants are SPS of WTO/GATT, IPPC running by the CPM framework of FAO United Nations and most recently, the CBD carried out under the United Nations Environment Programme (UNEP). The newly revised text of the Convention on the 29th Conference in 1997 by FAO was approved by the WTO on the Application of Sanitary and Phytosanitary Measures (SPS). This agreement sets WTO uniform rules for its members who can comply with the preparation and adoption of sanitation standards affecting international trade.

FAO International Plant Protection Convention (1997) prescribed forms of international co-operation including:

1) providing international collaboration to prevent the introduction and spread of quarantine pests in international trade;

2) strengthening international efforts to combat the widespread particularly dangerous harmful organisms;

3) taking each country agreed regulatory and technical measures that serve the implementation of the Convention; and

4) the application of phytosanitary certificates for export and re-export of regulated products a single sample.

The Convention (1997) contains 23 articles, eight of which are set out the most important provisions related to quarantine phytosanitary safety in international trade and transport with gives the right of each Member State in the quarantine inspection and quarantine of infected delay of cargo. The International Plant Protection Convention does not contain any financial obligation for the Member States and only address the issues of quarantine phytosanitary security to form the guidelines for the international trade

Regional Plant Protection organizations (RPPOs) which is held annually to provide technical consultation for its state members. The role of RPPOs' is as facilitating bodies for the regional areas to participate in the organization activities to gain its purposes. RPPOs also have their own rules for conducting regional programs. They can develop their regional standards. However, these standards should be in consistent with the convention principles (FAO, 2012).

2.7 The Sanitary and Phytosanitary Agreement (SPS)

WTO, created after Uruguay Round in 1995, functions as a body control over the conditions of the international agreements to facilitate further progress in supporting the business processes of goods and services, and of exporters, and importers. SPS agreement was fundamentally built to protect health of human beings, animals and plants. This requires all the WTO members not to use the sanitary and phytosanitary measures which are not necessary, arbitrary, based on evidence, or violate the international trade principles (Roberts & Krissoff, 2004).

Each member of International Plant Protection Convention (IPPC), based on its capacity, build its national plant protection organization (NPPO). The member should also undertake the technical, legislative and administrative measures to guarantee for the popular and effective actions in preventing the penetration of pests of plants and plant products (FAO, 1997).

Developing countries with inadequate phytosanitary capacity faced the increasingly challenges in protecting plants and the environment. They should participate and show their interests and concerns in the international standard-setting forums to meet the requirements of international legal commitments because of their limited resources and expertise in the economic interests and trade of the developing countries, such as Commonwealth of Independent States such as Kyrgyzstan (Slorach, Kedera, Touré & Welte, 2010).

2.8 Principles of plant quarantine

The main phytosanitary principles on plant protection under the regulation of the IPPC are to assist NPPO and other organizations in the exchanging of information and creating the harmonization of language used for the official communications legislation relating to phytosanitary measures (FAO, 2002). To avoid the interpreting of the phytosanitary principles, NPPO should strictly follow the specific operating principles mentioned in the ISPM № 1.

The countries that joined WTO need to harmonize their national SPS regulations in line with standards, guidelines and recommendations set up by "Three Sisters" as International Plant Protection Convention (IPPC), the World Organization for Animal Health (OIE) and the Codex Alimentarius Commission (Australian Department of Agriculture, Fishery and Forestry, n.d.)

NPPO increases state members' responsibility for issuing phytosanitary certificates, inspecting and regulating of cargo items, controlling and disinfecting goods to meet the phytosanitary requirements. The state members are also required to report product certification, the emergence and spread of pests including the control of these pests. NPPO are responsible for pest risk analysis, supporting free areas and areas of low pest prevalence; providing phytosanitary security of cargo, personnel training and development, information management in their territory, research in plant protection; issuing phytosanitary standards; and ensuring national contact plant protection (FAO, 1997).

Some members of WTO may not strictly follow the international standard, guidelines, or recommendation in accordance with the obligations of the SPS Agreement. According to Australian SPS capacity program, the implementation of SPS Agreement can take a lot of financial resources which are not fully available. World Bank makes a report for the question that whether the implementation of SPS Agreement is worthwhile or not. The report argues that the cost for applying international food standards can be less that expectation but the benefits are underestimated. The report also believes that the developing countries those comply the international standards should maintain and improve the access to the markets for agricultural products (Poverty Reduction & Economic Management Trade Unit and Agriculture and Rural Development Department, 2005).

2.9 Risk assessment regulations

Pest risks that expose huge spectrum organisms such as bacteria, fungi, insects, mites, mollusks, nematodes, viruses, and parasitic plants can potentially pose a threat to the ecological, economic, or biological diversity on plants (Secretariat of the International Plant Protection Convention, 2006).

NPPO should justify the intentions of the SPS restrictions in the definition of the laws of action in different situations on the export and import of plant products. NPPO should also use risk analysis which include specific pests that can be potentially transferred among countries. (FAO, 2010)

Pest Risk Analysis (PRA) is a term indicating science-based process, the structure and scale of the responses to the quarantine organisms related to the biological, and other

scientific or economic proof, following the recommendations of the ISPM (FAO, 1997). Pest risk analysis contains three stages namely the preparatory phase, the risk assessment, and evaluation of decline pest risk (FAO, 2004, 2005, 2007, 2011). The purpose of the PRA is to assess the potential impact of the pest on the industry environment and international trade (FAO, 2010).

2.10 International Standards for Phytosanitary Measures (ISPMs)

According to plant quarantine guidelines regarding to international trade, the member countries can use their sovereign rights relating to the use of phytosanitary measures to control the import and export of plants and plant products and other materials capable of habitat for pests' plants to protect their territories from the spread of quarantine pests. However, their protection should be in accordance with international recommendations, standards, and guidelines under the IPPC mentioned in the *Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade.* These include the managed risk, technical justification, cooperation, national sovereignty, transparency, non-discrimination, equivalence of phytosanitary measures, etc. (FAO, 2006).

In addition to the basic principles, the Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade (FAO, 2006) also describes 17 operational principles forming the guidelines for establishing, implementing, and monitoring phytosanitary measures, and controlling the national phytosanitary systems. These operational principles include the activities relating to pest management such as pest risk analysis, pest listing, free or low pest area recognition, pest control regulation, pest reporting,

and other action regarding to phytosanitary management such as phytosanitary certification, phytosanitary integrity as well as security of consignments.

All other guidelines of (International Standard for Phytosanitary Measures (ISPMs) approved by the Commission on Phytosanitary Measures (CPM) provide guidance to contracting parties in adopting phytosanitary measures aiming at protecting wild and cultivated plants from the introduction and spread of pests. Although being viewed as the internationally standards, the guidelines and their application are not compulsory under the framework of the IPPC. The interpretation and implementation can vary among the countries. These member states can include their national elements to meet their needs based on their particular national system in addition to the framework and guidelines provided by ISPMs (Simons & De Poorter, 2009).

CHAPTER 3: METHODOLOGY

3.1 Chapter introduction

This chapter describes the methodology used in the research. This includes the way that the research was designed, the participants was selected, the questionnaire was constructed, and how data was collected and analyzed.

3.2 Research Design

To obtain the views of specialist and experts regarding to the evaluation of their phytosanitary system in Kyrgyzstan, quantitative approaches with research questionnaire were applied. The study is an important step for the understanding the general policies and practices of pest control in Kyrgyzstan as being a WTO membership requires its members to develop and adopt phytosanitary standards for international trade.

Babbie (2001, pp.92), in his work *The Practice of Social Research*, describes three purposes which are typical for most exploratory studies. These include "to satisfy the researcher's curiosity and desire for better understanding", "to test the feasibility of undertaking a more extensive study" and "to develop the methods to be employed in any subsequent study".

The issue of phytosanitary system is attracting many concerns in the Kyrgyz Republic because it is related to many business entities and the activities of commodity import and export in and out of the country under the guidelines of Phytosanitary Regulations. The research indicated the functions as well as highlighted the effectiveness in management of the phytosanitary system in Kyrgyz.

3.3 Research participants

This section indicates the methods of sample selecting, techniques to identify research population, and the criteria used for sampling selection. According to Alreck and Settle (1995), a research population should meet the following criteria: the ownership of information and the availability of certain features in order to make meaningful answers. This study focused on different groups of people who had full experience and insights about the issue of phytosanitary system in the Kyrgyz Republic. The study assessed many active professionals of various ranks to meet the research requirements.

Research questionnaires were sent to all the staff of the phytosanitary office. A number of 41 respondents out of 72 regular staff returned the research questionnaire with a returning rate of 56.9%. These questionnaire were then used for the research analyzing. The main contingents of the sample were professionals, chief inspectors and the specialists who are responsible for the phytosanitary system. The questionnaires were circulated among the offices which were related to the policy making and practicing in this area including the state inspectorate for health, veterinary and phytosanitary security of the Kyrgyz Republic.

Table 3.1

Research participants

Working experiences (in years)	Men		Women		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
< 1	3	7.3	1	2.4	4	9.8
1-3	5	12.2	3	7.3	8	19.5
3-5	8	19.5	1	2.4	9	22.0
5-10	15	36.6			15	36.6
10-15	4	9.8			4	9.8
15-20	1	2.4			1	2.4
TOTAL	**36**	**87.8**	**5**	**12.2**	**41**	**100**

3.4 Research questionnaire

The research questionnaire was built based on the review of the literature and based on the current situation of the phytosanitary system in the Kyrgyzstan Republic. The instrument consists of 13 items indicating the background information, phytosanitary policies and procedure in Kyrgyz, and an open space for any additional ideas relating to the phytosanitary policies and procedure in Kyrgyz that the research informants would like to add.

Respondents were asked to answer the questionnaire prepared to address the key areas of the entire policies and practices of the phytosanitary system in general. The research questionnaire also attempted to reflect in the basic of the plant Quarantine law as well as the management of the International standard for phytosanitary measures (ISPM), world trade organization agreement on the application of sanitary and phytosanitary measures.

When preparing questionnaire, several factors was taken into consideration such as the advantages and disadvantages of the phytosanitary systems of some other countries including Japan and the US, the international standards, other researches in the area, information and data of domestic and international phytosanitary services, and personal knowledge and experiences in the phytosanitary service of the Kyrgyz Republic.

Regarding to the formation of the questionnaire, a special attention was given to the development of clear, unambiguous and useful questions (De Vaus, 2002). In order to make the content of the questionnaire easy and fully understandable to the informants, the instrument items should be short and simple (Alreck & Settle, 1995). This means that the questions were of particular short and clear for the respondents to understand.

3.5 Data collection and analysis

Data for the research was collected via a fieldwork in February 2013 and email. For the fieldwork data collection, the researchers visited Kyrgyz Phytosanitary Service. A letter for conducting research was sent to the head of the Kyrgyz Phytosanitary Service. After getting the permit, all the members of the Phytosanitary Service were asked for their consensus to participate the survey. Only 15 questionnaires were returned during the fieldwork. All the members then were sent a soft copy of the questionnaire via email. 26 informants participated in this phase. A total of 41 people participated in the research.

Data were then analyzed aiming at looking for the strengths, weaknesses, opportunities and the threats of the phytosanitary system in the Kyrgyz Republic. Additional data from the free space writing was broken in to small items and then categorized based on themes and

topics related for the research. These ideas were used to confirm the results gained from the research questionnaires.

CHAPTER 4: BACKGROUND OF NATIONAL PLANT PROTECTION IN KYRGYZ REPUBLIC

4.1 Introduction of the Kyrgyz Republic

Kyrgyzstan, a landlocked country, locates in the northeastern part of Central Asia on the historical Silk Road between the two major mountain systems, Tien Shan and Pamir. The total area of the country is 199,900 square kilometers. Two-thirds of the country territory is occupied by mountains, which manifests the rich diversity of climate, natural landscapes, flora and fauna that makes this country very attractive for the tourist business.

The Kyrgyz Republic is a multicultural country and it is home to more than 70 ethnic groups. Three main groups account for 93.4% of the national population namely Kyrgyz (72.4%), Uzbeks (14.4%), and Russian (6.6%). The other 67 ethnic groups make up the rest 6.63% of the total population (National Statistical Committee of the Kyrgyz Republic, 2013)

Kyrgyzstan's economy is the most liberal among Central Asia used to be the members of the former Soviet Union and it is closely linked with developing republics such as China, Russia and Kazakhstan. Of which China plays a key role in goods exchanging across the territory of Kyrgyzstan. The Gross National Income (GNI) per capita in 2013 was USD 2009 (National Statistical Committee of the Kyrgyz Republic, 2013).

Kyrgyzstan is administratively divided into two cities under the central government management and seven other regions. These two cities and seven regions are divided into 40 districts, 21 district-level cities, and 29 urban villages. After Soviet Union collapsed in 1991, Kyrgyz Republic, the former Kyrgyz Soviet Socialist Republic, became a independent state.

After getting independence, Kyrgyzstan started transiting from central planned economics to market economy and the country has become remarkably outpaced than other nations in the Central Asian in terms of reform-and law-making processes.

4.2 Agriculture in Kyrgyz Republic

Being relatively young country, the agricultural sector in Kyrgyzstan is of particular importance. It is one of the leading sectors in attracting the labour and contributing to the national economy. During the Soviet era, agricultural sector contributed 33% to the national GDP. The nation was largely dependent on the subsidies from the central treasury, Soviet Union. The turning point for the agricultural sector in Kyrgyzstan was in 1991 with the enactment of the Land Code. The land reform abolished 576 collective state farms and introduced the private ownership. This resulted in 75% of the arable land given to private ownership while 25% is still under the management of the state. As of 2008, the Kyrgyz agriculture had 326.7 thousand economic entities, including 135 state-owned enterprises, 4211 private collective farms, 3454 agricultural cooperatives, and 321.8 thousand farms households (Irisbay, 2011). Of the 65.0% of the population living in rural areas, 34.0% of them are engaged in agriculture. In addition, there are 726.6 thousand private farms of citizens. These data suggest that in the Kyrgyz agriculture land and agrarian reform took place and become irreversible (Abdurasulov, 2009).

After gaining the independence in 1991, due to the lack of appropriate national economic policies and economic ties together with the poor agriculture infrastructure of the country, Kyrgyz experienced a significant decrease of agricultural segment in the national

economy. Furthermore, various problems as well as many challenges and difficulties Kyrgyzstan inherited from the Soviet Union during the transition period make the national economy weaker.

The situation in the agriculture sector of Republic has not been better until the present time. The imported figures of agricultural products and the main strategic food-products of wheat have increased year to year. This is the result of the several shortcomings and limitation in term of agricultural policies and the national committed leadership at the dawn of its independence. Consequently, Kyrgyzstan has become increasingly dependent on food imports (Vyacheslav, 2008).

4.3 Post-independence issues

Currently, agro-industrial complex of Kyrgyzstan is represented by many sectors. The industries provide products of primary and downstream processing. Most products, however, the rate of production is not satisfactory (Obdunov, 2010). One of the most pressing problems faced by the Kyrgyz Republic in recent years is to ensure food security of the country. The food dependence of the country has increases in both volume and values of which the main imported products including grain products, vegetables and fruits (including citrus fruits, etc.) as shown in Table 4.1.

Table 4.1

Import of main agricultural products imported during 2005-2010 (in thousand tons)

Import	2005	2006	2007	2008	2009	2010
Wheat	158,8	223,1	358,7	303,9	341,05	349,2
Flour wheaten	51,9	48,05	65,3	110,9	69,1	25,6
Flour products	5,318,7	5880,1	8,114,9	1,1306,2	9,565,1	11,221,3
Vegetables and fruits (with juices)	50,1	89,8	92,2	81,8	60,8	62,9
Total	**5,579.5**	**6,241.05**	**8,631.1**	**11,802.8**	**10,036.1**	**11,659**

Source: National Statistics Committee (2010)

Preserving and marketing of the domestic agriculture products also need to be improved for the national food security strategy. Farmers face problems in preserving and selling their products after harvesting with an acceptable cost. Inadequate preserving cannot ensure that all the farming products will be stored in good condition especially during the abundant harvest periods for consumption at the end of the winter and spring periods of basic foodstuffs.

As the domestic producers do not supply enough for the national consumption, the farming product imports mainly fruits and vegetables have increased remarkably over the last 6-7 years from neighboring countries like China and from Uzbekistan.

4.4 Penetration of the quarantine pests, diseases and weeds to Kyrgyz Republic

According to FAO, harmful organisms, diseases, and weeds can cause the reduction of agricultural products in the world by 20-40% (FAO, n.d.). Before the national independence,

the quarantine condition of the Kyrgyz Republic was relatively good. There were several hazardous quarantine pests including *Leptinotarsa decemlineata, Grapholita molesta, Pseudococcus comstocki, Quadraspidiotus perniciosus*. In the past few decades, the number of quarantine pests in Kyrgyzstan has been increased with *Hyphantria cunea* and *Globodera rostochiensis*. These penetrating pests moved into the region through the import of contaminated-imported materials and products from abroad. At the present time, the assessment of the extent and consequences of the introduction and spread has not been investigated. These pests can spread across the country and cause great damages to the local farmers.

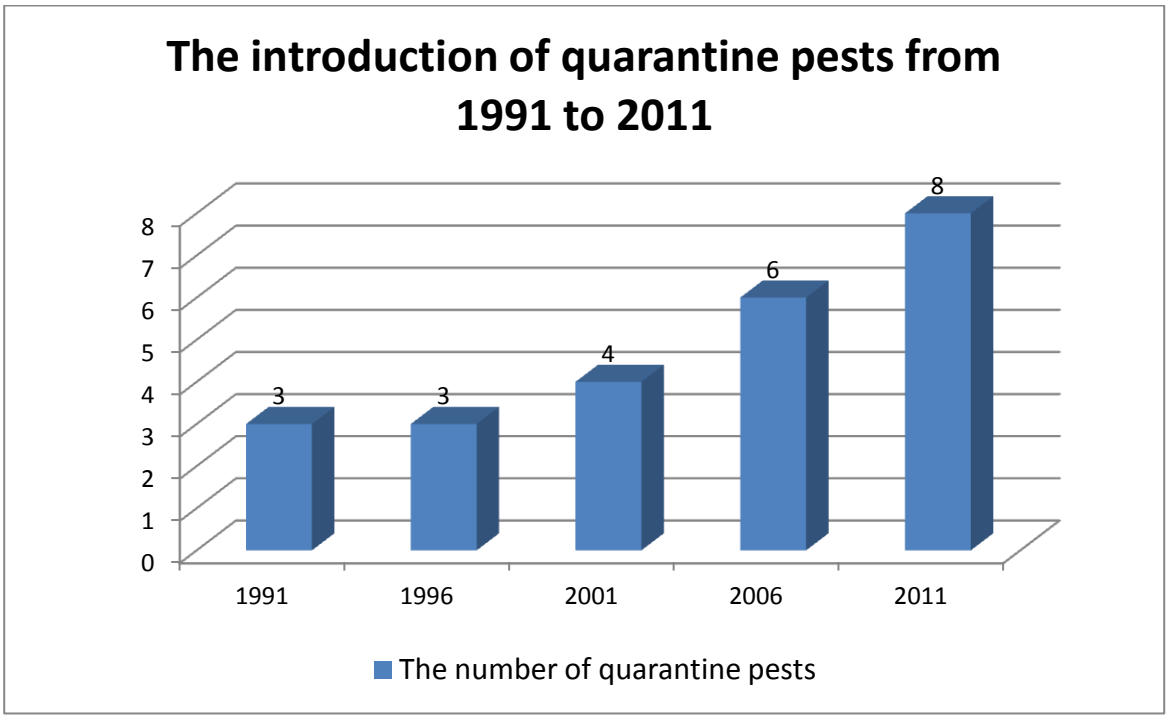
The consequences of the potato pest penetration, the volume of insecticides consumption have increase significantly. A total of 83.7 thousand hectares of potato farming including Issyk-Kul (40%), Talas (15%), and Chui (13%) need 400-420 tons of chemical substances per year. Phytosanitary will be better controlled if the country has the well-equipped checkpoints at the border. Unfortunately, the state does not put sufficient attention and support for the Phytosanitary management. Only four Phytosanitary checkpoints have been built namely "Torugart" and "Irkeshtam" at the border with China, "FEZ Bishkek" in the Bishkek City, and the other one at the international airport "Manas". These four checkpoints do not enough to control all the potential penetration of pests and weeds to the territory.

Figure 4.1 below shows the changes in the number of quarantine organisms over the periods from before 1991 to 2011. The data indicates that the number of objects have increase

significantly from three in 1991 to nine pests in 2011. The increase of quarantine pests in Kyrgyzstan is closely associated with the increase in the volume of regulated product import into the country. A total of 8 quarantine facilities have been officially registered. According to experts on plant quarantine, the lesions of these pests in the habitats have not widely distributed and only limited compilation of the inclusion in the list of quarantine facilities that are under partial observation (National Plant Protection Organization, 2011a, 2011b).

Figure 4.1

The dynamics of the introduction of quarantine pests for years



Source: Report of Plant Quarantine Service (PQS) from 1991 to 2011

4.5 The history of phytosanitary system before and after the independence

The threat of entry quarantine facility from one country to another on the geographical habitat substantially affects the economy and ecology of the world. Since establishing, phytosanitary control service of the Kyrgyz Republic has played an important and responsible role in ensuring the environmental and economic security to prevent the country from the invasion of alien pests.

Phytosanitary law in the Kyrgyz Republic regarding to agricultural development and increasing agro-food industry of the country came to practice in November 1934. The former state union of Kyrgyzstan issued a decree for agricultural development on the joint approach against quarantine pests absent from the territories subordinate to the Union to control and provide security measures for agriculture in the former Soviet republics.

The important milestone of the phytosanitary policies and practices in the Kyrgyz Republic began on the July 5, 1931 as the People's Commissariat of Agriculture was created in the first unified state of the quarantine service in the Soviet Union. The organization covered all the Soviet republics including Kyrgyzstan ASSR. In November 1934, the People's Commissariat of Agriculture issued a decree of the Council of SSR related to the protection of the Union State from the introduction and spread of agricultural and forest pests. Later in 1962, People's Commissariat of Agriculture approved the charter of the All-Union Plant Quarantine Office. In 1967, rules on foreign plant quarantine with a list of quarantine pest in 69 categories were created. Quarantine Office All-Union plant was part of the Ministry of Agriculture of the USSR and it is usually referred to as the authority to Souzgoskarantin, the

Union of Government Quarantine in the former in USSR. Souzgoskarantin carried out the operational management of the implementation to meet the requirements in the field of plant quarantine.

Great contribution from the Souzgoskarantin to the development of phytosanitary measures on localization and liquidation of quarantine centers were largely carried out with the support from the All-Union Scientific Research Institute of Plant Quarantine (USRIPQ) for its scientific and methodical works. USRIPQ also offered staff training to the Kyrgyz quarantine services. However, Souzgoskarantin was closed with the collapse of Soviet Union. Kyrgyz quarantine services could not ensure the effective monitoring of the implementation of the requirements and responsibilities of full-fledged international standards.

In order to maintain and improve the quarantine service, in June 27, 1996 the law of the plant quarantine was created by the Parliament of the KR Parliament. This Act has been the legal framework of plant quarantine activities of state bodies, enterprises, institutions, organizations, officials and citizens aiming to prevent the introduction and spread of quarantine pests, plant diseases and weeds into the territory of the Kyrgyz Republic (The Law of Plant Quarantine, 1996). The Law of Plant Quarantine immediately became the connecting link for all parties whose activities are connected directly to the trade, sale, processing and storage of regulated articles. The law also allows to install and manage a set of measures to help prevent from the introduction and spread of dangerous pests, weeds and diseases of crops.

4.6 Phytosanitary legislation in Kyrgyz Republic

State quarantine activities carried out in the Kyrgyz Republic are on the basis of the law *Plant Quarantine* which was adopted by the government of the Kyrgyz Republic on June 27, 1996. The law consists of 16 articles outlining broad areas of public administration in the quarantine of plants.

Article 2 of the Law of Plant Quarantine (1998) indicates that any activities of the phytosanitary measures should follow international standards, scientific principles and the development of risk assessment. All restrictive measures also need to take into account local and regional conditions in order to ensure an appropriate level of phytosanitary protection and avoid unnecessary and unreasonable restrictions in trade without discrimination countries.

All objects crossing the state border of Kyrgyzstan are subjected to quarantine control and procedures. Customs and other clearance are only carried out after the pest control. The basis of entry into the country under quarantine and transit goods is allowed with a phytosanitary certificate of the importing country, but when exporting from quarantine areas is only processed in the presence of national phytosanitary certificate.

The law requires all the officials and citizens to implement the quarantine requirements, the requirements of the inspector and the liability of the goods transported on the territory of the Kyrgyz Republic of any form of ownership should investigate, identify, notify, to produce and promote to facilitate the work of the public service of plant quarantine.

4.7 Functions of NPPO

The functions of the pest control in most of the countries in the world, to some extent, have similar system of record keeping and distribution of the internal and external pest control. The main tasks of the phytosanitary service are to guard the country from penetration or of the quarantine pests that can cause irreparable damages to the national economy. The most important duties are in the detection and inspection, testing and disinfecting of the areas including the checkpoints, warehouses, private spaces to ensure the country are appropriately prevented from the penetration.

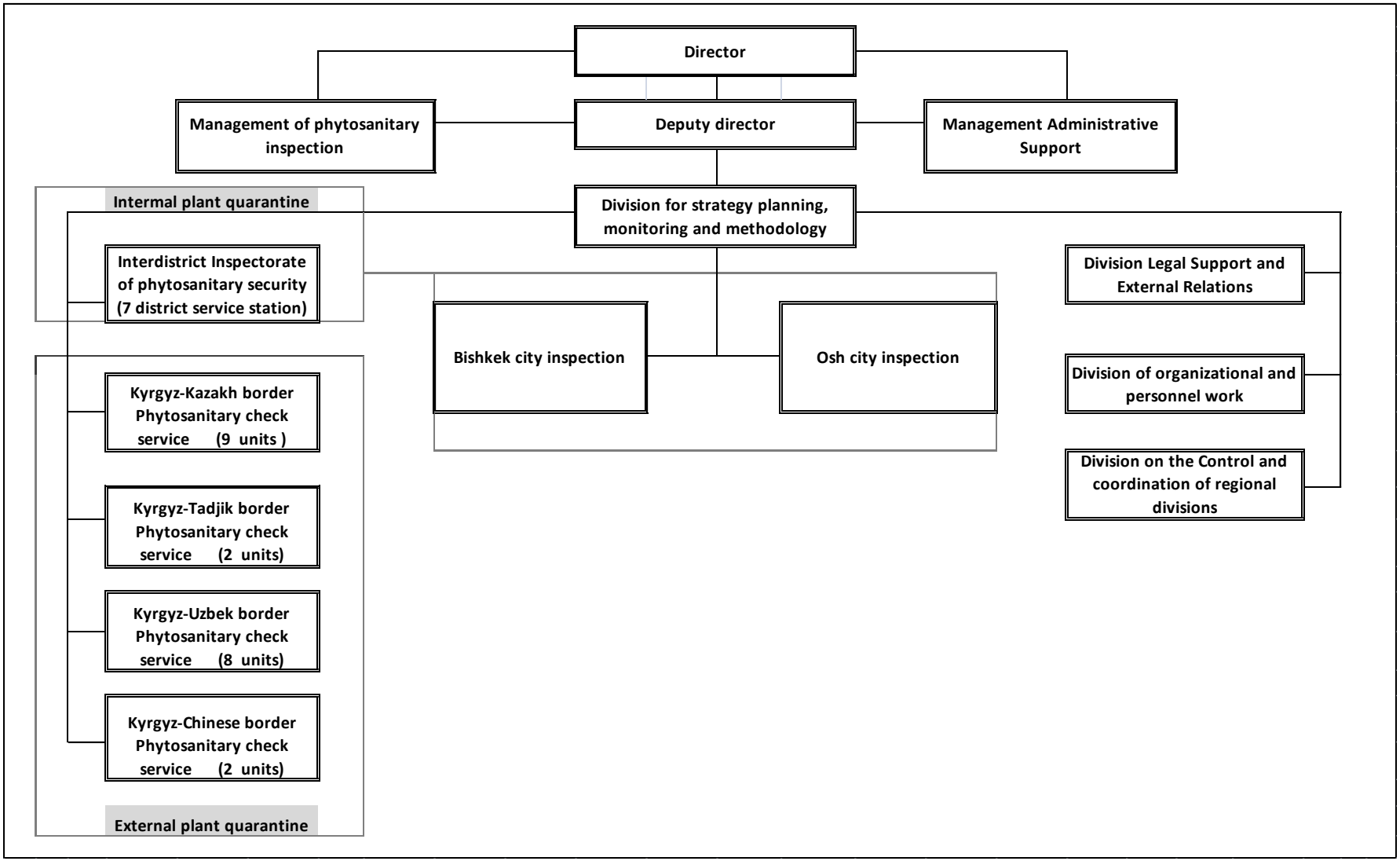
Legislation and regulatory frameworks are certainly important elements to implement policies and to regulate the actions aiming to preserve and protect the agricultural sector of the country. However, it is impossible for the phytosanitary service of the Kyrgyzstan at the current time to carry out successfully all the full range of work regarding to supervision and inspection of the phytosanitary activities. All of the key steps are in the administration, management, certification, inspection and control as well as the laboratory analyses and surveys conducted on the direction of '*Entomology', 'Herbology', 'Nematology'* and a number of other measures that may arise from different circumstances during phytosanitary inspection.

4.8 The structure of the Phytosanitary system in the Kyrgyz Republic

Figure 4.2 shows the structure of the Office of the State Inspectorate for phytosanitary security of the Kyrgyz Republic. The office is headed by the Director who is also a main state phytosanitary inspector appointed by the government of the Kyrgyz Republic. Under the

direct management of the director, the office of management of phytosanitary inspection, the deputy director, and the office of administrative support are responsible for all the divisions, offices, and activities of the main offices. A total of 68 staff are working in the Office of the State Inspectorate for phytosanitary security of the Kyrgyz of which 11 members in the central office, 15 in the internal structural units, and the rest 42 in the external structural offices.

Figure 4.2. Organization of structure of the State Inspectorate for Phytosanitary Security



Source: Regulation on the State Inspectorate for phytosanitary Security under Government of Kyrgyz Republic (2013)

4.9 Internal plant quarantine procedures

State phytosanitary service of the Kyrgyz security performs the activities of the internal plant quarantine on the territory of our Kyrgyz. Their aims are to prevent from the penetration from infected areas to the pest-free areas. Early detection, localization and liquidation of quarantine pests need to be carried out by the organization to monitor the implementation of rules and activities on plant quarantine in the production, procurement, transportation, storage, processing and marketing of agricultural products and other regulated materials.

Inspection and testing are subject to:

- crops and plantations and other agricultural crops in areas adjacent to the land of the State border of Kyrgyzstan, in the areas adjacent to the sea and river ports, airports, rail and road stations through which the import of seeds, plants and other products of plant origin from foreign countries, as well as along highways and railways;
- crops and plantation companies, organizations and institutions engaged in the cultivation, breeding and sale of seed and planting material for domestic use and for export;
- all crops and plantations, carried seeds and planting material imported from foreign countries and from regulated areas of Kyrgyzstan;
- seeds, planting materials and other products of plant origin intended for export;

- agricultural and other lands in the areas of quarantine pests, plant diseases and weeds, as well as their adjacent areas; and
- elevators, warehouses and other places of storage and processing of plant products imported from areas of Kyrgyzstan, which are under quarantine, or from foreign countries, as well as vehicles carrying specified products.

Figure 4.3 indicates the checking procedure for export consignments of regulated articles.

a. An assessment of the goods in quarantine prepared for shipment,

b. Verification of goods under quarantine in compliance with the conditions of entry into the country of the importer

c. Afterwards, surveyor perform the quarantine examination to identify quarantine organisms

d. If the shipment is positive response, it will be analyzed the possible ways for its localization in accordance with the internal regulations of the phytosanitary Service.

e. Contaminated cargo can be sent for disinfection, if the cargo after cleaning did not correspond the requirements,

f. If the cargo has negative response then the accordance with the requirements of the importing country phytosanitary certificate shall be issued.

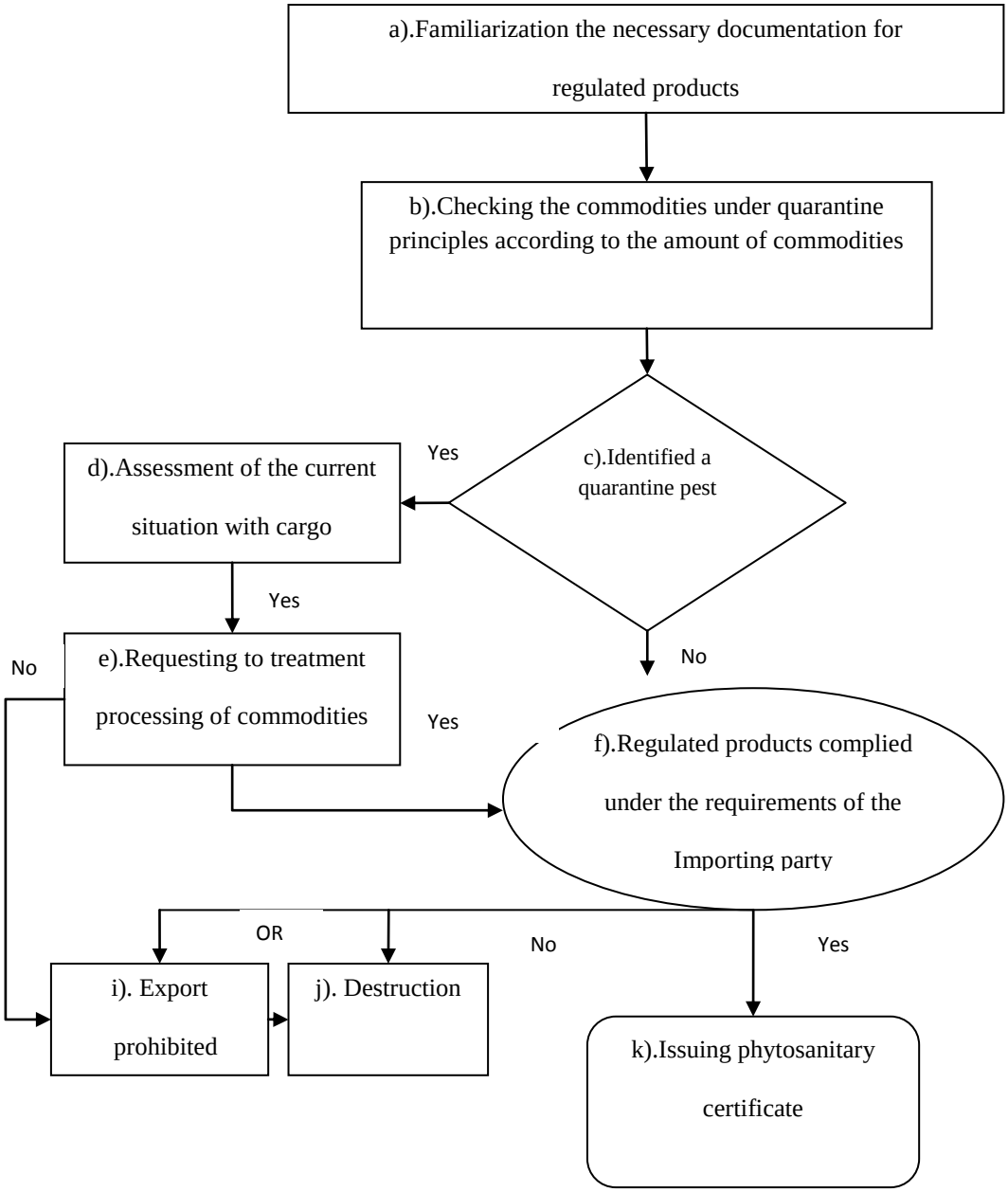
i. Then the consignment is subject to prohibited, or

j. the consignment is subject to destruction

k. Obtain a phytosanitary certificate of the international sample.

Figure 4.3

Flow chart of Phytosanitary procedures for exporting in Kyrgyzstan



Source: adapted from national plant quarantine service (2008)

4.10 External plant quarantine procedures

The external quarantine measures of government to protect the territory of Kyrgyzstan against the penetration of foreign quarantine and other dangerous pests that can cause significant damage to the country - the basis of the organization of border quarantine pest surveillance.

To prevent the entry of foreign quarantine and other dangerous pests into Kyrgyzstan, the phytosanitary service office in cooperation with other state regulatory agencies such as border offices, customs, etc. conduct initial quarantine inspection of imported quarantine products at checkpoints across the state border of the Kyrgyz Republic.

Activities on the outside plant quarantine apply to all the whole range of goods, products and materials, vehicles arriving in Kyrgyzstan from other countries, warehouses for regulated products, agricultural and forestlands adjacent to the border crossing points across the State border of the Kyrgyz Republic.

An important principle of the border quarantine pest surveillance is to prevent the importation of quarantine facilities in our country. Over the long-standing practice of the accumulated wealth of information about the discovery of quarantine organisms during quarantine phytosanitary inspection at checkpoints across the state border of Kyrgyzstan and in the places cargo arrives. The most crucial point of the system of measures to ensure the external quarantine is definition of a quarantine pest status imported from abroad and transported within the country of import of goods under quarantine because of quarantine to prevent the importation into the country of the

body easier and cheaper than isolate and eliminate its center. Inspection of regulated goods, conducted by quarantine inspectors and laboratory examination of samples forms a single interconnected production process.

All regulated products in international postal parcels are under the address of border inspectors to inspect the items on plant quarantine in international post offices. Along with the inspection of an inspector conducts, the analysis of the investment point without sampling, but the need for a more detailed examination, temporarily remove a particular attachment to transfer to a quarantine laboratory. Usually in the laboratory it is only the objects found, the species composition of which was unable to determine on the spot such goods as tobacco, hops, cotton, sisal, jute and other vegetable fiber and raw wool, building felt, animal skins, hides, skins and furs.

If an external visual inspection of transport, cargo, containers, packaging found alive quarantine or other dangerous pests, the inspection is stopped and the infected transport alone or with a load subjected to decontamination. If the external inspection of the primary pests in the active state is detected, the consignment shall be subject to a detailed inspection on the vehicle, as well as in warehouses after unloading at the destination. Samples for analysis were taken from each consignment and send their laboratory examination.

If infected quarantine organisms materials cannot disinfect or clean, then directed by the State Inspection for Plant Quarantine of the Kyrgyz Republic they are returned to the exporter or destroyed. Vehicles coming from other countries, after their release from cargo and baggage to be cleaned carefully at checkpoints across the

state border of the custom transport organizations, but at the place of destination - recipients of cargo. If necessary, State Inspector of Plant Quarantine gives instruction about the direction of fumigation, and cars and vehicles - for washing and disinfection stations. The passengers, drivers of trucks and cars, train crews and other modes of transport arriving at the point of crossing the State border of the Kyrgyz Republic shall be obliged to inform the customs declaration of the presence in their luggage or carry-on regulated products and present it to quarantine phytosanitary inspection.

Contaminated with quarantine pests and prohibited from being imported products individuals withdraw and destroy or return shipper. All collects in products and indoor pests, select samples of products with the signs of infection and characteristic lesions and analyzes them for the item of plant quarantine. Identified objects he then sends it to the quarantine laboratory for confirmation made by him and definitions establishing unknown species detected. Contaminated with quarantine pests and prohibited from being imported products individuals withdraw and destroy or return shipper.

The procedures for checking the external plant quarantine are shown in the Figure 4.4.

a. Primary control is carried out through familiarization with documents arriving quarantine material;

b. Verification of goods under quarantine according requirements and conditions of entry into the importing country;

c. Verification phytosanitary certificate of the exporting country

e. Visual inspection of the plant material using a special handheld instrument inspection

d. In case of a positive result is directed to a secondary inspection through laboratory investigation

e. at negative position of phytosanitary certificate issued permit

f. Secondary inspection of goods under quarantine for revealing quarantine organisms

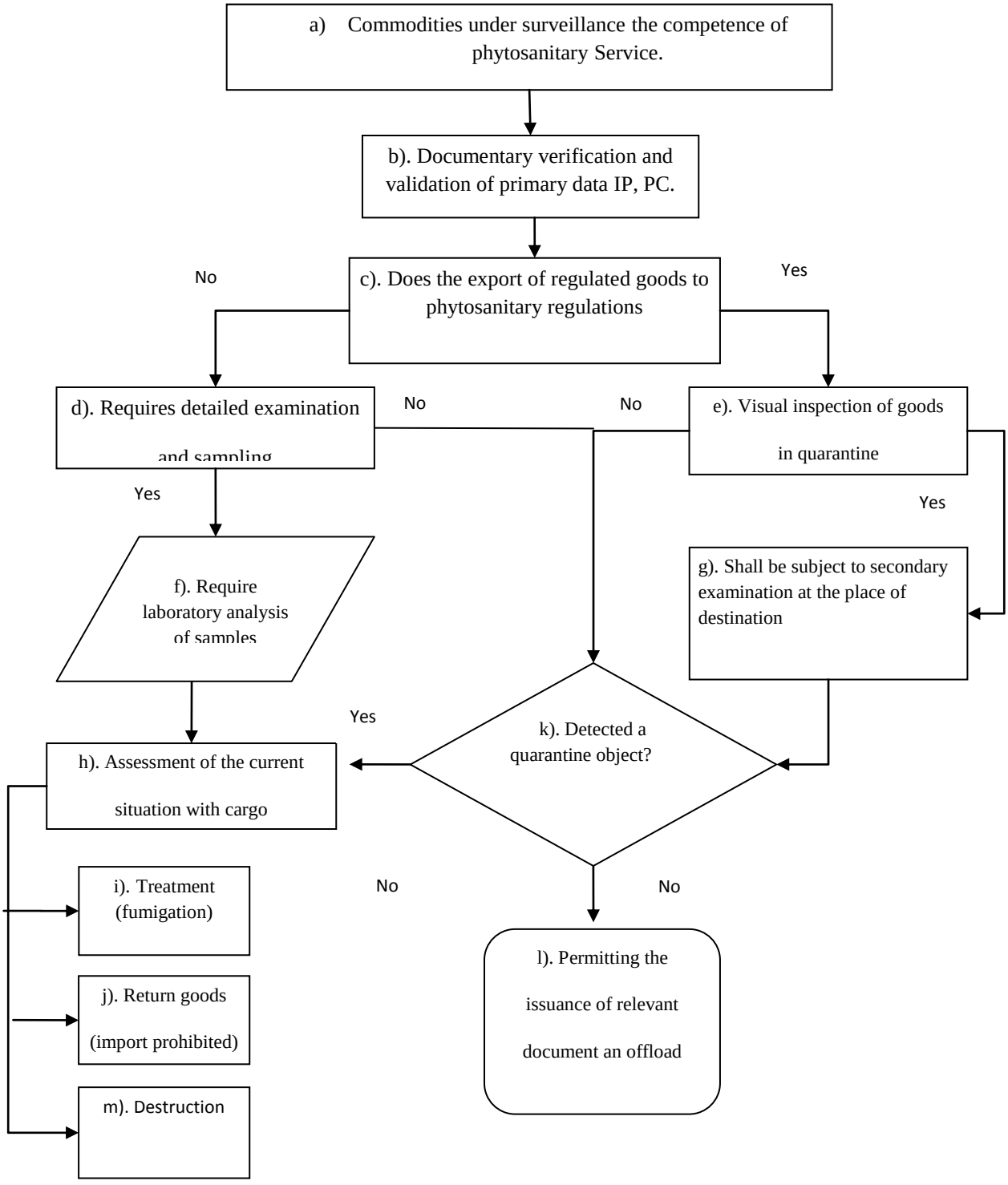
h. If the shipment have a positive response

i. it will be reviewed the possible ways for its localization in according to internal regulations of the phytosanitary Service.

j. Contaminated loads are be sent for disinfection, k). Return to exporter, m). To be to destruction

l. If the plant material meets phytosanitary requirements, the goods is authorized for unloading or transit through into territory of Kyrgyzstan.

Figure 4.4: Flow chart of Phytosanitary procedures to import in Kyrgyzstan



Source: adapted from national plant quarantine service (2008)

CHAPTER 5: FINDINGS AND DISCUSSION

5.1 Working efficiency

When being asked about in what field phytosanitary service works most effectively, the majority of respondents believed the most effective was in the field of controls on goods movement (16 out of 41 respondents) followed by Certification with 10 out of 41 respondents. Table 5.1 also indicates the least working efficient tasks of the phytosanitary service were in the condition monitoring areas, and training with the only one respondent selected for both tasks.

Table 5.1

Working effectively

Working effectively	By gender		Working experiences (in years)					
	Men	Women	<1	1-3	3-5	5-10	10-15	15-20
Controls on goods movement	15	1	3	2	2	6	2	1
Condition monitoring areas	1					1		
Emergency control	3				1	2		
Certification	7	3		6	1	1	2	
Work on EPPO	2				1	1		
Work on ISPM	2				1	1		
Training	1					1		
Identification pests in laboratory	2	1			2	1		
Survey	3		1		1	1		
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

The effective actions in certifying regulated commodities confirmed in the annual reports of the Phytosanitary Service, the main work in the regulation of members of the participant of economic activities. This is justified by the fact that the young republic's

economic policy is oriented towards external economic relations. As a country in transition from the central planned economy to market economy, participation in the certification processes is important for Kyrgyzstan. At the same time, trading processes have a negative impact on the plant quarantine organization. This indicates the need of pest control at checkpoints for import and export commodities.

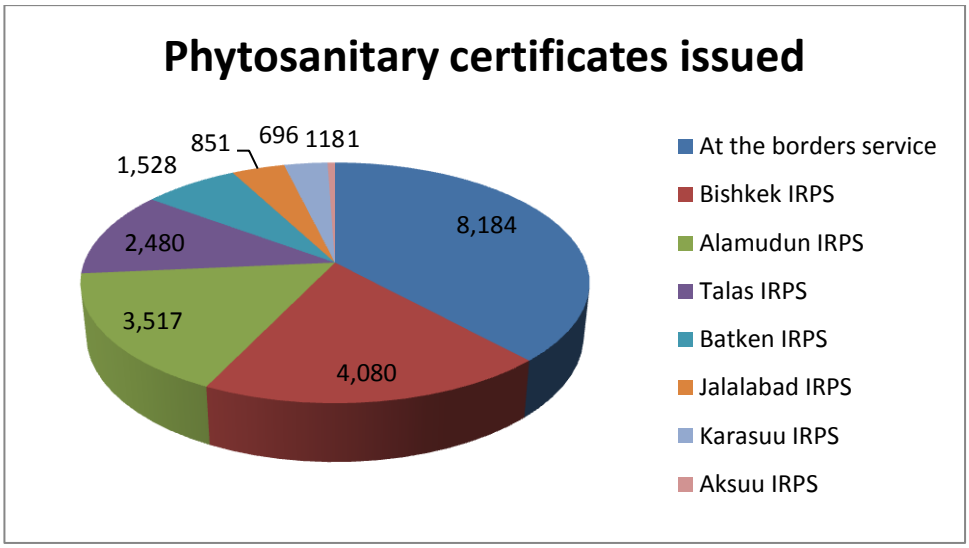
Phytosanitary certificates in Kyrgyzstan are issued by the State Plant Quarantine Service in accordance with the phytosanitary documents for import and export of regulated products approved by the Decree of the Government of the Kyrgyz Republic on May 30, 2008. The law regarding to quarantine plants, operated from June 2, 1998, prescribes in Article 10 of the basic functions of a phytosanitary services, including the issuance of phytosanitary certificate and import quarantine permit (Law of Quarantine, 1996).

On the basis of the international standards regarding to certificate issuance (FAO, 2011), the basic elements of phytosanitary certifications for plant products and other regulated commodities should be based in the following:

- to identify the appropriate phytosanitary requirements for import from the importing country;
- to check the consignment these requirements at the time of certification; and
- to issue a phytosanitary certificate, which accurately specifies the kinds of commodities and their quantity (FAO, 2011).

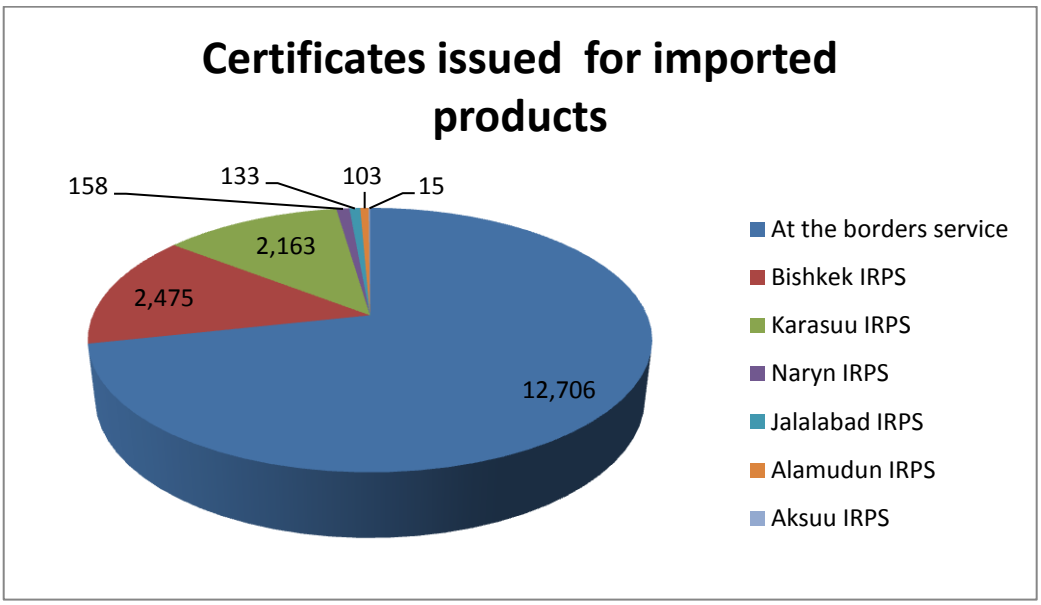
Thus, phytosanitary certification is an international responsibility on the fulfillment of international regulations and parameters. Figures 5.1, 5.2, and 5.3 illustrate the recorded data about the phytosanitary subdivision services from the official service in 2010. This shows which structural units performed the load on the certificate issuance.

Figure 5.1: *The number of phytosanitary certificates issued in 2010*



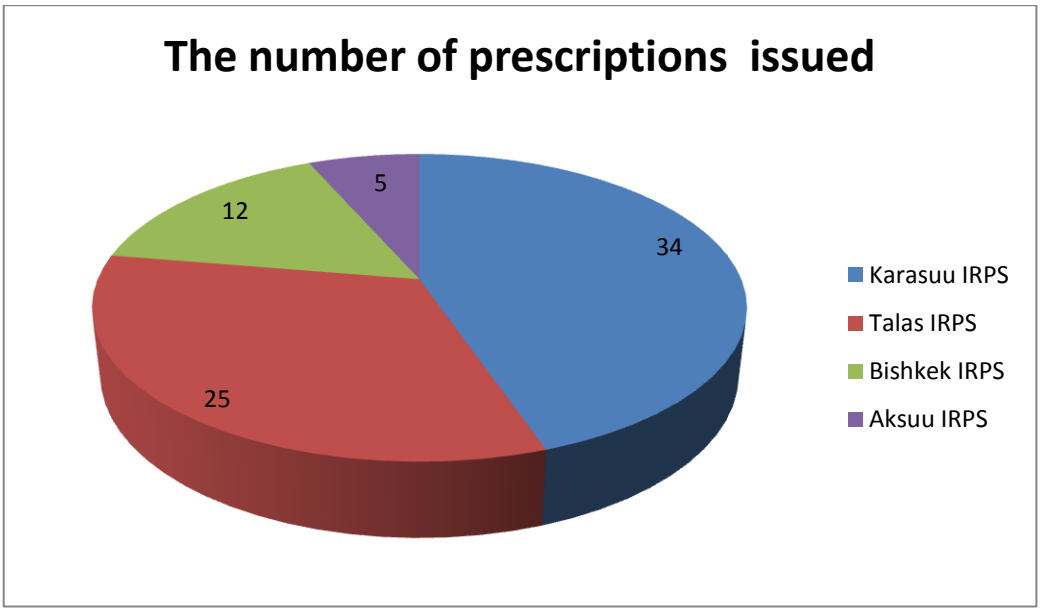
Source: Annual report of Plant Quarantine Service (2010)

Figure 5.2: *The number Certificates issued for imported products in 2010*



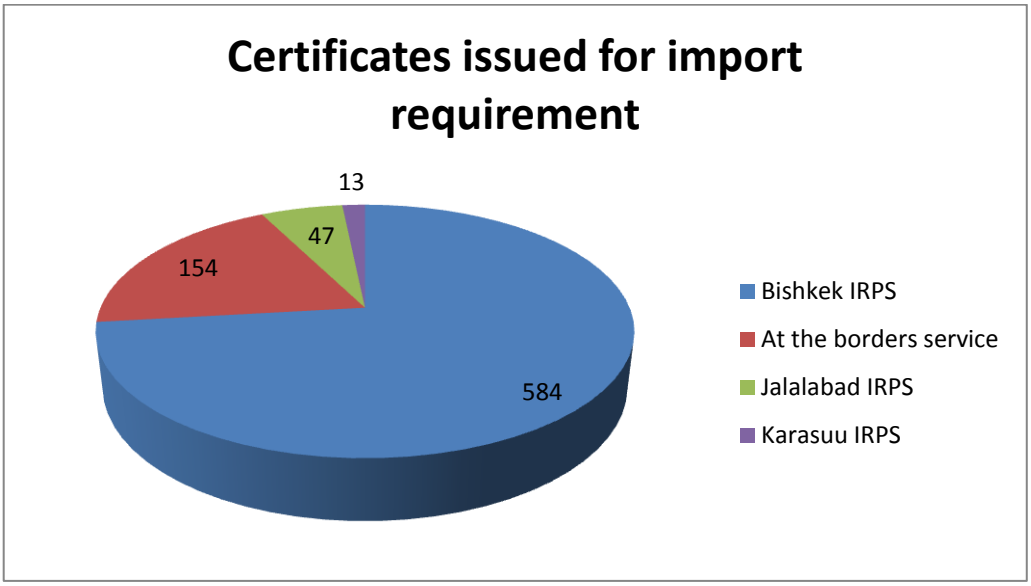
Source: Annual report of Plant Quarantine Service (2010)

Figure 5.3: *The number of prescriptions issued in 2010*



Source: Annual report of Plant Quarantine Service (2010)

Figure 5.3: *The number of Certificates issued for import requirement in 2010*



Source: Annual report of Plant Quarantine Service (2010)

5.2. Effective fulfillment of phytosanitary procedures in Kyrgyzstan

This section discusses the most contributing factor to for the effective fulfillment of phytosanitary procedures in Kyrgyzstan. Table 5.2 shows that the most effective factor for the implementation of phytosanitary procedures was training with 13 out of the 41 participants of the research selected. This followed by professional staff and the level of skills and technical facilities with 12 and 11 respondents chose respectively. Working with EPPO[2], study on pest risk analysis, and work with standards of ISPM[3], on the other hand, had only 1 or 3 out of participants believed in their effective fulfillment of

[2] EPPO is the European plant protection organization

[3] ISPM in the international standards for phytosanitary measures

phytosanitary procedures, respectively. Some variables of the questions including experience phytosanitary service, and precautionary measures had no respondents selected.

Table 5.2

The most contributing factor to for the effective fulfillment of phytosanitary procedures in Kyrgyzstan

Contributing factors	By gender		Working experiences (in years)					
	Men	**Women**	**<1**	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**
Experience phytosanitary service								
Precautionary measures								
Professional staff and the degree of skill	9	3	1	6	2	2		1
Optimal structure PQ Service								
Training	12	1	3	1	3	4	2	
Technical facilities	11				3	6	2	
Working with EPPO	1					1		
Work with standards of ISPM	3			1		2		
Study on pest risk analysis		1			1			
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

The level of the professionalism is very important to any employee in any field especially in the phytosanitary activities. Norojono & Lidasan (2005) argues that the activities in the system of trans-boundary procedures refer to processes of movements of persons and goods among several sovereign states. These processes are associated cross-border transport operations of which involved four interlinked procedures,

customs, immigration, quarantine and security (CIQS). Without the support of professional knowledge in the fields of trade, economy and transport, it is quite difficult in the functioning of the competent services in the regulation of export and import, embargo, and more scientific background (Mclaine, 1929).

Over the last two years, the Kyrgyzstan government has managed to reduce the public servants in the state structures. The main of these changes is to save the state budget and eliminate the duplicative supervisory agencies with the same functions. Consequently, plant quarantine service office was also subjected to reorganize and the number of staff working in the Kyrgyzstan phytosanitary office was reduced from 156 to 72. The success of the phytosanitary service, to some extent, depends on the organization and professionalism of the staff size, and the nature of the actions required the personnel staff a special approach to phytosanitary procedures. Moreover, as the volumes of works remained almost the same, the staff decreased closed to 50%, there was no question that professional and skillful staff was more badly needed for effective fulfillment of phytosanitary procedures.

5.3. Inadequate performance

When discussing about the least effective work carrying out at the Phytosanitary service in the Kyrgyzstan, the results shown in table 5.3 below reveal that the most inadequate performance happened in the tasks of working with EPPO with 12 out of 41 research respondents reported. This is the result of reorganization in the structure and composition of plant quarantine services, some of the tasks within the office did not get enough attention including the cooperation with EPPO. Survey and trainings were the

tasks that held the second and third positions being reported as least inadequate in their performance. Identification and certificate shared the first and second ranking in terms of having most effective performance not counting the task *emergency management* as this task did not happen in the office.

Table 5.3

Inefficient phytosanitary service

Inefficient tasks	**By gender**		**Working experiences (in years)**					
	Men	**Women**	**<1**	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**
Monitoring	5	1		2	2	2		
Emergency management								
Certification	1					1		
Working with the EPPO	10	2		2	2	5	2	1
Working with ISPM	1				1			
Trainings	6	1	4	2		1		
Identification	1					1		
Survey	8	1		1	4	3	1	
PRA	4			1		2	1	
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

A key role in control of harmful quarantine organisms in the world requires a coordinated international effort. This coordination is carried out by means of agreements with the International Convention on Plant Protection (IPPC). The governing body is the IPPC Commission on Phytosanitary Measures (CPM) that adopts International Standards for Phytosanitary Measures (ISPM) in order to prevent the introduction or spread of pests through world trade (FAO, 2011).

According to this, the agreement with ISPM is the basis for a safer trading between the Contracting Parties (FAO, 2011). This means that the Phytosanitary policy should always locate in accordance with the international collaboration within the framework of the IPPC to develop in the application of ISPM. NPPO is the connecting link for closer co-operation with neighboring countries in the prevention and spread across countries, it follows that the connecting link by the Regional Organization for Plant Protection (FAO, 2011).

5.4 Contributing factors for ineffective performance

Table 5.4 indicates the factors that the research informants believed to contribute to the ineffective performance of the Kyrgyzstan Phytosanitary Service. Most of the informants mentioned that lack of qualifications staff, weaknesses in the legislation, and lack of training and refresh courses were the main contributors with 12 out of 41 respondents reported lack of qualifications staff was the reason and 8 participants selected for both weaknesses in the legislation, and lack of training and refreshes courses.

Table 5.4

Contributing factors for the ineffective performance of the Phytosanitary Service

Ineffective performance	By gender		Working experiences (in years)					
	Men	**Women**	**<1**	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**
Weaknesses in the legislation	7	1		1	2	2	2	1
Lack of monitoring and research	5	1	1	1	2	2		
Low level of control								
Lack of emergency management	1					1		
Ineffective identification	2					2		
Lack of a single operation and information sharing	2			1		1		
Lack of qualifications staff	10	1	1	2	4	4		
Non-optimal structure	1					1		
Lack of training and refresh courses	6	2	2	3		1	2	
Insufficient technical equipment	2				1	1		
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

The table also indicates the necessity of the state in terms of increasing the level of motivation of human behavior in its employees. In addition, the state must create the necessary conditions for employees to increase their working efficiency including legal and technical system, and organizational and informational infrastructure to ensure all the work of Phytosanitary Service would be performed in a appropriate way.

Assessment of phytosanitary capacity of Kyrgyzstan conducted in 2003-2004 by international experts from FAO showed that the weaknesses in the quarantine service existed. These constraints needed to be addressed in order to provide the level of

phytosanitary security and product certification required by its potential trading partners. Exportation of large quantities of planting and other agricultural commodities needs to be supported by an adequate certification system. The existing inadequate phytosanitary systems do not allow the country to comply with its international phytosanitary obligations under the WTO Agreement on the Application of Sanitary and Phytosanitary Measures (WTO-SPS) and the New Revised Text of the International Plant Protection Convention (IPPC) which are legally binding treaties (NPPO, 2008).

International experts have also suggests the directions that the Kyrgyz phytosanitary system should follow for improving the efficiency of its function as the adequate phytosanitary procedures in compliance with phytosanitary requirements of the contracting parties will gain an increase in the agricultural product export. This can also lead to the access to the market of other potential partners.

The Government of the Kyrgyz Republic requested technical support from FAO to complete project support on certain issues within the ASSP[4]. In particular, the assistance offered to fill the following critical gaps:

- Training for staff competency at various levels in contemporary phytosanitary measures and procedures;

[4] Kyrgyzstan is in the process of restructuring its Agriculture Sector for greater efficiency in enhancing agricultural production, agricultural exports and national food security. This effort is supported by a WB Loan under the Agricultural Support Services Programme (ASSP).

- Training for pest risk analysis to meet the international standards for phytosanitary guidelines under the guidelines of the International Plant Protection Convention;
- Strengthening the diagnostic and inspection capabilities at high risk points of entry and supporting laboratories;
- Modernizing the legislation to conform with the WTO-SPS and the IPPC;
- Strengthening the information management capability and establish a networking system between four major control points;
- Surveillance and pest categorizing to determine which pests should be regulated (FAO, 2004)

As a result of this project, 20 inspectors from the Phytosanitary Service from different regions of the country have been trained.

5.5 The challenges for enhancing and improving the phytosanitary system

As the phytosanitary system plays an crucial role in protecting the territory of the Kyrgyzstan Republic from the penetration of unwanted pests and increase trade of agricultural sector to other countries, enhancing and improving the phytosanitary system has become an important issue for the Phytosanitary Service. When being questioned about the challenges of enhancing and improving the phytosanitary system, 16 out of 41 respondents thought that the most important challenge to enhance the capacity of the Kyrgyz Phytosanitary system was to improve the personal knowledge and skills for its staff. Other factors that were suggested to be improved by the research informants were the pest risk analysis, phytosanitary certification, and

phytosanitary legislation ranging from 6 to 8 respondents selected. Phytosanitary import requirements got the least percentage of informants thought that it needed to improve with 4 people selected.

Table 5.5

The challenges for enhancing and improving the phytosanitary system

Challenges	By gender		Working experiences (in years)					
	Men	**Women**	**<1**	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**
Pest risk analysis (PRA)	7	1	1	1	2	3	1	
Improve of knowledge and skills of personal	14	2	2	4	3	4	2	1
Phytosanitary certification	6	1	1	1	1	3	1	
Phytosanitary legislation	5	1		1	2	3		
Phytosanitary import requirements	4			1	1	2		
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

In the interview, the former deputy of the Plant Quarantine Service believed that the phytosanitary security significantly decreased as a consequence of the reorganization of the agency. For the last 5-6 years, the PQS had been reorganized three times. Unfortunately, the reformers who made all this changing did not have adequate knowledge and experiences in the plant quarantine although phytosanitary security is one of the most important components of the national food security. Furthermore, a national organization for plant protection must consistently uphold the interests of Kyrgyzstan in the implementation of co-operation with other countries under the IPPC.

5.6. Whether Plant Quarantine Service should be a separate unit or not

Research informant were also asked whether Plant Quarantine Service should be a separate unit or not. The findings showed that there was no clear trend whether staff working for the Plant Quarantine Service at the time of research indicated their interests in having a separate unit of Plant Quarantine Service. Thirteen out of 41 research informants completely agreed that Plant Quarantine Service should be a separate organization whereas almost the same percentage of respondents completely disagreed that Plant Quarantine Service should be a separate unit with 12 out of 41. There was a slight difference in the between the number of informants rather agreed and those rather disagreed with 5 and 11 informants reported respectively.

Table 5.6

Whether Plant Quarantine Service should be a separate unit

Response options	**Working experiences in the Plant Quarantine Service (in years)**						
	<1	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**	**Total**
Completely agree	1		3	5	3	1	**13**
Rather agree		1	1	2	1		**5**
Rather disagree		3	2	6			**11**
Completely disagree	3	4	3	2			**12**

5.7 Civil service system reform and the *conflict of interest*

Table 5.7 shows the result of the question whether the reform of the civil service system of the plant quarantine in Kyrgyzstan Republic eliminated the *conflict of interest* or not. There were some differences between respondents who completely agreed and respondents who completely disagreed about the reform of the civil

service system whereas the number of research informants who indicated rather agreed and who indicated rather disagreed were almost the same. Based on this result, more working staff (13 out of 41) at the civil service system of the plant quarantine believed that the reform would lead to the *conflict of interest*.

Table 5.7

Civil service system reform and the conflict of interest

Response options	**Length of work in the PQS (in years)**						
	>1	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**	**Total**
Completely agree	3	2	5	3			13
Rather agree	1	1	2	6			10
Rather disagree		3	1	4	1	1	10
Completely disagree		2	1	2	3		8

In accordance with the requirements from the law on Civil Service regarding to the conflict of interest, officials when making decisions, do not coincide with the broader interests of the state. Furthermore, public employees may take measures to prevent and resolve conflicts of interest via their supervisor, who must take measures to prevent the negative consequences of the *conflict of interest*:

1. Suspend a public servant from performing responsibilities in the course of conflict of interest,

2. Strengthen controls over public servants responsibilities in the course there is a conflict of interest.

5.8. Plant Quarantine Service Modernization

Regarding to the need of modernization and the necessity to upgrade the capacity of the Plant Quarantine Service, 20 out of 41 respondents agreed that the Plant Quarantine Service needed technical modernization. Fourteen research informants believed in the partial upgrading and only 7 out of 41 participants indicated that Plant Quarantine Service should remained the same without any modernizing or upgrading.

Table 5.8

Plant Quarantine Service modernization

Service modernization	By gender		Working experiences (in years)					
	Men	**Women**	**<1**	**1-3**	**3-5**	**5-10**	**10-15**	**15-20**
PQS needs technical modernization	18	2	2	4	5	7	2	
PQS needs a partial upgrade for all parameters actions and inactions	12	2	2	4	2	4	1	1
PQS is no need for upgrade	6	1			2	4	1	
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

The influence of the market economy in Kyrgyzstan prompted the signing of several bilateral agreements on trade and phytosanitary issues with neighboring trading partners including China. Therefore, participation in these processes was one of the responsibilities of phytosanitary service. Furthermore, seven regional offices and some others locating at the official border in important areas of the country were also needed to be upgraded. According to the Government Regulation of Kyrgyzstan issued in

2006, 90% of the Plant Quarantine Service did not meet the technical phytosanitary requirements for the equipment at border crossing points.

5.9 Successful operations of the phytosanitary system in Kyrgyz Republic

When discussing about the most successful operations among the phytosanitary system, the respondents indicated that procedure of phytosanitary certification among the entry import permit as the most successful task with 14 out of 41 staff believed. Another task that was reported by 14 respondents to operate successfully was the entry export. Disinfection treatment, infected commodity prevent, and pest restriction were believed the least successful tasks with only 1 respondents selected for disinfection treatment and 2 for both infected commodity prevent, and pest restriction.

Table 5.9

Successful operation of the phytosanitary system in Kyrgyz Republic

Successful operations	By gender		Working experiences (in years)					
	Men	Women	>1	1-3	3-5	5-10	10-15	15-20
Infected commodity prevent	2					1	1	
Entry import permit	13	1	3	3	3	4	1	
Entry export (PC)	12	2	1	3	3	6		1
Disinfection treatment	1					1		
Phytosanitary inspection	3	1		1	1	1	1	
Restrictions	2			1		1		
Surveillance	3	1			2	1	1	
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

Phytosanitary work is largely dependent on the quality of the work done under the requirements of the International Standards for Phytosanitary Measures (ISPM). Kyrgyzstan economy is heavily dependent on agriculture and agricultural products that are grown by personal farm households which occupy a significant role in the sale volumes of all agricultural exports. Phytosanitary certificate issuance plays a key role in ensuring the trust between the exporter and importer and this can be described as a bridge linking in market relations which are very important for all stakeholders.

5.10 Improving phytosanitary service efficiency

When being questioned about the methods of improving the phytosanitary service efficiency, research respondents suggested that the personnel training (12 out of 41 respondents selected) was the most effective way of improving the service efficiency followed by experience exchange with 9 respondents chose. The least necessary methods believed by the respondents with only 2 respondents was the research.

Table 5.10

Improving phytosanitary service efficiency

Improving efficiency	By gender		Working experiences (in years)					
	Men	Women	<1	1-3	3-5	5-10	10-15	15-20
Experience exchange	7	2	1	2	2	2	2	
Personnel training	12		1	1	2	5	2	1
Technical updates	5	1	2	1	1	2		
Monitoring	2	1		1		2		
Research	2				1	1		
PRA	4	1		2	2	1		
Advocacy	4			1	1	2		
Total	**36**	**5**	**4**	**8**	**9**	**15**	**4**	**1**

The importance of a phytosanitary system is to measure and control of harmful organisms. For the successful implementation of these measures must be a thorough investigation of quarantine pests: a systematic status, geographic distribution, severity, morphological characteristics, biological features, pathways and dynamics of distribution, and identify. All these measures are to develop the efficiency of phytosanitary system. All these measures are not implemented if there is no adequate knowledge in different areas.

Berg (1991) noted that the development of phytosanitary programs to improve the effectiveness of plant quarantine to a required level. There two important directions including survey and identification of plant pests and scientific research program. Furthermore, the low level of phytosanitary training and the lack of policy re-training are of the main reasons for the weakness in the system.

CHAPTER 6: CONCLUSION AND RECOMMENDATION

Conclusion

5.1 Kyrgyzstan phytosanitary system

The process of increasing globalization and liberalization of trade between countries and countries through the WTO requires the phytosanitary safety. A set of international standards has been set for the implementation of a harmonized policy and practice in the phytosanitary system of each country. Kyrgyzstan, as a member of the global community has undertaken a number of important principles under the International Convention on Plant Quarantine. The importance of the principles of international phytosanitary regulations is to ensure the effectiveness and predictable actions to prevent discrimination and undue or unreasonable action bans in the process of phytosanitary measures.

In the new economic conditions with the increase in of trade turnover Kyrgyzstan, there is a rupture of professional and effective approach to pest control for import, export, surveys, and monitoring. All are related to the weaknesses of phytosanitary control at the border areas which leads to the threat of entry of quarantine organisms. The legal documents regarding the competence of phytosanitary cooperation with other supervisory authorities has shown its uncertainty. For example, the Customs Code contains an article on plant quarantine, but the organizational documents are not spelled out details of these interactions, also under the auspices of trade facilitation authority pest control plan to transfer customs and border officials. Given such a picture of the newly established inspection, it is necessary to pay attention to legal support in collaboration with public, private bodies

on the example of the American Pest Control to develop a program on regulation phytosanitary processes in internal and external controls.

The domestic quarantine phytosanitary control system had carried out a survey of Kyrgyzstan at the border areas. Several limitation of the phytosanitary had been indicated including:

1. Fragmentation of the authority between ministries, inside the ministry of agriculture, between the national and sub-national GOVs, salary, etc

2. The problems within the sector such as the weak management capacity of the phytosanitary organization

3. Problem of fragmentation between the ministry of agriculture and the government of the Kyrgyz Republic on phytosanitary control reflects in the new structural changes in the phytosanitary and veterinary service and the lack of laboratory support and opportunities fumigation.

4. Solving these problems requires a comprehensive approach; therefore, the cooperation with academic, public, private sectors within the country, including in cooperation with foreign services (RPPO NPPO) provides an additional advantage in the development of suitable plant protection using of international standards including the use of PRA.

5. Finally, The problem phytosanitary sector is an interdependent process that can affect the agricultural sector of the country and the rural population of Kyrgyzstan.

5.2 Strengths, weaknesses, opportunities and threats of phytosanitary policies and practices

The research have identified the strengths, weaknesses and the impact of these factors on the external opportunities and threats fraction to phytosanitary policy and practice of the Kyrgyzstan Republic. Plant Quarantine is a multilateral process of which all parties directly or indirectly face each other, and the release of these interdependent elements with the use of internal and external factors should ultimately be used as a comparison between the four integrants grasp the overall situation in the highlights.

5.2.1 Strengths

1. Increasing the status and efficiency certainly can create a lot of advantages in dealing with institutional issues such as security and increase wages to employees on an acceptable level of personal incentive and thereby attracting young talented personnel, including those from the Agrarian University in Kyrgyz specializes on plant quarantine.

2. Some of the procedures had already carried out under the joint phytosanitary service deployed by customs officers at the places where shipment and discharge of regulated articles to approach the capital of Kyrgyzstan.

3. The staff also needs a systematic approach of training to develop and maintain the knowledge and skills in technics inspection, the definition of quarantine organisms, site survey and certification.

4. Membership of the WTO, IPPC and RPPOs gives additional advantage to ensure an acceptable level of phytosanitary measures with the use of systematic pest risk analysis under the international standard (ISPM). RPPOs provide the necessary advice to gather information to facilitate compliance with the obligations SPS Agreement in WTO members in a variety of non-tariff barriers.

5. There are frozen sections of the border phytosanitary inspection that took origin in accordance arrangements neighboring states.

5.2.2. Weaknesses

1. Many weaknesses did exist in the practical training employees on plant quarantine issues. These include: methods for detection, identification, localization and liquidation of quarantine pests, sampling methods for quarantine inspection and examination procedure for the import, export and transit of regulated articles as well as pest risk analysis (PRA). Naturally in the organization of such training requires a lot of effort of the new approach with research institutes and laboratories of Kyrgyzstan.

2. The low level of phytosanitary security in Kyrgyzstan comes from the lack of financial resources for the organization of large-scale survey of the entire territory of

Kyrgyzstan, on the basis of these activities constitute surveys and programs for the integrated provision of phytosanitary security of the country.

3. Lack of monitoring and investigation of identified quarantine pests, diseases and weeds in areas of the country is worrying farmers and residents of rural areas.

4. Lack of adequate capacity for phytosanitary positions makes it difficult to effectively control the movement of regulated goods which comes mainly from China, Kazakhstan, Russia, Uzbekistan and Tajikistan. Identified cases of quarantine facilities are increased every year. They are not only the weaknesses in the infrastructure of the phytosanitary border posts as well as the weaknesses in the plant quarantine legislation which does not allow the development of requirements, regulations, instructions, etc.

5. The absence of the Department of International Cooperation leads to the weakness in the information exchange with Member States and RPPO Executive Committee. Strengthening the relationship on the basis of agreements quarantine is a very effective measure with large trading partners has not yet been signed including China.

6. Low salaries and lack of incentives for employment with the PQS are also a major problem in the organization.

7. There is no clear functional responsibilities between inspectors and employees of checkpoints inter-inspection which is reflected in the division of responsibility for internal and external quarantine regulations.

8. The absence of electronic exchange of information and documents probably also contribute to the efficiency of plant quarantine organization. GP "Single Window" was developing between the authorized certification bodies and participant of foreign economic activities (FEA) for harmonization and transparency in business processes, the result would be seen later.

5.2.3. Opportunities

1. Cooperation with international organizations can significantly increase the potential for technical and institutional capacity in the phytosanitary policy and practice. Thus, through the implementation of technical assistance in 2002-2005, the former quarantine service and two phytosanitary laboratory centers "North" and "South" had been upgraded to international standard.

2. The terrain of the state zoning allows for the free zones with a minimum risk of penetration into the establishment in cases of disputes countries applying a ban on the import of agricultural products from Kyrgyz Republic.

3. The use of ISPM and EPPO standards with minimal adaptation to local conditions

5.2.4. Threats

1. Pest control may be a chain reaction in many sectors of the economy, such as agriculture, the environment and the economy. In many countries, the study Bio

ecology quarantine pests paid much attention to the benefits of a PRA that can give a definitive answer to the phytosanitary actions and decisions of trade disputes.

2. The spread of highly dangerous pests to the territory of Kyrgyzstan is still very clear. This can be followed by the consequences of reducing income for the rural population as well as the threat to food security.

3. Declining trust trading partners from the incompetent and unprofessional work of pest control in Kyrgyzstan can involve a lot of negatives on the level of trade barriers.

4. The possibility ban from the import of plant products from Kyrgyzstan also threatens the future of Kyrgyzstan products to prevent the spread of Fire blight (Erwinia amylovora) which is massive infectious in Kyrgyz Republic.

Recommendation

5.3 The strengths of Phytosanitary practices of Japan and the United States

This section analyzes the strengths of the Phytosanitary practices of Japan and the United States that can be applicable in the Kyrgyzstan Republic. According to Kahn (1991), the any phytosanitary policies and practices in most countries are based on the three basic components including:

(1) the removing of pest and pathogens of quarantine and the reducing the possibility of hazardous organism penetration can be performed to an acceptable level through the manmade actions when importing articles,

(2) exotic pests and pathogens so far have been suppressed, and eradicated through natural or man-made pathway, and

(3) providing assistance to the plant product exporters such as fruit, vegetables, cut flowers, and other agricultural commodities to meet the quarantine or exclusion requirements set up by the importing countries.

5.3.1 Japan.

Under the Japan phytosanitary policy, any regulated goods arrives as imports to be monitored. National Plant Protection Organization of Japan states that all import and export cargoes are divided into criteria, which takes into account the nature, severity, and practicality. These criteria solve the problem of unloading and other follow-up procedures. The terms of the import and export of plant products may require the

appropriate types of packaging, sterilization methods, and the transport conditions in the need for joint participation in these activities.

The management and control of quarantine organisms are present within the area, checking latent contamination of agricultural land, assigned to the internal plant quarantine. Furthermore, the government strongly supports the development of programs for the successful and effective solutions to an emergency.

All the stakeholders are involved through the cultivation, transportation, storage, and sale of plant products. NPPO Japan use monitoring or preventive measures to identify and respond to the early stages of outbreaks of new pests through the use of baits pitfalls in key ports of entry and international post offices. The use of pest risk analysis (PRA) significantly increases the predictability, efficiency and relevance in the phytosanitary actions.

5.3.2 The United State

Huge potentially in the agricultural industry cannot fully develop without research in the field of plant protection to develop a long-term plans and programs through the collection and interpretation of scientific data and technical information for maximum protection of plants including the risks in the policy and practice of the import and export and domestic programs.

In the implementation of phytosanitary measures against hazardous organisms, all the steps in the regulation of the internal procedures cited in the manuals there programs include measures for emergency management in emergencies. Through the

use of PRA, APHIS increases their productivity in the processes and risk management of pests.

The development of extensive programs is a major advantage of the American agricultural policy in protecting of plants. United States Agriculture Department allows communication with the interested communities, academia and government agencies, universities and industrial partners in the harmonization of these programs.

REFERENCES

Abdurasulov,Y. (2009). *Condition of agrarian sector of Kyrgyzstan*. Bishkek: AkIpress.

Alreck, P.L. & Settle, R.B. (1995). *The survey research handbook* (2nd ed.). Chicago: Irwin.

Al-Rodhan, N. R., & Stoudmann, G. (2006). *Definitions of globalization: A comprehensive overview and a proposed definition*. Occasional Papers, Geneva Centre for Security Policy, Ginebra.

Australian Department of Agriculture, Fishery and Forestry (AusAID). (n.d.). *The WTO sanitary (SPS) agreement*.

Babbie, E. R., (2001). *The practice of social research*. Belmont, CA: Wadsworth Publishing Company.

Berg, G. H. (1991). *Plant quarantine theory and practice*. Organismo Regional de Sanidad Agropecuaria.(OIRSA): El Salvador.

Chomsky, N. (2006). Globalization: Noam Chomsky interviewed by Maria Ahmed. Retrieved February 12, 20013, from http://www.chomsky.info/interviews/2006----.htm.

De Vaus, D. (2002). *Analyzing social science data: 50 key problems in data analysis*.Sage.

Ebbels, D. L. (2003). *Principles of Plant Health and Quarantine*. York, UK: CABI Publishing.

Food and Agriculture Organization of the United Nation (FAO). (1997). *International Plant Protection Convention*. Rome, Italy

Food and Agriculture Organization of the United Nation (FAO). (2008). *Climate-related transboundary pests and diseases*. Technical Background Document from the expert consultation held on 25 to 27 February 2008.Rome, Italy

Food and Agriculture Organization of the United Nation (FAO). (2010). *Guide to implementation of phytosanitary standards in forestry*. Italy.

Food and Agriculture Organization of the United Nations (FAO). (2006*). Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*. International Standards for

Phytosanitary Measures (ISPM), Publication Number 1. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2011b). *Guide to implementation of phytosanitary standards in forestry*. Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2012). *Market access guide*. Rome, Italy

Food and Agriculture Organization of the United Nations (FAO). (2002). *Glossary of phytosanitary terms, reference standard. International Standards for Phytosanitary Measures (ISPM), Publication Number 5*. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2007). *Framework for pest risk anal*ysis. International Standards for Phytosanitary Measures (ISPM), Publication Number 2. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2005). *Guidelines for the export, shipment, import and release of biological control agents and other beneficial organisms*. International Standards for Phytosanitary Measures (ISPM), Publication Number 3. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2011). *Pest risk analysis for quarantine pests including analysis of environmental risks and living modified organisms*. International Standards for Phytosanitary Measures (ISPM), Publication Number 11. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2004). *Pest risk analysis for regulated non quarantine pests*. International Standards for Phytosanitary Measures (ISPM), Publication Number 21. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2011a). *Guidelines for phytosanitary certificates*. International Standards for Phytosanitary Measures (ISPM), International Plant Protection Convention (IPPC), Publication Number 12. FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2010). *International standards and codes.* FAO, Rome, Italy.

Food and Agriculture Organization of the United Nations (FAO). (2011). *International plant protection convention*. New Revised Text approved by the FAO Conference at its 29th Session -November 1997. International Plant Protection Convention (IPPC), FAO, Rome, Italy.

Government of Kyrgyz Republic, (1998). *The Law of plant quarantine of the Kyrgyz Republic*.1996.No.26., Bishkek: Government of Kyrgyz Republic.

Government of Kyrgyz Republic. (1996). *The law of plant quarantine* .Bishkek: Government of Kyrgyz Republic.

Government of Kyrgyz Republic.(2013.)*Regulation on the state inspectorate for phytosanitary security under Government of Kyrgyz Republic*. Bishkek: Government of Kyrgyz Republic.

Hallman, G. J. (2002). Plant Quarantine. In D. Pimentel (Ed.), *Encyclopedia of pest management* (Vol. 1) (pp. 631-633). Weslaco, US: CRC Press.

Herman E. D. (1999). Globalization versus internationalization. Retrieved January 08, 2013 from http://www.globalpolicy.org/component/content/article/162/27995.html

Irisbay, A. (2011). *Agriculture in Kyrgyzstan: Current status and challenges*. Conference materials "Open *Kyrgyzstan"* (pp. 2-3). Bishkek: http://www.open.kg.

James, C. L. I. V. E. (1998). *Global food security*. In Abstracts, 7th International Congress of Plant Pathology, Edinburgh, UK, August (No. 4.1 GF). Retrieved 02 21, 2013, from http://www.bspp.org.uk/icpp98/4/1GF.html

Kahn, R. P. (1991). Exclusion as a plant disease control strategy. *Annual Review of Phytopathology, 29*(1), 219-246.

Kyrgyzstan Tax & Legal. (2013). *Tax and investment guide: Reach, relevance and reliability*. Kyrgyzstan: Kyrgyzstan Tax & Legal

Larsson, T. (2001). *The race to the top: The real story of globalization*. US: Cato Institute.

MacLeod, A., Pautasso, M., Jeger, M. J., & Haines-Young, R. (2010). Evolution of the international regulation of plant pests and challenges for future plant health. *Food Security, 2*(1), 49-70.

McAfee, K. (2008). Beyond techno-science: Transgenic maize in the fight over Mexico's future. *Geoforum*, *39*(1), 148-160.

McGrew, A. G. (1998). Global legal interaction and present-day patterns of globalization. *Emerging Legal Certainty: Empirical Studies on the Globalization of Law, Aldershot and Brookfield: Ashgate and Dartmouth*, 325-345.

McLaine, L. S. (1929). The basis and aims of plant legislation. *Journal of Economic Entomology*, *22*(3), 449-449.

National Plant Protection Organization of Kyrgyzstan. (2008). *Report of plant quarantine service.* Bishkek: National Plant Protection Organization of Kyrgyzstan.

National Plant Protection Organization of Kyrgyzstan. (2011b).*Anual report.* Bishkek: National Plant Protection Organization of Kyrgyzstan.

National Plant Protection Organization of Kyrgyzstan.(2010). Annual report. Bishkek: National Plant Protection Organization of Kyrgyzstan.

National Plant Protection Organization. (1996). Low of Plant Quarantine in Kyrgyz Republic. Bishkek: National Plant Protection Organization.

National Plant Qurantine Orhanization of Kyrgyzstan. (2011a). *Spread of quarantine organisms of countries in peace.* Bishkek: National Plant Protection Organization of Kyrgyzstan.

National Statistic Committee. (2010). Foreign trade of the Kyrgyz Republic. Bishkek: National Statistic Committee.

National Statistic Committee. (2011). Foreign trade of the Kyrgyz Republic. Bishkek: National Statistic Committee.

Noren, C. A. (1915). Agricultural quarantine and inspection in the United States. Retrieved June 18, 2013, from http://ir.library.oregonstate.edu/: http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/18515/NorenCarlAlbin1915.pdf?sequence=1

Norojono, O., & Lidasan, H. S. (2005). Policy Directions for harmonizing subregional cross border procedures: The case of the Bimp-Eaga. *In Proceedings of the Eastern Asia Society for Transportation Studies*, 5, 1728-1741.

Obdunov, E.A. (2010). Some aspects of food security in the Kyrgyz Republic. Bishkek, *The Eurasian International Scientific Research Journal*, 2 (34).

Perrings, C., Dehnen-Schmutz, K., Touza, J., & Williamson, M. (2005). How to manage biological invasions under globalization. *Trends in Ecology & Evolution*, *20*(5), 212-215.

Poverty Reduction & Economic Management Trade Unit and Agriculture and Rural Development Department. (2005). *Food safety and agricultural health standards: challenges and opportunities for developing country exports (World Bank Report No. 31207)*. Washington, DC: World Bank.

Roberts, D. H., & Krissoff, B. (2004). *Regulatory barriers in international horticultural markets. US Department of Agriculture*. Economic Research Service.

Secretariat of the International Plant Protection Convention. (2006). *Phytosanitary principles for the protection of plants and the application of phytosanitary measures in international trade*. Italy: International Plant Protection Convention.

Shah, A. (2007,). *Free Trade and Globalization*. Retrieved 04 , 2013, from Global Issues: http://www.globalissues.org/issue/38/free-trade-and-globalization

Simons, S. A., & De Poorter, M. (2009). *Best Practices in Pre-Import Risk Screening for Species of Live Animals in International Trade*: Proceedings of an Expert Workshop on Preventing Biological Invasions, University of Notre Dame, Indiana, USA, 9-11 April 2008. Global Invasive Species Programme, Nairobi, Kenya. 30pp.

Slorach, S. A., Kedera, C. J., Touré, M., & Welte, V. R. (2010). *Options for enhancing developing country participation in Codex and IPPC activities.*

Soubbotina, T. P. (2004). *Beyiond Economic Growth: An Introduction to Sustainable Development*. World Bank Publications.

Stephane, C. (2010). Creating an agricultural world order: Regional plant protection problems and international phytopathology, 1878-1939. *The Agricultural History Society*, 46-73.

Strange, R. N., & Scott, P. R. (2005). Plant disease: a threat to global food security. *Phytopathology, 43*. pp. 83-116.

Vyacheslav, T (2008, 02 22). *The agricultural sector: how and where*. Retrieved January 09, 2013, from www.msn.kg: http://www.msn.kg/ru/news/21910/

World Bank. (2007). *Cross Border Trade Within The Central Asia Regional Economic Cooperation* . World Bank

World Trade Organization. (2013). *Understanding The WTO*. Retrieved April 06, 2013, from https://www.wto.org/english/thewto_e/whatis_e/who_we_are_e.htm

APPENDIX

Lists of quarantine pests

1. Quarantine pests which have not been recorded in Kyrgyz Republic

Animals

Agrilus mali
Bemisia tabaci
Bursaphelenchus xylophilus
Callosobruchus chinensis
Callosobruchus maculatus
Carposina niponensis
Caulophilus latinasus
Ceratitis capitata
Ceroplastes japonicus
Ceroplastes rusci
Diabrotica virgifera virgifera
Dialeurodes citri
Frankliniella occidentalis
Globodera pallida
Globodera rostochiensis
Graphognathus (= Pantomorus) leucoloma
Hyphantria cunea
Icerya purchasi
Liriomyza trifolii
Meloidogyne chitwoodi
Monochamus spp.
Numonia pirivorella
Pectinophora gossypiella
Phthorimaea operculella
Phyllocnistis citrella
Popillia japonica
Pseudaulacaspis pentagona
Rhagoletis pomonella
Spodoptera littoralis
Spodoptera litura
Trogoderma granarium
Viteus vitifoliae

Fungi

Cochliobolus carbonum
Cochliobolus heterostrophus (race T)
Cercospora kikuchii
Diaporthe helianthi
Diaporthe phaseolorum var.caulivora
Didymella ligulicola (= D. chrysanthemi)
Glomerella gossypii
Puccinia horiana
Stenocarpella macrospora
Stenocarpella maydis
Synchytrium endobioticum
Phymatotrichopsis omnivora
Tilletia indica

Bacteria

Burkholderia (= Pseudomonas) caryophylli
Clavibacter (= Corynebacterium) tritici
Erwinia amylovora
Pantoea (= Erwinia) stewartii
Ralstonia solanacearum
Xanthomonas oryzae pv. oryzae
Xanthomonas oryzae pv. oryzicola

Weeds

Ambrosia artemisiifolia
Ambrosia psilostachya
Ambrosia trifida
Cenchrus pauciflorus
Helianthus californicus
Helianthus ciliaris
Iva axillaris
Solanum carolinense
Solanum elaeagnifolium
Solanum rostratum
Solanum triflorum
Striga spp.

2. Quarantine pests of limited distribution in Kyrgyz Republic

Animals

Grapholita molesta
Leptinotarsa decemlineata
Pseudococcus comstocki
Quadraspidiotus perniciosus
Lymantria dispar L (asian race)
Hyphantria cunea Drury

Bacteria

Erwinia amylovora (Burill.)

Nematodes

Globodera rostochiensis (Woll.)

Weeds

Acroptilon repens
Cuscuta spp

Questionnaire

1. Gender:

- ○ Man
- ○ Woman

2. Educational level

- ○ Gymnasium
- ○ University
- ○ MA/MS Graduate
- ○ Doctorate Graduate
- ○ Others (please specify) _____

3. Working experience in the Phytosanitary service

- ○ Less than 1 year
- ○ 1-3
- ○ 3-5
- ○ 5-10
- ○ 10-15
- ○ 15-20 years and more

4. In what field phytosanitary service works most effectively?

- ○ Controls on movement goods
- ○ Condition monitoring areas
- ○ Emergency control
- ○ Certification
- ○ Work on EPPO
- ○ Work on ISPMs
- ○ Training
- ○ Identification pest s in laboratory
- ○ Survey

5. What is the most contributing factor to the effective fulfilment of phytosanitary procedures in Kyrgyzstan?

- ○ Experience of Phytosanitary Service
- ○ Precautionary measures
- ○ Professional staff and degree of skills
- ○ Optimal structure of the PQ Service
- ○ Trainings
- ○ Technical facilities
- ○ Working with EPPO

- ○ Working with standards of ISPM
- ○ Study on pest risk analysis

6. In what area has Phytosanitary Service proven the most inefficiently?

- ○ Monitoring
- ○ Emergency management
- ○ Certification
- ○ Working with the EPPO
- ○ Working with ISPM
- ○ Training
- ○ Identification
- ○ Survey
- ○ PRA

7. What is the most contributing factor for ineffective performance of Phytosanitary Service?

- ○ Weaknesses in the Legislation
- ○ Lack of monitoring and research
- ○ Low level of control
- ○ Lack of emergency management
- ○ Ineffective identification
- ○ Lack of single operation and information sharing
- ○ Lack of qualification staff
- ○ Non-optimal structure
- ○ Lack of trainings and refreshing courses
- ○ Lack of technical equipment technical equipment
- ○ Insufficient technical equipment

8. What is the most important challenge to enhance and improve phytosanitary system in the KR?

- ○ Pest risk analysis (PRA)
- ○ Improve of knowledge and skills of personal
- ○ Phytosanitary certification
- ○ Phytosanitary legislation
- ○ Phytosanitary import requirements

9. In your opinion, the PQS should be a separate organizational unit in the country to improve the overall efficiency.

- ○ Yes, completely agree
- ○ Yes, rather agree
- ○ No, rather disagree
- ○ No, completely disagree

if answer is "Yes" please specify the areas that should be restructured?

- ○ At the President
- ○ The Government
- ○ At the Ministry of Agriculture
- ○ The organizational units in any part
- ○ Other (please specify) _____

10. What statement do you support?

- ○ Plant Quarantine Service needs a major upgrade
- ○ Phytosanitary practice should be given training on all the parameters of action and no action
- ○ Plant Quarantine Service to work out their own experience on Phytosanitary Measures

11. Does the reform of the civil service system of plant quarantine in KR eliminate the "conflict of interest"?

- ○ Yes, completely agree
- ○ Yes, rather agree
- ○ No, rather disagree
- ○ No, completely disagree

12. Which statement do you support?

- ○ PQS needs technical modernization
- ○ PQS needs a partial upgrade for all parameters action and inactions
- ○ PQS is no need for upgrade

13. What successful operation at the present situation prevails into phytosanitary system in Kyrgyz Republic?

- ○ Prohibited
- ○ Entry import permit
- ○ Entry export (PC)
- ○ Disinfection treatment
- ○ Phytosanitary inspection
- ○ Restriction
- ○ Surveillance