

**Institut für Agrarsoziologie und Beratungswesen der  
Justus-Liebig Universität Giessen**

**Agricultural Knowledge and Information System  
On Tea Farming in Vietnam**

**Implications for strengthening the extension service**

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## **List of Acronyms**

ADB	: Asian Development Bank
AEC	: Agricultural Extension Center (at provincial level)
AKTS	: Agricultural Knowledge Transfer System
AKGS	: Agricultural Knowledge Generation System
AKIS	: Agricultural Knowledge and Information System
CIDCE	: Centre International de Droit Comparé de l'Environnement
CAE	: Communal Agricultural Extension
CEMA	: Committee for Ethnic Minority Affairs
CPC	: Communal People Committee
DARD	: Department of Agricultural and Rural Development
DAFE	: Department of Agricultural and Forestry Extension
DPC	: District People Committee
GSRV	: Government of Socialist Republic of Vietnam
NAEC	: National Agricultural Extension Center
NMR	: Northern Mountainous Region of Vietnam
MOLISA	: Ministry of Labor Invalids and Social Affairs
PARES	: Public Agricultural Research and Education System
PPC	: Provincial People Committee
VietGAP	: Vietnamese Good Agriculture Practice
TOT model	: Transfer of Technology Model
SOEs	: State owned Enterprises

# 1. Introduction

This research deals with agricultural knowledge and information systems of tea farming in Vietnam. Research has been carried out in Thai Nguyen province, which is located in The Northern Mountainous Region (NMR) of Vietnam. The introduction will give a background on the situation in the tea sector in Vietnam and discuss the problems relevant in the context of extension services in the tea sector. The research questions and objectives in this study will also be presented in this chapter.

## 1.1. Background

Tea (*Camellia Sinensis*) is cultivated in around 35 countries and plays an important role in the economy of most of these countries. It creates jobs in production, processing, transportation and marketing and provides export earnings and foreign exchange for the national economy. The livelihood of millions of families around the world depends on tea production. This is also the case in Vietnam where today tea is grown in 34 of 64 Vietnamese provinces. Vietnamese people have a history of planting tea for over three thousand years. Drinking tea has become a traditional habit of the typical Vietnamese family. In the NMR of Vietnam, considered as the poorest region in the country, where no other cash crops such as coffee, cashew, etc. is being grown in a notable volume (ADB 2004; SOMO 2007), growing tea contributes much to the incomes of especially farming families where revenues per acre of tea are two to three times as high as for paddy rice. In the NMR of Vietnam, tea production is very competitive and local climatic conditions are suitable and the required land resources for growing tea are available (DOANH 2011). Furthermore, it provides employment for more than 400,000 households in the rural area (SOMO 2007; WAL 2008).

Over the course of time, the governments of Vietnam paid considerable attention to the tea sector. Currently, several policies have been designed and implemented in Vietnam: decentralization, liberalization, privatization and democratization as well as pluralistic extension with many new actors involved. Communication and information technologies also are advancing rapidly which offer farmers several opportunities to learn new practices for innovation in production (FAO 2000; PHUONG 2010). However, the tea sector is reportedly performing below its potential: low yields and productivity, and low product quality (ADB 2004). Among the major problems affecting tea production is the limited access of tea producers to information both in production and marketing as well.



Recently, there has been a relatively low level of connections between actors in agricultural extension, researchers and the farmers themselves. Information on needs and priorities of the actors does not flow easily from the farmer to the extension service, from the extension service to the research system and from the research system to the planners (CASTELLA et al. 2006; GOLETTI 2007). In addition, much of the local knowledge and farmer practices are not included in research or extension activities (GOLETTI 2007). This has resulted in farmers not benefiting from many opportunities existing in the country.

More bottlenecks exist at the institutional level: most of farmer organizations are not strong enough to ask for and demand information and the supportive institutions, such as extension and research, are not well structured or managed and have not contributed to solving problems or to improving unfavorable institutional and communication conditions. Weak linkages among technology-oriented research, education and extension institutions limit their effectiveness in contributing to development, especially when farmers are poorly organized, poorly endowed with biophysical resources, and have limited access to transport, storage and processing facilities as is mostly the case in the mountain areas (CASTELLA et al. 2006).

## **1.2. The problems**

Thai Nguyen province represents the largest tea producing area in the NMR of Vietnam and will be of special relevance in this research project. It is one of nine provinces that receive special support from the Vietnamese government in developing tea. This may be also justified by the fact that Thai Nguyen tea is the largest area growing tea in the NMR and has a very good reputation for tea products throughout the country of Vietnam. Tea farmers in this area have a long tradition of producing and processing green tea with a specific unique taste, which cannot be found in other places.

Based on the high value of tea production and its large potential in this area, in 2001 a tea extension group was established to support farmers and to fulfil the requirements of the governmental support programs. Furthermore, Thai Nguyen City is considered the largest educational centre in the NMR considering general education and the third largest in Vietnam with respect to the high numbers of actors involved in creating and disseminating the knowledge of tea. However, the report from ADB (2004) showed that the efficiency of extension personnel in this area is limited while the farmers are poorly educated. This makes it difficult for extension staff to disseminate information

on new technologies. The development of tea production in general and in Thai Nguyen in particular, still shows a set of sustainability problems, since cultivating tea is dependent on chemical fertilizers and pesticides for increasing productivity and do not consider producing safe product (TRI 2006; WAL 2008; VITAS 2011).

With respect to these problems, this study tries to analyze the situation by using the Agricultural Knowledge and Information (AKIS) perspective to understand the function of the system focusing on the role of the extension service. The Parasuraman Model of quality service was used to analyse the gaps which limited the contribution of the extension system and to suggest what can be done to strengthen the extension service in making effective contributions to the tea sector.

### **1.3. Research questions and objectives**

This research concentrates on the above stated problems in the tea sector in the NMR of Vietnam in general and in Thai Nguyen in particular, and tries to find ways of improving of the extension service in the tea sector in order to better serve its clients.

The *research questions* following out of this are as follows:

- Who contributes knowledge and information to the system? What are the relationships between and among different actors in the system?
- How is the system functioning? What is the role of the tea extension staff? How does the information flow?
- Where is the bottleneck in the system? How to improve and make effective contributions to the extension services in the tea sector?

The *objectives of this research* will cover only a part of the problems and objectives in the tea sector in the NMR and be restricted to what is feasible in the framework of such a research project as it is carried out here. The research objectives will concentrate on the research questions above and will be as follows:

1. To identify actors involved and their relationships in the system.
2. To analyze the function of the system focusing on the role of the extension staff and the information flow within the system.
3. To identify the bottleneck in the system and make suggestions or recommendations to eliminate it.

## 2. Theoretical Background of Extension and Research Concepts

This chapter provides the theoretical background of the study with theories and concepts related to the research issues. After definitions and interpretations of extension, relevant concepts for such research are presented and discussed. The first one is the concept presented in the Agricultural Knowledge and Information System (AKIS) and system thinking followed by the Soft System Methodology (SSM) and the Rapid Appraisal of Agricultural Knowledge System (RAAKS) and finally the concepts of quality management of the service provider and the *Parasuraman* Model of quality service.

### 2.1. Theories Background of Extension

#### 2.1.1. Historical meanings and international terminology of extension

The term “**Extension**” was first introduced in Britain in the 1840s and used in the context of “University Extension” or “extension of the university” (VAN DEN BAN and HAWKINS 1988; LEEUWIS 2004). The term became commonly used in the UK in the second half of the 19<sup>th</sup> century in some educational programs of universities for adults. Later, the term was adopted in the United States and other places after the influence and effects in UK became obvious. In the 20<sup>th</sup> century, in UK the term “*extension*” was replaced by “*advice service*” when the work was transferred to the Ministry of Agriculture. The term “*advice service*” then becomes popular in European countries with similar duties of the Agricultural Ministry (VAN DEN BAN and HAWKINS 1988; SWANSON 2008).

In most of English speaking countries, now the term “extension” is more popular; and in other languages the different words were used to describe the similar phenomena (LEEUWIS 2004). Table 2.1 presents international terminology of extension.

**Table 2.1: The international terminology of “Extension”**

<b>Language</b>	<b>Term denoting giving advice</b>	<b>Meaning of term</b>	<b>Term denoting the person giving advice</b>
German	Beratung	To give advice, assistance for problem solving	Berater, Ratgeber
British and American English	Advisory work	To advise	Advisor, (psychologically) counselor
	Counseling	To advise psychologically	counselor
	Consultation	To consult	consultant
	Extension	To disseminate	Extension agent
Dutch	Voorlichting	To light ahead to illuminate	Voorlichter
Spanish	Extension	To spread out	Extensionista
Portuguese	Extensao	To spread out	Extensionista
French	Vulgarization	To make popular	Vulgarisateur
	Encadrement	To frame, to incorporate, to check in, to file in	Encadreur
	Animation	To motivate, to activate	Animateur
Italian	Divulgazione	To make popular	Divulgatore
Danish	Oplysning	To enlighten	Consulent
Hindi Bangla	Samprasaron	To disseminate, spread out	Samprasaronkarmi
Myanmar	Pyinnyar pay lotengan Ahkyan pay lotengan	Technical assistance, give advice	Pyinnyar paythu Ahkyan paythu

Source: VAN DEN BAN and HAWKINS 1988; CHO 2004; HOFFMANN et al. 2009

## 2.1.2. Definition of Extension

In the historical development, the definitions and interpretations of extension vary and each definition can be understood as a product of its time ( LEEUWIS 2004).

Initially, there were definitions of agricultural extension which focused on the educational dimensions, such as: *“Extension is a service or system which assists farm people, through educational procedures, in improving farming methods and techniques, increasing production efficiency and income, bettering their levels of living, and lifting social and educational standards”* (MAUNDER 1972, 3). Or: *“ Extension is the ongoing process of getting useful information to people (the communicative dimension) and then assisting those people to acquire the necessary knowledge, skills and attitudes to utilize effectively this information and technology (the educational dimension)”*. (SWANSON and CLAAR 1984, cited by LEEUWIS 2004, 23).

In this context, the relationship between extension staff (extensionist) and their farmers (clients) is similar to the relationship between teachers and their students or parents and their children, which are paternalistic in nature, putting the extension agent in an *“expert”* position and their clients in a receiving and listening position (LEEUWIS 2004).

Over time, extension developed and recognized that farmers could learn a lot from each other when solving problems, thus definition of extension shifted slightly to emphasize decision making and problem solving. VAN DEN BAN (1988), in his book of Agricultural Extension defined extension as a *“process which*

- *helps farmers to analyze their present and expected future situation;*
- *helps farmers to become aware of problems that arise in such an analysis;*
- *increases knowledge and develops insight into problems, and helps to structure farmers’ existing knowledge;*
- *helps farmers acquire specific knowledge related to certain problem solutions and their consequences so they can act on possible alternatives;*
- *helps farmers to make a responsible choice which, in their opinion, is optimal for their situation;*
- *Increases farmers’ motivation to implement their choices; and*

- *Helps farmers to evaluate and improve their own opinion-forming and decision-making skills*”(VAN DEN BAN and HAWKINS 1988, 11).

However, when comparing theories and practices of extension, it is to be seen that extension should not only be regarded as “*helping*” their clients but also as be considered as an “*intervention*” undertaken by a party for some policy objectives (LEEUIS 2004). Taking the intervention aspect into consideration, RÖLING (1988) defined extension as “*a professional communication intervention deployed by an institution to induce change in voluntary behaviors with a presumed public or collective utility*” (RÖLING 1988, 49).

Extension is often accompanied by inducing changes; BOLAND (1991) concentrated in his definition of extension on the role/responsibility of the client on initiating and implementing of change. “*In the process of extension, extension agent gets involved in a partnership-oriented interaction with an unsure client, who nevertheless is motivated to work on his problem. The aim of such consultation is to make the situation of the client clear and to empower and encourage him to start a personal and objective development. During the process, no dependency on extension agent should be developed; rather the responsibility of the client for the start up and implementation of changes should be clarified*” (BOLAND 1991, cited by CHO 2004, 26).

The situation in recent times is changing rapidly in many aspects (e.g. agricultural development, social, environment) which brings LEEUIS (2004) to the conclusion that there is a need

- “*To shift away from a focus on individual behavior change which has characterized most of the definition so far, and incorporate the idea that extension is about fostering new patterns of co-ordination.*

- *To move away from the idea that extension works mainly on the basis of pre-defined directions, policies and innovations, and emphasize its generative dimensions.*

- *To indicate that changes usually have a dual (material-technique and social organizational) component.*

- *To transcend the idea that extension is mainly concerned with decision-making, and to emphasize the importance of social learning and negotiation in extension processes.*

- *To define extension as a two-way or multiple-way process, in which several parties can be expected to contribute relevant insights, and which may have action implications for all parties (not only farmers, but also researchers, extensionists, policy makers, agricultural industries, etc.) involved in the process*”( LEEUWIS 2004, 26).

Accordingly, LEEUWIS (2004) redefined the term as “*extension is a series of embedded communicative interventions that are meant, among others to develop and/or induce innovations which supposedly helps to resolve (usually multi-actors) problematic situations*”(LEEUWIS 2004, 27).

In the Hohenheim School of extension, the definition of extension is closest to the term of advisory work, which was defined as: “*It is the process whereby the extension worker tries to motivate his extension partner and, by offering encouragement and ideas, seeks to give him the capability to act to solve his acute problems. In this way, partners acquire greater insight into the network of problems affecting them and recognize the alternative solutions available. They gain from this both the incentive to embark on problem solving and the direction to take. Through advisory work, otherwise untapped human resources are set free and utilized.*

*The relationship between the adviser and his partner that is necessary to achieve this should be reciprocal, but the adviser being only committed to the welfare of his client. In this relationship, the partner’s freedom to make decisions and to assume personal responsibility for his or her actions must be preserved in full, because she or he alone must ultimately bear the responsibility for the consequences of these action*”(HOFFMANN et al. 2009, 25).

Similarly, BOLAND (2007) has defined the advice work as:

*“In the advisory process, the adviser enters into an interactive partnership with a person who is undecided and seeking advice for the purpose of shedding light on his/her difficulties and enable and encourage him/her to initiate personal and functional development. The advice-seeker should not become dependent on the adviser, but instead should be made aware of his/her own responsibility for initiating and carrying out change”* (BOLAND 2007, 4).

## 2.2. The Agricultural Knowledge and Information System (AKIS)

The AKIS perspective was developed by NIELS RÖLING and other researchers at Wageningen University in the Netherlands in the late 1980's (RÖLING 1988; RÖLING and ENGEL 1991; ENGEL 1997). In the theoretical framework, both macro and micro level were considered. The AKIS perspective considers farmers as active in the agricultural system. They are both receivers and producers of information and knowledge (RÖLING and ENGEL 1991). The knowledge system perspective also takes into account that extension alone cannot be held responsible for the success or failure of innovation. It is based on sharing knowledge among relevant stakeholders in research, education, mass communication and policymaking... and other sectors (ENGEL 1997).

AKIS was defined as: *“the set of organization and /or persons, and the links and interactions between them that are engaged in, or manage such processes as the anticipation, generation, transformation, transmission, storage, retrieval, integration, diffusion and utilization of agricultural knowledge and information, which potentially work synergeticly to support decision making, problem solving, and innovation in agriculture or a domain thereof”* (RÖLING and ENGEL 1991, 125).

Historically, extension was considered a broker between researchers and farmers. Researchers produce technology, extension transfers it to farmers and farmers are the users. This process is called Transfer of Technology Model (TOT model). In this model, extension was considered an isolated entity like other institutions as well and when new technology was not adopted by the farmers, research on extension used to look at only the delivery mechanisms to the farmers (RÖLING and ENGEL 1991). Looking at extension, research and farmers have been considered separate entities neglecting the synergy of the contribution of the actors as a whole. Farmers are not only users but also experimenters and/or active problem solvers on their farms (RÖLING and ENGEL 1991).

In contrast to the TOT model, in the AKIS perspective, researcher, extension, farmers/agricultural producer and other actors are considered a sub-system and they are linked together as a whole. The contributions of actors are no longer seen as separate from each other. The combination of their contributions is more than the sum of different individual contributions (RÖLING and ENGEL 1991).

The AKIS system was based on the framework of system thinking ( ENGEL 1997) in which the term “system” refers to a way of thinking or procedures, mechanisms or set



of activities designed as a whole ( ENGEL 1997). KAUFFMAN (1980) indicated that in order to function or to work well, all the parts of the system must be present and arranged in the proper way. If something is made up of a number of parts and does not arrange, then it is not a system, but rather it is “*heap*” KAUFFMAN (1980).

According to SENDEL and LANNON-KIM (1990, cited by CARRASCO et al. 2001) system thinking is “*a discipline for seeing wholes, recognizing patterns and interrelationships, and learning how to structure them in more efficient ways*” (CARRASCO et al. 2001, 3).

The AKIS conceptual framework grew out of “*extension science*”, in which “*extension*” comes closest to the Dutch term “*voorlichting*” which means to hold a lamp in front of someone to allow him or her to find the way (RÖLING and ENGEL 1991). “*Voorlichting*” is a purposeful communication to affect voluntary behavior, it is not limited to technology transfer, but cover various forms of information, adult education, persuasion, and empowerment.

In the framework of AKIS, the two realms “*knowledge*” and “*information*” have been distinguished by RÖLING: “*Knowledge exists between the ears. We speak of constructs, models, theory, etc. One cannot hear, see, touch, or smell knowledge. It is in people. It is their most important survival mechanism. They use knowledge to give meaning to the world, to make attributions to predict what will happen if they act to achieve something. Knowledge is the basic for control and useful adaptation*” (RÖLING and ENGEL 1991, 129).

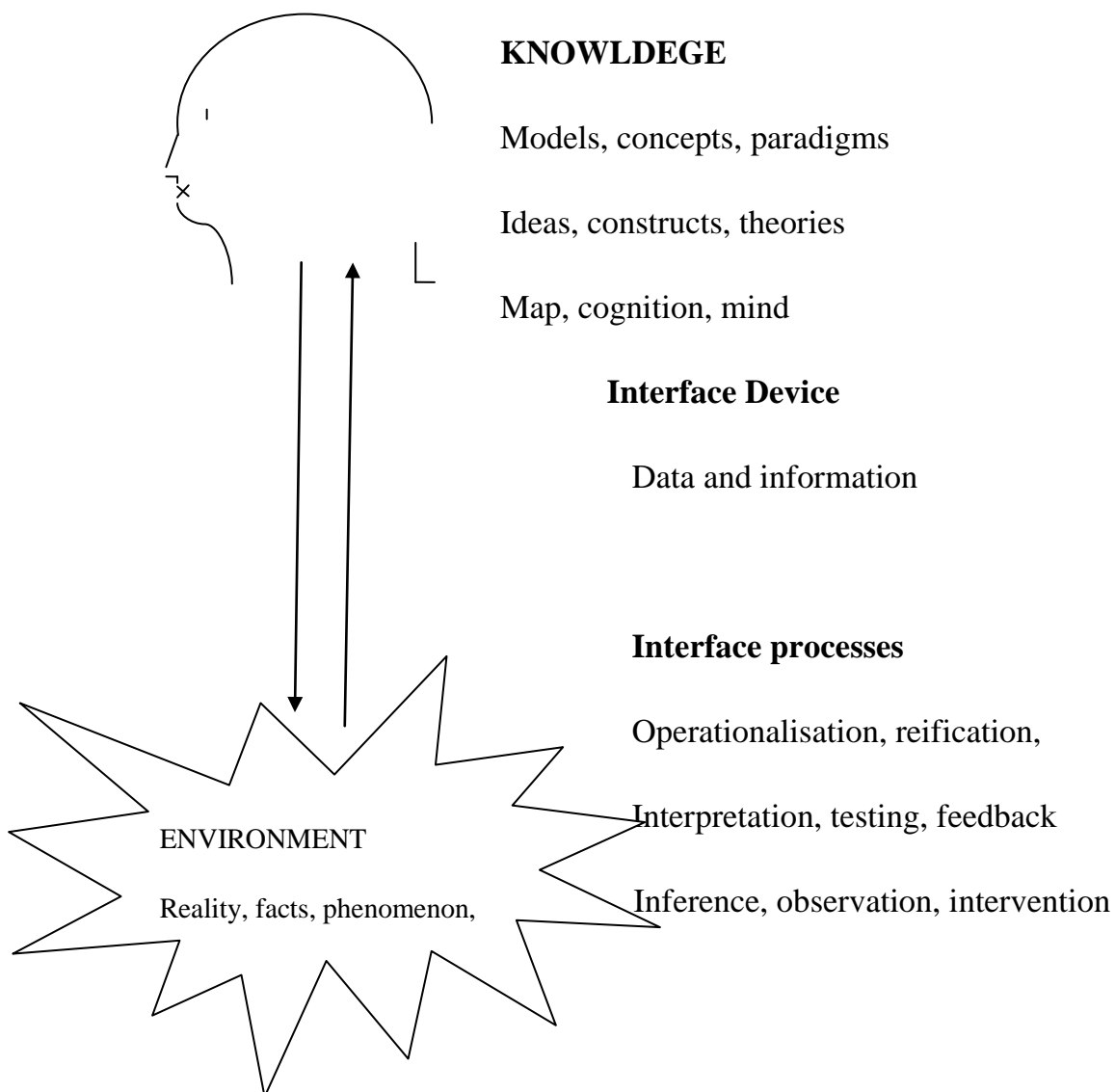
RÖLING also points out that: “*the interface between knowledge and the real world is fascinating. Control requires a good fit between knowledge and the real world. In order to improve this goodness-of-fit, we observe and infer, get feedback, communicate, and learn. All these are essential interface process*”(RÖLING and ENGEL 1991, 129). The interface between knowledge and the real world was described by RÖLING (1988) in figure 2.1.

“*Information is more than data or sensory inputs. It is patterned data, which allows us to give meaning to the environment, and improve the goodness-of-fit between knowledge and the real world. Information is a remarkable concept. On the one hand, it is matter/energy which we can register with our senses; on the other, it is a pattern that is decoded into knowledge and interpreted*” (RÖLING and ENGEL 1991, 129).

According to RÖLING, “*information must anticipate its receiver. The pattern must be interpretable. This is a central concern in extension*” (RÖLING and ENGEL 1991, 129).

While knowledge is implicit in individual and social actors, information is explicit. Information, defined as patterns intended to give meaning to the receivers and whereby receivers need to have sufficient skills to acquire it through listening, reading, understanding...and so on ...( ENGEL 1997). Because knowledge is implicit and it is inside the person, innovative persons have a lot of experiences and their knowledge is accumulative over time; however, if their knowledge is not transferred to other persons (through spoken or written documents...) then the knowledge is lost (KAUFFMAN 1980; RÖLING and ENGEL 1991).

**Figure 2.1: Knowledge, environment and their interface**



Source: RÖLING 1988

The system provides sharing knowledge of not only extension activities but also relevant actors. All actors can take into account what they know and what they do in joint competence of interrelated actors rather than the sum of individuals. This is expressed by *“everybody depends on everybody else to make innovation work”* (ENGEL 1997).

The AKIS has been constructed as a diagnostic framework, which can be used to explore the organizational forms that enable or constrain the knowledge process (RÖLING and ENGEL 1991). According to RÖLING and ENGEL, *“this concept promised analysis of phenomena, interesting far beyond the boundaries of conventional extension science as well as a practical contribution in term of knowledge management and policy”*(RÖLING and ENGEL 1991, 130).

VAN DEN BAN (1993) suggested that in the frame of AKIS it will be analyzed *“who (will) contribute which kind of knowledge and information to decision making in Agriculture and what are the relationships between different actors in this system.”* And *“studying this system is useful in order to be able to manage this AKIS in such a way that it contributes as much as possible to generation, dissemination, transformation utilization, storage and retrieval of knowledge and information which is useful for agricultural development”* (VAN DEN BAN 1993, 77). Studying how it works? Why it works in that way and what can make the AKIS more effective. He points out that: *“agricultural researchers have often not given enough attention to the fact that most farmers are resources poor and cannot bear much risk. Extension agents have often not introduced this information clear enough in the process of formulating extension recommendations. As a result for many farmers it was a wise decision not to follow these recommendations”*(VAN DEN BAN 1993, 79). In this case, it is recommended that: *“in order to improve this situation we should understand why researchers and extension workers are working in the present way. What advantages would it have for them to change their behavior, unless the system of promotions and other rewards changes first? One should also looks for situations where researchers and extension agents have given serious attention to problems of resource poor farmers and analyze why this happened there”* (VAN DEN BAN 1993, 79).

According to RÖLING and ENGEL (1991), *“a typical AKIS does not serve agriculture in general, but specific domains. These may consist of the coffee industry,*

*farmers in a certain geographic region or those utilizing a common production system, female-headed households, etc*”(RÖLING and ENGEL 1991, 130).

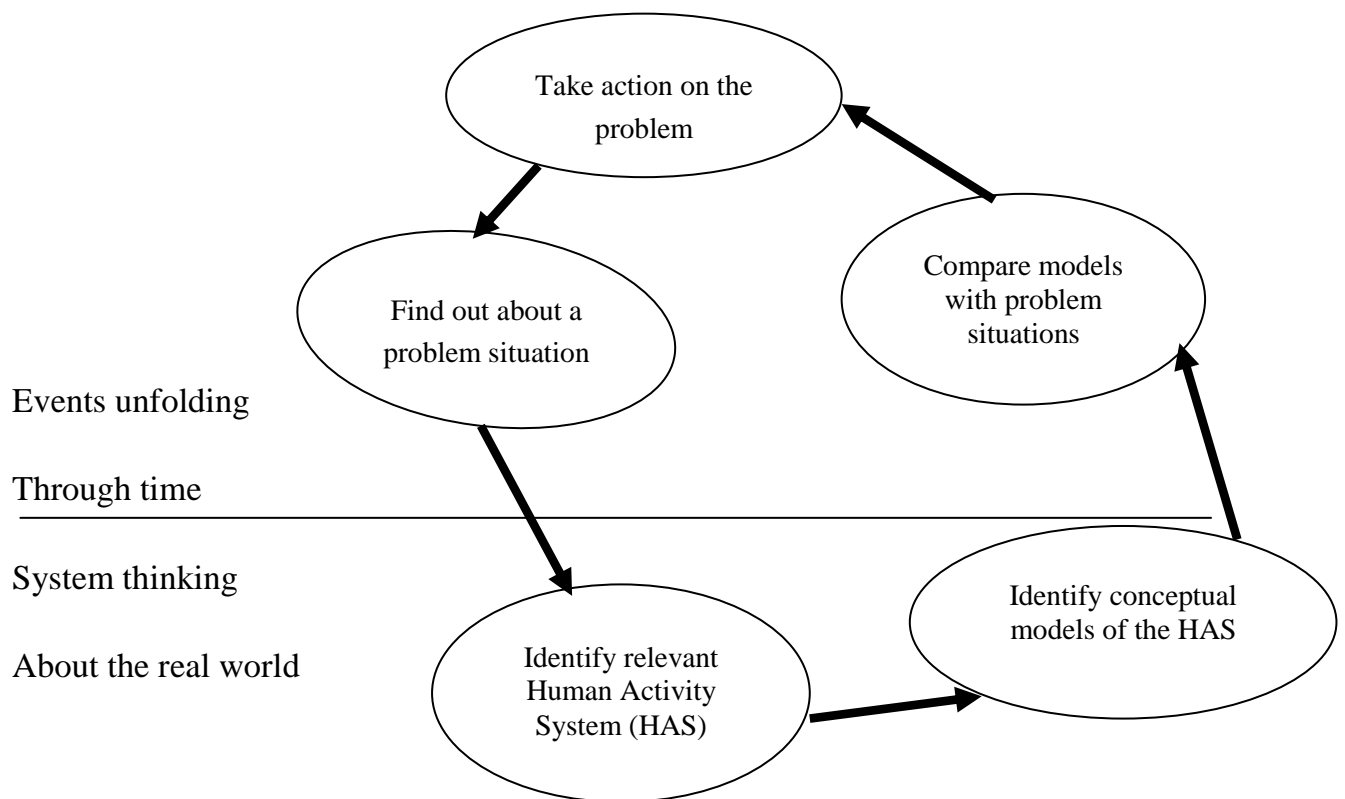
VAN DEN BAN also mentioned: *“An AKIS can be studied for a certain region or for a certain field of agriculture, for example, dairy farming in Gujarat. The major aim of such a study is to be able to suggest how the functioning of this system can be improved in order to increase the competence of farmers to produce with their resources what the market requires at a low cost. This competence is of crucial importance for agricultural development”*(VAN DEN BAN 1993, 76).

### **2.3. Developments of Soft System Methodology (SSM) and Rapid Rural Appraisal of Agricultural Knowledge Systems (RAAKS)**

The SSM and RAAKS are two methods developed to improve the Agricultural Knowledge and Information System (AKIS). Checkland’s Soft Systems methodology (SSM) provides a basis for the development of such approaches (ENGEL 1997). SSM is a tool for shared learning and participation of involved actors in making decision. The system is called soft because its objective is not clear with hard feedback mechanisms or boundaries (RÖLING and ENGEL 1991).

Moving from finding problems to taking action (Figure 2.2), SSM was considered along side the approach of RAAKS method as it focuses on facilitating the design of useful interventions, recognizes different views of relevant actors and concerns in the improvement of human practices (ENGEL 1997).

**Figure 2.2: The Soft Systems Methodology in summary**



Source: CHECKLAND 1985, cited by RÖLING and ENGEL 1991

The Rapid Appraisal of Agricultural Knowledge System (RAAKS) as designed by SALOMON and ENGEL (1997) was considered as the suitable management tool for understanding an Agricultural Knowledge System and which provides a concrete starting point and method with evident steps to follow (RAMIREZ 1997). RAAKS obviously fits well with SSM method.

It provides the way of looking at things from different standpoints of farmers, researchers, extension and other actors involved. Actors can understand and learn to adapt to the situations and make the development more sustainable (SALOMON and ENGEL 1997). RAAKS not only facilitates the learning process but also provides an approach of understanding social organization of innovation and contributing to solving social organizational problems respecting to innovation (ENGEL 1997).

RAAKS offers instruments including windows and tools for gathering, organizing and interpreting information. It is meaningful for use in situations where working together can be expected to promote positive change (SALOMON and ENGEL 1997).

**Figure 2.3: Methodology for Participative AKIS Development Based on SSM and RAAKS**

<b>Soft System Methodology SSM</b>	<b>Rapid Analysis of Knowledge Systems</b>
FIND OUT ABOUT A PROBLEM SITUATION	<p>What are the systems and definition of the problem?</p> <p>To what extent is it a technology problem?</p> <p>What are the conditions to be met for technology development and utilization to make a contribution</p>
<b>IF TECHNOLOGY IS SIGNIFICANT PROBLEM:</b>	
NAME RELEVANT HUMAN ACTIVITY SYSTEM USING Clients Actors Transformations Weltanschauung Owners Environmental constraints	<p>What AKIS are we talking about (domain, components, linkages, environment)?</p> <p>Who does what in the system? (functional analysis)</p> <p>To what development in agriculture is the system supposed to contribute?</p> <p>What outputs does the system produce?</p> <p>What is the perception of the system by those involved?</p> <p>What are the environmental conditions for the expected performance? (e.g., economics, infrastructure, etc.)</p>
NAME CONCEPTUAL MODEL OF THE HUMAN ACTIVITY SYSTEM	<p>Use AKIS conceptual framework to model the local AKIS with respect to:</p> <p>Functional differentiation (structure and process);</p> <p>Coordination (prime movers);</p> <p>Integration (synergy);</p> <p>Performance; using hypotheses about vital qualities, AKIS disorders and points of leverage.</p>
COMPARE MODEL WITH PERCEPTION OF THE PROBLEM SITUATION	<p>Who can act to change the situation?</p> <p>What are the concrete points of leverage?</p> <p>What can be done in terms of knowledge management and intervention?</p>
TAKE ACTION	Joint decision making about implementation

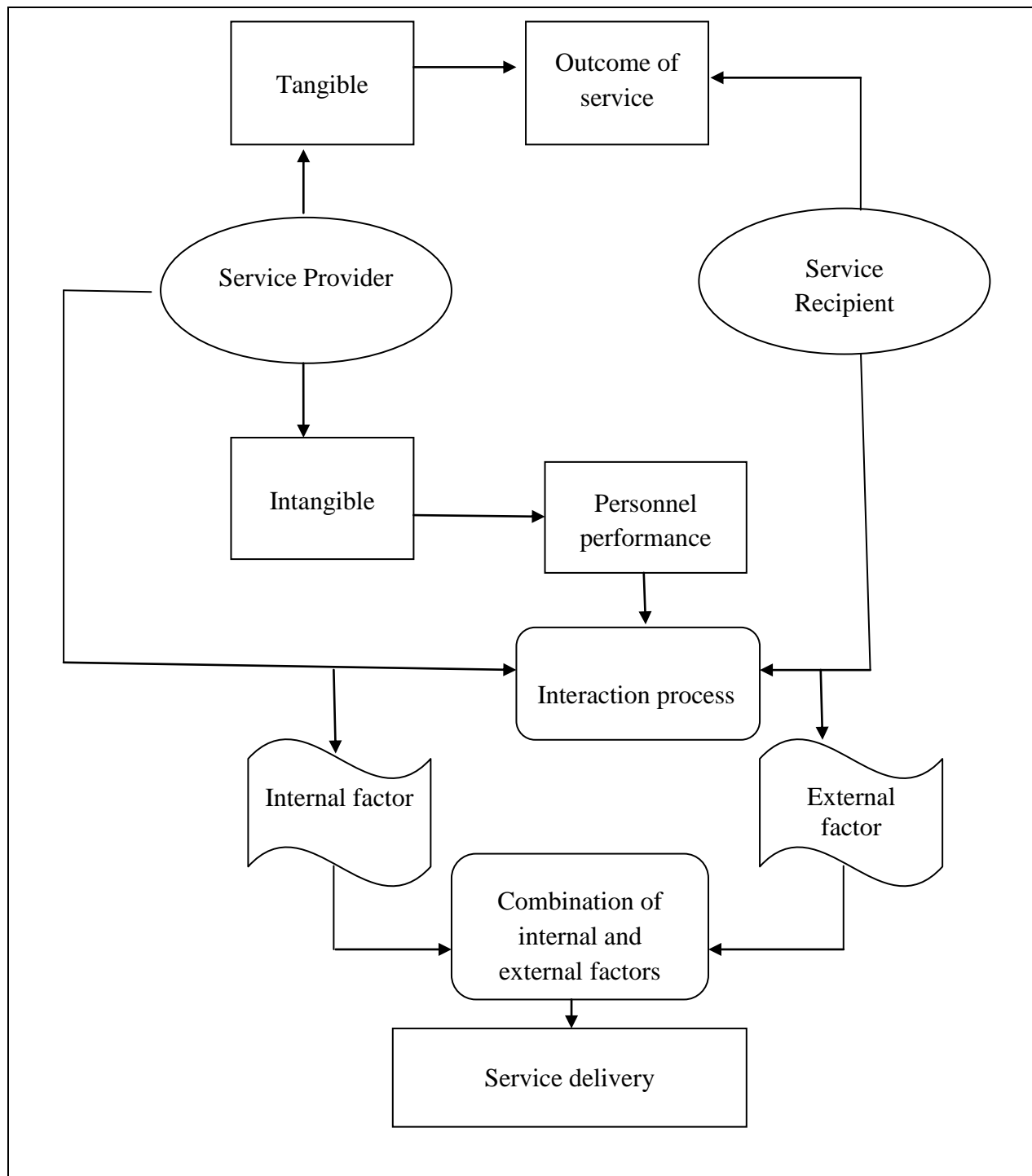
Source: RÖLING and ENGEL 1991

## 2.4. The Parasuraman Model and the concepts of quality management

The *Parasuraman* Model of quality deals with the concept of quality management of service providers. It is a method, which allows specially focusing on assessment of the performance of the service. RAAKS was considered the best tool for understanding an AKIS. In this research work, however, a somewhat different way has been followed due to lack of time, finance and teamwork for applying RAAKS. The main focus was placed on analyzing the work of the extension service by looking at the performance of the service and the interaction with the tea farmers in Thai Nguyen province, and then trying to see how the service can better serve the needs of the farmers. For this reason, the service quality model is especially suitable for anticipating the improvement of extension services, as looking at the personal performance, which is implicit in any kind of advisory service or consultancy and plays an important role in the service (BOLAND 2007). According to ZEITHAM et al, *“quality is the degree of the discrepancy between the expectations and wishes of the customers and their perception of the actual service”* (ZEITHAM et al 1992, cited by BOLAND 2007, 4). Or from STROTMANN: *“Quality is the recognition of customer requirements, their translation into feasible agreements, and the performance of these agreements”* (STROTMANN, 1998, cited by BOLAND 2007, 4). In these definitions of quality, the customer was placed at the centre of the service (BOLAND 2007). BOLAND also described personnel performance in the service process, which is intangible and rendered in an interactive process between the provider (internal factor) and recipient (external factor) of the service. The linkages of provider and receiver as well as the external and internal factors are presented in Figure 2.4.

In this process, the recipients or advice-seekers should be actively involved and aware of their responsibility to initiate and carry out changes (BOLAND 2007). And the factor combination of the service provider is deployed to effect beneficial impacts on the external factors (BRUHN 2004, cited by BOLAND 2007).

**Figure 2.4: Personnel performance in service process**



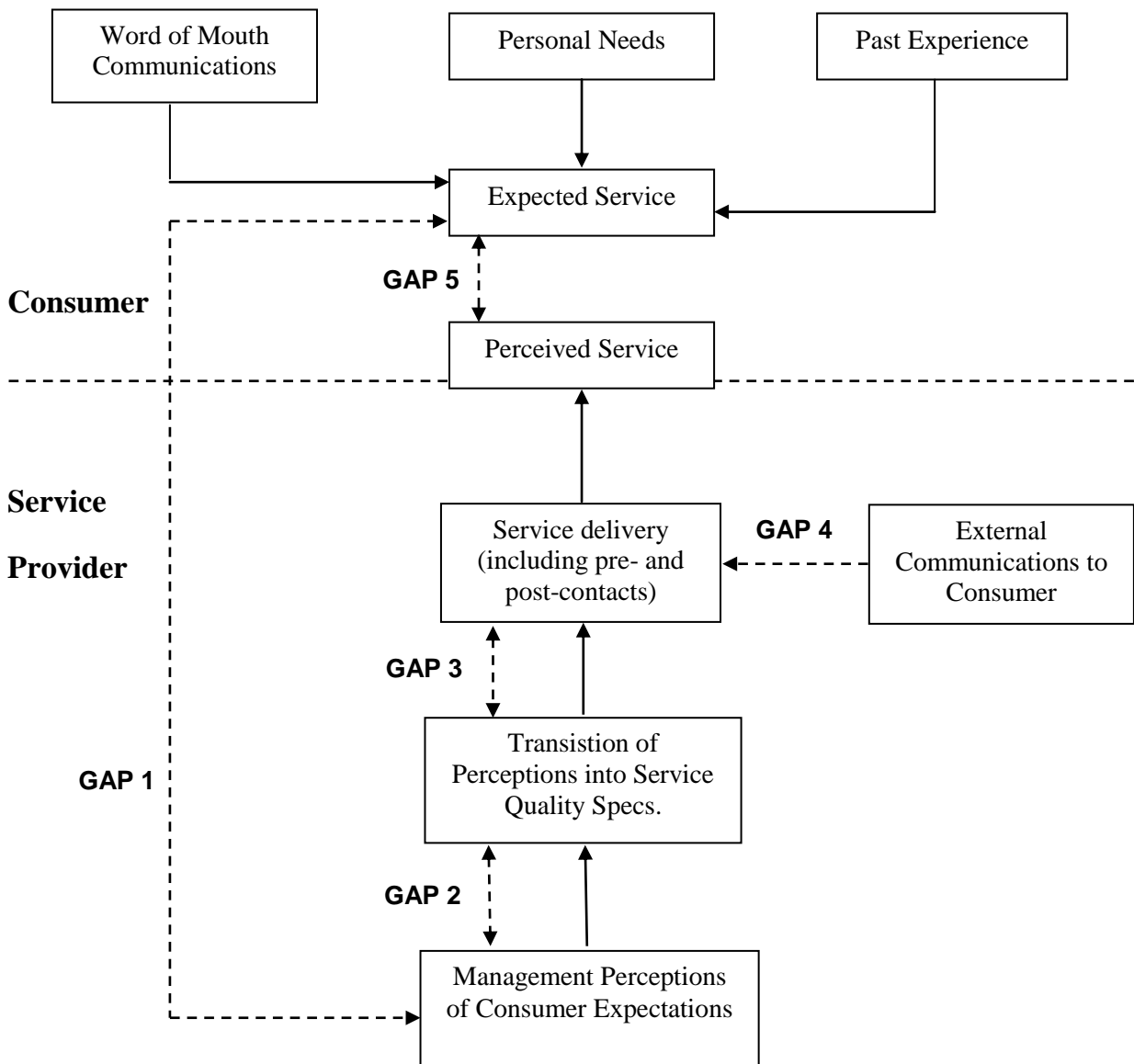
Source: Own draft based on BOLAND 2007

The service quality model (presented in Figure 2.5) which is the so-called GAPs model, has been developed by a group of authors including PARASURAMAN, ZEITHAML and BERRY at Texas A&M University since 1985. The model provides the set of gaps, which are divergent perceptions, both looking at the service provider's side (internal gaps)



and consumer's side (external gap) of the service. The internal gaps (the provider service side are GAP1, GAP2, GAP3, GAP4) were considered as major obstacles of service delivery (PARASURAMAN et al. 1985).

**Figure 2.5: Service quality model**



Source: PARASURAMAN et al. 1985

**GAP 1: Consumers expectation and management perception gap**

According to Parasuraman this gap may occur when service providers do not understand the expectations of consumers. Most prominent examples of such a situation are related to the features a service must have in order to meet consumer needs and/or the levels of performance of those features needed to deliver high quality services (PARASURAMAN et al. 1985).

## **GAP 2: *Management perceptions* and *service quality specifications* gap**

The various factors such as constraints of resources, market conditions (e.g. lack of trained service personnel and wide fluctuations in demand) and the absence of total management commitment to service quality, may result in a gap between management perception of consumer expectation and the actual specifications established for a service. According to BOLAND (2007), this gap means perceived expectations of service providers and the translation of these in the service delivery. It is about being able to make operational plans from the objectives, which the service can then implement (BOLAND 2007).

## **GAP 3: *Service quality specifications* and *service actually delivered* gap**

It was recognized that the performance of personnel as service providers exerts a strong influence on the service quality perceived by consumers and that performance cannot always be standardized. This problem happens even when guidelines exist for performing service well and treating consumers correctly because it relates to variability in employee performance. BOLAND (2007) points out that “*what counts here is the competence of service providers to actually perform the obligation as promised*” (BOLAND 2007, 6).

## **GAP 4: Service delivery and external communications gap**

External communications (such as media advertising or other communications providing information of service delivery intended to serve the consumer) can affect not only expectations about a service but also consumer perceptions of the delivered service. Promising more than can be delivered will raise initial expectations but lower perceptions of quality, when the promises are not fulfilled.

## **GAP 5: Consumer’s expectation and their perceived service gap**

The assessments of high and low service quality depend on how consumers perceive the actual service performance in the context of what they expect. The key to ensuring good service quality is meeting or exceeding what consumers expect from the service.

In this research, the AKIS framework is used with the aim of understanding the functioning of the system. It started with the assumption as suggested by VAN DEN BAN (1993) that the information relevant to decision making of the farmers is generated by different actors and reaches farmers in many different ways. The set of tool books of RAAKS designed by ENGEL et al. (1997) was used as reference for designing the

questions for the interviews with key informants, the tea extension group and different groups of tea farmers in the study area. The theories of extension and the Parasuraman Model of quality service were used to analyze the performance of the extension service as well as to find out what can be done to strengthen the work of the extension for better contributions to the tea sector.

### **3. The role of tea sector in the NMR Vietnam and policies relevant to extension**

The tea sector in Vietnam is heavily influenced by the natural environment and socioeconomic development. In this chapter, the main characteristics in relation to tea are presented. Besides these conditions, man-made changes in the economic and social sectors are other dominant influences on the development of tea. Finally, the political decisions made to form the micro and macroeconomic conditions as well as the establishment and management of extension institutions and activities influence the development to a large extent. This will be differentiated for Vietnam as a whole as well as NMR and especially the study area in this chapter.

#### **3.1. Characteristics of the NMR Vietnam**

The NMR is one of seven agro-ecological regions of Vietnam: the Northern Mountainous Region, consisting of North West and North East Zones, the Red River Delta, the North Central Coast, The South Central Coast, the Central Highlands, the North East South, and the Mekong River Delta Region (presented in Figure 3.1).

The NMR, in which the study area is located, covers about 103,000 km<sup>2</sup>, which represents almost one third of the area of the country. The population is about 12 million people accounting for 15% of the national population. With 30 ethnic minorities in the North it comprises over 50% of the ethnic groups in the whole country (VIEN 2003). The region is divided into 15 provinces: Hoa Binh, Son La, Dien Bien, Lai Chau, Ha Giang, Cao Bang, Bac Kan, Yen Bai, Thai Nguyen, Lang Son, Quang Ninh, Bac Giang and Phu Tho.

The development of the national economy has also heavily influenced the Northern region. Since the economic reform in 1986, known as “Doi Moi”, Vietnam has increased national economic growth, especially due to the shift from an importing country to the second largest rice and coffee exporting country in the world. However, there are big differences between the regions in the country. The NMR is among the poorest region due to many constraints in natural characteristic and socio-economic conditions (MINOT et al. 2006; TEERAWICHITCHAIMAN et al. 2007). Other reasons are poor infrastructure resulting in poor access to roads and markets as well as to mass media and other public services. This led to a certain isolation of the region from other parts of the country (TEERAWICHITCHAIMAN et al. 2007; TUAN and DOANH 2008; WORLD BANK 2009).

**Figure 3.1: The agro-ecological regions of Vietnam**



Source: Gov 2008

The natural conditions are characterized by rugged topography from hilly to mountainous, where altitudes range between 500 - 1000m and some mountains peaks are above 3000m (MINOT et al. 2006). Sloping land accounts for 85% of total area with large areas of bare hills (DOANH 2011).

The economy relies heavily on agriculture where scared and scattered flat lands are characterized by terraces and small valleys. These are used for growing rice mainly for

household consumption and the sloping lands are for growing cash crops such as tea, coffee, maize, fruit trees (VIEN 2003; MINOT et al. 2006; TEERAWICHITCHAIMAN et al. 2007).

Even though there are a lot of constraints challenging the region, there is good potential for development since the area is rich in land resources for growing high value cash crops (such as tea, coffee, fruit trees, vegetable as well as flowers). This can be considered as a good potential for income diversity for people in the region (DOANH 2011). However, the fluctuations of the market price for products, the high dependency on fertilizers and pesticides for increasing productivity, and the lack of information about the demand of the market as well as the lack of knowledge and capital are considered main barriers which prevent people from raising their income and improving their living conditions. (TEERAWICHITCHAIMAN et al. 2007).

### **3.2. The role of the tea sector in the socio-economy.**

#### *Tea is a healthy beverage*

Tea (*Camellia Sinensis*) is an evergreen plant that grows mainly in tropical and sub-tropical climates. It is the oldest non-alcoholic beverage in the world and is one of the most important cash crops for many developing countries. It is cultivated in about 34 countries in the world and plays an important role in the economy of those tea-growing countries in terms of providing income and employment, as tea requires intensive labor. The product is mainly in the form of “*fermented tea*” (black tea), “*non-fermented tea*” (green tea) and “*semi-fermented tea*” (oolong tea). More than 700 chemical constituents have been reported in tea leaves, among which flavonoids, amino acids, vitamins, alkaloids and polysaccharides are gaining much importance for human health, which means tea is becoming increasingly consumed due to its properties as a functional drink with medicinal benefits in reducing cholesterol, anti-tumor, promoting weight reduction, blocking oxidative DNA damage to the liver, preventing tooth decay and oral cancer, acting as an antimicrobial and reducing the probability of renal stone formation... (ASTILL 2001; VO 2006; RUDY 2008). Drinking tea has become a tradition in many countries around the world (such as Japan, China and Vietnam) and it serves two thirds of the world population as a daily drink (VO 2006).

#### *In the socio-economy and culture of Vietnam*

Vietnam is considered the home of tea and the country is one of the few countries in the world, which have the natural conditions and climate potential for growing tea. Now Vietnam is one of the six leading countries producing tea regarding production and export sharing in the world (SOMO 2007; WAL 2008). In Vietnam, tea is grown in 34 provinces out of 64 (SOMO 2007). The NMR and Northern-Central Regions are the main areas for tea plantation. About 63% of the total tea in Vietnam is cultivated in the NMR. Tea quality is considered high in this area (SOMO 2007; WAL 2008; THO 2008).

Tea plays a crucial role not only in the socio-economic sector but also in the long history of Vietnamese culture. Tea is always offered and consumed at each important event of the country, like the traditional New Year, wedding ceremonies and so on. An impression from a foreign researcher of tea in Vietnam: *“Further than the economic potential though, tea has a very important place in Vietnamese culture. Tea is consumed daily throughout the country, throughout generations, and has been for centuries”* (WENNER 2011, 8).

Tea plays a vital role in the economy of Vietnam and the NMR by generating income and employment for rural people, which is especially relevant in upland areas with little alternatives (ADB 2004). The tea sector relates to more than 400,000 households growing tea and the tea industry provides employment for nearly 6 million people. Tea is considered a key cash crop for reducing poverty and bringing wealth to the upland people (ADB 2004; VITAS 2010; DOANH 2011).

In Vietnam, drinking tea is part of the culture and has created *“a philosophy of the delicate, ethereal, meditation and conscious mind”* in *“harmony with nature, the dealing with time, space access full humanity, the environment and human...”* (updated on: <http://www.vietnamtraveltour.net/601-the-culture-in-drinking-vietnam-green-tea.html>). Tea is considered as synonymous with *“the euphoria, alertness, and retreat to seek the good and avoid evil”*.

Drinking tea in Vietnam has a long history and was recorded in much Vietnamese literature and poems by Pham Dinh Ho, Nguyen Tuan, Cao Ba Quat... Currently, in modern society, tea is served for escaping from the hours of fatigue and stress. On the occasion of the traditional New Year, a pot of hot tea makes a cozy atmosphere where everyone can feel the approach of spring and the warmth of conversation. In the heat of summer, enjoying a cup of tea also brings moments of relaxation and energy.

### 3.3. The Distribution of tea growing areas and its development in Vietnam

#### *Distribution*

The tea growing area in Vietnam can be divided into 6 smaller areas with specific characteristics:

a) The North West area (Son La and Lai Chau provinces): the average temperature is 13-23<sup>0</sup>C with rainfall is around 1500-2000mm/year, humidity is 75-85% and slope of the land is less than 25<sup>0</sup>. This area is suitable for growing "*Shan tea*". Humidity in the winter is quite high, and then there is a typical monsoon climate. The amplitude of oscillation temperature between day and night is high. Tea is grown intensively in 3 sub-regions in Son La province: Moc Chau, Mai Son, Phu Yen and in 2 sub-regions of Lai Chau province: Phong Tho, Tam Duong.

b) The Northeast area includes Ha Giang, Tuyen Quang, Cao Bang, Bac Kan, Lao Cai and west of Yen Bai; this area is also called "Viet Bac-Hoang Lien Son" region. This region is characterized by complicated terrain with mostly small mountains at 100-500m high but with the highest humidity compared with other regions. Sunshine is 1400-1600 hours/year and less than other regions. The average temperature is 15.3-22.3 C with rainfall of around 1468-2843mm/year and humidity of 83-88%.

c) The middle of NMR (South of Yen Bai, Phu Tho, Ha Noi, Thai Nguyen, Hoa Binh, Ha Tay). In this area, the weather is typical of a tropical climate with warm and high humidity. Altitude is about 600m above the sea level.

d) The North Central area (Thanh Hoa, Nghe An, Ha Tinh). This is the area where fresh tea has been produced for the longest period. The average temperature is 23-24 C. The winter is warmer than in the northern area and humidity is above 85%. Highest temperature and driest weather is in July. Rainfall is intensive in September and October, accounting for 40-50% of the total.

e) Central Littoral area (Quang Binh, Quang Tri, Thua Thien Hue, Da Nang, Quang Nam, Quang Ngai and Binh Dinh). Tea is grown dispersedly in this area. The soil is dry and infertile; therefore, people produce tea for local markets on a small scale. This was the most important tea growing area in the past when the French occupied the country.

f) Western Highland (Lam Dong, Dak Lak, Gia Lai-Kon Tum) is typical for large and flat plateaus. The weather is very humid; rainfall is intense in summer 1,800 - 2,800mm and the temperature difference between day and night is from 10 - 11<sup>0</sup>C. The



altitudes are between 850 and 1,500 m above sea level and the soil fertility is high, hence suitable for growing tea. Lam Dong province is the largest area compared to the other provinces growing tea throughout the country (SOMO 2007; IPSARD/CAP 2006).

### *Historical development*

Vietnam has a 3000 - year long history of growing tea; however, large-scale production did not begin until the coming of the French (WENNER 2011). After occupying Indochina in 1882 the French immediately paid a lot of attention to growing tea. They carried out a survey on tea in Vietnam and established the first tea plantation in 1890, in Tinh Cuong- Phu Tho province (ZEISS and DEN BRADER 2001, cited by ADB 2004).

The history of tea production in Vietnam can be partitioned into 3 stages:

a) **1890-1945:** The first tea plantations were set up (60 ha in Tinh Cuong, Phu Tho; 250 ha in Duc Tho, Quang Nam). By 1938, the total area of tea production in Vietnam was 13,405 ha. In 1939, the yield reached 10,900 tons, making Vietnam the 6<sup>th</sup> tea producing country in the world, after India, China, Sri Lanka, Indonesia and Japan.

b) **1945-1954:** Because of the war, most of the tea plantations were abandoned.

c) **1954 to present:** Great development in export and domestic markets. This stage can be divided into 2 periods based on the difference of production scales:

- *1954 to 1988:* Most of the tea farms were state plantations and cooperatives. After gaining independence in the North of the country, the government implemented policies for developing the economy: building of cooperatives at different levels, sedentarization, and population redistribution to establish new economic zones by bringing Kinh people from densely populated lowland areas in selected provinces of the Red River Delta to settle in the uplands. In 1955, there were about 5,400 ha of tea plantations and they increased to 40,000 ha in 1975. During this time, many tea plantations were established such as: Moc Chau (in Son La province), Van Hung, Van Linh, Phu Son (Phu Tho) and Quan Chu, Bac Son, Song Cau (in Thai Nguyen province) (TUYEN 2005). With the support from Soviet Union, in 1957 the first large tea processing plant was built in Phu Tho province (SOMO 2007). After 1975, industrial tea cultivating zones were formulated throughout the country,

- *After 1988:* In the late 1970s the cooperative policy developed shortcomings and tea production stagnated. These shortcomings were that fulfillment of the households'

need were not considered central, thus discouraging people's interest, motivation and creation of production development. As a consequence, the government implemented a reform from a central planning to a market driven economy and land reform by distributing state land to the private households (HUYEN 2010; HUY 2010; MINH 2010).

### *Structure of tea production and marketing/export*

The Vietnamese government implemented many policies in the past supporting the tea sector. In 1990, the growing area of tea was only 60,000 hectares and increased to 66,700 ha in year 2000 and doubled in year 2009 to 135,000 ha. The yield increased from 3.1 ton/ha in year 2000 to 7.15 ton/ha in year 2009 (DOANH 2011). In the last two decades, the Vietnamese tea sector increased tea production from 47,000 tons in 1996, to 109,000 tons in 2005 and in 2009 the volume was 180,000 tons (SOMO 2007; VITAS 2010).

Tea production systems in Vietnam are basically smallholder based, with 70% of total cultivated area in smallholdings. The most recent Agricultural Census from GSO in 2003 showed that there are 400,000 households cultivating tea and of which 70% producers owning less than 0.2 ha of land cultivating tea (ADB 2004).

Tea sector in Vietnam is export-oriented with around 84% of production for exporting in 2002 (ADB 2004). Before 1991, tea exported mainly went to the Soviet Union and Eastern Europe and exporting activities relied heavily on The Vietnam National Tea Corporation (VINATEA). The collapse of the Soviet Union pushed Vietnam to expand the market to others, of which today 80% of export goes to Iraq, Taiwan, India, Pakistan and Russia (Iraq and Taiwan account for 50% of Vietnam total export). In 2003, again, the war in Iraq led to the collapse of demand for Vietnamese tea and the amount of tea exported sharply reduced at that time, even Iraq was unable to make payments on the delivered products (Iraq was the largest export market from 1995 - 2002 which accounted for 40% of export in average). Facing the problem of relying on VINATEA in exporting, especially the SOEs, at that time, VINATEA was no longer dominant in export (ADB 2004).

Up to now, Vietnamese tea has been exported to more than 90 countries around the world (of which, 20% is green tea, 60% is black tea, Jasmine and Oolong tea account for 20%). Pakistan, Taiwan, Russia, India, Poland, Japan, Germany, the U.S and Belgium are main importers of Vietnamese tea accounting for 91% of the total exported quantity (SOMO 2007).

At present, there are about 610 enterprises engaging in tea production; of them, about 250 enterprises are exporting companies with more than 2000 brand names (SOMO 2007).

#### *Problems of lacking raw materials for processing*

The lack of raw materials due to the fast increasing tea processing plants: There are 250 industrialized tea processing plants with capacity from 1-4 tons of fresh tea leaves per day and a total capacity of 70,000 tons per year. Moreover, there are several thousand private tea-processing plants. The fresh tea leaves meet only 88% of demand of tea processing plants (SOMO 2007). The imbalance between raw material input and the processing capacity causes a lot of problems: competing among the fresh tea buyers has led to low quality of raw material; farmers do not care about the quality of the fresh tea they are selling because it is easy to sell. Enterprises are reluctant to invest in new equipment because the raw material only meets 30-40% or 50-60% of the requirement (SOMO 2007).

The lack of linkages between farmers and processing plants: The main reason for this is the strong competition in buying fresh tea leaves causing negative impacts on trust building because of the violation of contracts while there is an absence of punishment in case of violations. Another reason is that the linkages are built on a profit basis rather than on common interests between farmers and their partners) (SOMO 2007).

### **3.4. The tea sector in the study area**

#### *Thai Nguyen tea*

Thai Nguyen is the most famous area growing tea in Vietnam. The tea products in this area have a unique taste with which no other places in the country can compete. “Thai Nguyen Tea” is therefore a well-known name of green tea products among domestic consumers, which can satisfy most of the gourmet tea market. The phrase “Thai Tea, Tuyen Girls” became commonly known by most of the Vietnamese people, which explain the taste of Thai Nguyen tea products and the beauty of the girls in Tuyen Quang province.

Being well known in the country, tea became a high value crop in the province and hence plays an important role in socio-economic development, contributing the main goals of reduction of poverty, eliminating hunger and even producing wealth for farmers (ADB 2004). Providing income around the year to farm households, tea is very much favored by the farmers by improving liquidity of regular payments every month.

With the comparative advantage of this area, tea is considered as key crop in government priority planning of the province. From 1999, Thai Nguyen is one of nine provinces supported by government programs for developing fruits and tea. Other programs supported by CIDCE, SNV, ADB, CARE and other NGOs also focus on the development of tea in this area.

In 2000, the Thai Nguyen province started a scheme of developing tea, which follows Decree 43 of the government. The project was officially implemented by the Department of Agricultural and Rural Development (DARD). From 2001, DARD recruited an extension team to support six districts with intensive tea areas. With the support of DARD and the tea extension teams, productivity of tea in Thai Nguyen is now the highest in the country. However, reports from ADB in conducting research on the tea value chain in 2006 found out that tea farmers in Thai Nguyen are poorly educated and still have few extension services (ADB 2004).

### ***Different groups of tea farmer***

A central characteristic of tea production in the study area is seen by the different types of farm and farmers. They manage different types of farms according to historical development after liberalization and farmers have different experiences and knowledge according to the professions they had before. These are basic considerations when the type of extension and communication with farmers is decided on.

**Figure 3.2. Typical tea farms and rice fields in Thai Nguyen**



Before implementing the reform policy in 1986, in Vietnam most of tea farmers were either cooperative farmers (which is now called cooperative old style<sup>1</sup>) or worker farmers working in state farms. Since the reform in 1986, land was distributed to farmers, and farm households became autonomous units and were granted long-term land use rights.

ADB, in 2004, analyzed the tea value chain in Thai Nguyen and classified four types of groups of farmers:

- **Worker farmers:** were mainly workers of state plantation or companies. This type of farmer was allocated land from the state plantation for up to 50 years through contracts

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<sup>1</sup> In the formation of cooperative old style, farmers were under the control of cooperative management boards and other different government levels. In the cooperative old style, all the facilities were under state ownership including land. In the morning, farmers went to the field after hearing the bell ringing and finished a working day when the bell rang again. Labor days were calculated by points to get production at the end of the harvest.

stipulating that they produce the tealeaves for the company following its dictates. Before 1995, this type of farmers were employees of State Owned Enterprises (SOEs), they received a salary and other social benefits such as health insurance, retirement and holidays. Under the implementation of Decree 01 (issued in 1995) SOEs released land to their workers and these farmers became worker farmers.

- ***Contract farmers*** are tea farmers who own their land but sign contracts to sell products to the companies. There are two kinds of contract farmers: the first one is a farmer who buys land from a company and signs a contract to sell the product to the company. The second one has emerged since 2002 when the government issued Decree 80 to promote contract farming in agricultural commodities.

- ***Cooperative farmers*** are member of cooperatives, which are new styles of cooperative. These cooperatives are established under the support of some NGOs projects aiming to strengthen the capacity of farmer organizations. In the value chain, cooperative farmers sell products to cooperatives but not in very high quantity. The cooperatives lack trading and marketing experience and face problems such as budget constraints to promote their trading activities. Mostly, cooperatives support their members in providing inputs rather than selling output.

- ***Unlinked farmers*** or free farmers who produce and sell tea on the open market. This type of farmer accounts for the majority of tea farmers.

Reports from ADB also showed that: comparing these types of farmers, worker farmers have advantages in getting intensive training techniques from VINATEA (Vietnam Tea Cooperation) particular to their needs while unlinked farmers are in the opposite situation. They received support from DARD, however, according to ADB *“the efficacy of extension personnel is limited as their salaries are low and they must provide their own transport. Training of extension is rudimentary due to lack of funds and expertise while farmers, especially poor farmers are poorly educated which make difficult for extension staff to disseminate information on new technology and varieties”* (ADB 2004).

### **3.5. Institutional policies and structure of Agricultural Extension in Vietnam**

In 1986, the government of Vietnam initiated an economic reform in the country (known as “Doi Moi”. In this reform, the introduction of extension work in Vietnam started (VO 1994, cited by QUYEN 2012). Before that time, technologies were transferred

directly to the head of the cooperatives in a purely top-down approach without considering the needs of farmers (NGUYEN et al. 2005). The “Doi Moi” in 1986 had a significant impact on the economy of Vietnam, which was gradually shifted from central planning to market orientation. In this process, the government encouraged research and development activities to help farmers make their best use of their resources for achieving government objectives (VO 1994, cited by QUYEN 2012).

With the introduction of the Decree 13 by the government, the Department of Agricultural Extension (DAE) was established in 1993 aiming to formulate the national agricultural extension (AE) system from a central to village level network and to encourage the voluntary extension organizations (NGUYEN et al. 2005).

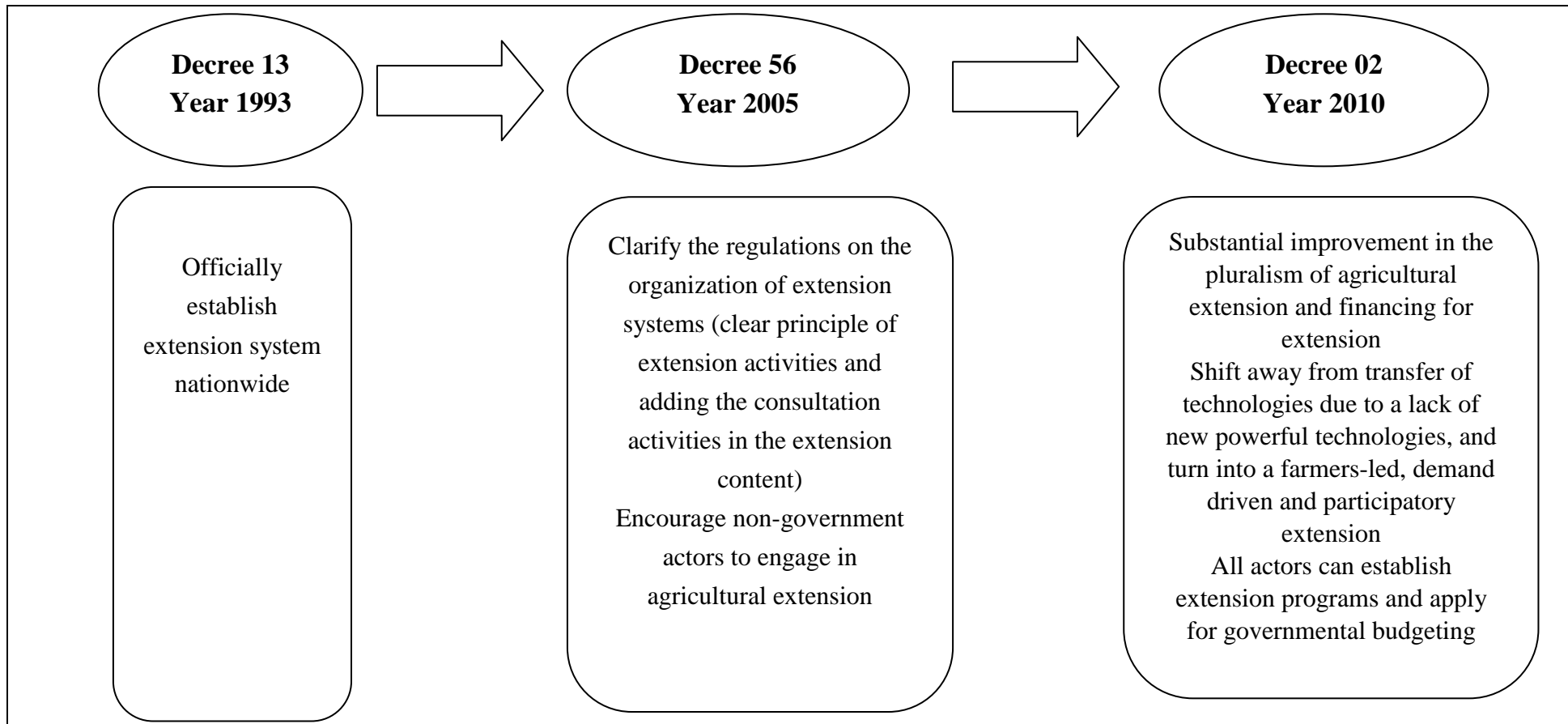
After 12 years of implementation of policy Decree 13, the extension system started to show its weakness in meeting higher demand for production technology and international integration (MARD 2008, cited by QUYEN 2012). In 2005 in order to strengthen the extension activities, the government introduced Decree 56 targeted at changing the economic structure in agriculture and rural areas, increasing productivity, quality, efficiency and sustainable production, creating jobs, increasing income, poverty reduction, industrialization and modernization in agriculture and rural areas. The Decree 56 clarified more clearly the role of extension with five detailed principles of the extension activities and added new extension elements in consultation, extension service and international cooperation and expanded the actors contributing and benefitting from extension with the aim of pluralism in extension (QUYEN 2012).

The tea sector, as well as general agricultural development was influenced by problems resulting from the dropping of the GDP growth rate in agriculture, low prices of agricultural products while the price of input and labor cost increased faster. After 20 years of renovation of the economy small households still play key role as producers in rural areas with a fragmented production scale which makes it difficult to bring in dynamic innovation and to manage resources effectively. The level of mechanization, technological improvements, changing of management skills and self-restructuring are very limited (MARD 2009, cited by QUYEN 2012). In 2010, the government continued to introduce a new policy in extension. Decree 02 was issued on January 2nd 2010 in order to improve business performance for farmers and increase their income to overcome poverty through imparting knowledge, skills, providing service activities to support

farmers in efficient production. This was especially done to contribute to restructuring agricultural production towards commodity orientation, promoting industrialization of agriculture and rural areas and in building a new countryside, as well as improving national security and protecting ecological environment and mobilizing resources from domestic and foreign agricultural extension organizations for agricultural extension activities (QUYEN 2012). An overview of the different policy degrees in the development over time and their basic changes in extension is given in Figure 3.3.



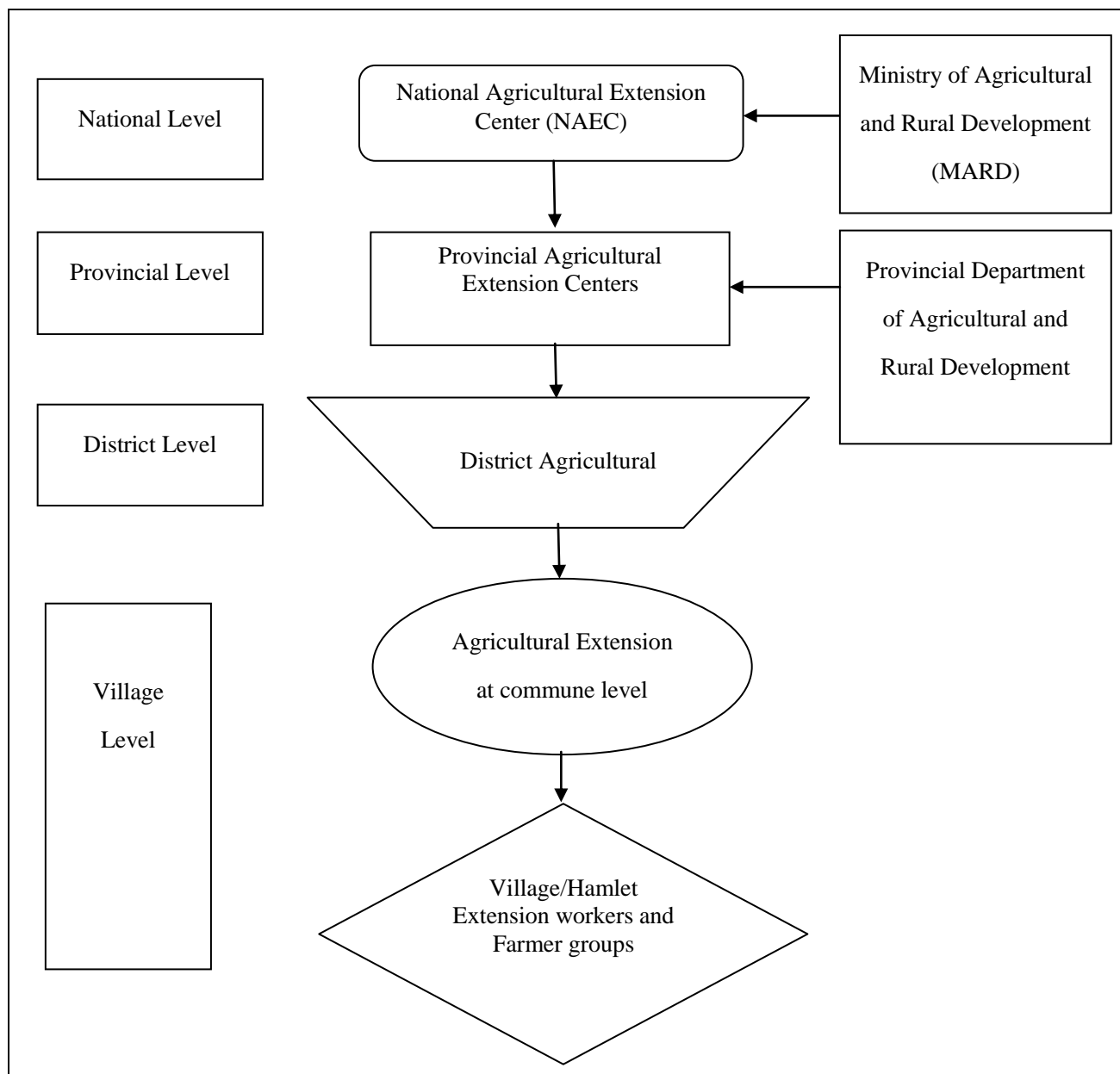
**Figure 3.3: Policies related to extension**



Source: adapted from QUYEN 2012

The current extension system is under the management of Ministry of Agricultural and Rural Development (MARD) at a central level und presented in Figure 3.4.

**Figure 3.4: Agricultural Extension system in Vietnam**



Source: adapted from NGUYEN et al. 2005

At the national level, the National Agricultural Extension Center (NAEC) is responsible for the following:

- Developing policies and mechanisms of agricultural extension as well as in fishery extension.

- Developing economic and technical cost-norms for extension works; directing, organizing and guiding in transferring advanced techniques through setting up demonstration models, disseminating information, training, providing service and international cooperation.

At the moment, NAEC has 82 staff (of whom are 6 PhD, 15 masters and 54 Bachelors). Extension centers now exist in 63 provinces throughout the country with 1,903 staff, with an average of 30 staff in each center. At the district level, the extension station has been established in 585 districts nationwide, which account for 90% of the total districts in the country. The number of extension staff in the districts is 4,025 and on average each extension station has 6 staff. The extension station is under the control of extension center or committees of district people. At commune and village levels, extension staff are working mainly as part-time extension workers and each commune has 1-2 extension staff (BO 2012).

The current extension activities focus on:

- Building demonstration models of advanced techniques for transferring to farmers which concentrate on introducing new varieties, technologies (together with demonstration, extension also provides training techniques relating to the models);

- Providing training courses to farmers: Not all the new techniques are demonstrated on the fields. Therefore, training new techniques is considered as a means to transfer them quickly to farmers. Methods of training include face to face training, using mass media, and via website etc.

- Organizing science and technology forums, festival and exhibitions where farmers can exchange directly with scientists, managers and successful farmers who applying new technology (BO 2012).

Most of new technologies and advanced demonstrations come from research institutions, universities or are imported from overseas which are approved by a scientific council at the ministry level to be applied on a national scale or at the provincial level to be applied at the regional scale.

In addition to the transfer of technologies and training courses for farmers, extension takes responsibility of disseminating new policies in agriculture, rural development and markets.

## **4. Research Methodology**

This methodological chapter starts with the selection of the study area and then describes research method and research process (the use of qualitative method, research design, data collection and sampling techniques, data management and analysis). The final part of chapter ends with the scope and limitation of the study.

### **4.1. Selection and description of the study area**

Thai Nguyen Province was selected as the study area because it represents almost all characteristics of the tea sector in Vietnam and therefore will allow, to a certain extent, conclusions for Vietnam as well. Tea farmers in this area have a long tradition of producing tea, which has made their products famous throughout the country (ADB 2004; HUY 2010). Tea is being considered as the key crop, since not only tea contributes to reducing poverty but also contributes to wealth in this province (HUY 2010; HUYEN 2010). From 1999, Thai Nguyen is one of the provinces that got support from government for developing tea production (ADB 2004; HUY 2010; HUYEN 2010).

Thai Nguyen is located in the NMR of Vietnam which is socio-economically considered among the poorest regions in the country (ADB 2004; SOMO 2007). It covers a total area of 353,101 ha. (74.3%) and 1.12 million people in this province live in rural areas. The total labor force is 665,652 people and 68.3 % of them work in agriculture. The climate is characterized by an average temperature 24<sup>0</sup>C with total sunshine hours between 1,300 and 1,750 hours/year. The average humidity is 80% and the average rainfall lies between 2,000 to 2,500 mm/year. There is a clear distinction between rainy season from May to October and dry season from November to April. The resource availability as well as the natural conditions is most suitable for tea production. In addition, this area is located close to the capital, Hanoi (about 80km) and near to Noi Bai international airport, which is considered convenient for distribution of production.

Having 21 universities and colleges, Thai Nguyen province is now ranked as the third largest education region in Vietnam after Hanoi capital and Ho Chi Minh city. This may provide a continuous flow of knowledge and innovative power in the development of the region. This province shows a multi-ethnic society, which is composed of eight ethnic groups (Kinh, Tay, Nung, San Diu, H'Mong, Sans Chay, Dao and Hoa). Through history the area was known as the center of the resistance war against the French. Thai Nguyen was the capital of the liberated zone of Viet Bac in the late 1940s known as the “Revolutionary

Capital” ([http://en.wikipedia.org/wiki/Th%C3%A1i\\_Nguy%C3%AAn\\_Province](http://en.wikipedia.org/wiki/Th%C3%A1i_Nguy%C3%AAn_Province)). The location of the study is shown in Figure 4.1.

**Figure 4.1: Location of the study area on the map of Vietnam**



Source: ADB 2004

Tea products in Thai Nguyen are the most famous in the country hence Thai Nguyen tea is very well known nationwide. This provides the basis for a robust market demand and the opportunities to market the processed product locally and international and thus offers great potential for good market prices. This is one of the reasons why this province is the largest area of tea in the NMR and second largest area in the country (VNO, no dated) (<http://www.vietnamonline.com/culture/thai-nguyen-the-cradle-of-vietnamese-tea.html>) (DARD Thai Nguyen 2010). Tea is considered the focus crop of the province since it provides a high income for many households where no other cash crops can compare. Tea plays an important role in the socio-economic development of this area and provides employment and income for many households (ADB 2004; DARD Thai Nguyen 2010; HUY 2010). Given these conditions, tea has a big comparative advantage for growing in this area, where no other cash crops (e.g. rice which is suitable for the delta and lowland area or coffee which can grow better in the central highland region such as Tay Nguyen area) can compete (ADB 2004).

## 4.2. The Qualitative Method and the Role of the Researcher

This study is basically an empirical work of social research. Nevertheless, it has to follow a methodological concept and this concept has to be designed to fit the research questions and objective. This requires a continuous and iterative process. A qualitative method is suitable for this kind of study; it allows researchers to discover rather than test variables (CORBIN and STRAUSS 2008).

According to MACK et al. (2005), qualitative methods assist the researcher in the understanding of particular research problems from the perspective of the local populations involved. It can provide in depth descriptions of a given research issue, especially on the human side such as: contradiction behavior, beliefs, opinions, emotions, and relationships of individuals... as well as intangible factors: social norms, socio economic status, gender roles, ethnicity, and religion etc. (MACK et al. 2005).

DENZIN (2008) defined that *“qualitative research is a situated activity that locates the observer in the world. It consists of a set of interpretive, material practices that make the world visible. These practices transform the world. They turn the world into a series of representations, including field notes, interviews, conversations, photographs, recordings, and memos to the self. At this level, qualitative research involves an interpretive, naturalistic approach to the world. This means that qualitative researchers study things in their nature settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them”* (DENZIN 2008, 4).

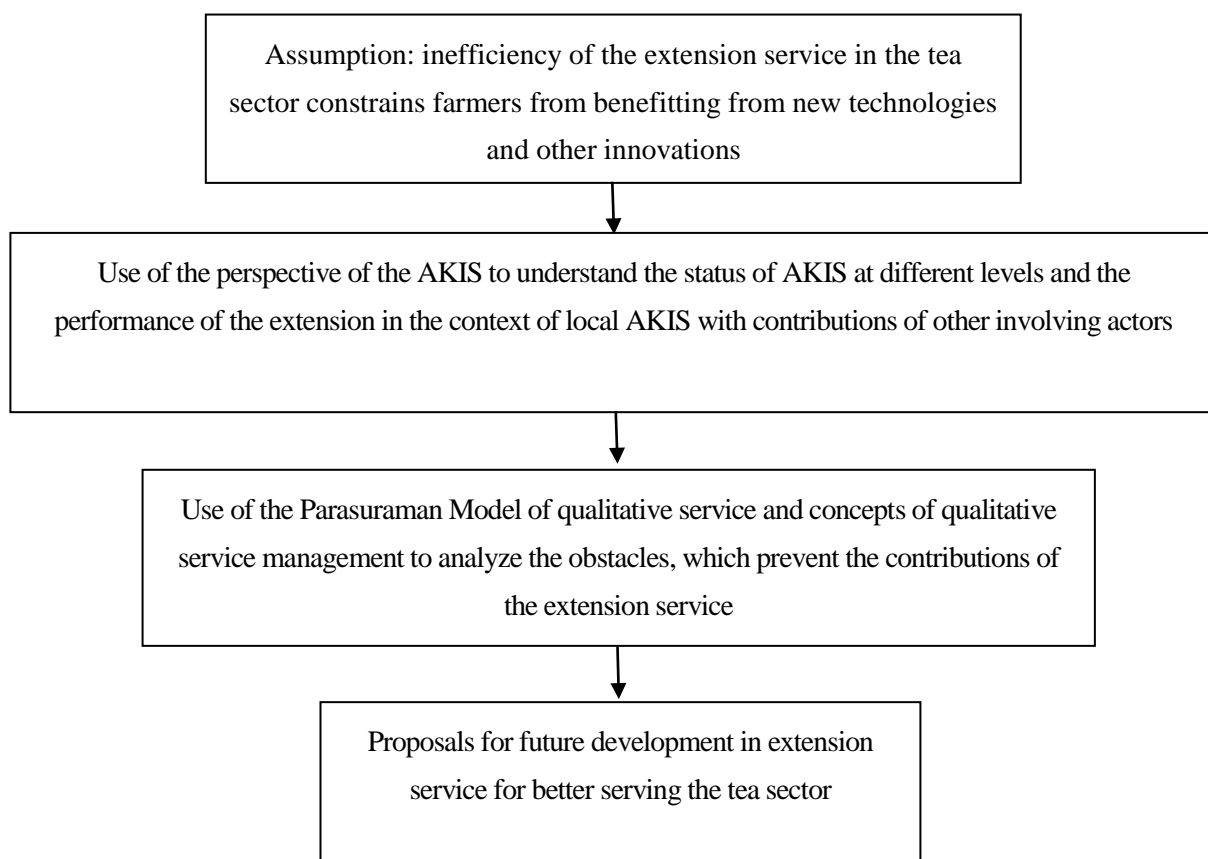
According to CRESWELL (2013), the qualitative researcher plays as key role in the research process. *“The qualitative researchers collect data themselves through examining documents, observing behavior, and interviewing participants. They may use an instrument, but it is one designed by the researcher using open-ended questions. They do not tend to use or rely on questionnaires or instruments developed by other researchers”* (CRESWELL 2013, 15).

Beginning with assumptions and the use of a theoretical framework, qualitative research identify the research problem related to human or socio phenomena. Researchers use the qualitative approaches for collecting data in a natural setting, sensitive to people and places under study. Data analysis is both deductive and inductive, and the final results include the voices of participants, the reflexivity of researcher, and a complex description and interpretation of the problem (CRESWELL 2013).

Research method in this study follows this approach and will use the methodological elements as discussed in Chapter 2 according to the presentation in Figure 4.2. This is based on the following conditions: Tea farmers are differentiated by their knowledge, experiences, economic conditions, etc. in addition; farmers are embedded in social structures that have certain influences on them. Accordingly, these differences result in the distinguished expectations and needs for extension services. In returns, the extension service is influenced by the organizational structure. Furthermore, many other stakeholders play a definite role in the extension process.

The Parasuraman Model of quality service and concepts of quality management of the service providers suggests the set of gaps which are divergent perceptions both looking at the service provider's side (internal gaps) and customer's side (external gap) of the service.

**Figure 4.2: The research design**



### 4.3. Data collection and sampling techniques

Two field trips were conducted for data collection including secondary and primary data. A brief description of secondary data and primary data collection in the field studies is presented in the Table 4.1.

**Table 4.1: Data collection and method of collecting data**

	<b>Information need</b>	<b>Method of collecting data</b>
First Field Study	<ul style="list-style-type: none"> <li>- General information about socio-economic of the NMR and Thai Nguyen province</li> </ul>	<p>Reviewing documents of reports from different offices and general statistics offices</p>
	<ul style="list-style-type: none"> <li>- Characteristic of the tea sector</li> <li>- Policies related to development of tea sector</li> </ul>	<ul style="list-style-type: none"> <li>- Reviewing reports from different offices and general statistics offices</li> <li>- Reviewing documents from national conferences</li> <li>- Interview with key informants</li> </ul>
	<p>Actors involved in the tea sector and the tea knowledge system (role and contribution, specific activities; linkages/coordination among actors; opportunities and constraints of tea production under the views of these actors; the limitation of their contribution to the tea sector and suggestion for improvement)</p>	<ul style="list-style-type: none"> <li>- Reviewing reports from DARD, extension centers, sub-department of plant protection, university and tea institute</li> <li>- Interview with key informants</li> <li>- Participation observations in 2 national conferences organized by MARD, VITAS (Vietnamese Tea Association) and TRI (Tea Research Institute)</li> </ul>
Second	<p>Information about different groups of tea farmers:</p> <ul style="list-style-type: none"> <li>- Background of farming including using input (varieties, fertilizer, pesticide, land, labors, extension) and output (productivity, price, market), sharing of tea production and other crops in income, other income sources</li> <li>- History of farm (events, what have changed over time, especially after the economic reform in country, changing in using new techniques or applying new technologies)</li> <li>- Sources of information used for making decision on</li> </ul>	<p>Focused interview with 40 farmers in different groups of farmers (worker farmers, cooperative farmers, unlinked farmers)</p> <p>(please see annex 1)</p>



	Information need	Method of collecting data
Field Study	farm, information needs and problem faced in accessing information sources -Expectation on extension program -Views/assessment on the extension programs/activities - Relation with extension and other actors	
	Information about the tea extension group: - Qualification & training (competence) of the tea extensionist - Role, tasks and every day activities, their target, methodologies using to approach farmers. - Views on the needs of farmers and problem farmers are facing - Sources of information and materials used for working with farmers - Limitation/problem facing in working and expectation for improving - Relation and coordination with other actors in tea extension programs	Focused interview with 12 extensionists. (please see annex 2)

*The first field study* was from 27 July to 29 December 2010 with the aim to seek information for understanding the status of the AKIS on tea farming in the research area at different levels. For in depth understanding of the AKIS from the national level, researchers participated in the national conferences (Vietnam Tea Outlook) organized by the Ministry of Agricultural and Rural Development (MARD) and the Vietnamese Tea Association (VITAS). Besides that researcher also participated in the National Coordination Forum hosted by the Tea Research Institute (TRI) which facilitates coordination among actors involved in sustainable development of the tea sector. During the conference and the National coordination Forum, participant observations and interviews with relevant actors were conducted. In addition, rapports with key actors were built. After participation in conference, field trips to Phu Tho province and Thai Nguyen province were conducted for taking secondary data from different offices and institutions (Department of Agriculture and Rural Development (DARD), Extension centers, Plant

protection sub-department, Thai Nguyen University of Agricultural and Forestry (TUAF), and Tea Research Institute (TRI)). Observations and interviews with key informants (total 33 key informants) selected from different levels (please see in the appendices) were used for acquiring information about the AKIS status. Interviews with key informants focus on their performance tasks and coordination with other actors.

A *second field study* was carried out from 7 October to 9 December 2011 in order to obtain primary data by interviewing tea extensionists and different groups of tea farmers. In total, 12 tea extensionists and 40 farmers were selected for the focused interview after analyzing secondary data (from the first field study) and documents from literature reviews.

The focused interview (MERTON ET AL. 1990) was used as a tool for taking primary data from tea extensionist and tea farmers.

According to MERTON ET AL. (1990), *“The focused interview differs in several respects from other types of research interview which may appear similar at first glance. In broad outline, its distinguishing characteristics are as follows. First of all, the persons interviewed are known to have been involved in particular situation: they have seen a film, heard a radio program, read a pamphlet, article or book, taken part in a psychological experiment or in an uncontrolled, but observed, social situation (for example, a political rally, a ritual or a riot). Secondly, the hypothetically significant elements, patterns, processes and total structure of this situation have been provisionally analyzed by social scientist. Through this content or situational analysis, he has arrived at a set of hypotheses concerning the consequences of determinate aspects of the situation for those involved in it. On the basis of this analysis, he takes the third step of developing an interview guide, setting forth the major areas of inquiry and the hypotheses which provide criteria of relevance for the data to be obtained in the interview. Fourth and finally, the interview is focused on the subjective experience of persons exposed to the pre-analyzed situation in an effort to ascertain their definitions of the situation”*(MERTON ET AL. 1990, 3).

Before going to the field, interview guides were developed (please see in the appendices) for setting forth the major area of inquiry. Interviews with farmers focus on the characteristic of their farms (How they are using input such as varieties, fertilizer, pesticide, land, labor, extension etc. and how they are seeking information for making

decision on their farm), the problems farmers are facing and the lack of information, their expectation on extension program and evaluation on the extension activities. Interviews with extension focus on the qualification of the extensionists, their tasks and daily activities, their target, methodologies to approach farmers, sources of information and materials used for working with farmers. Interviews with extension also concentrate on the views extension on the needs of farmers and problems farmers are facing, the limitations constraint extension in working condition and expectation for improving.

### **Sample size and sampling techniques**

*Purpose sampling* is used with priority of “information-rich” respondents, who are able to provide the most relevant and detailed information on the study topic (MONIQUE et al. 2011; MERTON et al. 1990). The selection of the farmers for interview followed the following two strategies:

➤ *Using a gatekeeper technique*: persons who have knowledge about the characteristic of community members and usually are prominent or play an important role in the community. They also help the researcher in building trust with participants to take part in the interview as well to encourage them to talk freely.

➤ *Snowball technique* is used for selecting respondents by asking key informants or study participants or anyone else they know could provide information for the study or asking respondents to refer other respondents who may provide the answers (e.g farmers who participate in extension programs).

To answer the first research questions (about involving actors and their relationships in the system) and the second one (about the functioning of the system and the information flow), researcher used RAAKS Resource Box (which was developed by Paul Engel, Monique Salomon and others at the Department for Communication and Innovation Studies of Wageningen University) as reference for mapping the local AKIS. At the beginning, as mentioned earlier, getting information from website of VITAS, researcher participated in the national conference (Vietnam Tea Outlook 2010) and National Coordination Forum. During these events, researcher tries to build rapports with actors she met in the conference and the forum. She also makes appointments for conducting interviews (with actors from TRI, DARD in Phu Tho and Thai Nguyen province). After participating in the conference and forum, researcher travelled to Phu Tho and Thai Nguyen provinces to take secondary data and interview with key

informants. In Phu Tho, interview with DARD Phu Tho and other different organizations suggested by DARD such as Extension center, TRI and DARD in Thanh Ba district (where Phu Ben company, a foreign investment tea company, located). In Thai Nguyen province, the first interviews was conducted with DARD, then with Plant protection sub-department, Extension center, Song Cau Tea company which were suggested by DARD. The manager of Song Cau Company also introduces 3 other SOEs tea companies to the researcher to conduct interviews. Besides that, researcher contacts with TUAF for interviewing and gets suggestion for further interviewing (with Van Tai Tea Company and group of farmers in Tan Cuong who implement organic tea farm). Interviewing with CARE project, Farmer Union, Cooperative Union and Vocational Center were conducted after interviewing with farmers.

With respect to the sample size of the interviewed persons, the principle of saturation (GLASER and STRAUSS 1967, cited by MONIQUE 2011) was followed, where the researcher continued expanding the sample size until data collection supplied no new data, as the continuation of interviewing would become repetitive and produced no more new information.

From reviewing literature, four groups of farmers were identified (as mentioned in chapter 3): *Worker farmers*; *Cooperative farmers*; *Unlinked or free farmers*; and *Contract farmers*. However, in reality, researcher has not been able to find all the contract farmers for interview and therefore, the fourth group of farmer was removed from the interview list. At the time when the primary study was conducted, most of the linkages between farmers and tea enterprises or middlemen were oral agreements without contracts.

After discussing with agricultural staff from DARD and other relevant key informants in Thai Nguyen province, three locations were selected for interviewing as described in Figure 4.3.

Dinh Hoa district: a remote area, was chosen to conduct interviews with the unlinked farmer group who are poor and marginal and farmers received support from an NGO project.

Dong Hy District: in the middle of the province where Song Cau Tea Company is located to conduct interviews with worker farmers and unlinked farmers who live near the company. Interviews with cooperative farmers in Huong Tra cooperative were also conducted in Dong Hy.

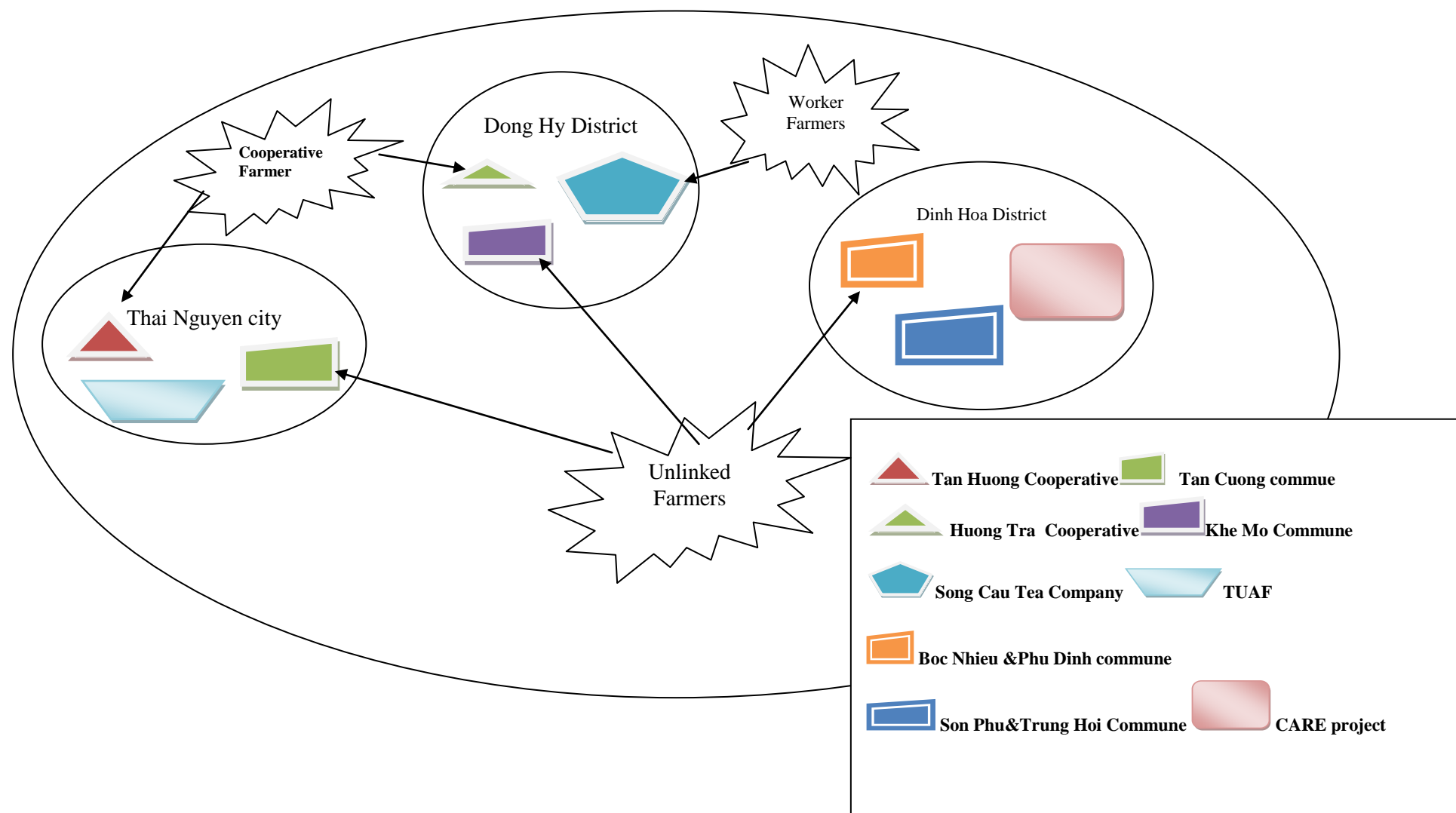
Thai Nguyen City: in the center of the province, Tan Cuong commune was selected for interviewing unlinked farmers, in this commune farmers have a long tradition of skill in producing tea; tea products in this area are well known and always fetch a higher price. Interviews with cooperative farmers in Tan Huong cooperative were also conducted in Thai Nguyen City.

Tan Huong and Huong Tra cooperatives were selected for interviewing because these two cooperatives represent almost all characteristics of tea cooperatives in Thai Nguyen: Tan Huong cooperative was established in 2001 under the support of the CECI project and now is applying UTZ certified standards for their tea products while Huong Tra cooperative was established in 2008 under the support of the Spain Project. Huong Tra is now applying VietGAP standards for their tea products.

Worker farmers in Song Cau Company were selected for interviewing after discussing with 4 key informants from 4 SOEs because worker farmers in Song Cau have similar characteristic to other worker farmers belonging to other SOEs.

16 unlinked farmers were selected from 3 locations mentioned above and 7 farmers belonging to 2 groups of farmers under the support of NGOs (CARE project).

**Figure 4.3: Selection of different farmer groups in different locations**



#### **4.4. Data management and analysis**

The objectives of the data management was to configure the database according to problems defined, to understand the techniques of using a database and to link different sets of data and problem areas, especially between different farmers and different extensionists and between these two groups.

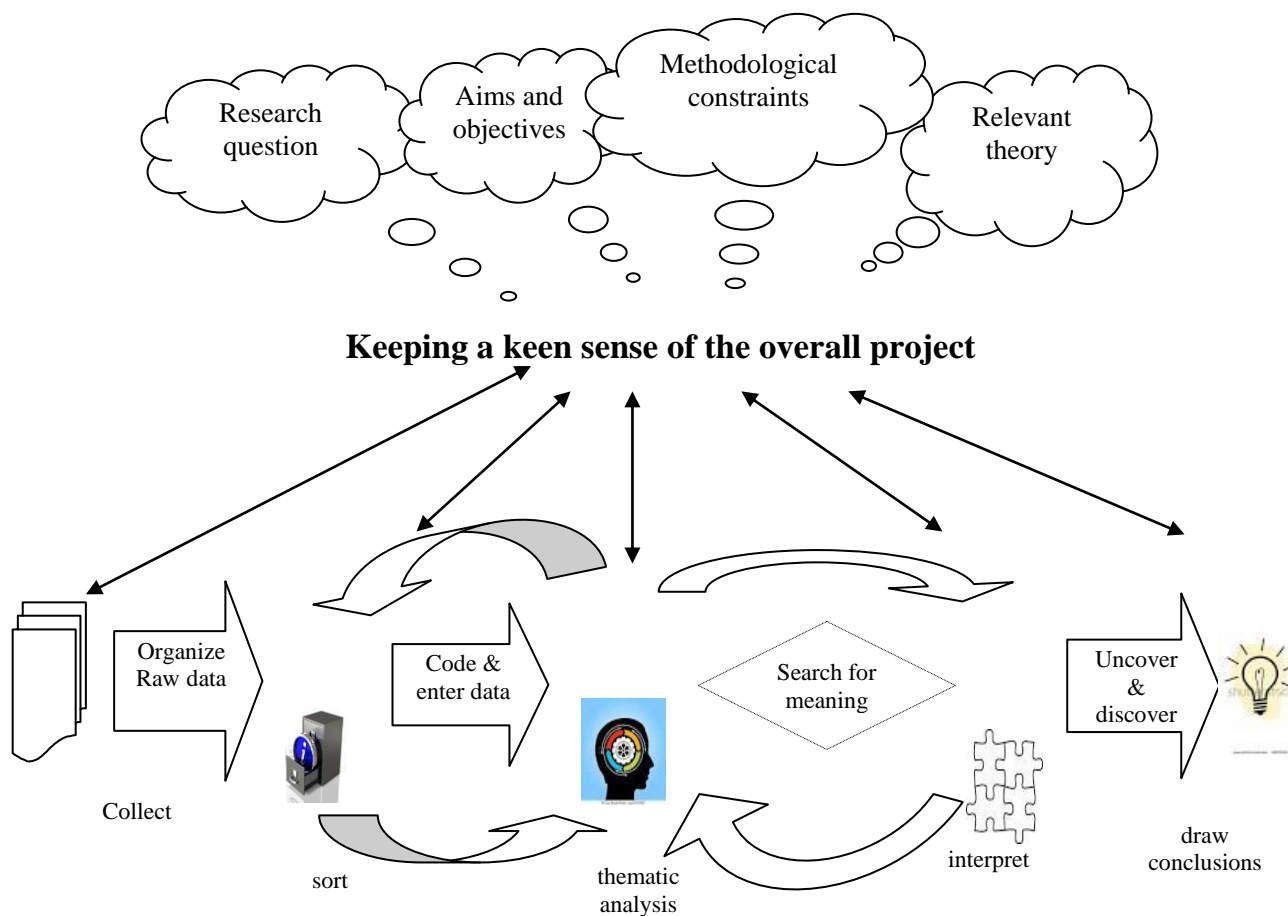
According to O' LEARY (2010), the power of qualitative data lies in words and images, which confront researchers in managing and analyzing for creating best richness but meaningful research findings (O' LEARY 2010). Before having software, qualitative data analysis (QDA) used to be done "by hand" with a lot of intricate works, such as filing, cutting, sticky notes, markers, etc. (O' LEARY 2010). Now this work can be done more efficiently with qualitative data analysis software, especially with a large data set, which is time consuming (O' LEARY 2010). This research used MAXQDA 10 software for analyzing and managing data. This tool is considered professional software for qualitative data analyzing, which is the so-called "art of text analysis". MAXQDA 10 supports researchers in organizing and analyzing data quickly in a more effective and convenient way.

The qualitative data analysis requires cycles of an iterative process, from the beginning when researcher (1) starts to organize the raw data; to (2) enter and code that data; then (3) search for meaning through thematic analysis; (4) interpret meaning; and (5) draw conclusions. This whole process keeps in mind a sense of the overall project together with research questions, aims and objectives, methodological constraints and the relevant theory (O' LEARY 2010). This process is illustrated in Figure 4.4.

In the first step of organizing the raw data, the content of interviews from digital recordings, field notes, pictures, highlighted documents need to be transformed into text and entered into the computer.

Coding: At the beginning, the researcher started to break down the raw data into manageable pieces. Then codes were made by looking at the emerging information while reading the text.

**Figure 4.4: The process of reflective analysis**



Source: O' LEARY 2010

In this research, the first set of data from interviews with farmers was divided into:

- *Background of the farm* (in which sub-codes were set up with land area, using input including fertilizer, pesticides, varieties, labor, technique advice...outputs including productivity, price, markets);
- *History of the farm* (events after the reform of the country, changing events with reasons and impacts);
- *Information sources used for making decisions on farm* (with sub-code of type of information, information available, information need, frequency of using information, quality of information, knowledge generated among farmers); *problem confrontation* (technique problems, market problems);
- *Views and assessment on the work of extension* (extension activities and evaluation of farmers in these activities, expectations of farmers);



*- Relation with extension and other actors.*

The second set of data dealing with the interviews of extension was divided into:

- Qualification of extension (professional level, other training courses attended, needs for further training);
- Tasks and everyday activities (sub-codes: new varieties program, VietGAP program, training courses for farmers, material use for working with farmers) ;
- Plans of activities;
- Monitoring and evaluation by leaders;
- Sources of information used for working with farmers;
- Views on the needs of farmers and their problems;
- Experiences of working with farmers;
- Limitations in working conditions and expectation for improvement;
- Relation and coordination with other actors.

The coding process was made several times with the renaming of the codes and re-organization of the codes and sub-codes; accordingly, the texts were read again and again to uncover and discover themes, comparing with previously analyzed text to look for similarities and disparities. Memos were made during this process for ease in keeping track of the data.

The analysis tends to be an iterative process. Due to the task of reading and writing memos we can anticipate the tasks of categorizing and linking data. According to DEY (2005), in making connection between categories we can review our previous links and categories, searching for patterns and meanings, comparing how the concepts relate to each other and making classifications. At any particular phase in the process of analysis, we can return to rereading the data or searching for conclusions (DEY 2005)

### **Scope and limitations of the study**

Because of time and resource limitations (both finance and work team) in applying the RAAKS method for the AKIS study of tea farming in Vietnam, this study only used the set of guide books from the RAAKS method as reference in designing the interview questions and for understanding the AKIS. In addition, this study focused on 3 locations in Thai Nguyen province to discover the AKIS in this area and the interaction between tea extension services for the different farmer groups.

## **5. Agricultural Knowledge and Information Systems on tea farming**

This chapter first presents the general background of the AKIS context in Vietnam. Then it describes the AKIS status of tea farming in Thai Nguyen province with involving actors and their contributions to the system. The sources and types of information used by different groups of tea farmers; the knowledge networks and information flows are also described in this chapter. This chapter ends with the presentation of the farmers' expectations and barriers that they considered obstacles.

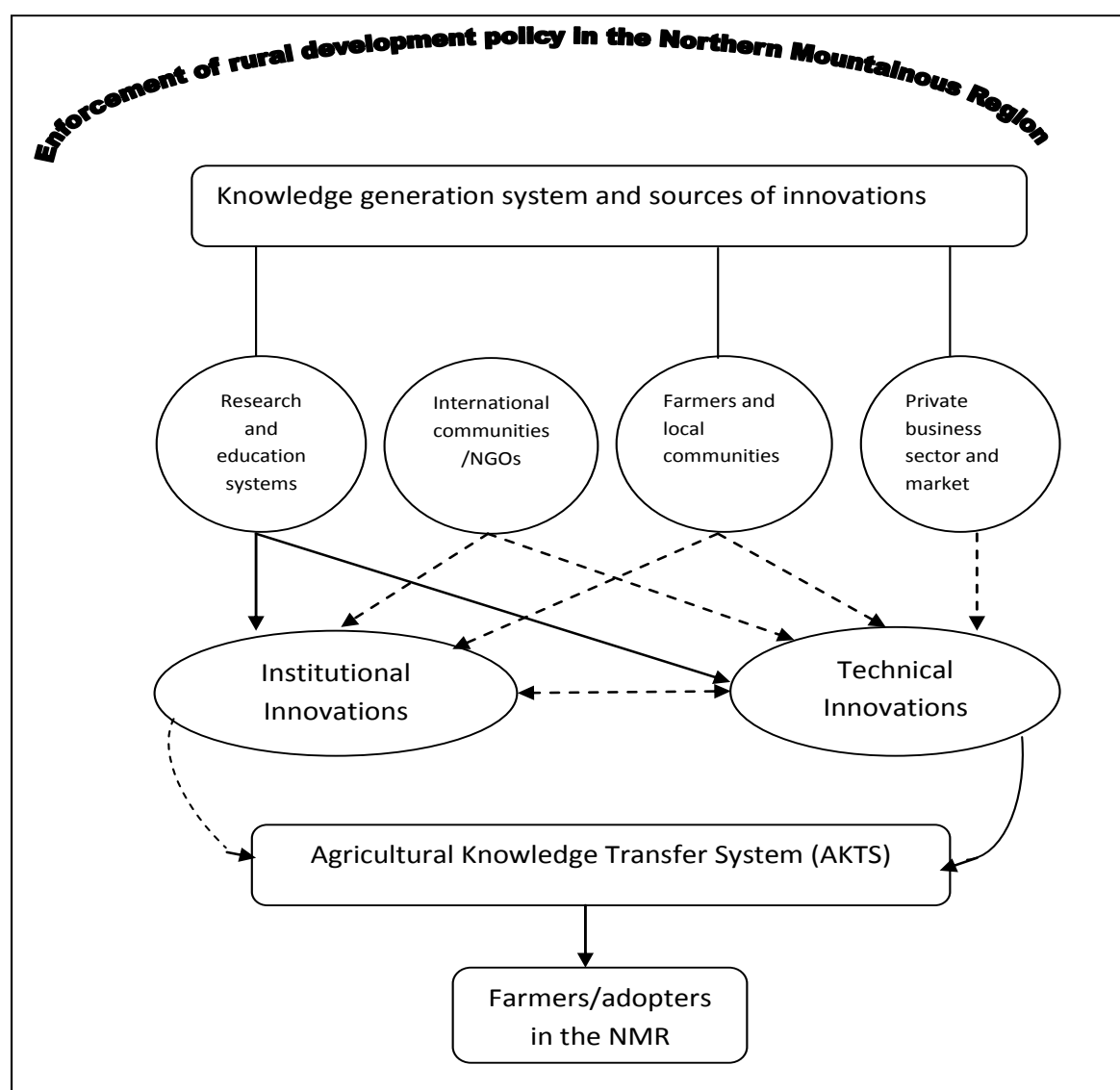
### **5.1. General context of the AKIS in Vietnam**

The current general status of AKIS in Vietnam has changed significantly in the last decades due to the change of economic policy from state-center planning to a market economy accompanied by land reform, which allows farmers to become autonomous. This was followed by market liberalization and the joining of WTO as well as a rapid development in information technology. The new situation has brought additional opportunities as well as challenges to the farmers. Under these conditions they need appropriate knowledge and skills for managing their farms independently rather than depending on technical staff as was done during the previous period of cooperatives (PHUONG 2010; HAUSSNER 2013).

#### ***The Agricultural Knowledge Generation System (AKGS)***

The AKGS is part of the AKIS. According to MINH (2010) this system in the NMR of Vietnam can be divided into 4 groups (presented in Figure 5.1) as follows: (1) Public research and education institutions; (2) International development organizations and NGOs; (3) Farmers and local communities; and (4) The private business and market partners.

Figure 5.1: Knowledge generation and transfer system in the NMR



Source: MINH (2010, 146)

At the various actor levels, the role and the ways of generating knowledge differ as follows:

(1) The public research and education institutions play a crucial role in introducing agricultural technical innovations to the region.

(2) International organizations and NGOs have introduced integrated solutions and models requiring lesser inputs more suitable for local conditions, or promoting indigenous knowledge and techniques. Innovations introduced by international organizations and NGOs are techniques integrating local knowledge and advanced technologies (THANH and KHOA 2003, cited by MINH 2010).

(3) Farmers involved in the AKGS are one of the sources of innovation by bringing technical innovation from other areas and regions to their location and by testing the suitability under their own conditions. If favorable, they will be adopted for their own farms (WOODS and PETHERAM 2001, cited by MINH 2010).

(4) The private business sector started to deal with farmers in the late 1990s as input providers, agricultural product traders and input producers (MINH 2010). Today they are important actors in the AKGS in the NMR of Vietnam.

Among four groups of actors, the Public Agricultural Research and Education System (PARES) plays a crucial role in generating knowledge and innovation in the system. However, as stated by MINH (2010) the system is in context influenced by factors of: (a) *institutional direction* following the frame of MARD towards regional based issues; (b) *Operational and financial mechanism* which is in the form of centralization in which research is planned and conducted based on budget allocation from the central government with mechanism of “*xin va cho - asking and giving*” in the process of submitting plans and getting approval from government; (c) *Organizational and coordination schemes* with complex organizational structures, while lacking quantity and quality in human capacity. Coordination is very weak at all levels due to the complicated organizations and centralized budget mechanism; (d) *linkages with other system elements and practices* blocking interactions due to poor coordination leading to research activities which are scattered, investment overlap and resources are wasted, connections between research-extension-training and farmers are weak, information flow regarding farmer needs and practical research needs to upstream in the system and is not easy and is often obstructed at most of the linkage points (GOLETTI 2007; MINH 2010). This context leads the AKGS to act based on the “*supply-driven*” or “*top-down*” approach, according to the viewpoints of researchers, not the farmers in the local areas, and following the orientation of governmental development (MINH 2010).

### ***The Agricultural Knowledge Transfer System (AKTS)***

The development of AKTS in the Northern region of Vietnam began in 1993 since the establishment of the public extension institutions and is structured as shown in Figure 5.2. Actors involved in the system include governmental and non-governmental organizations. Public and voluntary actors are assumed to cooperate to serve the purpose

of supporting farmers in improving knowledge, technical, management skills and production in agriculture and improving the livelihood of the farmers (MINH 2010).

*a) Governmental organizations*

*The public extension service:* was established in 1993 when the government introduced the Decree 13/CP with the aim to structure the national agricultural extension network from the central to village level and to encourage voluntary extension organizations (NGUYEN et al. 2005). 20 years since the foundation, the extension system has undergone different stages of development under the guidelines of extension policies. Decree 13 emphasized the importance of the duty of extension in promoting technology through providing training and communication, demonstration models, development and advice services, transferring advanced techniques and experiences from successful production models to strengthen production management knowledge and skills to provide market information to the farmers (GSRV 1993, cited by MINH 2010). Another guideline was formalized in 2005 since the National Agricultural Extension Centre (NAEC) was reformed from the Agriculture and Forestry Extension (DAFE). Decree 56/2005/ND-CP issued on 26 April 2005, stressed the five main functions of agricultural extension, including (1) providing information and creating awareness; (2) education, training and upgrading knowledge; (3) technology transfer and the establishment of demonstration models; (4) advice services; and (5) international cooperation (GSRV 2000, cited by MINH 2010).

*The Plant Protection Organization:* This includes the Plant Protection Department under MARD, provincial sub-departments, and district stations. This network covers from the center downstream to the district level with the function of carrying out extension activities regarding plant protection and quarantine (MINH 2010).

*The Veterinary Organization:* The network of this system is similar to the Plant Protection Organization with the function of serving in animal health (MINH 2010).

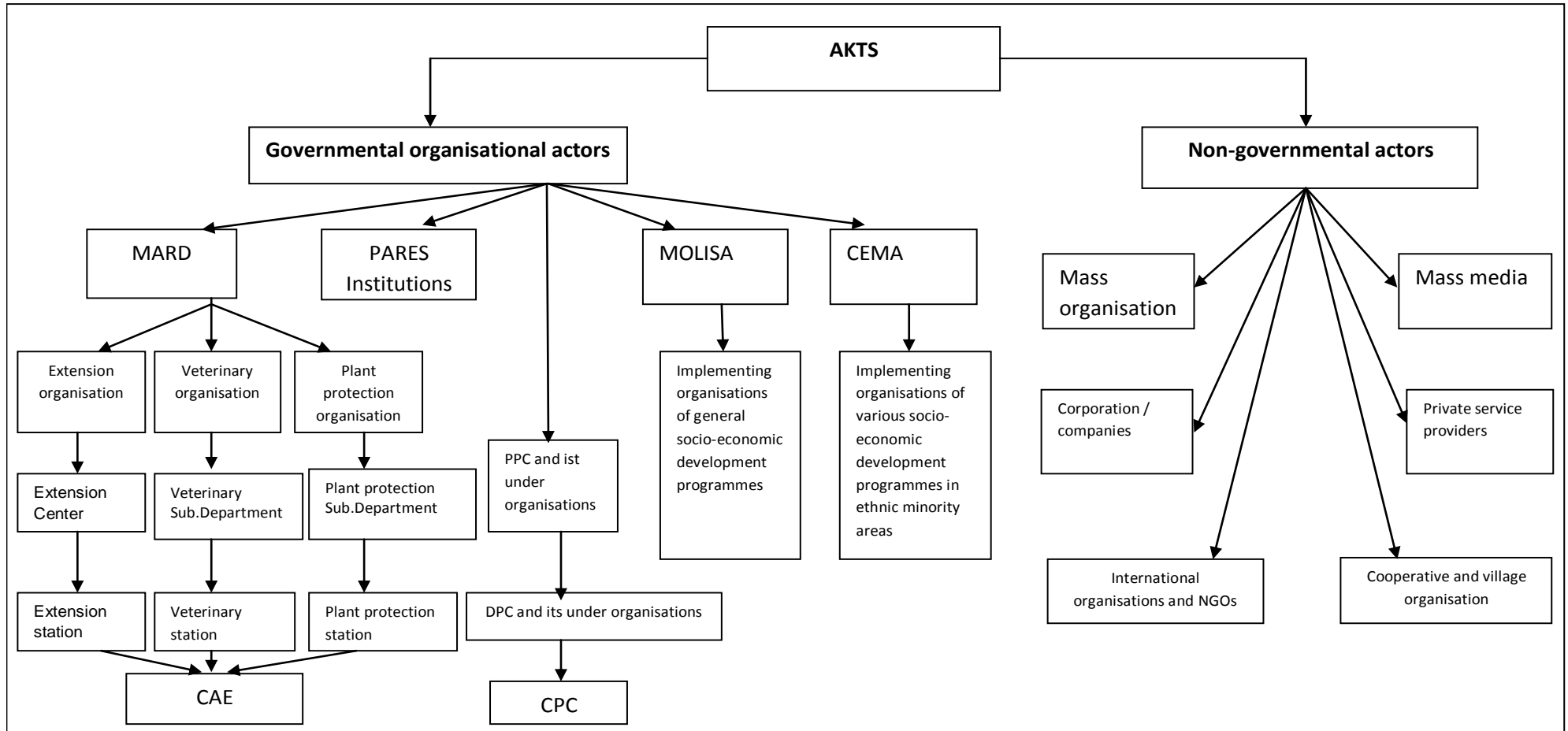
*Implementing organization of socio-economic development programs:* These institutions are managed by Ministry of Labor Invalids and Social Affairs (MOLISA), Committee for Ethnic Minority Affairs (CEMA) and other ministries that implement the management of various socio-economic programs. At the provincial level, these organizations are controlled by the Provincial People's Committee (PPC) and DARD and at district level are under the District People's Committee (DPC) (MINH 2010).

*b) Non-Governmental actors*

*Mass organizations:* They include Women's Union, Farmer's Union, Youth Union, Old People's Union, and the War Veterans Association. These organizations often have staff trained in veterinary medicine, plant protection and credit management. The Women's Union at the commune and village level often organizes group meetings for exchange of knowledge or runs small-scale credit programs. The Farmer's Union provides training for their members by inviting staff from extension organizations or other relevant institutions (MINH 2010).

*Private Service providers and input suppliers:* These actors comprise private input sellers, private veterinary workers and public input suppliers. These actors provide both input (seeds, seedlings, fertilizers, piglets, etc.) and information relevant to using these inputs. They also provide information leaflets or other similar documents. Extension activities were used by these actors for promoting the use of their products and demonstrating the products' appropriate uses. Most of activities are in the form of demonstrations or seminars (MINH 2010).

**Figure 5.2: Overview of the agricultural knowledge transfer system (AKTS)**



Source: adapted from MINH (2010, 160)

*Commodity corporations and companies:* They are mainly commercial companies or processing companies for products like tea, coffee, rubber, pepper, aquaculture products, sugarcane, fruits or high quality rice for production or exporting. They have staff responsible for promoting contract farming, adopt technology and conduct extension activities according to their own principles (MINH 2010).

*Cooperatives and village organizations:* Extension activities provided by cooperatives are mostly in the form of providing services and credit, coordinating farmer contacts and activities in extension. Farmer associations i.e. farmer extension groups, farmer interest clubs, etc. also provide extension activities through organizing members together and inviting extension staff for providing training based on their needs and interests (MINH 2010).

*Mass media:* National radio and TV, provincial TV, and district TV are also involved in extension work. The national VTV 2 named “*Ban cua nha nong - farmers’ friend*” is a regular program every week. Provincial and district TV has programs on sharing and broadcasting farmers’ experience and symbolic successes. Many farmers consider TV as their main source of new ideas (MINH 2010). However, according to CASTELLA et al. (2006) in Bac Kan province, there are 70 surveyed farmers who have access to radio and TV but who did not mention it as a source of extension information.

*International Organizations and NGOs:* After the government implemented the reform “Doi Moi” in 1986 which has policies in attracting international community investment, there came many international development organizations and NGOs involving extension activities with the aim of supporting capacity building at the central level, socio-economic development for local communities and improving the livelihood of the people and infrastructure development. These actors usually use a participatory approach to contact to the local farmers directly and address their needs (MINH 2010).

CASTELLA et al. (2006) studied the limitation of the extension system in Bac Kan province by looking at the AKIS within rice farmer communities and found that the challenges of extension for achievement are the same as reported by other provinces which are: small number of agents; low field allowance, insufficient means of transport (while farmers are widely dispersed and often live in remote



areas), and extension workers have limited capacities to deliver their message to farmers because they are poorly trained and often do not speak the languages of the minorities (ADB 2002; UNDP 2000 cited by CASTELLA et al. 2006; CASTELLA et al. 2006). In addition, results from this study showed that the public extension service promotes technology adoption to farmers via providing training and subsidies. However, access to this depends on their relationship with local authorities and resource endowment. Poor and marginal farmers are neglected in such extension programs (CASTELLA et al. 2006).

## **5.2. Involving actors at national and local levels and their contributions to tea farming**

The actors involved in the agriculture sector in the NMR of Vietnam have been presented in the previous section. Involving actors and their contributions to tea farming will be discussed here in more details. A starting point for the NMR is the high relevance of tea amounting to 65% of the total tea growing area. This was considered by the Vietnamese Government when they designed the policies and strategies in 1999 under the Decision 43 (Decision 43/1999 QD-TTg) and more emphasis was shifted from the central government to local regions with many actors involved. There is a differentiation in three levels of contribution to tea farming and AKIS: the national (Governmental), the regional and the farmers (grassroots) level.

### **5.2.1. At national level**

At the national level, governmental institutions involved in the tea sector comprise: *Ministry of Agricultural and Rural Development* (MARD) with representatives from the Department of Crop Product (DCP) and *Tea Research Institute* (TRI) contribute in providing technique innovations. Besides that, *Vietnamese Tea Association* (VITAS), a non-government actor, has a role together with TRI in consulting MARD in developing policies and strategies for developing tea sector.

**MARD:** plays a role in state management functions including orientation of developing strategy and direction in planning and implementing plans, as well as the approval of the strategic plan.

**TRI:** was established in 1918 by the French in Phu Tho province. Initially, it was in the form of research stations and in 1988 it was merged with Thanh Ba tea research center to establish Tea Research Institute belonging to VINATEA. The function of

TRI is experimental scientific research and transfer of technical advancements to tea growing and processing, training cadres, and technicians for the tea department in the country. In 2005, under the reorganization of the Agricultural Research and Education System, TRI was merged with 4 other institutes to form the Northern Mountainous Agriculture and Forestry Science Institute-(NOMAFSI) under the control of MARD (NOMAFSI website). Now the total number of employees in TRI is 169 official staff who receive state salaries from the government and 400 contract staff whose salaries are provided by TRI (RI01).Currently, the main contribution of TRI to the tea sector is in providing new varieties and techniques.

*a) Providing new varieties*

In the last decade, by using selection and hybridization methods, TRI provided 17 tea varieties to the tea sector divided into 4 groups: (1)Varieties for producing Oolong tea include Kim Tuyen, Thuy Ngoc, Bat Tien, and PH-10 varieties; (2) Varieties for producing green tea includes LDP1, Phuc Van Tien, Hung Dinh Bach, Keo Am Tich, PT95, PH8, PH9, and Tham Ve varieties; (3) Varieties for black tea includes LDP2, PH11, PH12, PH14, and Shan Chat Tien; and (4) Varieties can be used for both for production of green tea and black tea with high productivity: LDP1, Phuc Van Tien, PH9.

Meanwhile theses new varieties are grown in most of the tea growing areas in the country and account for 50% of the total area (KI-01).

*b) New cultivating techniques:*

- New techniques of pruning through using machines imported from Japan and the rotation of pruning for tea
- Technique of picking the tea shoots by hand or by machines
- Technique of using fertilizer for different varieties
- Plant protection using machine
- Producing safe products under VietGAP standards

Among these techniques, TRI together with MARD are focusing on transferring techniques for producing safe products under VietGAP standards to the farmers with the aim of increasing the quality of tea products (KI-01).

*c) New techniques on processing*

- Processing Oolong tea products (together with other techniques for producing good

Oolong quality product)

- Producing green tea

Among these contributions, providing new varieties (with high quality and productivity) and guiding techniques on producing safe products under VietGAP standards were considered as main activities of the TRI (KI-01).

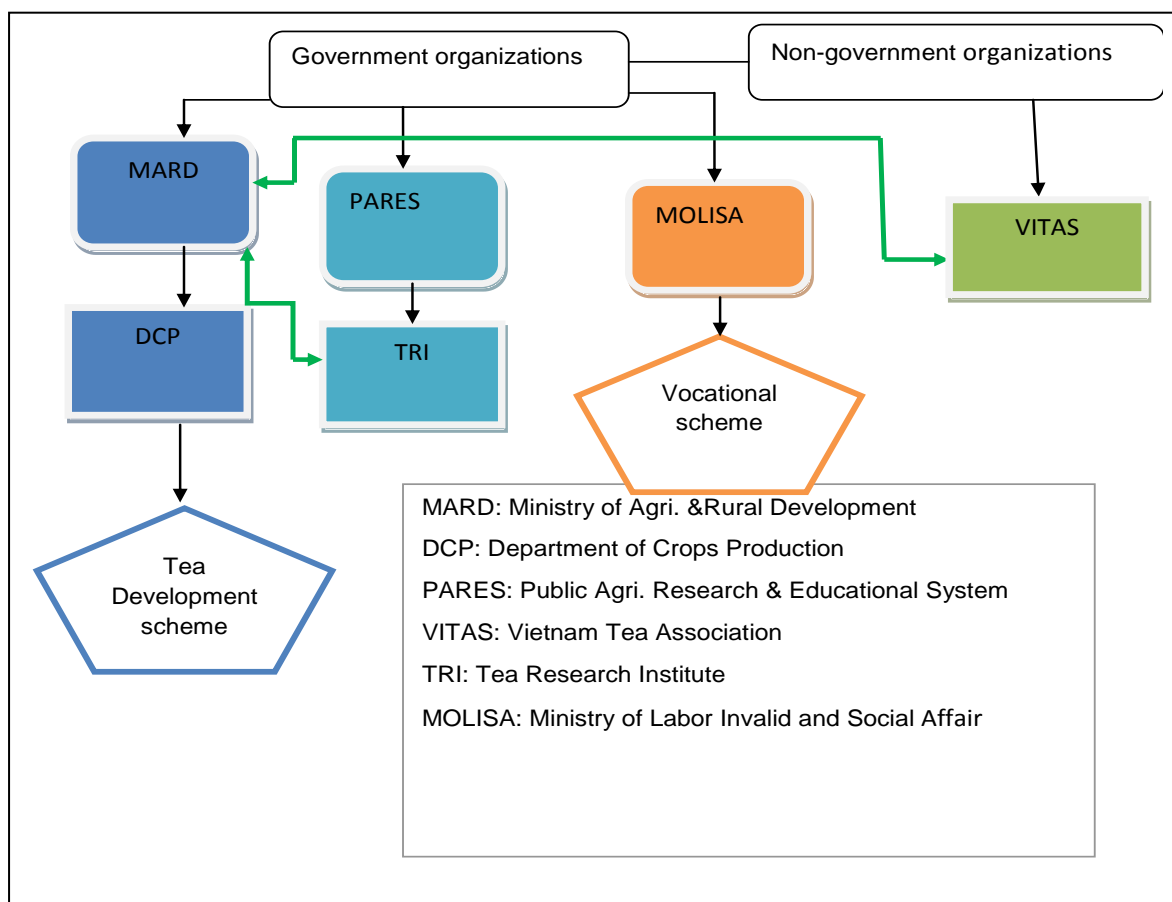
**VITAS:** established in 1988, has undergone many stages of development in the tea sector. VITA represents the tea producers and serves as a leader to guide member having committed themselves “*for safe tea products, tea producing responsibility*” (Website of VITAS). VITA embraces all stakeholders entrusted with bolstering the tea sector in Vietnam. When VITAS started, there were 16 members, now they have nearly 200 members distributed over 34 tea producing province in Vietnam (members of VITAS are mainly SOEs and private enterprises, joint stock companies and joint venture companies).

The functions and tasks of VITAS can be divided into: (1) *Service activities*: including service on varieties, motivation of agricultural and technology transfer, trading promotion, auction, and training; (2) *Advisory activities*: comprise advising government about regulations and tea development policies: advising local authorities about urban and rural planning and tea development strategies in those areas; and advising enterprises about trading, marketing and producing tea; (3) *Tea culture activities*: introducing and broadcasting information about Vietnamese tea culture, holding festivals and exhibition fairs in order to boost business activities. VITAS plays an important role in most of the tea culture activities in Vietnam, such as the Tea Festival in Thai Nguyen and other places and Vietnam tea outlook conferences to introduce Vietnamese tea culture and tea products...(HA 2006); (4) *Establishing standard model*: models of sustainable development, variety garden, creating closer linkages between producers and processors. Introducing international standards such as ISO, HACCP... Recently VITAS contributes in bolstering tea producers and processors using UTZ Certified and VietGAP standards for producing safe products; and (5) *Information activities*: including

responsibility for establishing the network of information within the industry and around the world and propagating knowledge of science, technology, management and culture related to tea products (ADB 2004; website of VITAS).

Currently, VITAS together with TRI and MARD are actively involved in many activities in the tea sector at the central level as well as at local levels e.g. organizing tea festivals in different regions or national conferences (Vietnam Tea Outlook). From 2010, with the support from Solidaridad organization, VITAS together with MARD established the National Coordination Forum with the aim to coordinate the key stakeholders in the tea industry in working together for enhancing the accountability and credibility of different national and international CSR standards.

**Figure 5.3: Shows the involving actors at national level and their relation.**



Source: own draft

### 5.2.2. Local actors

Most of the programs related to agriculture development in general and the tea sector in particular are under the management of the provincial Department of

Agriculture and Rural Development (DARD). According to the results from interviews with key informants and tea farmers, the Tea Development Scheme managed by DARD, plays a crucial role in most of the activities related to tea in Thai Nguyen province. In addition, other actors involved in providing knowledge and information to farmers are tea companies, Farmers' Union, Vocational centers, Extension Station, Plant Protection Station, NGOs as well as private actors such as traders or input suppliers, etc. The tea companies, Farmers' Union and Vocational centers are now integrating the national vocational scheme to their activities so as to provide vocational trainings to farmers.

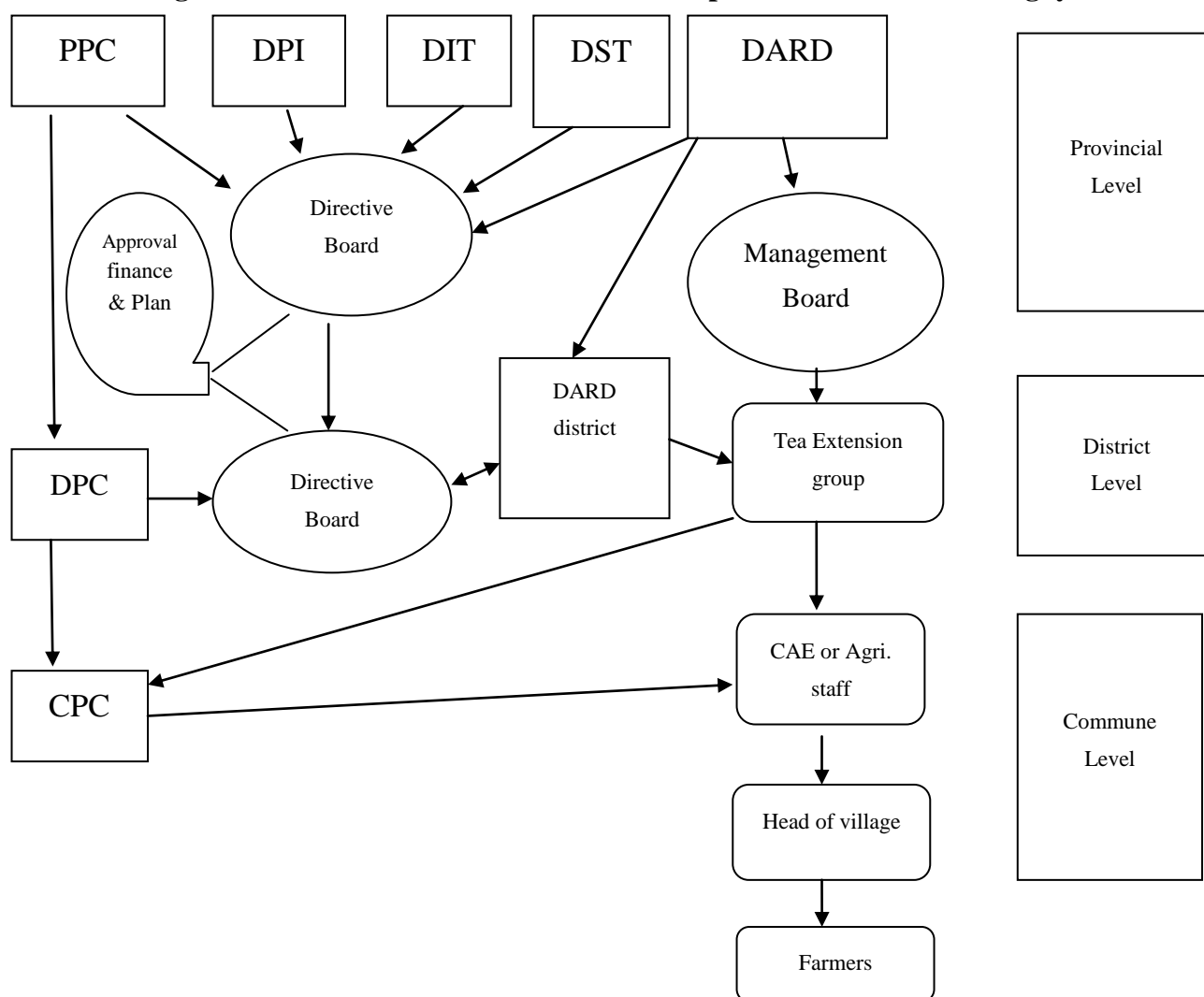
### **The Tea Development Scheme**

This started in 1999 when the Government issued Decree 43 setting forth programs and policies for developing tea in the comparative advantage regions. From there on, Thai Nguyen province and 8 other provinces in this program started to establish the Management Board and Directive Board of the Tea Development Scheme (from the provincial level to district and grassroots levels) which managed most of activities related to tea (especially in developing plans and guidelines for implementation and approving funding for implementing the activities).

*The Directive Board* of the Tea Development Scheme includes the vice chairperson of Provincial People Committee (PPC), vice-director of provincial DARD, Department of Plan and Investment (DPI), Department of Industry and Trade (DIT), Department of Scientific and Technology (DST). The Directive Board has the role of approving finance plans and programs for developing tea.

The *Management Board* of the Tea Development Scheme in Thai Nguyen includes: vice director of provincial DARD acting as chairperson of the management board at the provincial level and 4 other staff responsible for crop science, processing and quality management, marketing and trade promotion, management of investing and development. Actors involved in the Tea Development Scheme are described in Figure 5.4. In 2001, the Management Board of the Tea Scheme recruited 25 tea extensionists who respond to all activities related to tea production at the grassroots level regarding the important of tea production in the socio-economic conditions in Thai Nguyen, and the characteristic of tea farmers in Thai Nguyen.

**Figure 5.4: Actors involve in the Tea Development Scheme in Thai Nguyen**



Source: Own draft

At the district level: the tea extension group was distributed to districts having tea. Each tea extensionist has to respond to 3 - 5 communes depending on the scale of the tea farming area.

At the commune level: each commune has at least one communal extensionist or agricultural staff responsible for the activities of tea programs.

The development of a tea scheme in Thai Nguyen was an important starting point for action. It reaches farmers directly since each commune has 1 communal extensionist or agricultural staff responding to the activities of tea program.

The development of the tea scheme in Thai Nguyen has undergone 3 phases: (1) the *first period (2000-2005)* focused on cultivating techniques, processing and consuming tea products toward commercial orientation; (2) the *second period*

(2006-2010) the scheme of tea development based on the development of producing, processing and consuming together with advanced technology; (3) *the third period (2011-2015)* the scheme of developing tea based on applying high and advanced technology in producing and processing tea of high quality and safety. At the moment, the scheme is getting the support of the QSEAP project, which was granted by ADB.

### **The Vocational Training Scheme**

The Scheme of Vocational Training was developed in 2009 when the government introduced Decree 1956 issued on the 27 of November 2009. This scheme focuses on supporting vocational training for rural laborers until 2020. Actors involved in this program include Farmers Union, Tea Companies, and Vocational Centers. These actors get finance support from Ministry of Labor Invalids and Social Affairs (MOLISA) for implementing vocational training programs.

*Farmers' Union (FU):* In addition to providing vocational trainings, FU also provides training in building a trademark for tea farmers in Thai Nguyen.

*Tea companies* (mainly State Owned Enterprises or SOEs): SOEs involved in the Vocational Scheme such as applying for funding to provide vocational training for their worker farmers. Besides that, they also provide techniques training.

*Vocational centers:* Since 2009 when government introduced Decision 1956 for improving vocational training for Vietnamese rural people, the number of vocational centers in Thai Nguyen increased very quickly: in 2006 there were 34 centers in the province and in 2010 the number was 52 centers. With the rapidly increasing number of vocational centers, there is a lack of human resources in these centers and they have to hire staff from other organizations such as staff from DARD or tea companies by means of making contracts (KI-15).

### **Other actors**

In addition to the programs mentioned above, there are other actors involved in providing knowledge and information to the tea farmers in Thai Nguyen:

*Extension station:* provides short trainings (organized in the form of farmers and extensionist question and answer sessions). These activities depend on the finances and plans from higher levels.

*Plant protection station:* is involved in management of pesticides and pest-borne disease.

*Thai Nguyen University of Agricultural and Forestry (TUAUF):* is involved in conducting some research on tea and supporting Van Tai tea enterprise in producing safe products under VietGAP and GlobalGAP standards. TUAUF also plays a role in providing training for agricultural and extension staff.

*Input suppliers:* provides fertilizer and pesticides for farmers. Some large input companies provide seminars to introduce fertilizer and pesticides or demonstrations (focusing on the large farm such as worker farmers). The small agents providing input services are also important information sources for farmers especially the poor when they need advice on using pesticides and fertilizers or other farming inputs.

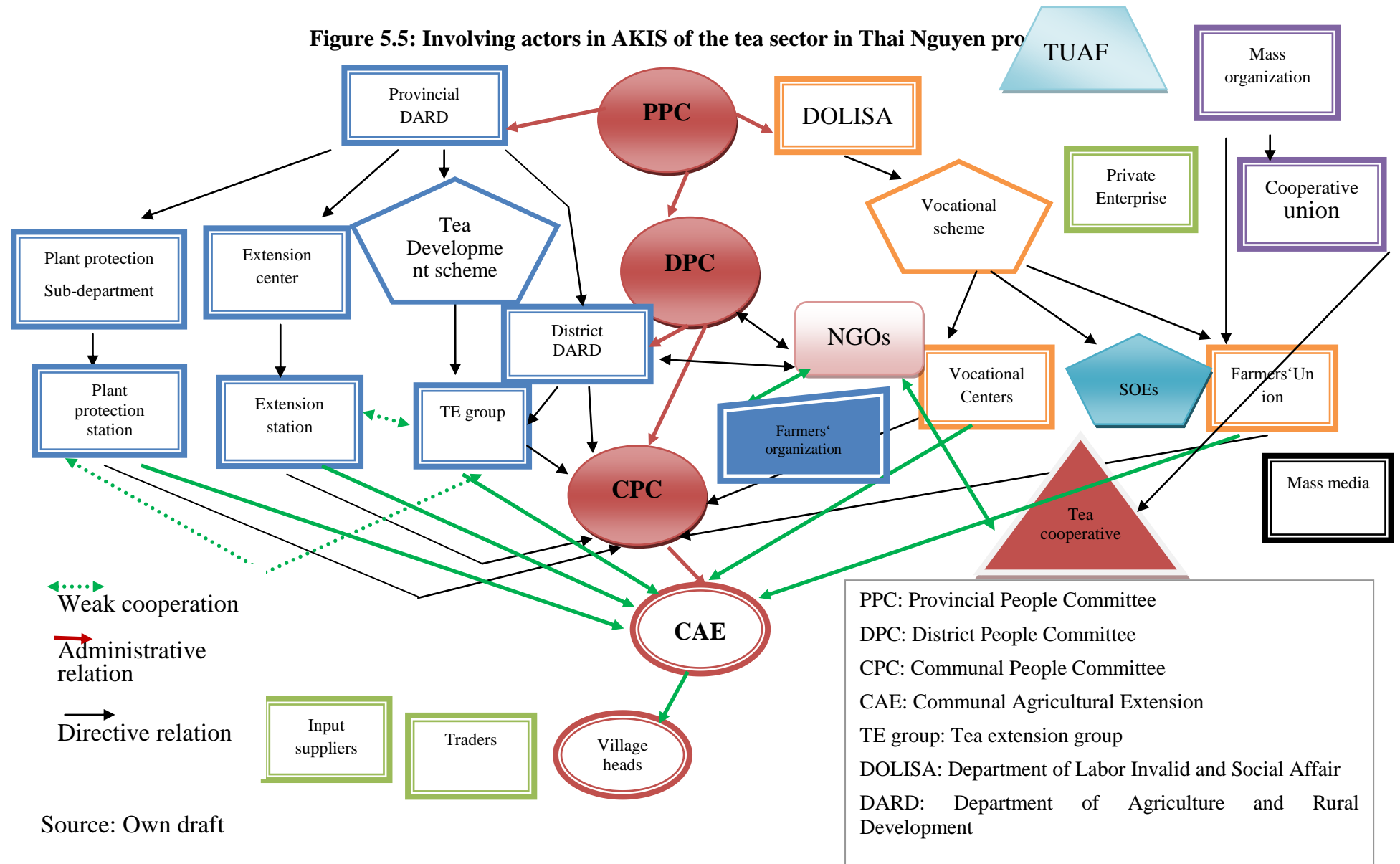
*Traders:* There are large portions of tea farmers in Thai Nguyen processing their products at home and selling it to traders/middlemen (mainly small retailers), these traders then continue to distribute tea products to other markets e.g. to companies for exporting or to consumers. Farmers used to follow the recommendations or requirements of traders in processing their products.

*Private and joint stock tea enterprises:* In general, there are about 30 tea enterprises in Thai Nguyen. They buy fresh tea from farmers or dry tea from traders for exporting. In Thai Nguyen, only the Van Tai Company has its own raw material area for processing, most of tea enterprises (around more than 30 enterprises) do not have raw material areas causing problems and negative competing in buying inputs.

Involving actors and their relations at province level is shown in Figure 5.5



Figure 5.5: Involving actors in AKIS of the tea sector in Thai Nguyen province



Source: Own draft

### **5.2.3. The grassroots level: different farmer groups**

The farmers can be considered as the grassroots level and beneficiaries from tea extension activities. At the farmer level there is a strong need to differentiate into different types of farmers, since they have different experience and knowledge, they may act in different ways and may have different farm outputs. One would expect, extension strategies to also have to differ according to the situation of these types or groups of farmers.

## **5.3. Different groups of tea farmers and their use of information**

### **5.3.1. Different groups of farmers**

#### *a) Cooperative farmers*

As mentioned earlier, tea cooperatives were established under the support of NGOs from 2001 with the aim of developing the capacity of farmer organizations. Most of tea cooperatives were formed based on the IPM clubs established since the late 1990s supported by the CIDCE project.

Cooperative farmers are now involved in the program of producing safe tea products (within the framework of the Tea Development Scheme). Farmers have received training supported by DARD and other institutions and have to follow the regulations of producing tea by UTZ certified or VietGAP standards. Reducing 50% of the quantity of chemical fertilizer and increasing manure and bio-micro fertilizer, as well as using only bio-pesticide was reported by farmers in Tan Huong cooperative. In Huong Tra cooperative, farmers also changed their habits of using fertilizers and pesticides. In this study, the interviews of cooperative farmers were conducted in Tan Huong cooperative and Huong Tra cooperative.

The background information of two cooperatives is presented in the Table 5.1.

**Table 5.1: The information background of Tan Huong and Huong Tra cooperatives**

	<b>Tan Huong</b>	<b>Huong Tra</b>
Year of establishing	2001	2008
Members	50	10
Area	In average each member has 1 “ <i>mau</i> ” land for growing tea (equal to 3,600m <sup>2</sup> )	Each member has 0.5 ha
Varieties component	30% TRI777, 30% LDP1 and Phuc Van Tien, 30% Trung Du; and 10% are the rest: Kim Tuyen, Thuy Ngoc, Bat Tien.	30-40% are new varieties: Kim Tuyền, Phuc Van Tien, Bat Tien, TRI777, PH1, Japanist variety (among these varieties, the Japanese variety is showing highest price)
Applying techniques	Following UTZ Certified <sup>2</sup> standard	VietGAP <sup>3</sup> standard
Use of fertilizer and pesticide	Following the regulations of UTZ	Following the regulations of VietGAP
Market	Cooperative buys products for members at higher price compared to the free market	Cooperative members have to go to the free market

The detailed information of Tan Huong and Huong Tra cooperatives is presented in Box 5.1 and Box 5.2.

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<sup>2</sup> UTZ Certified is a standard for sustainable farming of agricultural products launched in 2002 in Amsterdam, Netherlands. Products certified by UTZ are traceable from grower to end product manufacturers.

<sup>3</sup> VietGAP (Vietnamese Good Agricultural Practice) is a government standard laying the principles for sustainable and safe agricultural production supported by certification and auditing system. The VietGAP regulations are based on ASEAN GAP and GLOBALGAP.

### **Box 5.1: Tan Huong tea cooperative**

Established in 2001 along with 6 other tea cooperatives under the support of the CECI organization, the precursor of the Tan Huong tea cooperative is the IPM tea club. At the beginning, the cooperative had 36 members, in 2011, the number of members increased to 50 members and the expected members in 2012 were supposed to be increased to 70 - 100 members. Now Tan Huong is producing safe tea products following the standard of UTZ certification under the support of DARD in Thai Nguyen and Solidaridad organizations. In 2011, Tan Huong received certification from UTZ for 37 participating members. Being asked about how to approach UTZ certification, the chairperson of Tan Huong revealed that she was in one of the annual meetings of agricultural-forestry in Thai Nguyen, which discussed the topic of producing safe products under VietGAP standards. She met a representative of Solidaridad (Mrs. V) who introduced UTZ certified programs. The person from Solidaridad suggested that if farmers want to apply for UTZ certification they would support them in training and introduction to customers. Solidaridad would be a broker between producers and consumers. This information was interesting to the chairperson of Tan Huong. She took the telephone number from the representative of Solidaridad. After one year, she invited Solidaridad to visit Tan Huong and started to implement the UTZ program.

Because this program is within the framework of the tea development scheme, Tan Huong got much support from the Solidaridad organization and DARD in Thai Nguyen in technical training and package designing for tea products because UTZ certification is an international standard which requires farmers to follow many criteria stringently for food hygiene and safety. Sharing the experience of implementing the UTZ certificate, the chairperson of Tan Huong said: *“To change the farming habits of the farmers is very difficult at the beginning, we (the management board of cooperative) have to go to every household to convince them, to explain the benefits as well as the obligations of members in participating in this program and promise them that the cooperative will buy their products at a higher price”*. The most difficult part of implementing UTZ is that farmers are not used to keeping a farm diary. The management of cooperatives has to guide them very carefully. The cooperative was divided into 7 groups; each group is guided and monitored by the leader of the group who received training on inspection. Mistakes and their correction of mistakes are monitored by the team leaders. After 3 times of correction, if the members continue to make mistakes, they have to move out of the group. The team leaders monitor their members via the farm activities and the records in the farm diary while the cooperative manager monitors their members in

general via the team leaders and all documents related to their members.

After getting UTZ certification, the reputation of Tan Huong products has become more popular due to the fact that it is an international certificate for producing safe products. The name of Tan Huong cooperative was recorded in many journals and websites. However, according to the chairperson of Tan Huong, not many consumers know about the UTZ certificate and its reputation for safe products. Now Tan Huong can sell products to most of the agency offices in Thai Nguyen who need safe products and do not care much about price. However, in the future the output market for Tan Huong is still a big problem. The chairperson also said that *“VITAS promised to buy our products but up to now the quantity sold to them is very small and at a low price”*.

Following the criteria of UTZ certified standards; farmers have to be very strict in hygiene from the farm to the processing place, using fertilizer and pesticides as the guiding process, recording all farm activities in a farm diary under the supervision of the team leaders and the inspectors. If the price of UTZ products is not attractive, farmers will be discouraged to continue to apply for certification.

Source: KI-30

#### **Box 5.2: Huong Tra Cooperative**

Huong Tra tea cooperative was established in 2008 under the support of a Spanish project. After attending the training courses and excursions to learn about creating a trademark and benefits of working in the collective, the chairman of Huong Tra cooperative persuaded a group of farmers (including 3 clusters of related families) to set up a cooperative. Previously, farmers used to produce tea without technical processes, lacking scientific knowledge and did not care about food hygiene and safe products. Through the training courses, the awareness of farmers in the cooperative increased and the cultivating practices have changed dramatically. Currently, the farmers not only increase their scientific knowledge about techniques of cultivating but also follow the guidelines of safe food and hygiene in processing and preservation.

Under the support from DARD of Dong Hy district, Huong Tra cooperative is producing tea under the guidelines of VietGAP standards. Similar to UTZ certification, in applying for VietGAP standards tea farmers have to record their farm's activities in a farm diary. At the beginning of the implementation of VietGAP, farmers also faced some difficulties because they do not have a habit of keeping a diary. However, up to now the members of cooperative have become familiar with the recording and are very excited to apply for VietGAP because it helps in reducing the amount of material inputs such as fertilizers and pesticides. The quality of products is higher and can be sold at higher prices. (Now the price is from 160,000 to 200,000VND). Other neighboring farmers, who are not cooperative farmers, are selling their products at prices of between 80,000 - 90,000 VND per kg dry tea product). The price is higher

because farmers have greater knowledge and invest more in machines to produce higher quality. Since the foundation of cooperative, Huong Tra has received a lot of support from different organizations e.g. training was supported by extension services from DARD at the provincial and district levels; processing machines and packing machines from the Spain project and vocational training from Dong Hy vocational center. Through training courses the awareness of farmers has obviously increased, knowing that tea is a beverage and needs to be not only tasty but also safe and clean. Processing techniques are also very important, with the same fresh tea but a farmer can process and sell at the price of 100,000 VND/kg of dry tea while other farmers can process and sell at the price of 70,000 VND. That is because it depends on techniques, and these techniques can only be acquired from training courses. According to Mr. V, the main problem of cooperatives at the moment is marketing because he is also a farmer and he does not have experience in marketing or running a business. He said if the cooperative cooperates with some enterprises, it would have many advantages in marketing. The cooperative is responsible for producing clean tea products and the enterprises are responsible for the consumption of the tea products. Up to now the enterprises and the cooperative have not yet found a common path to cooperation.

Source: KI-31

*b) Worker farmers*

Worker farmers in tea farms have been defined as farmers growing tea who have been workers in state owned large-scale tea plantations. Before 1995, worker farmers used to work in tea plantations of the SOEs as workers and got wages from SOEs. After the government introduction of Decree 01 in 1995, in which the land of tea plantations was released to workers through contracts allowing them to own the land for 50 years and requiring them to sell tea product to SOEs, they became worker farmers.

Worker farmers are characterized by having large and intensive tea farms (from 0.5 - 1 ha) in comparison to cooperative farmers and free farmers. Previously, worker farmers used to sell most of their tea product (fresh tea) to the companies. However, from 2003 due to the fluctuation of the export market and the fall of sales to Iraq (because of the war in Iraq), which accounted for 40% of the export market for Vietnamese tea products, tea companies allowed worker farmers to freely sell their products on the open market. Now, worker farmers produce 2 kinds of products: fresh tea to sell to companies and dry tea to sell on the open market. Compared to unlinked farmers in Tan Cuong, these farmers have lower skills in processing and picking the tea shoots (worker farmers reported that it was their habit of working as workers for the companies). Worker farmers got support from the companies in training techniques as well input supplies via team leaders of groups and technical staff from the company.

Before 1995, worker farmers had to follow the technical guidelines from the tea companies (which used to be SOEs). But now they are free to decide on their own farms. Influenced by the regulating techniques from the tea company, worker farmers tend to invest more in fertilizer and pesticides than other farmer groups. Research from Huyen (2010) also showed the same results, which indicates that the investment of fertilizer from worker farmers is greater as compared with unlinked farmers and cooperative farmers (WF 01-10; KI-17). After the government introduced Decree 01 which released land to worker farmers, from 1997 - 1998 worker farmers were under the management of the Communal People Committee similar to unlinked farmers so they also enjoyed the benefits of public extension programs just as the unlinked farmer group. Worker farmers are quite well trained in cultivating techniques, which were provided by the company, FU, and from tea extension programs. Among the worker farmer group, there are also different, the poor farmers tend to invest less than the better-off ones. Box 5.3 will illustrate a poor worker farmer who used to sell products to Song Cau Tea Company, Box 5.4 is a description of a better-off worker and Box 5.5 will provide information about worker farmers who have relations with local authority.

**Box 5.3: A worker farmer who only sells fresh tea to companies**

Mrs. H was a worker farmer in Song Cau company 15 years ago. Her mother also worked as a worker farmer in this company. She owns 5000-m<sup>2</sup> of tea farmland (of which half was inherited by her mother and a half was bought from Song Cau company). The variety grown in her tea farm is the Trung Du variety, which was grown since 1983. Now that the tea bushes are old and reduced in productivity, she is going to replant the tea farm next year. Mrs. H only produces fresh tea in order to sell it to the company; she does not process dry tea to sell in the open market because of a lack of labor. Her husband is performing off-farm work as a house builder. Mrs. H said that now her practices on her tea farm are different from the time she was working as worker for the Song Cau company. There is no need to use fertilizer at the right time, she is free to make decisions on her farm e.g. when it is rainy she can scatter nitrogen fertilizer and in March after the tea bushes finish their winter rest she uses NPK fertilizer. According to Mrs. H, there are several meetings of the company with worker farmers per year about the plan of company to buy product from worker farmers; usually in the beginning, in the middle and at the end of the year. She also received training courses from company 1- 2 times per year.

Source: WF04

**Box 5.4: Worker farmer who joins in group of farmers producing safe tea product**

Mr. T was a worker farmer 20 years ago. In 1995 he bought 5,000 m<sup>2</sup> tea lands from the company cultivated with Trung Du variety. Today, this land still grows 2000 m<sup>2</sup> of Trung Du variety, the rest was planted with new varieties: LDP1 and Kim Tuyen. In 2001 he bought 4000 m<sup>2</sup> tea land from Song Cau company, which grows a Japanese variety. The LDP1 and Kim Tuyen varieties he bought from Mr. T using the 30% subsidy from extension program. In 2010, he joined the group producing safe products with 16 members and got vocational training from the vocational center (the course duration was 3 months with Mr.V as the trainer). According to Mr. T, this vocational course was very useful for him because the course taught many farm practices and there were visits to demonstrations of successful famers. Other courses he had participated in before were short and not sufficient for him to understand techniques related to tea farming. Mr. T said that his group producing safe tea products registered with DARD for applying VietGAP standards but the procedure for registration is very slow. They waited for almost 1 year but no one came to his village to check the land and water.

Source: WF03

**Box 5.5: Worker farmers in Group 13, Hoa Trung commune**

Mrs. T and Mr. D were worker farmers 30 years ago. In 1997 Mr. D bought the 0.5 ha tea land from the company and later bought another 0.5 ha from his neighbor. He has around 1000 m<sup>2</sup> land in new varieties (Bat Tien variety and TRI777) bought from Mr. T. The rest of his tea farm is mainly Trung Du variety (grown from 1986) for producing fresh tea and for selling to the company. The new variety garden was intensively cultivated for producing dry tea and selling on the open market. From 1997-1998, their village did not belong to the company as before and came under the management of Hoa Trung commune and also received support from the commune in the form of extension programs. Every year there are a lot of training courses and seminar/conferences provided to their village from the company, extension programs or input supply companies. They used to divide tasks: husbands used to participate in courses provided by the company and wives participated in courses or conference provided by the commune. Mr. D participated in IPM course in 2003 and other vocational course provided by the Song Cau company. He also organized a group of farmers and registered to apply for VietGAP certification and attended 3 training courses on VietGAP with the same content. In their village, if training courses do not provide money subsidies, farmers will not attend because *“there is too much nonsense teaching, too many theories which cannot be applied in reality”* as they said. Mr. Dung also complained that the procedure of registering to apply to VietGAP program is very slow and training on VietGAP in 1-2 days, is not enough.

Source: WF09&10



One of the worker farmers reported that he got a lot of useful knowledge about tea from the Internet. Information about this worker farmer is presented in Box 5.6.

**Box 5.6: Worker farmer has access to Internet**

Mr. A bought the tea land which has produced a Japanese variety from Song Cau company since 2005. In 2007, his son enrolled in University and he bought him a computer with Internet connection. From this time, he started to learn how to search for information from the Internet. Mr. A said that he could see how a company in Japan designs the tea land and cultivates tea to see the difference. Now he can search for a lot of information on cultivating tea by using Google. He shares that *“cultivating tea requires a lot of knowledge, different varieties have different requirements and farmers should know when tea needs to “eat”, should know how to manage different pests and diseases...”*. According to Mr. A: *“knowledge of farmers depends on the extension staff, and depends on how the staff explains things to farmers; however, not all but there are some extension staff having less knowledge on tea than farmers, they provided information to farmers too generally and not specifically. Farmers participated in the training courses just for taking some money support”*

Source: WF07

*c) Unlinked farmers*

Account for 70% of the total tea farmers and are not homogeneous but very much dependent on their locations. For better understanding of different groups of farmers, this study tries to look at the unlinked farmers in different locations: farmers in remote areas (Dinh Hoa district), farmers located near to tea companies (Dong Hy district) and farmers in Tan Cuong - a famous tea growing area in Thai Nguyen.

**Farmers in remote areas**

*Most of farmers in this area are* poor farmers and they have practiced farming based on their experience (they try to diversify their income by growing vegetables, rice or raising pigs and fish). They have low productivity (harvesting 5 - 6 times in a year), low skills in processing tea and get low prices at the market (30,000 - 40,000 VND/kg). These farmers used to sell their product to traders who would later sell it to China. The investment of fertilizer for tea depends on their economic situation and price in market. When the price of tea product goes down, they reduce

their investment in fertilizer as well. Farmers do not have knowledge in pest and disease management, they used to spray pesticides for prevention and based on the advice of input sellers. General information about the marginal tea farmers in a village in Dinh Hoa is presented in Box 5.7 and information about how a marginal and poor farmer makes decisions on his farm will be presented in Box 5.8.

**Box 5.7: Cultivating tea in Hoi Tien Hamlet (Dinh Hoa district)**

Hoi Tien is about 7 km away from the district center. This hamlet includes 112 households with 33 ha of land cultivated with tea. Before the policy reform in 1986, cultivating tea in Hoi Tien followed cooperative's technical guidelines, but now farmers cultivate tea differently. Hoi Tien farmers mainly use nitrogen fertilizer for their tea farms and they scatter fertilizer when it is rainy in order to reduce labor and reduce soil erosion. Herbicides were used for weed management. Pesticides were applied based on information from input sellers (farmers bring the branches of tea leaves which have pests or disease to the input sellers to ask which kind of pesticide they should use).

The main source of information that farmers use for making decision on their tea farm is from oral exchanges with their relatives and neighbors because it is practical, and they discuss information on fertilizer and pesticide when picking tea together.

New varieties have been grown in Hoi Tien since 2004 with support from extension. Farmers admitted that the new varieties show advantages in high productivity and higher prices but many farmers in Hoi Tien gave up growing tea and changed to growing vegetables in order to get higher incomes and less difficult labor than cultivating tea (the market price for tea always fluctuates due to the unstable market. The main trade market is China. Farmers have no bargaining position in making decisions on price while having to invest too much on fertilizer and pesticides).

Source: KI-28

**Box 5.8: Poor and marginal farmer's strategies on their tea farming**

Mr. L has 1 “mau” of land growing tea (which equal to 3600m<sup>2</sup>) and 1 mau of land growing rice. He also raises pigs for increased income and manure. He started growing tea in 1986. Back then, income from tea was good and each unit of land growing tea was equal to 3 times that for growing rice. Up to 2005, he sold his fresh tea to Binh Yen company. But now because the company buys at a low price, he shifted to selling product on open market. He listens to the news program on TV or to market for obtaining market information and making decisions on his farming. Last year he used 500 kg fertilizer on his tea farm. This year the tea price is going down and he decided to reduce investments in fertilizer for tea to 200kg. Mr. L sometimes watches Farmers' Friend program on VTV2 channel because this program is very interesting. However, according to him, there is very little information on tea. Two years ago, he participated in a training course provided by extension services but he did not like it even though he got financial support for the course. *“They are teaching from books, it is not close to reality, not specific and not applicable”* he said. However, Mr. L still wants to participate in the training courses, *“it is not totally right, but also not totally wrong”* he said, but he is not invited.

For using fertilizer and pesticides, he used to ask advice from input sellers and exchange information with his neighbors.

Source: UF05

*Farmers who received support from NGOs*

Getting support from some NGOs some groups of farmer have changed their habits in cultivating tea and achieved higher prices (increasing from 30,000 - 40,000VND/kg dry tea to 100, 000 - 150,000VND/kg dry tea). Box 5.9 will provide information about the two groups of poor farmers in Dinh Hoa getting support from the NGO project.

**Box 5.9: Farmers received support from NGOs**

From 2009 onwards, CARE started supporting farmers in the Dinh Hoa district. There were 2 interested groups of farmers growing tea identified by CARE projects in Trung Hoi and Son Phu communes. Farmers got support from the project in developing their organization, training techniques on producing safe tea products and processing and marketing skills. The project also supported farmers in processing facilities and helped them to find the consumers, provide visits of some successful farmers to gain experience in producing tea. Farmers reported that *“the project supported us from A to Z, we are very happy because our income is increasing”*. After taking the training courses provided by CARE projects (CARE invited Mr. V from DARD and Mr. B from Song Cau company to be trainers in the training courses), farmers have changed their habits in cultivating and processing tea. They realized that using manure or organic material would increase the quality of tea products. They are now following the techniques of VietGAP standards such as: using organic material for mulching instead of using herbicide for weed management; Pest and disease were managed by IPM techniques; Processing was supervised by experienced farmer (Mr. V in Huong Tra cooperative). Under the support of the project farmers appreciated the value of new technologies in reducing hard labor and in reducing inputs such as pesticides to increase income. In 2011, under the support of the project these 2 groups of farmers got VietGAP certificates for producing safe product.

Up to now, the products of these farmer groups have increased in quality and the price has tripled (previously the price was 30,000 - 40,000VND per 1kg dry tea product, now the price is 100,000 - 150,000VND). However, farmers complain that applying for VietGAP certification requires very elaborate work, but in the market consumers do not care if it is VietGAP certified or non-VietGAP certified product.

Most of farmers in these 2 groups revealed that the training courses provided by the project are the most important sources of information for them in cultivating and processing tea. The project also supports farmers in providing training courses in marketing and introducing consumers in Ha Noi Capital and Thai Nguyen City. Information from training courses has influenced significantly their cultivating habits, especially in processing.

Source: UF06-10

### *Farmers living close to Song Cau Tea Company*

These farmers have practices of farming similar to that of worker farmers. They also sell their products to the company and take training courses provided by company. These farmers produce 2 kinds of products: fresh tea to sell to the company and dry tea to sell on the open market. The poor farmers produce fresh tea to sell to companies while the wealthier farmers invest more in new varieties and intensive cultivating for producing dry tea to sell on the open market. Box 5.10 provides information about the unlinked farmers who are wealthier in Dong Hy district whereas Box 5.11 presents the information about poor farmer of the same group.

#### **Box 5.10: Better-off farmers in Dong Hy district**

Mr. V and Mr. K are tea farmers in Tien Phong village - Khe Mo commune. They own around 1 ha tea land. Each harvesting time, they produce 2.5 tons of fresh tea to sell to the tea company and 150 kg dry tea to sell on the open market (normally there is a trader who comes to their village to buy their product). Because they sell fresh tea to the company, they also received many training courses provided by the company. Besides, they also got training courses provided by extension programs. Mr. V and Mr. K were members of IPM club 10 years ago. Now with the support of extension station and plant protection station (Mrs. C) the IPM club developed into a self-managed extension club and they have meeting every month. They are going to develop their club into a cooperative in order to get support from different institutions e.g. cooperative union. Because of having large farms and interest in acquiring new scientific knowledge, they always get invitations from extension services to participate in their program. However, in recent times (2 years ago up to now) they refused to participate because there was nothing new in the training courses. Similar to worker farmers, Mr. V and Mr. K also used “three color fertilizer” for their tea farm (3 - 4 times in a year).

Source: UF12&13

**Box 5.11: Poor farmer in Dong Hy**

Mrs. N has also been a tea farmer in Khe Mo commune since 1989. She mainly produces fresh tea to sell to Song Cau company, each harvesting time she got 2.5 ton of fresh tea. According to Mrs. N, in the year 1991-1995 her income was better than it is now (during this time Song Cau company provided techniques of covering the tea farm with black plastic). Now income is low but it is easy to sell because there are 2 stations (one from Song Cau and one from Hoa Binh company) competing in buying fresh tea for farmers. Farmers are following the requirement of market demand. Similar to worker farmers, Mrs. N used “three color fertilizers” for her tea farm rotationally with NPK and Nitrogen fertilizer. In her village, most of the farmers do likewise, depending on their economic status they will increase or decrease the quantity of fertilizer. They habitually discuss and exchange information when picking tea together in the tea-picking group. Mrs. N used to participate in extension programs 2-3 times in a year and she found that now there is improvement in the extension method (provided by the extension station) farmers can raise questions and extension will answer and explain to them, not only lecturing as before.

Source: UF13

*Tan Cuong farmers*

These farmers live in the center of the province, their location is endowed with an advantageous natural climate and advantages in transportation. They also benefit from the institutions located in the city center. Tea farmers in Tan Cuong have high skills in processing tea and experience in producing tea in the winter season (when the temperature is low and tea bushes are in the winter rest period, productivity of tea is low while market demand is high during the TET festival of Vietnamese people (lunar calendar new year)). Influenced by some demonstrations of producing safe and high quality products in this area together with other training courses provided by extension, tea farmers in Tan Cuong have recently changed their use of fertilizer, reducing chemical fertilizers and increasing manure and bio-micro fertilizers (named Song Gianh fertilizer) for increasing the quality of tea products and soil fertility. For the farmers in Tan Cuong who used to get high prices in market (from 150,000 - 300,000VND/kg dry tea, some well-known farmers got prices from 1million - 3 million VND/kg dry tea), they are willing to invest in fertilizers and hiring labor for picking tea. Box 5.12 below gives information about this group of farmers.

### Box 5.12: Farmers in Tan Cuong

According to Mr. K (staff of Farmer Union in Tan Cuong commune, KI-26), the total area growing tea in Tan Cuong is 400 ha with 1,300 households involved in tea farming. Farm size is small and fragmented.

Tan Cuong is the community having longest tea producing tradition in Thai Nguyen province. In 1925, there was a group of Vietnamese soldiers recruited by the French in the First World War who were released and came to Tan Cuong to settle in this area. They came to Phu Tho to take tea varieties and established the processing station in Tan Cuong. Their green tea products were famous from this time onward . In 2007, Tan Cuong was granted the Geographical Indication (GI) by the Department of Intellectual Property under the Ministry of Science and Technology.

In Tan Cuong there are 2 groups of farmers practicing safe tea production and organic products: (1) *The safe tea product club* was established in 2003 under the support of TRI. Beginning with 6 members, in 2006 the members increased to 12 members with a total area of 5.3 ha. Mr. T said, that under the support of TRI, their members received training courses and bio-micro fertilizer. Now they have reduced the use of chemical fertilizer, and practice IPM on their farming. They now understand that using too much chemical fertilizer and pesticides is not good for the tea farm (the tea bushes are not strong to fight against pests and disease, the quality of tea is also not good). And (2) *the organic tea product club* was established in 2002 under the support of New Zealand project together with TUAF. It began with 4 members and it increased to 19 members in 2006 with a total area of 3.7 ha. According to Mr. K, chairperson of the club, after several years producing organic tea, farmers realized that being organic is good because it is not harmful to the health of the farmers themselves. However, now the club has stopped their activities because productivity is going down due to too many pests invading from neighboring farms, while the price of organic tea products is not attractive for farmers to do organic farming. They are planning to shift to following the process of producing safe tea product.

Source: KI-26; UF14-20

### **5.3.2. Sources and types of information used by the different farmer groups**

Results from interviews with different groups of farmers in Thai Nguyen show that farmers search, discuss, and exchange information of new varieties, fertilizer, pesticides, processing and price which related to their income e.g. which varieties have high productivity and good quality, which varieties are preferred by consumers, etc. Regarding different types of information, farmers try to seek different sources of information for making decisions on their farms. Figure 5.8 shows the information sources that were frequently used by different farmer groups.

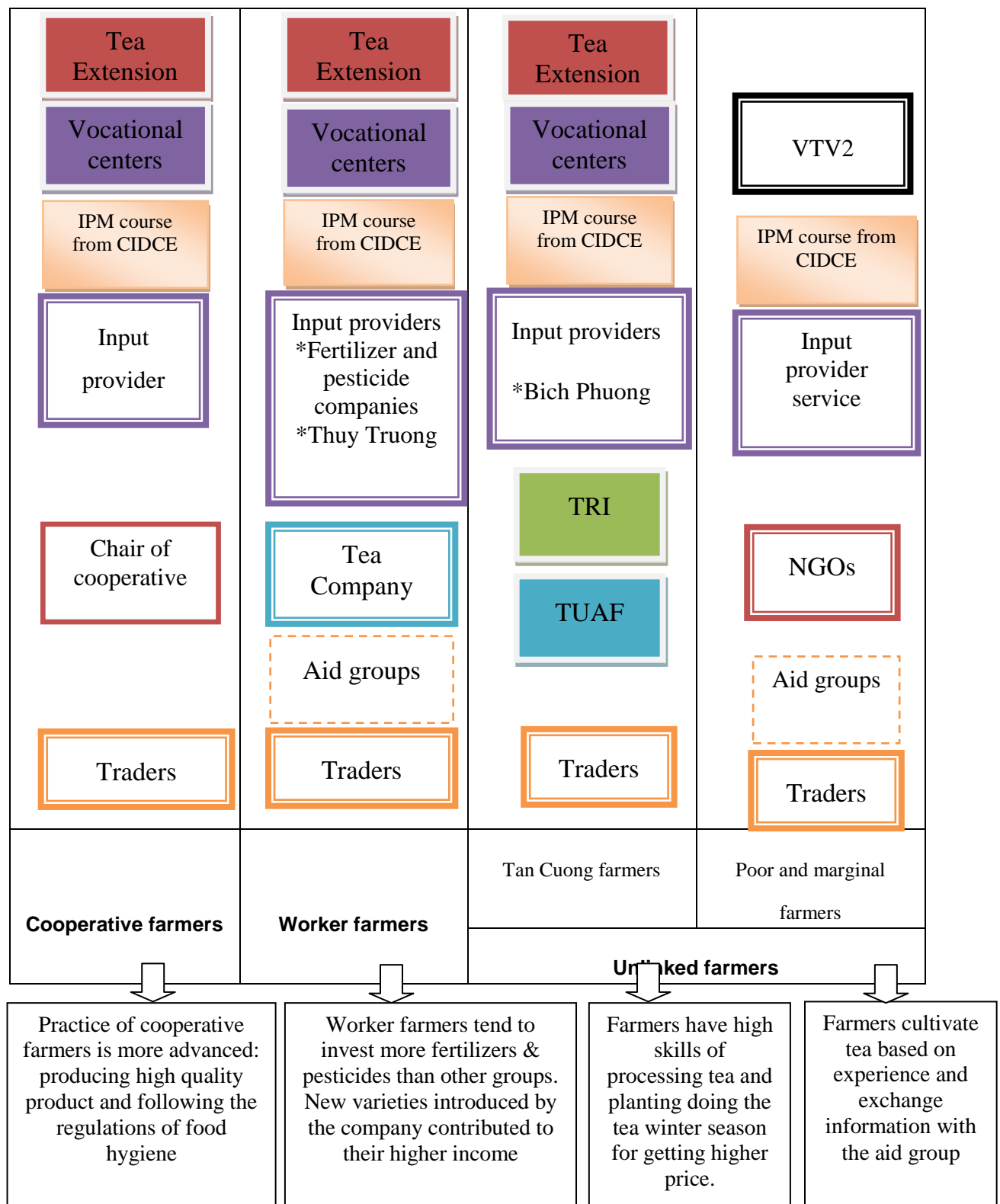
#### *a) Information on varieties*

*Cooperative farmers* get information of new varieties from tea extension programs. They are also involved in some demonstration models of new varieties. Cooperative farmers decided to adopt new varieties because they are the first farmers seeing the advantage of new varieties and obtaining support from extension programs.

*Worker farmers:* acquired information on new varieties from extension programs, they also got information from tea companies. Worker farmers tend to adopt new varieties introduced by companies (Japanese variety and Bat Tien variety) because these varieties have many good traits and are preferred by consumers. Farmers yield higher price with these varieties also. The adoption of the Japanese variety and Bat Tien variety has influenced the farmers in Huong Tra cooperative. The Japanese variety was evaluated by the cooperative in Huong Tra as the best variety. Mr. T, (a team leader of Song Cau Company, and owner a of tea nursery garden), was mentioned as an important source of information on new varieties by worker farmers.



**Figure 5.6: Sources of information used by farmers**



Source: UF01-20; WF01-10; CF01-10

**Unlinked farmers:** (i) The better-off farmers tend to adopt new varieties as opposed to the poor farmers. They receive information on new varieties from training course provided by extension or are informed by the head of the village. And (ii) Poor and

marginal farmers: get information from their neighbors or relatives but they were not interested in adopting new varieties because their income from tea is low.

*b) Information on fertilizer and pesticide*

*Cooperative farmers:* Training courses have influenced significantly cooperative farmers in using fertilizer and pesticides, especially IPM courses (provided by CIDCE in the late 1990s) and UTZ, VietGAP courses supported by DARD and other organizations. Farmers have changed their habit of cultivating tea, using balanced fertilizer, reducing the use of chemical fertilizer and pesticides, increasing the use of manure and bio-micro fertilizer, resulting in better quality of their products (CF01-10).

*Worker farmers:* got a lot of information from different sources: vocational trainings provided by the tea company and the vocational center, short training courses provided by extension and the tea company, seminars/conferences offered by input supply companies etc. Their practice has been influenced by the guiding techniques of the tea company. They used “three color fertilizers” rotationally with NPK fertilizer. The practice of using fertilizer of worker farmers also influences unlinked farmers who live near to the tea company. Some worker farmers also went to Tan Cuong to learn from the experience of Tan Cuong farmers. They started to adopt “Song Gianh micro-bio fertilizer” on their farm because this fertilizer can help increase the quality of tea product. Information on pests and disease was provided and explained by the tea company.

*Unlinked farmers:*

(i) *Better-off farmers or Tan Cuong farmers:* got information from extension programs, especially farmers of Hong Thai village. They are involved in many extension programs, got support from DARD, TRI, and TUAFF in demonstrations of producing organic and safe products. The farmers understand the benefit of reducing chemical fertilizer and pesticides and increasing manure, bio-micro fertilizer on their farm for better quality of tea products. “Song Gianh bio-micro fertilizer” was adopted by better-off farmer in Tan Cuong.

(ii) *Poor and margined farmers:* mainly exchange information with their relatives and neighbors. They discuss information on fertilizer and pesticides when picking tea together (poor farmers do not have money for hiring labor for picking tea, they exchange labor in the tea picking group). Their practice on tea farms is

similar to the practice of their member in the tea-picking group: using NPK once in March and scattering nitrogen fertilizer twice when it is rainy. Farmers reported that they were not invited and also did not want to participate in extension programs because of lack of time and were discouraged to see that other farmers who participated in extension programs did not show any improvement.

Farmers receiving support from NGOs have changed their habit of using fertilizer and pesticides. They know how to check for pests and disease on their farm, which helps reducing the use of inputs, especially pesticides.

#### *c) Information and processing*

According to experienced farmers, processing skills influenced up to 50% of the quality of tea product.

*Cooperative farmers:* tended to go to the chairperson of the cooperative for advice. Farmers in Tan Huong and Huong Tra cooperatives said that their chairpersons were enthusiastic in sharing experience in producing tea. The chairperson of Tan Huong, Mrs. Hiep is very good at tasting tea and she can anticipate well what should be improved for better quality of tea products (CF01-10).

*Worker farmers:* They sell fresh tea to the company. Worker farmers process part of their products and sell on the open market (after 2003, when the company could not buy their entire product). Worker farmers have little experience in processing tea compared to farmers in Tan Cuong, some farmers went to Tan Cuong to obtain experience in processing. Other farmers get experience from traders. (According to farmers, traders are very good at tasting tea products. They give advice in increasing heat or reducing heat in processing for better quality) (WF01-10).

*Unlinked farmers:* (i) Better-off farmers/ Tan Cuong farmers: there is processing technology transferred by TRI to better-off farmers in Tan Cuong, but it is not suitable. Farmers used to experiment themselves with “creative mind” as they said. (ii) Poor and marginal farmers follow the advice of traders (UF01-20).

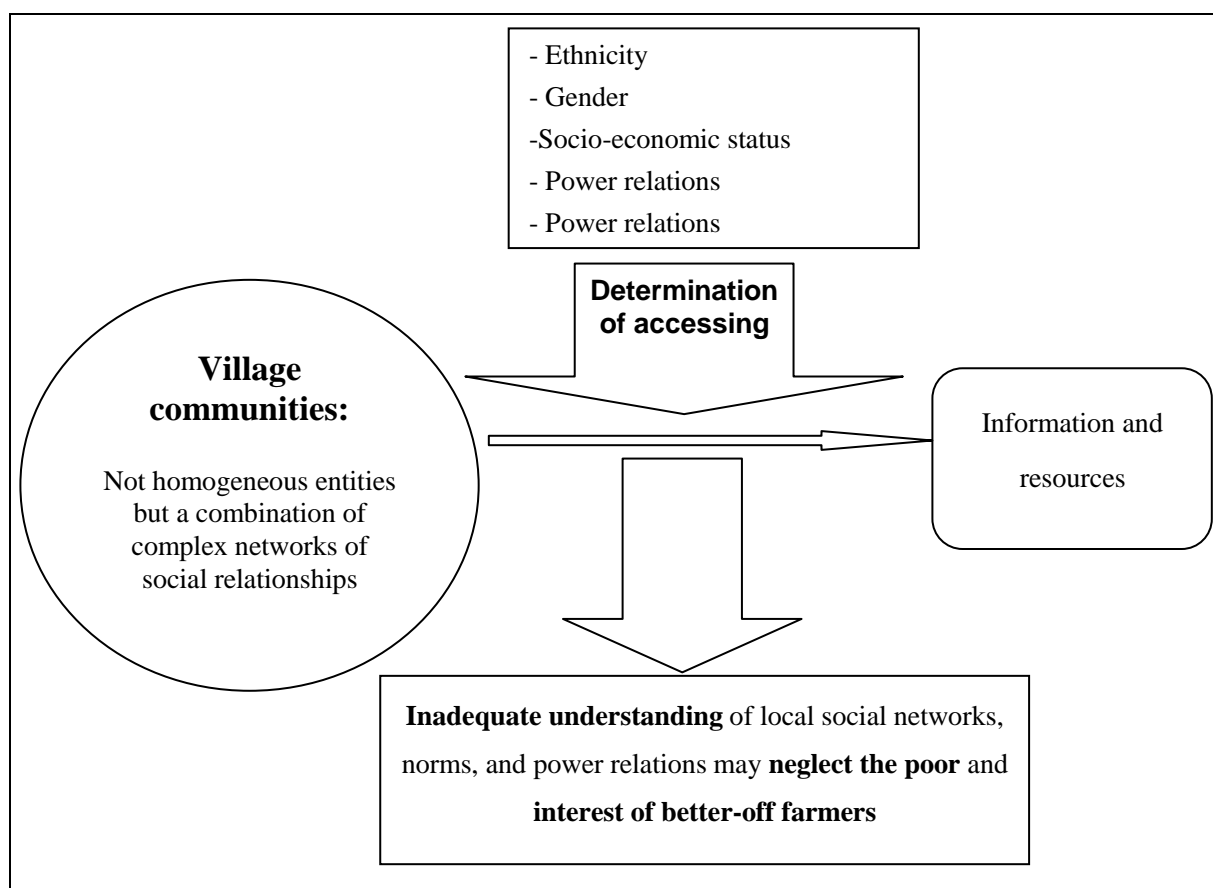
## **5.4. Knowledge network and information flows**

The target of extension is supporting farmers and their communities which are not homogenous entities but a combination of complex networks of social relationships. The results from research in extension in Bac Kan province showed

that inadequate understanding of local social networks, norms and power relations may cause neglecting the poor and concentrating on interests of better-off farmers in extension programs (HOANG et al. 2006; CASTELLA et al. 2006). The illustration of relations between farmer's communities and their access to information and resources is presented in Figure 5.9.

According to HOANG et al. (2006), analyses of a community's social networks can enhance an understanding of intra-community dynamics and relations in order to avoid reinforcing existing unequal power relations and enables research and development interventions to reach individuals and households in greatest need (HOANG et al. 2006).

**Figure 5.7: Farmers accessing to information and resources**



Source: Own draft based on HOANG et al. 2006

#### **5.4.1. Scientific knowledge and formal network**

*The vertical administrative structure of agricultural knowledge transfer system in the MNR of Vietnam*

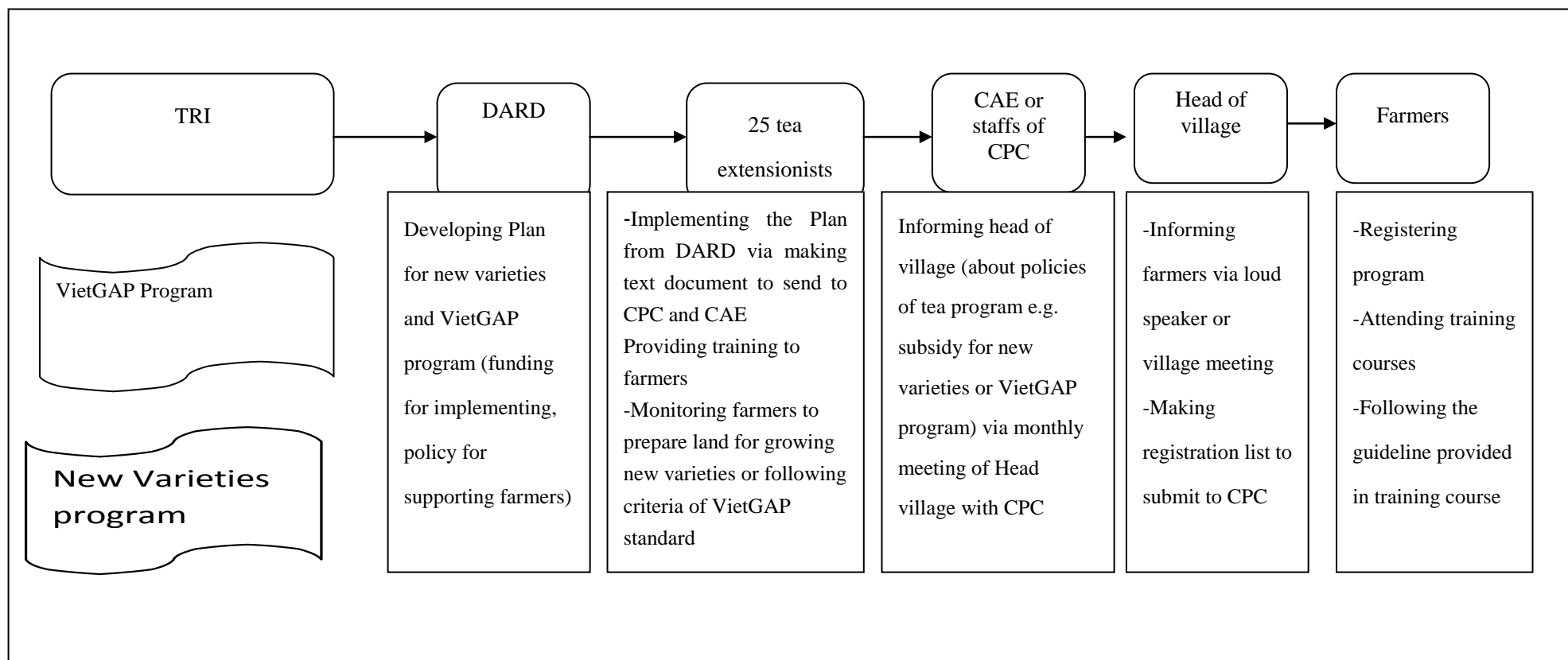
As discussed in section 5.1, actors involved in the AKTS include government actors and non-government actors who were described in Figure 5.2. The public and voluntary actors act together to serve the purpose of supporting farmers in improving knowledge, technical, management skills and production in agriculture and improving the livelihood of farmers (MINH 2010).

Similar to the results from CASTELLA et al. (2006) and HOANG et al. (2006), the transfer of knowledge from research and extension institutions to tea farmers in Thai Nguyen is in the form of linear model of technology transfer to farmers (as illustrated in Figure 5.10). This transfer model is popular in other places in the NMR (CASTELLA et al. 2006; MINH 2010; QUYEN 2012). The model is accomplished by providing subsidies and training together with demonstrations and monitoring of adoption (CASTELLA et al. 2006).

From 2000 - 2010, the tea development scheme in Thai Nguyen focused on development of new varieties with opening new growing tea areas and replanting the areas where the tea bushes became too old, which reduced productivity. From 2000 - 2005 two new varieties (LDP1 and TRI777) were introduced to farmers with subsidy of 30% of the price, together with training provided to farmers who registered in the new varieties program and demonstrations. From 2005 - 2006, TRI777 was removed from the list of varieties provided to farmers because this variety was reported having too much disease. Three new varieties were introduced to farmers (LDP1, Phuc Van Tien and Kim Tuyen) with a 50% price subsidy. Farmers registering in the varieties program still get training courses provided by the tea extension staff. In 2010, tea farmers got a 100% subsidy from the new varieties program.

From 2010 - 2015, the tea scheme in Thai Nguyen focused on increasing quality of tea products and producing safe products under VietGAP standards. Farmers got support from the program in training courses of VietGAP, subsidies for new varieties and fees of VietGAP certification. Demonstrations of VietGAP model were set up in different areas.

**Figure 5.8: Knowledge Transfer to Tea Farmers in Thai Nguyen province**



Source: KI-04; TE01-10; KI-25,26&27

Similarly, other extension programs were also transferred to farmers in the same way (whenever there is an extension program, extension workers inform CPC and CAE via text documents. Then CPC and CAE continue to inform heads of the village about the programs in regular meetings in CPC. Later, extension programs are announced to farmers via village meetings or by loudspeaker for registering for the extension program).

According to CASTELLA et al. (2006), in this linear model of knowledge transfer, CAE and staff of CPC have key positions of brokering information in most of extension programs since information from different programs arrived to them before reaching the farmers. HOANG et al. (2006) indicated that: *“Quick and convenient practice of selecting local leaders or better-off farmers as contact persons for extension service may benefit these groups at the expense of the already marginalized farmers”*. This results in the overlapping of training courses and information sources to some farmers who are mostly better-off (many farmers got 2 - 3 training courses with the same content) while training was lacking for the others who were poor and marginalized. The research on farmers having access to extension programs in Bac Kan province in 2006 also showed that 50% of respondents had never participated in extension programs while 28% had taken part in training courses from two to seven times (HOANG et al. 2006).

#### **5.4.2. Local knowledge and horizontal social networks**

According to reports from SOMO (2007) the culture of Vietnamese people is characterized by “collectivism” which was born out of the “wet rice culture” rooted thousands’ years ago. The behavior of individuals is under strong influence of collective norms and values. Vietnamese people cannot live without relatives or neighbors. They live in harmony as a united community where they treat everyone like brothers and sisters. This creates collectiveness and harmony of the Vietnamese. (<http://handetour.com/Vietnam-Travel-Guides/Vietnam-Culture/vietnam-customs-and-habits.html>).

The culture of Vietnamese people results in their relationships in society and different networks of sharing and diffusing information. Kinship networks, neighbor networks and mutual aid group networks were found in the research of in Bac Kan Province (HOANG et al. 2006).

*Kinship networks:* Kinship networks serve as one of the main channels of informal communication in the community and are an important source of information for large numbers of local people, given their limited access to mass media and lack of direct contact with the local government and other institutions. Farmers reported that their relatives play an important role in their decision making on farming because they sincerely care about each other and always want the good thing for them. Relatives are also the ones who know their conditions well (HOANG et al. 2006).

*Neighbors:* According to ROGERS (1983, cited by HOANG et al. 2006) neighbor networks play an important role in the process of innovation diffusion through sharing information. In the local network interaction, people are likely to exchange information (two-way information sharing) and to observe each other's behavior (one-way information sharing) (ISHAM 2002, cited by HOANG et al. 2006). The neighbor networks play an important role in the adoption of technology innovations e.g. the adoption of soil conservation techniques provided by SAM project which were diffused among the local farmers through hearing and observing their neighbors (HOANG et al. 2006).

*Mutual aid groups:* Members of groups include relatives or close neighbors working based on the norm of reciprocity in which every member has to return the same number of working days given by others. This pattern allows members to stay connected with informal social networks, an important information source in the village community (HOANG et al. 2006).

#### ***Tea farmers networking in Thai Nguyen***

As mention previously, tea farmers in Thai Nguyen are characterized by small scale of farming and large numbers of farmers are poorly educated.

*Cooperative farmers* are more advanced in comparison with other groups. Their chairpersons got training provided by NGOs and had a good understanding of the benefit of farmer's organizations. They are very active in seeking information and opportunities for cooperatives and their members. The chairpersons of cooperatives were considered as important sources of information for cooperative farmers. They have significant influence on their members' cultivating techniques and processing skills. The chairpersons of cooperatives seem to be opinion leaders



of cooperative farmers. Cooperative farmers used to come to chairpersons for advice (CF01-10).

*Worker farmers* benefit from tea companies in guiding techniques of cultivating tea. They also have different sources of information from input supply companies and extension programs. For making decision on the farm, they used to exchange information with their neighbors and the aid group (labor exchange in tea picking). Farmers reported “*there are too many sources of information and recommendations so we have to experience them on our farms and discuss with our neighbors to find out the best solution*”. The result shows that the variety has very clear impact on the price of tea products from worker farmers and the important sources of information on varieties come from Mr. Thuy Truong (a team leader of Song Cau Tea Company and owner a nursery tea garden). Worker farmers also moved to Tan Cuong to learn about processing tea for getting higher price. The cultivating techniques of worker farmers have influenced to unlinked farmers who live near the company. The Japanese variety also was adopted by cooperative farmers who live in the same district. (Huong Tra cooperative chairperson reported that now the Japanese variety is getting highest prices among the varieties grown by cooperative members) (WF01-10).

*Unlinked farmers*: The poor and marginal farmers run their farms based on their experience and exchange information with their neighbors and relatives (they are also in the aid group of labor exchange in picking tea). Their use of pesticide follows the advice from input sellers. Farmers getting support from NGOs have changed their habit of cultivating and processing skill. Their products are also sold at higher prices than before (UF01-10).

Tan Cuong farmers have great skill in processing tea and have experience in using the winter season (pruning time for increasing productivity in the winter season when price and demand is high). In recent times, farmers have adopted new fertilizer (Song Gianh bio-micro fertilizer) for increasing their product quality. Farmers in Tan Cuong consider plant protection information as the most important one because according to their expression: “*it is not a cake, we cannot taste it*”. They used to come to Mrs. P (a retired extensionist, who worked for CIDCE in IPM program, and she is also an input seller near Tan Cuong) for advice on using pesticides and on new pests and disease.

## 5.5. Farmers' needs and their obstacles

### *Farmers' view on their needs*

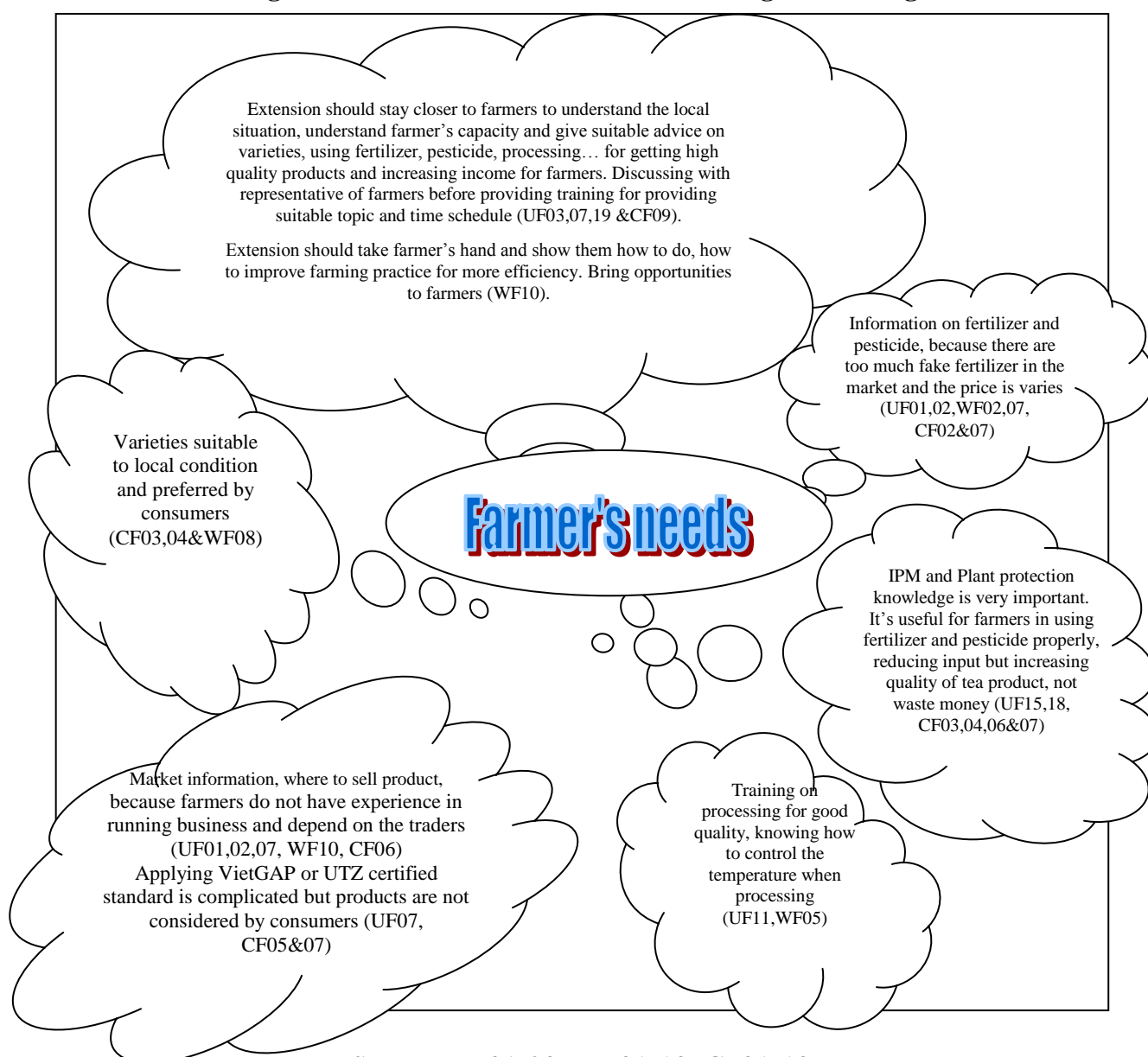
Farmers from all groups in the study area expressed that they wanted extension actors to pay more attention and stay closer to them in order to understand their situations (soil, weather...) and their capacity and give advice to them on how to improve farming practices and increase income (UF03, 07, 19&CF09). They expressed the need to discuss with representatives of farmers before giving training courses on the topic of the courses and on a suitable time schedule (not at the peak of harvesting season) (CF09).

Market information was mentioned by all groups of farmers. Price of fertilizer and pesticides varies in the market and there is often low quality fertilizer sold to farmers. The price of tea products depends heavily on the traders because farmers do not have experience in running businesses. Farmers expressed that: *“technology helps in reducing labor, makes it easier in cultivating. However, market is also very important relating to farmers' income, low prices will disappoint farmers in applying techniques”* (UF01, 02, 07, WF10, CF06). Applying VietGAP and UTZ standard is complicated, but now in the market consumers do not care if there are VietGAP or non-VietGAP products (UF07, CF05&07).

Information on plant protection was considered as important information by tea farmers. IPM courses are very necessary for farmers in running tea farms. IPM knowledge helps farmers use fertilizer and pesticide properly, know how to check for pests and disease, reduce input and increase the quality of tea product to save money. Farmers want to have courses related to plant protection and IPM continuously with updated information because there are many new pests and diseases, new pesticides are not something they can taste (UF03, 15, 18, CF03,04,06&07).

Training on processing is needed by farmers. They want to know how to control the temperature (heating of processing machine) for processing high quality product. The needs and expectations of tea farmers are presented in Figure 5.11.

**Figure 5.9: The needs of tea farmers in doing tea farming**



Source: UF01-20; WF01-10; CF01-10

**Source:** UF01,02,03,05,07,11&19 ; WF02,07,05,07,08&10;CF03,04, 06, 07&09

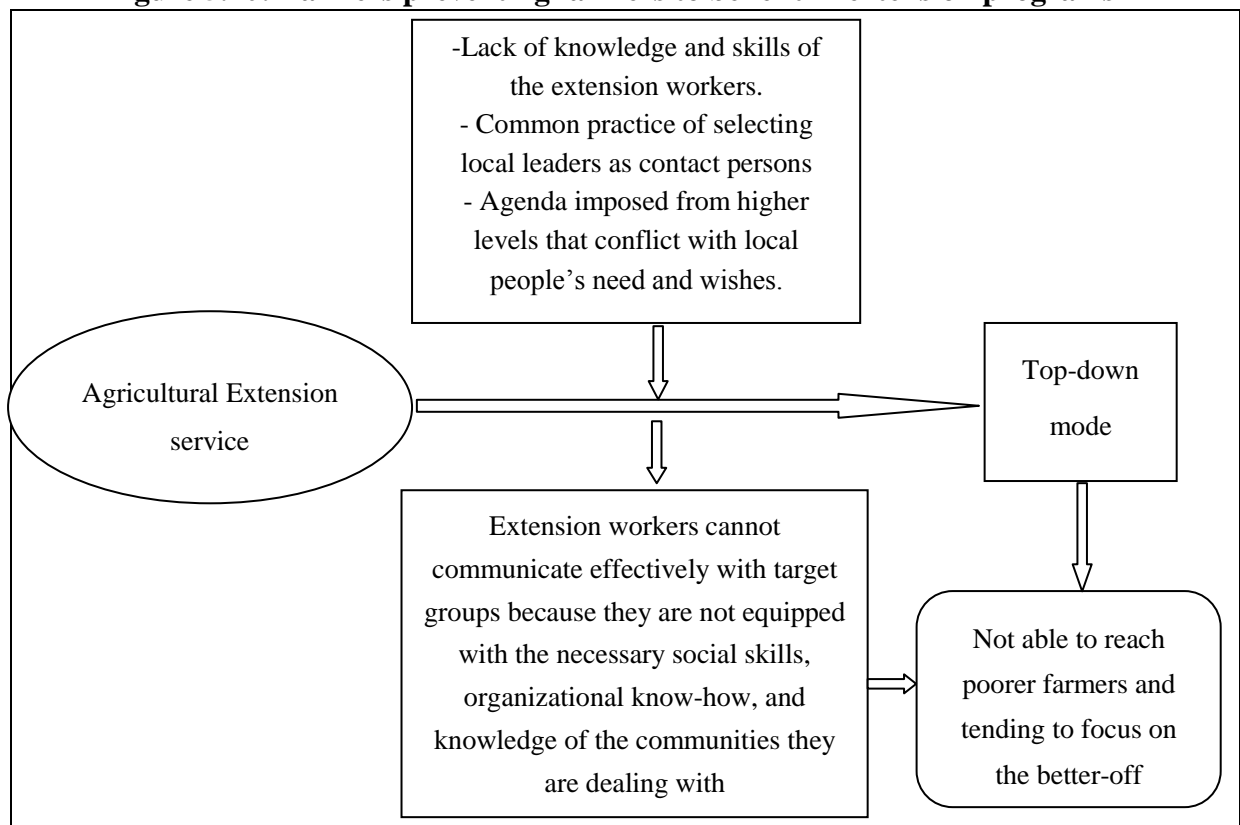
### **Farmers' obstacles in access to information and resources**

HOANG et al. (2006) on research of farmers' access to information from extension programs in Bac Kan province in the NMR pointed out that agricultural extension systems in Vietnam and in the majority of developing countries used to be a rigid type of top - down model which tended to focus on better - off farmers and was not able to reach poorer farmers. The reasons for failure to reach intended beneficiaries of extension include: (1) lacking of knowledge and skills of extension workers; (2) the common practice of selecting local leaders as contact farmers; (3) and agendas imposed from higher levels that conflict with local people's need and wishes (HOANG et al. 2006). In this situation, extension workers are not able to communicate effectively with their targeted groups because of not being well equipped with necessary social skills, organizational know-how, and knowledge of

the communities they are working with (ODELL 1986; EXINN 1987, cited by HOANG et al. 2006). The quick and convenient practice of selecting contact farmers who are wealthy and powerful in communities may benefit only these groups who are not willing or able to act as a bridge between extension and other farmers (HOANG et al. 2006). The barriers which prevent farmers in benefitting from extension program are rendered in Figure 5.12.

Similar to the results from HOANG et al. 2006 interviews in this study also revealed that extension activities are mostly based on the plans of provincial or national programs which do not consider the needs and wishes of farmers. The extension staff is also not equipped enough with necessary extension skills to work with farmers. Farmers reported that “*extension used to work with staff of the commune; they do not come to farmers to understand our local conditions and farmers’ capacities in order to give suitable recommendations*” (KI-33).

**Figure 5.10: Barriers preventing farmers to benefit in extension programs**



Source: Own draft based on HOANG et al. 2006

On the other hand, farmers in Vietnam in general and tea farmers in Thai Nguyen in particular are characterized by small-scale farming. They are not well organized to be strong enough to express their needs and demands for information (GOLLETTI 2007).

## **6. Activities and contribution of extension service**

This chapter starts with the information on the tea extension group in Thai Nguyen and its activities in supporting farmers. This is followed by an analysis of the method of approaching farmers and the extension content. The sources and type of documentary information used by extension is another important issue for the practicability of the extension concept. Finally, the chapter discusses the view of the extension service regarding the needs and problems of the farmers as well as limitations of the tea extension group and their expectation for improvement.

### **6.1. The tea extension group and tea extension programs in Thai Nguyen**

As mentioned earlier, tea is considered as a key product for developing the economy in 9 provinces (Thai Nguyen, Phu Tho, Tuyen Quang, Ha Giang, Son La, Dien Bien, Nghe An, Lam Dong, Yen Bai). In Thai Nguyen, tea farmers are mainly small holders. 80% of farmers process tea at home and sell their tea products on the open market. In order to fulfill the plan of the Tea Development Scheme, Thai Nguyen DARD has requested the Provincial People Committee (PPC) to recruit an extension group to help DARD in implementing activities related to tea in the scheme and to support tea farmers. In 2001, 25 tea extension staff were employed. Up to now, the number of tea extension staff in all 3 stages of the scheme has always been 25. Each district has at least 2 to 4 extension staff responsible for the activities related to growing tea in the region (KI-03& 04).

This extension group is under the supervision and evaluation of DARD at the district level and meet regularly (monthly) with the Management Board. Annually, the Management Board evaluates the extensionist's activities through the results of their work (implementing the annual development plan in the local areas they are responsible for). In order to receive their salary, the extensionists have to submit the list of their working days, which are certified by DARD in the district, and they report to the Management Board of the scheme. The salary of extensionists depends on the number of working days. At the end of the year, the evaluation of extensionists is done by DARD in the district and then it is sent to the Management Board and reported to the provincial DARD (KI-03& 04).

Evaluating the works of the tea extension group, the vice- chairperson of the Management Board of the scheme, Mrs. M said: *“the name of tea extensionists*

*already expresses their duty. They are sent to different districts, under the direction of DARD and the Management Board. They respond to all activities relating to the tea sector such as training farmers, directing techniques, propagating new technologies and implementing the plan from the province on opening new areas and re-planting. Thanks to their contribution, the development of the tea sector in Thai Nguyen province in recent years has been very rapid, both in production and productivity. The last 2 years more than 1000 ha in new varieties have been added. These achievements have depended on the direction of the leaders at different levels and the effort of the extension group” (KI-03).*

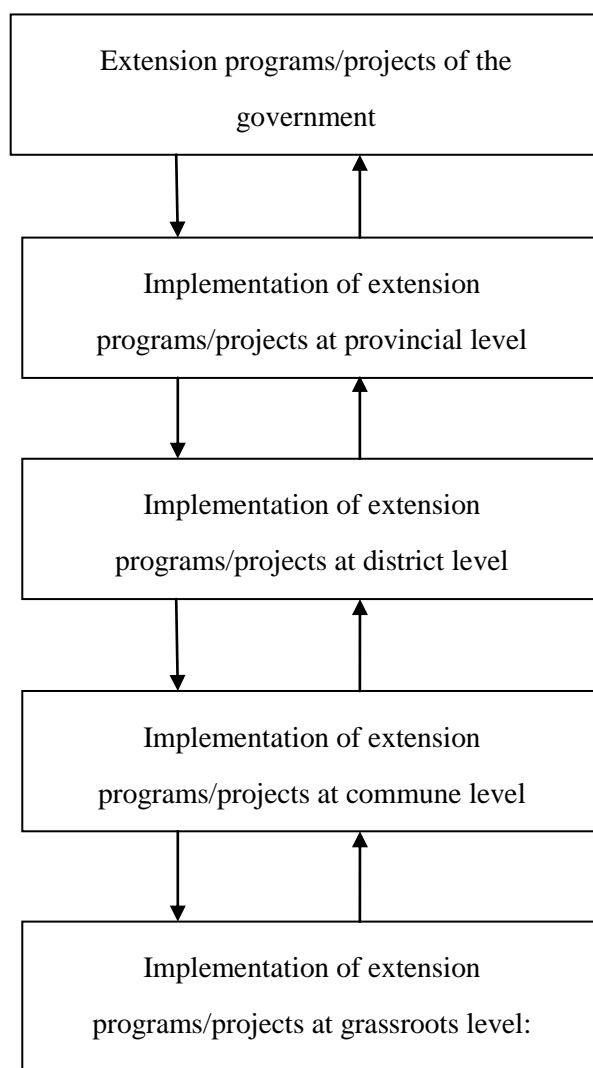
## **6.2. Extension contents and methods of approaching farmers**

### *General context of public extension activities in the NMR*

As stated by other researchers, most of extension activities in the NMR are carried out by government programs following the “top-down” approach which were taken over from the collectivism agricultural period (LINH 2001; CASTELLA et al. 2006; QUYEN 2012). This approach can be described as in Figure 6.1.

As pointed out by NGUYEN (2001): “*the policy for research and extension with the operation of specific programs reflects government objectives on the development of agriculture in the country. In recent years, the programs were designed for the whole country, but not for each specific region. Most research and extension programs aimed at intensive farming, the development of high yielding crop varieties, technical measures, the export of agricultural products, promotion of agricultural diversification, etc.*” (NGUYEN 2001, cited by QUYEN 2012)

**Figure 6.1: Extension approach by extension programs/projects of the government**



*Note: Falling arrows show top-down approach channels of extension; rising arrows show the reporting regime*

Sources: QUYEN 2012

In this approach, most of the extension activities operate under proven programs. Public extension programs play an important role informing good production-oriented economic areas. However, this approach does not seem to meet the needs of the farmers (QUYEN 2012).

#### *The extension programs for tea in Thai Nguyen*

Plans for developing tea through the scheme were presented in each five-year program and was included also in the annual programs. The period from 2000-2005 and 2006-2010 focused on expanding areas, which may grow new varieties. The

period from 2011-2015 focused on producing safe products toward applying VietGAP standards on tea farms (TE01-10).

For achieving provincial and national goals, the tea extension group plays a key role in most of the extension activities in Thai Nguyen (in propagating policies, providing trainings and new varieties, building demonstrations and monitoring/evaluating adoption practices of farmers).

In addition to the programs from the scheme of tea development, the vocational training scheme (implemented by SOEs, Vocational Centers and FU) supports farmers in proving vocational trainings. Also in the “top-down” approach, many farmers reported that they got the same content repeatedly in training courses as was the case of worker farmers or Tan Cuong farmers in this study (WF03, 09&10; UF20).

Evaluating the extension approach of the government programs in the NMR, QUYEN (2012) found the strengths and limitations of the approach as summarized in Table 6.1

**Table 6.1: Strengths and weaknesses of extension approach of government program**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Synchronous implementation of agricultural extension policy to rural area</li> <li>• Easy to implement</li> <li>• Simple</li> <li>• Suitable for new technology transfer</li> <li>• Suitable for government programs</li> </ul>	<ul style="list-style-type: none"> <li>• Do not promote farmers' participation</li> <li>• Not suitable for unique condition of different area</li> <li>• Not fit for different culture of different ethnic groups</li> <li>• Does not promote farmers' creativity</li> <li>• Inflexible</li> <li>• Often loss of funding</li> <li>• Not suiting the needs of farmers</li> </ul>

Source QUYEN 2012



## **Other programs from Non-government actors**

### *Non-Governmental organizations*

***Cooperation Internationale pour le Developpement et la Solidarité (CIDCE) a Belgian NGO with IPM program*** (coordinating with sub-department of Plant Protection)

The IPM program started in Vietnam in 1992 initially in the field of rice and later with tea, peanuts, and vegetables. The program was supported by FAO through projects with the Plant Protection Department (SOMO 2007). In 1994, CIDCE started to support the tea IPM program in Thai Nguyen. In the first 2 years, the project focused on developing the technical basis for IPM in tea by forming 15 groups of farmers and using agro-ecosystem analysis with each group studying one particular topic. In 1996, three pilot projects called Farmer Field Schools (FFS) were organized. In 1997, it continued to expand after organizing a five-month tea IPM training of trainers (ToT) course in Thai Nguyen for 23 trainers (SOMO 2007). In early 1999, the first project for tea IPM in Thai Nguyen (V204 project from 1999-2003) was approved by CIDCE with the aim that 20% tea farmers would benefit from the program. The second project (VN011 from 2003-2005) was carried out in 23 communes in 6 districts with a total of 2,130 farmers who got FFS training courses from CIDCE. In total, 71 FFS courses were organized and 30 IPM tea clubs were established under the support of CIDCE (KI-05).

Results from the interviews with tea farmers in this study showed that most of the farmers reported that they found the IPM course important for them in changing their habits of cultivating tea. The knowledge they got from IPM was useful for them in increasing productivity as well as quality and reducing the use of inputs (UF01-20; WF01-10; CF01-10).

***CARE Denmark Project*** (coordinating with Women Union): started to support farmers in Dinh Hoa District from 2008 in 8 communes. They support mainly poor farmers and women in raising animals (pig, chicken, goat, fish and bees), growing tea, rice and vegetables. Under the support of the project, the interest groups were developed. There are 2 groups of farmers producing tea with an area of 7.6 ha (in Chung village- Trung Hoi commune and Phu Hoi hamlet- Son Phu Commune). The project supports farmers in 50-70% of the value of new varieties.

The farmers groups have guides on developing plans for creating small business, building monitoring and evaluating systems monthly. Tasks for the group leaders were given. The project also invited extension for providing training techniques for farmers. In addition to that are activities for connecting to the market, processing, and packing, etc. Farmers also got support for visiting successful demonstrations for sharing experience with successful farmers. In 2011, CARE supported these 2 groups of farmers in getting VietGAP certification for their tea products (KI-09). Interviewing farmers who received support from CARE showed that farmers were very satisfied with the support from the project because *“the project supported farmers from A to Z, providing training techniques from planting to processing and marketing. They introduce consumers to farmers”*. *“The trainings provided by the project are easy to understand because it has practical applications on farms”* (UF06-10).

***Agriterra project*** (coordinating with Farmer Union):

From 2007-2009 Agriterra supported farmers in Thai Nguyen with the project *“increasing farmers capacity in producing safe products and organic products”*; and from 2009-2010 with the project *“developing models in producing safe and organic products”*. The objective of these projects was to help farmers produce safe products the sustainable way. Agriterra provides training courses for the farmers in strengthening their organizations through group cooperation. Other courses include producing tea under VietGAP standards, training on IPM, and how to keep a farm diary. In total, Agriterra has supported farmers in creating 18 clubs with a participation of 540 farmers (KI-10).

***Input supply companies***

They followed an extension approach to promote the use of agricultural inputs with the objective to instruct farmers in how to use inputs of agricultural production such as bio-fertilizer, pesticides and other inputs; and to encourage farmers to use their product by holding conferences. They usually cooperate with extension to promote their recommended use of inputs (QUYEN 2012). In this study, worker farmers used to experience such an approach by inputs companies. They reported that every year 5-6 conferences were held by input companies (WF01-10) introducing fertilizer and pesticides.

### ***The content of extension activities***

As stated in the Decree 56 and Decree 02, the content of extension activities focuses on: (1) Training; (2) Information dissemination (propagating information of government policies on agriculture, agricultural techniques, examples of good agricultural production); (3) Demonstration models; (4) Extension consultation and service; and (5) International cooperation on agricultural extension. However, in reality, extension activities concentrate on providing training, information dissemination and building demonstration models (QUYEN 2012).

#### **Training**

In reality, training provided to farmers is done based on prior arrangement made by the higher level of management and not on the needs of farmers. Methods of training are criticized as monotonous in content, too short, and not appropriate for each region and each ethnic group. Training in class is not realistic which makes it difficult for farmers to apply on their farms (QUYEN 2012). Weak coordination among the actors and no clear division of training responsibility among different institutions in charge such as MARD, MOLISA, FU causes problems in overlapping training to farmers and a waste in expenditure of the government budget used for farmer training (QUYEN 2012).

#### **Information dissemination**

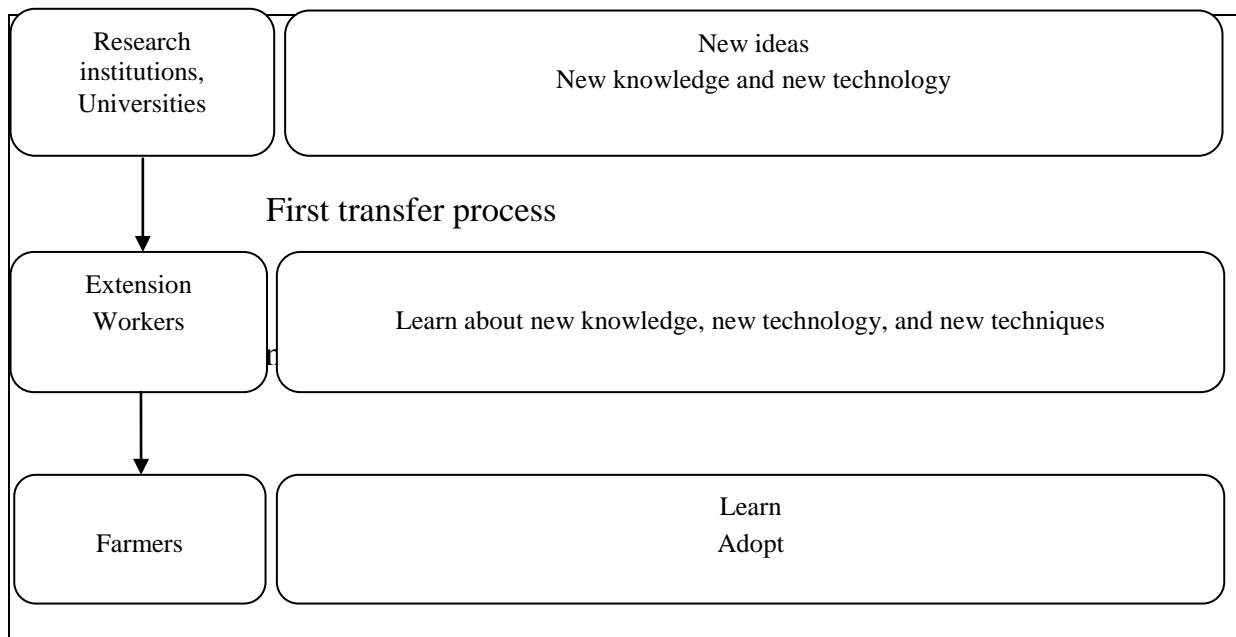
Along a similar line, information dissemination was considered as a key task of extension with the aim of performing tasks of communicating government policies on agricultural extension, dissemination techniques, and examples of good agricultural production... (QUYEN 2012).

The information dissemination and communication activities carried out by extension are mainly agricultural technology dissemination and propaganda. Previously, it was done mainly through word of mouth, training courses, village heads and extension workers. But now there are many additional forms such as conferences, seminars, radio and television etc. propaganda channels in more remote areas are not as abundant as in rural areas near the capital area and the delta area (QUYEN 2012).

## Technology transfer to farmers

The aims of the technology transfer model is to create opportunities for farmers to learn about the selection of new technologies such as new varieties, or new fertilizers in order to help household economic development (QUYEN 2012). According to QUYEN (2012), this type of approach often shows some limitations such as imposition of extension program and making extension workers understand this process to teach farmers rather than providing a shared learning experience.

**Figure 6.2:Technology transfer model**



Source: QUYEN 2012

## Building demonstration models

The objective of building demonstration models is to attract farmers to the process of developing new techniques on their farms and to “disseminate” innovation packages.

Typically, extension chooses 10-15 farmers who are quite homogeneous and enthusiastic and their farm locations are convenient for transport. Village meetings were held to introduce the objectives of the models and then interested farmers were visited and assessed. After completing the list of participants, selected farmers would get training and subsidies for implementing the model.

The models were derived from the orientation of MARD for each region, and then the extension center of the province would allocate the demonstration models

to communes that are capable and suitable. These models serve as references for farmers to take into consideration and for replication. However, the limitation of this approach is that it may not derive from the potential strength of the region and models are difficult to apply in practice especially for the poor farmers located in remote areas (QUYEN 2012).

*The activities of tea extension group in supporting tea farmers in Thai Nguyen*

Most of the tea extension staff graduated from the crop science faculty of TUAUF (except one extensionist who graduated from Ha Noi University). For improving the works of extension, annually extension staff got training courses provided by DARD. They received training in tea production and plant protection. However, only the senior extension staff members who had worked since 2001 received training on extension methods (supported by CIDCE project) on the 7 principles of extension and took an IPM course (TE01-10).

Implementing the VietGAP program, extensionists got training courses on VietGAP provided by TRI and DARD. The team leaders of extension in each district received ToT training (Training of Trainers) provided by DARD and TRI (TE01-10).

In order to improve the training skills, extension staff participated in training courses on education methods from the Education University or TUAUF (extension staff have to pay the fee by themselves for participating in this course) (TE01-10).

The tea extension staff said that when they started to work as tea extension workers they found that it was difficult to approach farmers because they did not have proper methods. The knowledge they acquired from the university and what they learned from books was very different from reality. They did not have practical experience and did not understand the culture and cultivating habits of farmers (TE02,03,04, 07,08,09&10).

However, the tea extensionists also revealed that compared with extension workers who graduated from an extension faculty they performed better because the colleague graduated extension faculty also had only theory and no specific knowledge e.g. knowledge of pests and disease which was usually requested by farmers (TE10).

### Tasks and activities of the tea extension group

The main task of tea extension group is to fulfill the plan from DARD (currently the task concentrates on expanding areas growing new varieties and supporting farmers in producing safe products under VietGAP standards). They provide training for farmers who registered in extension programs (new varieties or VietGAP) and build demonstrations on new varieties, intensive cultivating (using fertilizer) and VietGAP demonstrations (TE01-10).

Each tea extensionist is responsible for to 3-8 communes (TE01-10). They contact CAE (named as 248 staff) for implementing their plan. Some communes do not have CAE and extensionists have to contact other representatives in Communal People Committee (CPC) e.g. Farmer's Union (the case of Tan Cuong commune).

According to tea extensionists, their work is characterized by seasons and divided by quarters:

(i) In the *first quarter*: they build plans and develop text documents (which include: information about policies supporting farmers (varieties, fertilizer, VietGAP program) and subsidies provided to farmers and sent to the commune (to CPC and CAE). CPC and CAE inform farmers and let them register in the program: i.e. (a) **new varieties program**: in the first period of the scheme (2000-2005) the program provided farmers with 3 varieties (LDP1, LDP2 and TRI777). From 2005, the TRI777 was removed from the list of varieties supporting farmers because it had too many pests and diseases. Now the extension program is supporting farmers with 3 varieties: LDP1, Phuc Van Tien and Kim Tuyen. (b) **VietGAP program**: From 2008, MARD started to introduce the VietGAP program to farmers with the aim to support farmers in increasing the quality of tea products and to produce safe products. The first demonstration was implemented in Tan Thanh cooperative in Dong Hy district, Thai Nguyen province. From 2010, the VietGAP program was extended and farmers received support in training of VietGAP and subsidy fees for VietGAP certification. The criteria for selecting farmers to participate in demonstrations included: having a large farm, farm location near to the main road and farmer enthusiasm.

(ii) *Second quarter*: extensionists provide training to farmers who register in the extension programs and control farmers in preparation of land for growing new

varieties. Usually in March and April, extensionists provide training and from May to June they control land preparation.

(iii) *Third quarter*: distribution of new varieties to farmers, building demonstration (varieties, VietGAP, fertilizer). New varieties used to be distributed during August- September.

(iv) *Fourth quarter*: monitoring of varieties planted by farmers and demonstrations.

### **6.3. Source and types of documentary information used by extension**

#### ***Knowledge qualification of the tea extension group***

As already discussed in the previous section, most of tea extension workers graduated from the crop science faculty of TUAU whereas there is only one extension worker who graduated from Ha Noi Agricultural University (HAU).

Annually, for improving the works of extension, additional trainings were provided to extension workers organized by provincial DARD. In the period of 2000-2005 and 2006-2010, training provided to tea extension groups focused on techniques of cultivating and processing tea including of intensive cultivating and methods of preventing pests and disease. In this period of time, extension also received training provided by NGOs such as the CIDCE project in extension methods (there are six tea extension workers out of 25 extension workers in the group) who got training provided by CIDCE, the rest of the group are new workers and do not participate in this program. However, some of senior extension workers reported that they also forgot the content of the training because it was so long ago). In the period of 2010 up to the present, the extension program has focused on producing safe products under VietGAP standards. Training in VietGAP was provided to extension groups from 2008 continuously focusing on building VietGAP demonstrations, ToT on producing tea under VietGAP and methods of sampling soil and water for testing. The duration of training courses are in 3-5 days (TE01-10).

According to the tea extension workers, what they learned from the university and by reading books was very different from reality and they did not have much experience and knowledge in tea farming, which made it difficult for

them to work with farmers (TE02,03,07,08,09&10). *“Teaching only from books will make farmers not believe in extension”* (TE03). This situation was found similar to other extension programs in other places, as cited by QUYEN (2012) *“nearly 5000 extension staffs at all levels were trained in extension skills. Many tours were organized for extension workers and farmers to survey and learn from experiences for other regions inside the country and abroad. However training courses, extension visits for extension workers and farmers are done based on appointment made by the upper management, not based on the needs of farmers and extension workers who have the need to improve their knowledge”* (QUYEN 2012).

#### ***The main documents which extension used for working with farmers***

The results of interviews showed that most of the documents which the tea extension workers used for providing training to farmers were developed by TRI (the handout of producing tea; the standard of nurturing and processing tea No.446-2001 and document of VietGAP No. 1121-2008 (TE01-10).

Training courses organized by DARD for the extensionists were also provided by TRI (in recent times, TRI have been providing training on guiding the implementation of VietGAP for extensionists and ToT to the team leaders of extension from different districts (TE01-10).

Additionally, there are 2 policy documents used by extension: Decision 99/QD-BNN (issued on 15/10/2008 about procedure of registering for applying VietGAP. And Decision 84/QD-BNN (issued on 27/8/2008 about the process of certifying for VietGAP standard).

### **6.4. Extension views on the needs of farmers and farmers' problems**

Any extension activity is based on the view of the extension service or staff on what farmers need and how farmers see their problems. This must not necessarily be identical with the real farmers view and the real problems of the farmer. It is therefore necessary to look closer at the perspective of needs and problems of the farmers under the view of extension.

#### ***Extension's view on farmer problems***

According to the tea extension group, tea farmers in Thai Nguyen are characterized by small scale farming with small farm size and fragmentation, which make it difficult for extension in implementing extension programs (TE01-10). Farmers are now very free on their farms; they can do whatever they want without



any regulations. Extension workers cannot therefore, force them to follow the techniques (TE01, 05&10). “*Farmers have low awareness and only see the short-term benefits*” reported by tea extension (TE01,02,03,05,07&10).In applying VietGAP standards, farmers face problems of writing a farm diary because they do not have the habit of recording and writing (TE01-10). Extension also reported that now most of farmers are facing problems of output markets. Farmers depend on traders or middlemen (TE01-10; TE12). There are tea companies existing in the area but they usually buy fresh tea at low prices (TE01&10).

#### ***Extension’s view on the need of farmers***

Most of the extensionists understand that farmers are facing problems regarding output markets and that farmers need a stable output market (TE01-10; TE12). Having extensive experience of working with tea farmers in Thai Nguyen province, Mrs. B - a retired extensionist, expressed her perception of the needs of tea farmers. This information is rendered in Box 6.1.

#### **Box 6.1: Perception of farmer needs by an experienced extensionist**

Mrs. B is a retired extension worker but she is still favored by tea farmers in Thai Nguyen. She graduated from TUAFF in 1976 and worked in a sub-department of Plant Protection. Mrs. B was involved in the CIDCE program and her name (together with Mr. V, also works in a sub-department of Plant Protection) was repeated by farmers in the IPM and other training courses in which they participated and considered as good information source for them in making decisions on their farms. According to Mrs. B, to understand farmers, extensionists have to work in the field with farmers, stay close to them and share with them the knowledge which farmers do not know and do not understand e.g. explain that trees take up many substances from the soil, so after picking the tea shoots farmers should give back to the soil not only chemical fertilizer but also green material or organic material to compensate and replenish the soil; explain different characteristics of each type of pesticide and how to use pesticides properly to be efficient, not to waste money and labor and not to harm their health. Mrs. B found that the IPM program and training provided by CIDCE in the 1990s was very useful to her to improve her experience and skill. She also shared that she took a useful course provided by the Centre for Community Empowerment (CECEM) on ToT in 1 month.

According to Mrs. B, the need of farmers now is not only techniques. They are willing to produce good quality products but what they want is to have stable output markets, and to know how much the market is going to pay for them (what they do depends on the return of the market and the requirements of the market).

Source: TE12

The tea extension group also considers that providing training is needed and communication to farmers to increase their awareness of producing safe products (TE01,03,05&10).

## **6.5. Limitations of tea extension groups and their expectation for improving**

### ***Limitations***

Similar to results from other research, the challenge of extension workers for achievement in their work is in having a low field allowance. Being responsible for large areas while farmers are widely dispersed, limited capacities in extension skills due to poor training (UNDP 2000; ADB 2002, cited by CASTELLA et al. 2006; CASTELLA et al. 2006). In addition, a stable output market for tea farmers is a big challenge seen by extension workers, which affects their work. Not enough practical knowledge about tea is also a constraint in the work of extension.

Low field allowances was reported by most of tea extensionists in the interviews but some of them admitted that they cannot complain about their allowance because it is popular now with all government officials.

Farm size is small and fragmented, which make it difficult in implementing extension programs (TE01-10). Creating interested groups is helpful for extension workers for better contact with farmers but now there is no training for the team leaders of the groups and no incentive for the team leaders to encourage them to work for the groups (TE01,04&05).

Extensionists do not have enough working skills in extension (in approaching farmers and in teaching farmers in training courses). Their work not only includes extension activities but is also related to state management (in managing varieties, fertilizer...) (TE01-10).

The knowledge, which extensionists got from university and by reading books, is very different from reality and they do not have enough experience and practical tea knowledge (TE02,03, 05&10). The new extensionists have problems when working with farmers because they do not understand the cultivating habits of the farmers. Farmers also disagree with them about what they teach from the book (TE03,04, 08&10).

Awareness of farmers is low and they are free to do what they want on their land. Extension cannot force them to follow the technical advice while the market is not attractive enough for them to invest more in new technologies (TE01-10). Products following VietGAP standards and non-VietGAP products do not have differing prices in the market and consumers do not care much about it (TE01).

### ***Expectation for improvement***

Extension workers expressed that they want to have training in extension methods for improving their work with farmers (TE01-10). They understood that *“to transfer knowledge to farmers it is necessary to have visual aids with specific pictures so that it is easier for farmers to understand new information”* because with limited ability, their training provided to farmers is still monotonous (TE02, 03&10). The expectation of having stable market demand for high quality products to interest farmers in applying technical advice was reported by large number of extension workers.

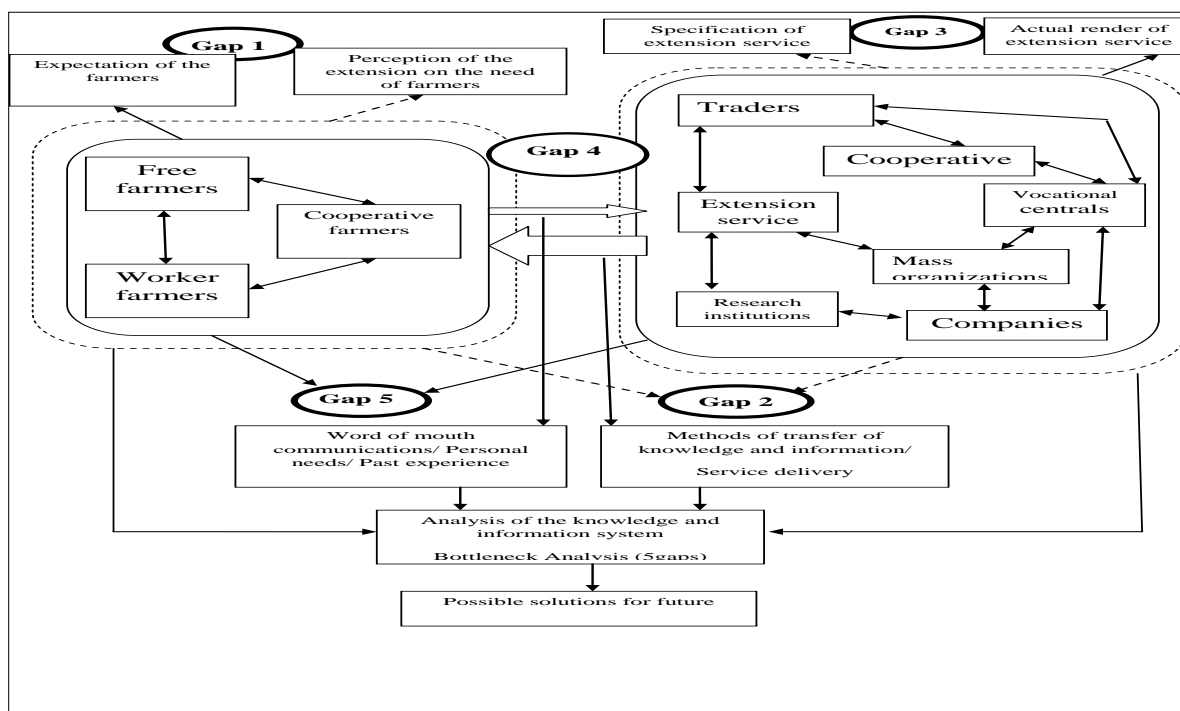
## **7. Reality and future: How to strengthen the extension service and improve the linkages among the key actors**

This chapter focuses on the analyses of the weaknesses of the extension service in the tea sector in order to find out the ways of strengthening the quality of service for better serving the tea farmers. Firstly, the chapter starts with using the Parasuraman Model (GAP model) to identify the gaps, which were considered as the obstacles to service quality, and to find out suggestions for improvement. Afterwards, the chapter focuses on the linkages among the key actors to see what can be done to improve the situation. Finally, the chapter ends up with the implication for the future of the extension services for tea farmers.

### **7.1. Analyzing the GAP-model**

The GAP-model of service quality from PARASURAMAN et al. (1985) offers a set of gaps, which were considered as hindering factors limiting the service quality. The integrating of the GAP-model into the relation between tea farmers and extension services in the tea sector is presented in Figure 7.1. In this model, the different gaps are discovered to see the barriers causing the weakness of the extension service; the difference between expectations of tea farmers and the perceived needs of farmers by extensionists (GAP1); the inconsistency between the perceived needs of farmers of the extensionists and the translation into their strategies or service specifications (GAP2); the divergence between service specification and the actual rendering of service (GAP3); the difference between service delivery and communication with farmers (GAP4); and the variation between farmer expectations and their perception of the rendering of extension service (GAP5).

**Figure 7.1: Extension service quality model for tea farmers**



Source: Adapted from PARASURAMAN et al. 1985

### 7.1.1. Farmers expectations and the extension view on farmers' needs (GAP1)

According to BOLAND (2007), the first gap in the service quality model signifies the differences between the expectations of the customers and perception of the service provider regarding the needs of their clients. This gap occurs when the service providers do not understand the needs of their clients and which features services must have in order to meet the needs of their clients (PARASURAMAN et al. 1985).

As already discussed in Chapter 5, farmer communities are not homogeneous, so their needs are very different accordingly. The different groups of farmers vary in their characteristics such as worker farmers, cooperative farmers and unlinked farmer etc. and in their locations such as marginal farmers who are located in the remote areas or farmers located near to the Tea Company. These differences result in dissimilarity of needs and expectations of farmers of the extension service, of which, the poor and marginal group of farmers have the highest demand for support from extension.

The extension service, on the other hand, as discussed in Chapter 5 and Chapter 6 uses the top-down mode of transferring technology and the common practice of extension activities is based on the agendas imposed from higher levels of management. As pointed out by MINH (2010), new technologies introduced were based on the view points of researchers, not the farmers in the local areas and follow the orientation of the government's development.

These limitations prevent extension from understanding the expectations of different groups of farmers. Not understanding the needs of different groups of farmers and their expectations causes the first gap in the quality of the service. This gap is described in Table 7.1.

**Table 7.1: GAP 1 - The difference between expectations of tea farmers and perceived needs of farmers by extension service**

<b>Farmer's needs and expectations on the tea extension service</b>	<b>Perceived needs of farmers by extension service</b>
<ul style="list-style-type: none"> <li>- Worker farmers need training in processing;</li> <li>- Tan Cuong farmers and cooperative farmers emphasize the need for plant protection and IPM knowledge;</li> <li>- Unlinked farmers in remote areas need information for increasing income from tea (from cultivating to processing and market information)</li> </ul>	<ul style="list-style-type: none"> <li>- Farmers need support in changing to new varieties for increasing productivity.</li> <li>- Farmers need to have training and propagating for increasing awareness about producing safe products to increase tea product quality.</li> </ul>
<ul style="list-style-type: none"> <li>- Market information (output markets and price) is important with all groups of farmers.</li> </ul>	

Source: TE01-12; UF01-20; WF01-10; CF01-10

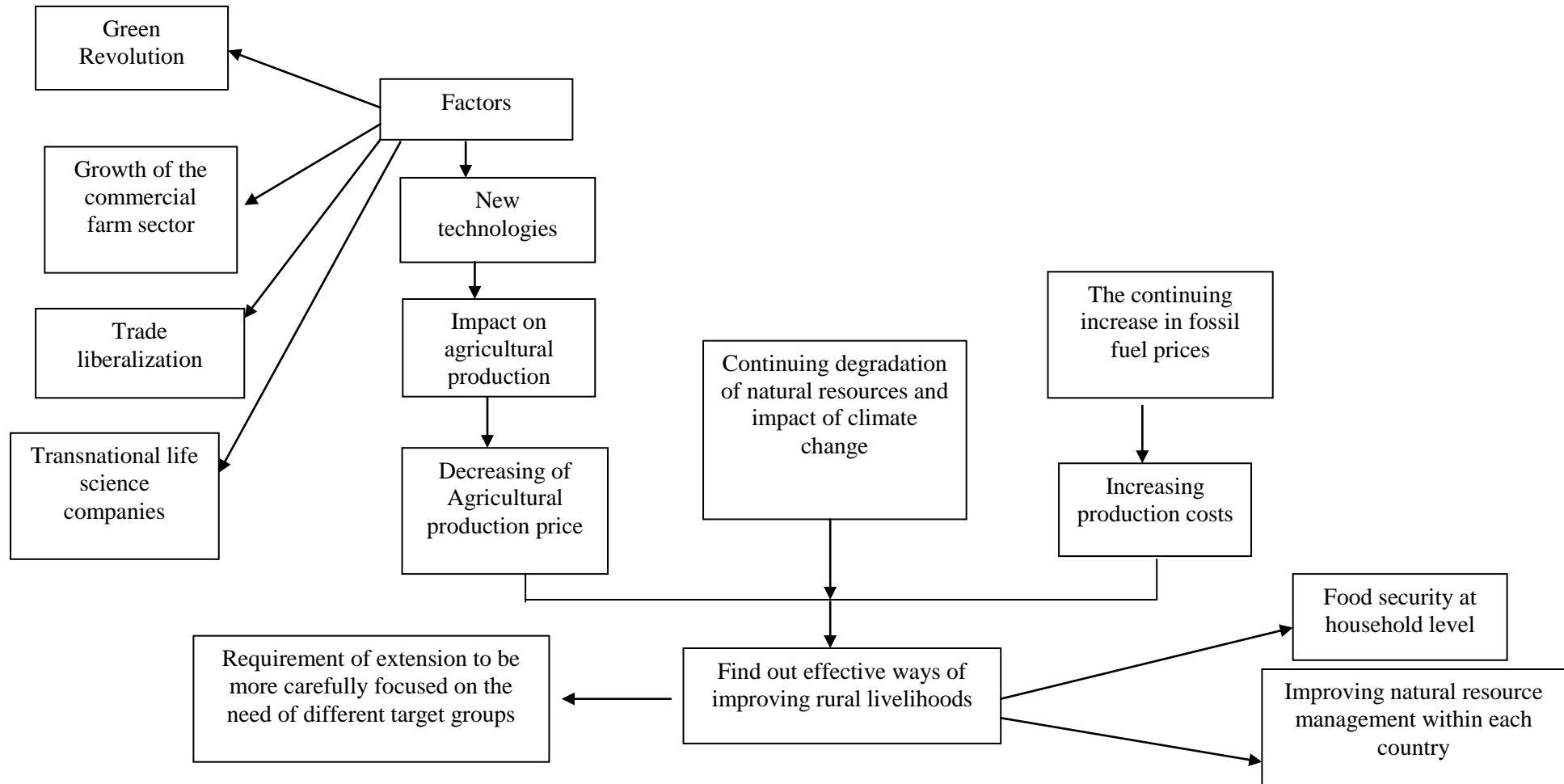
Information from Table 7.1 obviously shows that there is a gap between farmers' needs and the perception of the needs of farmers by extension.

BOLAND (2007) in his research on service quality suggested that to reduce this source of failure, the service recipients should be able to articulate their expectations, and on the other hand the service provider should be able to pay adequate active attention.

Looking at 3 groups of tea farmers in the research, there is only the group of cooperative farmers able to contact the extension services because their chairpersons are very active in seeking information and opportunities for the cooperative's members. With the other farmer groups, the numbers of farmers who are able to contact extension is very limited and is normally the better-off ones. As mentioned earlier, the reasons for not being able to reach poor farmers of the extension service in the NMR of Vietnam were: lack of knowledge and skills of extension workers; the common practice of selecting local leaders as contact farmers; and agendas imposed from higher levels that conflict with local people's needs and wishes (HOANG et al. 2006). It is also the same in the case of tea extension in Thai Nguyen.

SWANSON (2008) in reviewing good agricultural extension practices in the world has concluded that the new situation of agriculture in the last decades requires a lot of changes of extension systems as illustrated in Figure 7.2. He indicates that in order to find out the effective ways of improving rural livelihoods with respect to the situation of increasing prices of agricultural inputs while at the same time decreasing price of agricultural products and degradation of natural resources and impacts of climate change, more careful focus is necessary on the need of different target groups to strengthen farmers' ability. In doing this work, extension programs should not only provide techniques but also be willing and able to assist farmers in developing human resources and building social capital. SWANSON has pointed out: *"China, India and Indonesia have demonstrated that public extension system can be successfully transformed to build human and social capital and thereby improve rural livelihoods by introducing high value crops and livestock diversification"* (SWANSON 2008).

**Figure 7.2: Changing in focus of extension system worldwide**





Therefore, differentiating target groups to understand the needs of each group is necessary. Also assisting them to develop into producer groups or farmer organizations will be helpful for accessing technical and management skills which they need. This also helps farmers in gaining market access as they are more developed in economies of scale. For extension, developing farmer groups can reduce the constraint of the limited number of extension staff for contacting large numbers of small farmers. In doing so, the tea extension group needs to receive training both in improving professional knowledge about tea production and in extension skills. RÖLING and ENGEL (1991) have pointed out that extension requires two types of knowledge: (1) agriculture science to cover human control of biological and other farm processes, and (2) extension science to cover the systematic use of communication to help farmers solve their problems.

### **7.1.2. Perceived needs of farmers and the translation into strategies of the extension service (GAP2)**

The second GAP implied the difference between the perceived needs of the clients by the service providers and the translation into their strategies. According to BOLAND (2007), it is about being able to make operational plans of the service provider from their objectives, which the service can then implement. And PARASURAMAN et al. (1985) suggested that the various factors such as constraints of resources (e.g. lack of trained service personnel...) and the absence of total management commitment to service quality may result in this gap.

The government strategies for extension programs in Vietnam, as stated by LINH (2001), focus on food insecurities and need for foreign exchange which is based on the assumption that the development of agriculture under conditions of the region will require a high level of productivity and that this process is driven by technology. This leads to a series of directions for official innovations, which have been introduced, with much attention given to high productivities of crops and animals per unit (LINH 2001). This is also the case in the tea sector in Vietnam. Most of activities of the tea extensionists are based on the plans from higher levels of management. This problem results in the second gap of quality service, which is presented in Table 7.2.

**Table 7.2: The difference between perceived the needs of farmers and service specification**

<b>Perceived the needs of farmers and their problems</b>	<b>Service specification</b>
<ul style="list-style-type: none"> <li>- Farmers need support in changing new varieties.</li> <li>- Farmers have low awareness (on applying techniques, hygiene and producing safe products.)</li> </ul>	<p>Extension agenda was designed based on provincial program and national programs which focus on:</p> <ul style="list-style-type: none"> <li>- Transferring new varieties program;</li> <li>- Supporting in increasing product quality and producing safe tea product (VietGAP program).</li> </ul>

Source: TE01-10

Because of limitations in extension skills and their task to fulfill the plans from government which is heavily top-down in planning and based on the assumption that the development of agriculture under the conditions of the region will require a high level of productivity driven by technology (LINH 2001), the work of the tea extension group mainly focuses on transferring new technologies such as new varieties or techniques under a series of directions. According to LINH (2001), *“the lack of research and extension works in the field of farm management, and processing and marketing of agricultural product reflects weakness in understanding the knowledge system perspective”*.

The results from this study show that even the extension staff knows that farmers are facing the problem of output markets however, this problem is not included in the extension program to support farmers.

### **7.1.3. Service specialization and actual render of service**

**GAP 3:** The discrepancy between service specialization and the actual rendering of the service.

According to BOLAND (2007), *“what counts here is the competence of the service providers to actually perform the obligation as promised”*. It was recognized that the performance of personnel in service providing represents a

strong influence on the service quality perceived by the clients and that performance cannot always be standardized; it is related to variability in employee performance (PARASURAMAN et al. 1985).

Most of the tea extensionists in this study graduated from a crop science faculty. The tea extensionists expressed that they want to have training courses on the extension methodologies and approaches of farmer methods and also want to have training on higher tea professional because what they had learnt from university and from reading books is very different from reality and the practices of the farmers. Tea extension staff reported that they also found that it was difficult for them when they started to work with farmers and that they had to acquire a lot of knowledge about tea from farmers and experience of working with farmers from their senior colleagues. The difference between service specifications and the actual delivery of service is presented in Table 7.3.

**Table 7.3: Discrepancy between service specification and actual delivery**

<b>Service specification</b>	<b>Actual delivery of service</b>
1. New varieties program	Providing subsidy for new varieties together with demonstration and technical training.
2. VietGAP program	Providing training, demonstrations, subsidy in certifying VietGAP standard

Source: TE01-12

At the moment, the main task of the tea extension group is to support farmers in transferring new varieties and techniques of producing safe tea products (or VietGAP program). The activities of the tea extension group related to transferring these two technology packages were mentioned in Chapter 6 which included informing farmers about policies supporting farmers, providing new varieties and technical trainings. For implementing the task, the competence of different extensionists leaves different impressions on farmers. Among the staff of the tea extension group, Mrs. U, a tea extensionist in Dong Hy district, was reported by tea farmers as being a good extensionist because she was enthusiastic with farmers and had extensive knowledge about tea. Compared with other tea extensionists, Mrs. U had the highest educational level: she graduated from a master program in crop

science. She is one of the six extensionists who started to work as a tea extensionist in 2001 at the beginning stage of the tea development scheme. She also participated in some NGOs programs e.g. CIDCE project, Spain project and Plan project. Mrs. U said that participating in NGO projects helped her to acquire more experience of working as an extensionist because she could learn about extension methods such as participatory approach which was useful for her in working with farmers. She also shared that *“previously I used to follow advice from my senior colleagues in my work, but it did not help very much. The participatory method is a better method to approach farmers to understand their needs and give them advice, this method I got from training provided by NGOs”*.

Other trainers from other extension programs who were reported by farmers in providing them interesting training courses were Mr. V (from DARD), Mrs. B (a retired extensionist) and Mr. B (Song Cau company). These persons were involved in FFS programs supported by CIDCE from 1990s and now are invited as trainers in vocational programs and NGOs project (CARE project in Dinh Hoa). Mrs. B admitted that participating in programs supported by CIDCE helped her to acquire a lot of good experience and knowledge in working with farmers.

In addition, as mentioned in Chapter 5, currently there are many input suppliers and traders involved in providing information to farmers. In this study, worker farmers and unlinked farmers in Dong Hy District reported that they used to come to Mr. T for seeking information and advice on new varieties. New varieties contributed to increasing their income significantly. Tan Cuong farmers used to come to Mrs. B for information and advice on plant protection and using pesticides. Farmers reported that *“pesticides are chemicals, not a cake and we cannot taste it. It is important knowledge but farmers do not know how to use them properly”*. Farmers used to come to Mrs. B to ask information because Mrs. also had an additional job as an input seller. Farmers understand that using fertilizer and pesticides properly can help them reduce financial investments and increase the quality of tea products, which helps them increase income. Compared with other input sellers, Mrs. B and Mr. T also have a higher level of education and knowledge; they received bachelor degrees and graduated from TUAU. Mr. T was working as a team leader in Song Cau Company and Mrs. B was the head of the technical department of plant protection sub-department.

The evidence above shows that professional knowledge and experience of extension contributes significantly to the performance of different extension staff. According to PARASURAMAN et al. (1985), the problem of personnel performance of service providers happens even when guidelines exist for performing services well and treating clients correctly. In this study, the policies of extension (Decree 56 and Decree 02) showed that extension work should shift away from the transfer of technologies and turn into a farmer-led, demand driven and participatory extension. However, with the lack of necessary training for improving human resources, it is not possible for the extension to perform better in serving the needs of their clients or shifting from a top-down mode of transferring technology to a demand driven one. Furthermore, the mechanism of monitoring and evaluating extension activities, which is based on the submitting of reports of extension staff, does not encourage extension staff to go to the field to work with farmers. As stated by the senior extensionist “*now extension staff does not need to work hard, they just write good reports to submit to the leaders*” (TE12).

#### **7.1.4. Divergence between extension delivery and communication with farmers**

**GAP 4:** *The divergence between service delivery and communication with the customer.*

As presented in Chapter 6, the transferring technology package of extension is in the form of a top-down approach. In this vertical linkage, technology packages were developed by researchers, then extension transferred it to farmers and farmers were the users. In this model, farmers are very inactive in extension programs. Because of a lack of staff members, in order to carry out the plans quickly, extension used to select CAE or local leaders as contact persons for implementing extension programs. In this approach, the beneficiaries are mainly the better-off farmers or farmers who have relations with local authorities. In addition, with this approach, the information flow used to be in top-down fashion and lacked feedback from the farmers who participated in extension programs. This results in some problems as reported by farmers e.g. the new varieties program did not satisfy farmers because the quality of new varieties and type of varieties given by extension programs were not preferred by consumers; VietGAP products are also not considered by consumers in the market.

To reduce this gap, as mentioned in GAP 1, farmers need to be differentiated into groups in order to target and support them in developing their organizations, provide training for the leaders of farmer groups who act as contact persons in extension programs and to allow them to be involved in all steps of a extension programs. Interviews with tea farmers show that it is necessary to have discussions with farmer representatives before implementing extension activities about the content of extension as well as for finding a suitable time schedule.

BOLAND (2007) indicated that: *“it is necessary to remain in contact with the customer throughout the entire service process and to involve him in the process of service delivery accordingly. This requires the ability of service providers to communicate his respective work steps, that is, above all the actions of his personnel. So it is all about one’s action and meta action. It is about ability to talk accurately in specific terms with others about one’s own actions and explain oneself and one’s plans”*.

#### **7.1.5. Expectations of farmers and their perception of extension services**

**GAP 5:** the difference between the expectation of the customers and their perception of actual rendering by the service providers.

PARASURAMAN et al. (1985) signified that the assessment of service quality depends on how consumers perceived the actual service performance in the context of what they expected. The key to ensuring good service is to meet or exceed what consumers expect from service.

As stated in analyzing GAP 1, farmers need a lot of information for making decisions in their tea farming. Different groups of farmers have different needs: e.g. the Tan Cuong famer group has greater experience and skill in tea processing. They need advice for using pesticides and knowledge about plant protection because they indicate that pesticides are chemicals they know little about and as it is not a cake and they cannot taste or try it. Farmers in the middle and remote areas want to know how to process tea in order to get high quality tea products at higher prices. Most of the farmers who have attended the IPM course (supported from CIDCE project) said that these courses were very useful for them and easy to understand because they taught the farmers in the field and provided practice. IPM knowledge can help farmers use inputs properly to reduce the cost of input investment and to increase

product quality. Recently, some farmers participating in vocational training courses provided by the Tea Company or vocational centers also reported that it was useful and easy to understand because they were taught in the field with practice. Farmers said that extension should “*take the hand and show how to do*”, and “*too much theory is not understandable*”. Most of the farmers said that they need a lot of information and advice for their inputs and outputs on their farms but they do not know where the advisors are. The gap between the expectation of farmers and their perception of the actual rendering of extension service is present in Table 7.4.

**Table 7.4: Discrepancies between farmers’ expectation and their perception of the service rendered**

<b>Farmer’s needs and expectation</b>	<b>Perception on actual extension service</b>
Discussion with farmer representatives about extension content and the time schedules for meeting the needs of farmers suitable to the situations of farmers	<p>Extension used to work with staff in the communal people committee (CPC) and do not approach farmers so they do not know the problems farmers are facing. Most of the extension programs are in the form of tokenism.</p> <p>New varieties provided by extension are low in quality; the distribution time to farmers is not suitable, the procedure of getting subsidies from extension is very complicated.</p>
Farmers need a lot of information and different groups of farmers have differing requirements in increasing their income.	<p>Extension programs are heavily based on the provincial and nation plans which focus on increasing productivity and opening up the tea growing area by providing new varieties and training techniques in cultivating tea. VietGAP program provided by extension is very complicated to apply for, however, in the market consumers do not care about these products and prices of VietGAP and non-VietGAP product are not different</p>

Farmer's needs and expectation	Perception on actual extension service
IPM is considered very important in increasing quality of tea products and in reducing input costs. Farmers want to have training on IPM and other training which are practical and demonstrated on the farm because this is easier for them to understand and remember.	Training courses provided by extension are too theoretical, the content was repeated again and again in the courses without being upgraded. Most of the training courses provided by the tea extensionist are very tedious and not understandable. Documents distributed to the farmer are too long and not easy to understand.
Market information is important to all groups of farmer (output markets and price)	<p>-Farmers do not know to whom they can go to for advice.</p> <p>-Without considering output markets in extension recommendations, they result in problems for farmers in finding markets to sell their products. Due to these problems farmers cannot trust extension.</p>

Source: UF01-20; WF01-10; CF01-10

Farmers expected that “*extension should stay closer to farmers to understand the local situation (different land and climate...) and capacity of farmers in order to provide advice for improving farmer's incomes*) and “*to take farmers hands and show them how; too much theory is not understandable*”(UF03,07&19; CF09; WF10).

Up to now, the tea extension program from the Tea Development Scheme supported farmers in two main activities: (1) new varieties and (2) produce safe tea products (applying VietGAP or UTZ certified standard).

- With the new varieties program, farmers evaluated that “*new varieties are very good at increasing productivity and higher quality but they do not always take the varieties from the extensionist because the varieties provided are of very low quality, mixed with other varieties and showed a high rate of death after planting*”.



- In the program of producing safe tea products (VietGAP), tea extensionists support farmers doing VietGAP and UTZ certification standards: the UTZ certification program was not introduced to all farmers. There were only a few cooperatives which participated in the annual meeting organized by DARD that got information about the UTZ program. Up to now, farmers have appreciated that applying UTZ can help them in increasing knowledge about producing safe products and maintaining hygiene in processing. However, farmers also complained that applying UTZ guidelines required complicated techniques especially in keeping a farm diary. However, in the market, consumers still do not care about the UTZ products even though UTZ is an international standard. The VietGAP program was introduced to the tea farmers in Thai Nguyen in 2008 in Tan Thanh cooperative with 20 households as a demonstration. Now it has been introduced more openly to all farmers through informing CAE and CPC. The government had a strategy in 2015 that 100% tea farmers would apply for VietGAP standards on their farms. However, until now many farmers still feel confused as to whether to apply for VietGAP allowing them to get higher prices although, the application techniques are more complicated than the traditional cultivating techniques.

## **7.2. Implication for improvement of extension**

The lack of training in extension skills of the tea extension group and their agenda imposed from higher levels, results in the problem of inadequate attention paid to the needs of farmers and misunderstanding the needs of different farmer groups. In order to reduce these weaknesses, training is needed in extension skills for the extension groups and the extension plan should be based on the needs of different target groups. In addition, for better serving the tea farmers, the tea extensionists also need to upgrade knowledge about the tea cultivation profession as well as IPM and plant protection knowledge. In addition, extension should integrate market problems into their programs and look for solutions. Development of farmer groups or farmers' organizations is also needed from different target groups and provision of training for the team leaders to support them in acting as contact persons in the extension programs. These contact persons should be involved in all steps of each program of tea extension to express the needs of different groups and to provide feedback to extension services about the local situations.

In order to reduce the pressure on the small number of tea extension staff, providing training for input suppliers to increase their competence for better serving farmers is needed. On the other hand, it is necessary to improve the coordination among the actors involved in tea extension program such as vocational centers, Farmer Union, Tea companies and plant protection stations in reducing overlapping in extension programs and better serving the needs of farmers.

The mechanism of monitoring and evaluating extension programs is also necessary to take into account awarding or punishing in order to encourage extension to support farmers instead of using the mechanism of merely submitting reports and getting planning approval.

## 8. Conclusions

The research questions and objectives of this research laid down in chapter one are the basis for the conclusions as follows:

1. Involving actors in the AKIS in tea farming includes government and non-government actors from the central level to the provincial level and down to the grassroots level.

At the central level, the Ministry of Agriculture and Rural Development (MARD) with representatives from the Department of Crops Production has strong relations with the Tea Research Institute (TRI) and Vietnam Tea Association (VITAS). MARD has a role in state management functions including orientation of developing strategy and direction in planning and implementing plans. TRI contributes in providing new technologies such as new varieties and techniques. VITAS representing the tea producers (in reality, members of VITAS are mainly tea processing enterprises including SOEs and private enterprises), plays role in consulting government about regulations and tea development policies and in providing advice for their members in trading and marketing. Currently, VITAS together with TRI and MARD are actively involved in many activities in the tea sector at the central level as well as at local levels e.g. organizing tea festivals in different regions or national conferences (tea outlook). From 2010, with the support of the Solidaridad organization, VITAS together with MARD established the National Coordination Forum with the aim to coordinate the key stakeholders in the tea industry in working together for enhancing the accountability and credibility of different national and international CSR standards.

At the provincial level, most of activities related to tea production are under the management of the provincial Department of Agriculture and Rural Development (DARD) and the main extension program for the tea sector is implemented by the Tea Development Scheme which started from the year 2000 implemented by the tea extension group. Additionally, there is a vocational scheme which provides vocational training for rural people in general and tea vocational trainings for tea farmers in particular. The vocational scheme is under the management of Department of Labor, Invalids and Social Affairs (DOLISA). Actors involved in the vocational scheme include vocational centers, farmers' union and tea companies (which are state owned enterprises- SOEs). Besides the scheme

of tea development and vocational scheme, many other actors have made contributions to tea AKIS such as extension stations, plant protection stations, NGOs, mass media, cooperatives, input suppliers and traders. Among which, input suppliers emerge as an important information source of farmers in providing information and advice for use of input such as Mr. T (a team leader of Song Cau Tea Company and a owner of nursery tea garden) or Mrs. B (a senior extensionist who participated in IPM program provided by CIDCE and a input seller). Furthermore, according to farmers, the traders who buy their dry tea products have an important role in providing information and advice to them in processing e.g. to reduce or to increase the heat of the drying oven.

Farmers and different farmer groups also play a role in generating knowledge and diffusing information and technological innovations: (1) *Cooperative farmers* who got support from NGOs in developing their groups from IPM clubs into tea cooperatives, these farmers are showing their advancement in changing the habit of cultivating tea. Currently cooperative farmers are involved in the program of producing safe tea products supported by the scheme of tea development; (2) *Worker farmers* who were workers in tea plantations of state owned enterprises in the past (before 1995), they became worker farmers after the government introduced Decree 01/CP in 1995 which released land to them through contracts (according to the contract, worker farmers have to sell their fresh tea products to the company). Results from interviewing with worker farmers showed that currently they are selling partly their products (fresh tea) to the company and partly (dry tea) products on the free market because after the collapse of the market to the Soviet Union in the 1990s and the war in Iraq in 2003, tea companies were not able to buy all of their products. Poor worker farmers do not have enough resources such as labor and capital for investment in producing dry tea products, they only produce fresh tea to sell to tea companies. The tea cultivating of worker farmers was influenced by tea companies significantly, especially in use of fertilizer. Compared with other farmer groups, worker farmers tend to invest more in chemical fertilizer such as “three color fertilizer”. The use of “three colors fertilizer” rotationally with other chemical fertilizers was also found in unlinked farmers in Dong Hy district who live near to the Song Cau Tea Company. New varieties introduced by Song Cau Tea Company such as the Japanese variety or Bat Tien variety were adopted by worker farmers because these varieties were favored by consumers and traders.

These new varieties were also adopted by cooperative farmers in Huong Tra cooperative which located in Dong Hy district. According to interviewing with these farmers, these new varieties contributed to the price of their products significantly. (3) *Unlinked farmers* account for 70% of the total farmers. This farmer group is the most heterogeneous in characteristics. In this study, different sub-groups of farmers were selected for interviewing: these are *poor farmers in remote areas* (in Dinh Hoa district); *farmers living near to Song Cau Tea Company* (in Dong Hy district); and *Tan Cuong farmers* who have the most famous reputation for Thai Nguyen tea products. The Tan Cuong farmers form the community having the longest green tea producing tradition in Thai Nguyen province (since 1925). Having high skills in processing green tea and experience in producing tea in the winter season, Tan Cuong farmers always get the highest price for their tea products and are favored by consumers throughout the country. Located near the city center, Tan Cuong farmers benefit from extension programs provided by DARD, TRI, and TUAFF...influenced from these programs, Tan Cuong farmers understand the benefit of the use of manure and organic material in increasing quality of tea products, they adopt the use of Song Gianh micro-bio fertilizer. Worker farmers and unlinked farmers in Dong Hy district come to them to gain experience in processing tea, some of them also adopted Song Gianh micro-bio fertilizer for increasing tea product quality in order to increase the price of tea product.

At the central level, MARD together with TRI and VITAS have a strong connection. However, at the provincial level, most of the government actors form a vertical administrative structure. For implementing the activities of the Tea Development Scheme, the tea extension group has cooperation with the staff of the extension station and the plant protection station but this connection is very weak.

2. The tea extension group (including 25 extensionists) in Thai Nguyen was established in 2001 with the aim to support DARD to fulfill the provincial and national plan of tea development. They work under the management of the provincial DARD and the management board of the tea development scheme. These tea extensionists were sent to districts having intensive tea growing areas and respond to most of the activities related to tea development in Thai Nguyen province. Each district has at least 2 - 4 tea extensionists.

Extension contents and methods of approaching farmers in the tea scheme as well as other extension programs which are carried out by government programs follow the “top-down” approach. Most of extension activities operate under proved programs:

The tea extension group in Thai Nguyen shows many weaknesses in approaching farmers because they lack training in extension skills and methods. The tea extensionists admitted that their professional knowledge about tea was also limited. They are responding to large areas with high numbers of farmers cultivating on small farms. In order to fulfill the plans from the provincial and national levels, they have to contact the extension staff of the communes or staff of the Communal People Committee. These contact persons continue to inform the heads of the village about tea extension programs. The heads of the village inform farmers via village meetings or loud speakers. Through this approach, usually better-off farmers or farmers who have relations with local authorities are invited to the extension programs.

3. The limitations of the extension service results in a set of gaps preventing their contribution to the tea sector:

GAP 1: differences between farmer expectations and perceived needs of farmers by the extension service.

Different groups of farmers in the study expressed their needs differently: among which the poor farmers in remote areas have the highest demand for extension support in order to increase their income; worker farmer groups need information on processing techniques; cooperative farmer groups and Tan Cuong farmers want to improve knowledge of IPM and plant protection. Information about market and stable output market are expected by all groups of farmers.

The extension service, with the top-down approach, operates their activities based on the agendas imposed from higher levels of management. New technologies transferred to farmers were conducted based on the viewpoints of researchers and following the orientation of government’s development, not the farmers in local areas.

GAP 2: The difference between needs of farmers perceived by extension service and the translation into their strategies

Government's strategies for extension programs in Vietnam focus on food insecurities and need for foreign exchange. These are based on the assumption that the development of agriculture under conditions of the region would require a high level of productivity and that this process is driven by technology. This leads to a series of directives for official innovations, which have been introduced, with much attention given to high productivity. In this line, the extension programs for the tea sector focus on increasing productivity through to introducing new varieties and techniques. From years 2000 to 2010, programs for tea development focused on supporting farmers in changing new varieties (introducing new varieties, providing subsidies and training techniques); from 2011- 2015 focus is on supporting farmers in increasing production of safe tea products under VietGAP standards. Similar results were also found in other research on extension in Vietnam. It was concluded *"the lack of research and extension works in the field of farm management, and processing and marketing of agricultural product reflects weakness in understanding the knowledge system perspective"*.

GAP 3: Discrepancy between service specialization and the actual rendering of service

The tea extension group with 25 tea extensionists recruited in the study area, shows their weakness in extension methods and skills although they graduated from a crop science faculty. Annually, they received training provided by the provincial DARD or TRI, however, the training given them is under plans from a higher level (DARD or TRI) and not in accordance to their needs. Lacking the necessary training in extension skills, extensionists found it difficult to work with farmers. In addition, the mechanism of monitoring and evaluating extension activities, which is based on submitting reports, does not encourage extension staff to go to the field and work with farmers. As stated by a senior extensionist *"now extension staff does not need to work hard, they just write good reports to submit to the leaders"*.

GAP 4: the divergence between extension service delivery and communication with the customer

The top-down approach of extension used by the extension service and the selection of local leaders as contact persons for implementing extension activities, prevent farmers from participating in extension programs. Farmers become inactive

and have no voice in expressing their needs. Feedback information about extension program delivery to farmers is also not considered

GAP 5: The difference between the expectation of farmers and their perceptions of actual rendition of the extension service.

Results from interviews with different farmer groups show that farmers expected extension to pay more attention to them, stay closer to them to understand their local conditions and their capacity in order to give suitable advice and support (e.g. IPM knowledge, processing techniques, new varieties...). Farmers also expressed that they want to have specific knowledge and information from extension, not too much theory. Extension should “take them by the hand” and show them how.. Market information and stable output markets are also expected by most of all farmer groups.

Evaluating extension activities under the perceptions of the farmers show that:

- Extensionists usually work with staff in the commune, they rarely contact farmers to understand the farmer’s situation and problems. As a result, many extension activities are in the form of tokenism.

- The new varieties program plays an important role in introducing new varieties with high productivity and high quality. However, new varieties sold to farmers with subsidies are very low quality. Farmers suffered from new varieties received from extension because of high rate of seedlings death, mix of varieties, and insuitable distribution time. The procedure of getting subsidies is also complicated. Varieties provided by extension are not considered high in market demand.

- The VietGAP program is complicated to apply for and in the market VietGAP or non-VietGAP tea products are not considered important to consumers. The procedure of registering and applying for VietGAP standards and getting subsidies for applying for VietGAP are also very complicated and slow. Training in techniques of applying for VietGAP provided by extension are very short and not easy to understand. Farmers implementing VietGAP demonstrations revealed that applying for VietGAP help them increase their income because of the increasing price of tea products and reduced investment in fertilizer and pesticides. However, farmers reported that increasing price of tea products after applying for VietGAP is because of increasing product quality. This is because of the IPM techniques introducing in VietGAP training, which help farmers to understand the use of



balanced fertilizer and the proper use of pesticides. The market price of VietGAP or non-VietGAP product is not different. Farmers feel confused in adopting VietGAP in the future because applying these techniques requires farmers to follow many regulations and farmers have to record all of their farm activities in the farm diary.

- Market information and output markets are important to farmers but they do not know to whom they can go for advice. Price and quality of input for tea farms such as new varieties, fertilizer and pesticides are big questions for the farmers. In this study, worker farmers and farmers in Dong Hy District are happy with information about new varieties they received from Mr. Thuy Truong, a team leader of Song Cau Tea Company, who is the owner of a new tea variety nursery garden. Tan Cuong farmers can go to Mrs. B, a retired extensionist, who runs a business of fertilizer and pesticides. However, there are not many farmers who have these opportunities. The output market is also a big problem for the farmers. They depend on the traders. Worker farmers can partly sell their products to tea companies but they are not satisfied with the price offered by the companies. At the moment, cooperative farmers in Tan Huong cooperative can sell their products to cooperatives at a higher price than on the free market but the chairperson is unsure about a future stable market.

4. Based on the gaps in findings above, we hereby make suggestions for improvement of the extension service for the tea sector:

- Tea extension programs should be based on the needs of farmers and different groups of farmers accordingly.

- Extension personnel in tea extension programs need to have training in extension science and updated professional knowledge about tea production, especially IPM knowledge and plant protection for growing tea.

- They need to take into account the local knowledge of Tan Cuong farmers such as processing techniques or producing tea in the winter season. In addition, extension should consider market problems into their programs and look for the solutions.

- Developing farmers groups or farmers' organizations is also needed from different target groups and training for the team leaders to support them to act as contact persons in extension programs. These contact persons should be involved in all steps of each program of tea extension to express the needs of different groups and to provide feedback to extension service about local situations.

- In order to reduce the pressure on the small number of tea extension staff, providing training for input suppliers to increase their competence for better serving farmers is needed. On the other hand, improvement is necessary for the coordination among the actors involved in tea extension programs such as vocational centers, farmer unions, tea companies, plant protection stations, NGOs...for reducing overlapping in extension programs and better serving the needs of farmers.

## 9. Summary

### 9.1. English Summary

Tea plays an important role in improving income and generating employment in the northern uplands of Vietnam. However, the tea sector is reportedly performing below its potential: low yields and productivity, and low product quality. Among the major problems affecting tea production is the limited access of tea producers to information both in production and marketing; low level of connections between actors in agricultural extension, researchers and the farmers themselves.

This research tries to analyze the situation by using the Agricultural Knowledge and Information (AKIS) perspective to understand the knowledge system of the tea sector. The Parasuraman Model of quality service was used to identify the gaps which constrain the contribution of the extension system and to suggest what can be done to strengthen the extension service for effective contribution to the tea sector.

Results show that the extension service, with top – down approach, operates their activities based on the agendas imposed from higher level of management. New technologies transferring to farmers were conducted by based on the viewpoints of researchers and following the orientation of government's development, not the farmers in local areas. ...). Trainings provided by extension are normally too much theory and not satisfied by the farmers. The tea extension group in Thai Nguyen (established in 2001) shows many weaknesses in approaching farmers because they lack training in extension skills and methods. The tea extensionists admitted that their professional knowledge about tea was also limited. They respond to large areas with a high number of farmers cultivating small-sized farms. The limitations of the extension service result in a set of gaps preventing their contribution to the tea sector: (1) difference between farmer expectations and perceived needs of farmers by extension service. (2) Difference between perceived needs of farmers by extension service and the application in their service strategies. (3) Discrepancy between service specialization and the actual rendering of the service. This GAP existed due to the lack of quality of the extension staff. (4) Divergence between extension service delivery and communication with the

customer. Farmers become inactive and have no voice in expressing their needs. Feedback about extension program delivery to farmers is also not considered. (5) Difference between the expectation of farmers and their perceptions on actual rendering of the extension service. Results from interviewing different farmer groups show that there are many differences between farmers' expectation and the actual rendering of the extension service. Farmers commented that the extension activities are in the form of tokenism and do not consider the real needs of the farmers.

## **9.2. Deutsche Zusammenfassung**

Im Hochland von Nordvietnam spielt die Teepflanze eine wichtige Rolle bei der Erzielung von Einkommen und der Schaffung von Arbeitsplätzen. Allerdings gibt es im Tee-Sektor Verbesserungspotential infolge einer schwachen Produktivität und schlechter Produktqualität. Das Hauptproblem liegt darin, dass die Produzenten nur begrenzten Zugang zu Informationen über die Produktion und die Vermarktung von Tee besitzen. Hinzu kommt eine fehlende enge Verbindung zwischen Akteuren in der landwirtschaftlichen Beratung, Forschung und zwischen den Bauern selbst.

Gegenstand der Untersuchung ist das landwirtschaftliche Wissens- und Informationssystem (AKIS) der Tee-Branche. Das Parasuraman Modell der Servicequalität wird verwendet, um die Lücken in dem System zu identifizieren und die Rolle des Beratungsdienstes in der Tee-Branche zu verbessern.

Die Ergebnisse zeigen, dass der Beratungsdienst einen top - down Ansatz auf der Grundlage von einer aus höherer Managementebene vorgegebenen Agenda betreibt. Die Vermittlung neuer Technologien an die Landwirte erfolgt aus dem Standpunkt der Forscher heraus und wenig ausgerichtet auf die Bedürfnisse der lokalen Bauernzielgruppen. Die Schulungen für Bauern sind oft überfordernd und enthalten in der Regel zu viel Theorie. Auch die Berater haben Probleme in der Zusammenarbeit mit den Landwirten, da sie wenig Methodenkenntnisse besitzen und selbst keine Fortbildungen erhalten. Die Mitarbeiter der Beratergruppe haben zudem nur begrenzte berufspraktische Kenntnisse über Tee.

Die Einschränkungen des Beratungsdienstes führen zu einer Reihe von Lücken (GAP), welche eine effektive Förderung des Tee-Sektor verhindern: (1) Der

Unterschied zwischen den Erwartungen der Bauern und den durch den Beratungsdienst wahrgenommenen Bedürfnissen der Landwirte. (2) Der Unterschied zwischen wahrgenommenen Bedürfnisse der Landwirte und ihrer Umsetzung in den Handlungs-Strategien. (3) Die Abweichung der Zielvorgaben der Beratungsdienste von der tatsächlich erbrachten Dienstleistung, die auf mangelnde Qualifikation der Mitarbeiter zurückzuführen ist. (4) Die Asymmetrie in der Kommunikation mit den Landwirten. Die Landwirte werden inaktiv gehalten und haben keine Möglichkeiten ihre Bedürfnisse zu äußern. Geäußerte Rückmeldungen werden kaum berücksichtigt. (5) Der daraus resultierende Unterschied zwischen den Erwartungen der Landwirte und den von ihnen wahrgenommen Leistungen des Beratungsdienstes. Die Ergebnisse der Interviews mit den Bauerngruppen zeigen, dass viele Landwirte die Beratungsaktivitäten als Alibihandlungen wahrnehmen, sodass an den aufgezeigten Punkten erheblicher Verbesserungsbedarf besteht.

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# **11. Annexes**

## **Annex 1: Interview Guide for Tea Farmers**

The interviews with the farmers are based on the following sectors and procedures: general information, background and history of the farm, sources of information underlying the decisions made, the relations of the farmer with the extension service and other actors.

### **A1.1 General information**

- Name of interviewee
- Date of interview
- Duration of interview
- Place of interview

### **A1.2 Back ground and history of farm**

- How large is your tea farm? Do you grow other crops?
- Could you please tell me about the history of your tea farm? When did you start to cultivate tea and how is the development of your tea farm? Could you please tell me more about the changes in your tea farm from the beginning up to now especially changing in using new techniques or applying new technologies? Why did you decide to change?
- Which kind of tea varieties are you growing in your farm? Could you please tell me in details about different tea varieties you grow on your farm e.g., why do you decide to grow these varieties? Where did you get these varieties? Who did you approach for advice or sharing information about the varieties?
- How do you use fertilizers and pesticides on your tea farm? Could you please tell me in detail about the quantity of fertilizers and pesticides you use on your tea farm? Which fertilizers and pesticides do you use? How often do you apply these on your farm? Where do you buy fertilizers and pesticides? Who do you approach for advice or sharing information of fertilizers and pesticides? How do you invest in fertilizers and pesticides?
- What are other inputs are you using on your tea farm? Why do you decide to use those inputs? Where do you get information about those inputs?



- How is the productivity of your tea production? Where do you sell your tea products? From where do you obtain information about tea price?

- How much is the share of your annual total income that is from tea? What are other sources of your income?

### **A1.3 Information sources for making decision on tea farm**

- Which are sources of information you get about new technologies, for instance, new tea varieties or new fertilizers and pesticides? How often do you use these sources of information? Which sources of information meet your expectation and which ones do not? Why? Could you please explain me more about them?

- How often do you watch TV or listen to a radio? Do you obtain information about tea farming from these sources? Please tell me about your opinions and expectations about these sources of information? Do you have any other sources of information about tea farming? What is your opinion about these sources of information? How are newspapers or other bulletins?

- What kind of information do you think it is very important for farmers for cultivating tea? Why is it important? How do you access to this information? And what are your opinions and expectations regarding this information source?

### **A1.4 Relation with Extension and other actors**

- Do you know any extension programs for tea farmers? Do you get support from these programs? What is your opinion about these programs and what are your expectations about these programs?

- Have you ever participated in any extension programs related to tea cultivation? If yes, from where did you get the information about these programs? What are your opinions and your expectations about these programs?

- Do you know the tea extension group? How often do you meet the tea extensionist? What are your opinions and expectations about the tea extension extentionists?

- What problems do you encounter in tea farming? What do you expect the extension to do in order to support you in improving these situations?

- Who is the person you usually come for advice or sharing information?

## **Annex 2: Interview Guide for Tea Extensionists**

The interviews with the tea extensionists are based on the following sectors and procedures: general information, qualification of the extensionists, tasks and activities in the extension service, the material they use in advising farmers, their views on tea farmers, problems and expectations to improve working conditions of extension service and the cooperation with other actors.

### **A2.1 General information**

- Name of interviewee
- Date of interview
- Duration of interview
- Place of interview

### **A2.2 Qualification of extension**

- Could you please share with me information regarding your career? Where did you have your education/training? When did the program end?

- Have you ever participated in any other training meant to improve your career? Could you please tell me in more details about the training you got i.e., the topic and duration of the courses? Which were institutions that provided you these supports? What are your opinions and expectations about these courses?

- Would you like to attend some more courses in order to improve your career? Please tell me more about your opinions on the courses you think they are important for you as a tea extensionist? What are your expectations?

### **A2.3 Tasks and daily activities**

- What is your main task? Could you please tell me about your daily activities? How are your extension plans?

- How often do you meet tea farmers? Which extension programs are you now supporting tea farmers? Could you please tell me more about these programs? Is there anything new in different extension programs for tea farmers?

- Could you please tell me about how do you select farmers to participate in extension programs?

#### **A2.4 Material used for working with farmers**

- Which kind of documents you are using to work with farmers? Which sources of information do you use for developing these documents? Do you have any problem in searching information which you think important for your work?

#### **A2.5 Views on tea farmers**

- What are the characteristics of tea farmers that you are working with? What do you think are the problems facing these farmers? Do you have any ideas to solve them or what can do to improve the situations?

#### **A2.6 Problems and expectations to improve working conditions**

- What are rewards and challenges in your work?
- What is the most challenge in your work? What can be done to improve your working conditions?
- Do you experience any problems in your work? How do you solve these problems and what are your future expectations regarding these problems?

#### **A2.7 Cooperation with other actors**

- How do you collaborate with other actors in implementing extension programs? What is the status of this collaboration?
- Do you have any cooperation with TRI or TUAF? What is the status of this cooperation? What is your opinion on how to improve the collaboration?

### **Annex 3: Description and Characterization of Tea farmers**

In this study different types for farms and farmers have been interviewed and investigated in relation to tea growing and marketing and the impact and relation with the extension in the region. The following types of framers have been specified:

- cooperative farmers (in Tan Huong, Houng Tra and in the Tan Thanh tea cooperative, La Bang cooperative),
- former farm worker as tea farmer,
- free private tea farmer (unlinked farmers).

#### **A3.1 Cooperative farmers**

Interviews with cooperative farmers were conducted in two places: Dong Hy district (Huong Tra cooperative) and Thai Nguyen city (Tan Huong cooperative). Other interviews with the chairpersons of Tan Huong cooperative, Huong Tra cooperative, La Bang cooperative and Tan Thanh cooperative were also conducted to get the general information on the situation of the tea cooperatives. It should be noted that, before the policy reform in 1986, in Vietnam most of tea farmers were either cooperative farmers, which are currently referred to as cooperative old style, or as workers in state farms. Since the reform in 1986, land was distributed to farmers and in 1996 the law for cooperatives was introduced. Later, this law was amended in as the new law for cooperatives in 2003 for establishing the cooperative new style in Vietnam. Now cooperative farmers are in the new style cooperatives.

##### **A3.1.1 Information of cooperative farmers in Tan Huong and Huong Tra**

In total, there have been interviews with 4 farmers in Tan Huong cooperative and 3 farmers in Huong Tra cooperative.

**Table A3.1.1 Comparison of two cooperative tea framing systems**

	Comparasion of two cooperatives	
	Tan Huong	Huong Tra
Year of establishment	2001	2008
Member	50	10
Area	On average each member has 1 <i>mau</i> of land allocated for growing tea (= 3600m <sup>2</sup> )	Each member has 0.5 ha
Tea varieties	30% TRI777, 30% LDP1 and Phuc Van Tien, 30% Trung Du; and the rest 10% are Kim tuyen, Thuy Ngoc, Bat tien.	30-40% are new varieties: Kim Tuyen, Phuc Van Tien, Battien, TRI777, PH1, Japanist variety (this variety fetches the highest price).
Applied technique on tea farms	UTZ Certified <sup>4</sup>	VietGAP <sup>5</sup>
Fertilizers and pesticides	Following the regulations of UTZ	Following the regulations of VietGAP
Market	Cooperative purchase products of members at a higher price compared to that of free market	Cooperative members have to sell their products in free market

**A) Tan Huong cooperative**

General information about Tan Huong: (interviewing with Mrs. H, chairlady of the cooperative- KI-30)

Tan Huong tea cooperative was established in 2001 along with 6 other tea cooperatives under the support of the CECI organization, the precursor of the Tan

<sup>4</sup> UTZ Certified is a program for sustainable farming of agricultural products launched in 2002 in Amsterdam, Netherlands. Products certified by UTZ are traceable from grower to end product manufacturers.

<sup>5</sup> VietGAP (Vietnamese Good Agricultural Practice) is a government decree laying of principles for sustainable and safe agricultural production supported by certification and auditing system. The VietGAP regulations are based on ASEAN GAP and GLOBALGAP.

Huong tea cooperative is the IPM tea club. At the beginning, the cooperative had 36 members. The number of members increased to 50 in 2011 and it was expecting that this number would increase to 70-100 in 2012. The Management Board consists of a chairwoman, a vice chairman, a headman of the control department, a store keeper and a money keeper.

The average area at the beginning of each household member was around 5 Sao<sup>6</sup> (1800m<sup>2</sup>) and now it is 1 Mau (3.600 m<sup>2</sup>). The varieties include 30% TRI777, 30% LDP1 and Phuc Van Tien, 30% of Trung Du and the rest 10% of Kim tuyen, Thuy Ngoc, Bat tien.

#### *Approaching & implementing UTZ:*

As a participant in an annual agricultural-forestry meeting in Thai nguyen province which discussed the change of tea production towards VietGAP standard, the chairwomen had a chance to meet Mrs. V (from Solidaridad project) and got her suggestion to change tea production towards UTZ product. Mrs. V promised to provide UTZ technique trainings and was willing to be the bridge connecting tea producers with consumers. The chairwomen was happy and took Mrs. V's telephone number. After one year, she invited Mrs.V to visit Tan Huong cooperative.

Within the framework of the Qseap project and the support from Solidaridad, Tan Huong tea cooperative is applying the UTZ process for tea products. The chairwoman said that the UTZ process requires the reduction of using chemical fertilizers, increasing of organic fertilizers and no harvest residue. The members must strickly comply with the criteria for food hygienity and safety in accordance with the international standards.

To implement this project, the Board Management had to visit and encourage the members to participate, together with them, in building the agreement then signing in the contracts with the members. The chairwomen revealed: *“To change one livelihood to other one at the beginning is difficult, the management board had to come to each household to convince them, explain to them the benefits and obligations when they participate in the program (the first is to strictly follow the criteriaof UTZ standard; the second is that cooperative would buy their products at*

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<sup>6</sup> Sao is unit of land in the North of Vietnam, it's equal to 360m<sup>2</sup> of land

*a higher price; and the third is that they have to record all their activities on their tea farm on a diary book)*". Depending on the distance to households, the chairwomen had a strategy to establish groups of farmers. Each group consisted of 5-7 households which were living near together. This was for the conveniences of later monitoring. The farmer groups, with the help of the Management Board, elected a team leader who has a managerial capability for each group. After making and signing the contracts, the Management Board organized various training courses to guide and instruct the members for recording on the diary book and the technical procedures. Then all team leaders were trained for the internal inspection. The Management Board was also trained for the general inspection procedures. After the household recorded their activities in their diary book, the inspection team leaders performed cross checking: if a household made a mistake, the date of mistake and mistake correction were recorded. Later, the diary book was checked again by an inspector, if done, the inspector would sign on the book. If the inspector checked by the 3rd time and the farmer did not correct the mistake, they would be asked to leave the group. This is to ensure that 100% of member households to comply with at the same level. If a household does not comply, it will affect the whole group. Therefore, the management process needs to be stringent, the activities must be clearly recorded on the diary books, the products must clearly indicate the location of the tea garden. In case a consumer has a complain about the product, the product must be traced for the origin.

To use fertilizers and pesticides is also very strict. It is allowed only to use those which are herbal or not banned. Tea harvesting time must be at least 15 days after using fertilizers plus 2 days in addition to the date written on the pesticide packages. At the beginning, these activities were very difficult because farmers were not used to recording on the diary books. Tan Huong cooperative got a certificate by UTZ on November 10, 2011. In order to get this success, the Management Board of the cooperative revealed that they had to sacrifice their benefits and time, especially being enthusiastic in guiding farmers on writing diary books (each page, each section, etc.). Later farmers get used to this work. The set of the UTZ's procedure consists of strict criteria.

The cooperative monitors their member via the evidence of input receipts and directly with the 7 team leaders. Each household was provided with 1 waste container by the cooperative and the household has to put the pesticide bags into

this container after spraying the pesticide. Whenever a cooperative member sprays pesticide, he has to inform the team leader and the team leader must come and check (the team leader also checks the pesticide bags in the waste container). All activities on tea farm must be recorded on the diary book. To get success in UTZ certification, Tan Huong cooperative got also support from DARD with 100% fee of doing UTZ, Solidaridad project supports gasoline for the management board and team leaders while conducting the inspection.

*Problems:*

Although it is very hard to produce safe tea products to get the international certificate, the Management Board is still worrying about the output markets. The chairperson and vice- chairperson came to some institutions and agencies in Thai Nguyen city to introduce the tea products and looking for the markets. Currently the cooperative is responsible for the sale of outputs of its members with a higher market price; however, the market size is still limited and output sale is still a challenge for the cooperative. After getting the UZT certificate and having ascertain level of quality reputation, some Vietnamese oversea customers come to buy the tea products of the cooperative, but the quantities are not large.

The chairperson said that up to now, the cooperative has not been cooperating with other tea companies to sell their products because most of companies want to buy with a lower price while the tea products of cooperative are of high quality and are sold with a high price in the markets.

The Vietnamese Tea Association (VITAS) supported Tan Huong in making the UTZ tea and promised that it would look for consumers for Tan Huong, but up to now, only a little amount of tea and with low quality of tea were bought by VITAS at low price. (low quality product in Tan Huong is not much, about only 25% of the total).

The green Thai Nguyen tea in general and Tan Huong tea in particular are mainly sold to domestic consumers, however, the Chairperson of Tan Huong said “there are not many consumers that know about what UTZ products are, even they are not sure whether “clean tea” is clean or not. In supermarkets the UTZ tea products cannot be sole with a higher price than normal tea products”. The chairperson was wondering following UTZ standard the procedure must follow



many stringent criteria, so if the price is not higher than usual, there is no intensive for the farmers and the cooperative cannot convince them to produce the UTZ tea.

The chairperson said that, the propagation for “clean tea” as the UTZ tea is limited at the moment. In mean time, the cooperative has not sufficient capital and experience to convince consumers. The UTZ tea is still being sold as a normal tea, and she is expecting that in one day the consumers will know about the eminence of UTZ tea and look for that tea products.

Some farmers in Tan Huong cooperative also complain on the quality of pesticides because after using pesticide the pest was not killed. They doubt the quality of pesticide but don't know to where they can complain.

*Information from interview with cooperative farmers:*

*Fertilizer using:* Comparing between farmers who got a higher price and those who got a lower price: the former uses more manure and compost fertilizer than the latter. They have higher skills of processing (creative mind as they said). This characteristic is the same with other farmer groups (worker farmers and free farmers).

*Pesticide:* very strictly following the guiding from UTZ process and is monitored by team leaders.

*Investment:* Mr. K (CF04): each harvest he receives 10 million VND<sup>7</sup> from tea, he pays 2 million for fertilizers and pesticides and 1 million for hire labour. Mrs. Nhai has a different strategy for investment: for each kg of tea (250.000VND) she pays 30.000VND for hired labor and 10.000 for fertilizers and pesticides. They said that they would need to invest about 40-50% of tea income as the production cost, including machinery and electricity.

Using new *varieties* in Tan Huong cooperative is the same as in other groups of farmers: most popular is TR777 variety because this variety has a high productivity and quality. However, farmers are complaining that this variety has too much diseases. The movement of planting TR777 variety started in 2005 (the same with other groups of farmers). Other variety popular in Tan Huong is LDP1(this variety was planted popularly in Tan Huong since 2001-2002), it has a high

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<sup>7</sup> Currency in Vietnam is Vietnamese Dong (VND). 1 Euro = 26.000VND -28.000 VND (in 2011)

productivity and good quality. It can be cultivated easily but the buds are small, making them difficult in harvesting and, and farmers reported that the variety have too many stems, it makes the product looks not good. The information on new varieties comes from the training courses provided by DARD and IPM or from other farmers. Some cooperative farmers want to change to new varieties but they do not know to whom they can ask for information. Farmers also do not want to take the varieties from extension programmes because the quality of the varieties is not good and thus does not meet the need of farmers. Productivity: in average 10-15 kg dry -tea/sao (360m<sup>2</sup>) x 7-8 harvest times

Price: most of farmers got a price of more than 200.000vnd/kg dry tea (the cooperative pay farmers at a price depending on the quality of tea products)

Output market: selling to cooperative at a higher price than in free markets but some farmers complain that the payments are usually late.

*Information sources:*

Most tea farmers of the cooperative have long experience of producing tea (started from 1985-1990) and they got basic training from IPM programs provided by CIDCE project in the time 1999-2005. Farmers were very satisfied with IPM courses because these were FFS, having a lot of field practicing activities which make them easily understand and remember. The cooperative farmers said the IPM courses were very useful to them as they were taught how to use balance fertilizers and pesticides which help them in reducing inputs and the tea bushes become stronger.

Farmers used to exchange information within their group (also tea picking group, and they are in most case relatives). They are sharing information on using fertilizers, pesticide, price, varieties, etc.

*Information on processing:* Farmers asked the dealers who buy their product information/advice in order to improve their products (e.g. reducing or increasing fire intensity). The chairwoman has good experience on processing. She is very sensitive at tasting tea products. The cooperative members revealed that they come to the chair for advice for product improvement to get higher price. Some farmers went to Tan cuong commune to get experience from famous farmers like Mr. T who is selling at the highest price in Tan cuong However, farmers said that processing depended on the creative mind to get high quality products.

The chairwoman is also very active. She always contacts DARD (Mrs. M, coordinator of QSEAP project; Mr. V- head of sub-department plant protection) and other actors such as the cooperative union, sub-department of rural development for getting supports from these institutions. The cooperative also invites these actors to participate in their annual meetings.

As the chairwoman of the cooperative, she has got a lot of training courses on running businesses and has some experiences on marketing. She tried to introduce tea products of the cooperative in most of office agencies in Thai Nguyen city. She said that in these office agencies they care only on quality of tea products and do not care very much on the price.

The cooperative farmers do not have time to watch TV because tea farming is labor intensive, they do not have much free time. Sometime they watch only a News program to get price information and market information.

*Opinions of farmers on doing UZT:*

Most of the interviewed cooperative farmers said that UTZ process was very strict. Farmers have to follow regulations of hygienity from home to farm, using fertilizers and pesticides properly under very strict monitoring of inspectors. They have to record all tea farming activities on their diary books. At the beginning it's difficult to remember writing down on the diary but later they get used to with this new habit (CF04) (CF02) following a lot of regulations on hygienity is difficult at beginning (Mrs. L). Now farmers are very happy because they are selling at a higher price and the quality of tea product is also higher.

*Farmers' view on extension activities:*

Some cooperative farmers do not know extension and some said that extension only works with the commune staffs, not with farmers (CF09).

When extension has support on new varieties they will inform agricultural staffs in the commune. Then the staffs in commune will inform the head of villages and the head of villages inform farmers via a loud speaker.

Farmers complain that the varieties provided by extension are not of good quality, not every farmers wants to take varieties from extension.

Some farmers want to change to new varieties but they don't know to whom they can ask (CF03).

*Expectation from farmers:*

They need information on new technologies, on how to cultivate for a higher quality (CF04)

They want to have more training on plant protection with practicing on farm because some courses are very short and difficult to remember (CF02).

The chairwoman want to have training on evaluating & predicting the need of markets and training on marketing. She also wants to have more knowledge on new technologies.

***B) HuongTra cooperative***

General information (Interview with Mr. V, chairman, KI 31)

Huong Tra cooperative tea was established in 2008 under the support of a Spanish project, it included 10 households with an area of 5 ha. The varieties consisted of 30-40% new varieties (Kim Tuyen, Phuc van tien, Bat tien, TRI777, hybrid PH1, Japanese tea (in which the Japanese tea is sold at the highest price). The rest is Trung Du. In the future the planting area for new tea varieties is expected to increase up to 50-60%. The Cooperative Board Management includes Mr. V (chairman), 3 administrative staffs and 1 controller.

Through the training courses and excursions to learn about creating a trademark and benefits of working in the collective, Mr.V persuaded a group people (including 3 clusters of relative family) to set up the cooperative. Through the training courses, the awareness of farmers in the cooperative has increased and the cultivating practices have changed a lot. In the past, the farmers only conducted farming practices with the routine non-technical processes, fragmentation and without a consciousness in food hygiene and safety, and the lack of scientific knowledge. At the moment, the farmers have increased their scientific knowledge in planting, suited caring, nutrition balance; chemical fertilizer use following scientific and technical guidance. They built working houses to ensure the hygiene consciously in the production and preservation of food hygiene and safety.

Under the support of DARD of Dong Hy district, the Huong Tra cooperative is producing tea following the VietGAP procedure. Similar to UTZ process, in applying VietGAP, tea farmers have to record their farm's activities in diary books. At the beginning of the implementation VietGAP, farmers also faced some

difficulties due to they did not have the habit of recording. However, up to now, the members of cooperative are familiar with the recording and very exciting to do VietGAP because it reduces the amount of material inputs such as fertilizers and pesticides. The quality of products is higher so farmers get higher prices (in the past farmers sold at the price of 40.000-50.000VND, now price is from 160.000 to 200.000VND). Other neighboring farmers which are not cooperative farmers are selling their products at the price of 80.000-90.000 VND, that much lower than the price of tea cooperative farmers). The price is increasing because farmers have higher knowledge; invest more in machinery to produce a higher quality. From the founding time of the cooperative up to now, Huong Tra has got a lot of support from different organizations, for example, the training was supported by Extension of DARD at the provincial and district levels; processing and packing machines are from the Spain project; vocational training from the vocational center. Through training courses the awareness of farmers increases obviously, knowing that tea is beverage and need to be not only tasty but also have to be safe and clean. Processing technique is also very important, at the same amount of fresh tea but one farmer can process and sell at the price of 100.000VND while the others can only process and sell at the price of 70.000VND, depending on the technique which can only be provided from training courses.

Mr. V (chairman of the cooperative) indentified that the main problem at the moment is marketing because he is also a farmer and he does not have experience in marketing or running business. He said if the cooperative can cooperate with some enterprises, it will have many advantages in doing marketing. According to him, the cooperative responds for producing the clean tea products and the enterprises will respond for selling the tea products. But until now the enterprises and the cooperative have not yet found out a common cooperation.

*Fertilizer & pesticide use:* Comparing with Tan Huong cooperative, it's similar.

*Variety:* up to now the varieties in Huong Tra cooperative are still high of traditional variety(Trung du variety with 60-70%). The chairman said that they would change to new varieties in the next year and reduce Trung du variety to 30-40%. The movement of growing TR777 variety is also similar with Tan Huong cooperative and other places (from 2005 farmers started growing this variety because of its high productivity and high quality, however, up to now this variety

has showed a lot of diseases and Extension has recommended farmers not to grow this variety). The cooperative farmers in Huong Tra prefer to grow Japanese Variety as it can be sold at the highest price in the local market. Huong Tra locates in Dong Hy district and is near to Song Cau company, Japanese variety is growing popularly among worker farmers of Song Cau company. It's showing a high potential in productivity, quality is good, the taste is light and mild and more importantly the consumers like products of the Japanese variety.

*Information sources:*

Tea farmers in Huong Tra cooperative have also got support from Plan project since 2007 and got some training courses from Plan project on tea cultivating techniques. Plan project provided a bookcase for farmers with some books on tea cultivating and tea culture. Farmers said that these books were now not suitable and not specific. They are very busy and prefer oral information exchange.

60-70% cooperative members are following the guiding from the chairman of the cooperative because they saw it's efficient and suitable. The chairman of Huong Tra cooperative is also very active. He tried to visit many advanced households in Thai Nguyen and even went to Phu tho province to visit a tea research institute to see which varieties of tea are good. He has a close friend from Taiwan and got a lot of experience from him. The chairman was also invited to train other farmers in Dinh Hoa district

Extension provided basic knowledge for tea farmers, however, it is still too theoretic. What farmer need is "to take the hand and show how to do" as said by the chairman of the cooperative.

The cooperative farmers also got vocational training from a vocational center, which they found useful because it has a lot of farm practices.

*Opinions on VietGAP program:*

At the beginning they found that was difficult to write down in diary but later they get used to with it. However, until now in the market there is no difference between the prices of VietGAP product and normal products (non-VietGAP products).

### *Farmers' view on extension activities:*

From 2005 up to now extension has many activities: on new varieties, training courses, safe tea product program and VietGAP program. Extensionist visit farmers 1-2 times a year or when they have program. Teaching methods from extension have also been changed. In the past they used to teach from books but now they have discussion and practice on farms. The farmers of Huong tra cooperative said they knew Mrs. U (tea extensionist) and Mrs. C (plant protection station). The training courses helped farmers know how to make compost fertilizers and bio-micro fertilizers and use balance fertilizers.*Expectation from farmers:*

Farmers expect to have some training courses on marketing and promoting tea products because now they are facing a problem of finding out output markets. The current price is always decided by dealers and low.

### **A3.1.2 Tan Thanh tea cooperative**

*The interview was carried out with Mr. P; KI 32.*

The Tan Thanh cooperative was established in 2002 with 13 members and the main activities were of agriculture services such as fruit trade and fertilizer supply but these were not successful.

In 2006, the general meeting of the cooperative members was taken place and 2 members of the cooperative wanted to move out, so the numbers of members in the cooperative reduced to 11 members. At that time, the Tan Thanh cooperative began to transform to a tea cooperative, because all members of the cooperative understood that tea is a key economic value product of Thai Nguyen province.

Tan Thanh was the first cooperative of tea production toward VietGAP standard since 2009. Besides 11 members of the cooperative, there were 9 other farmers joining and doing VietGAP with Tan Thanh on an area of 8.7 hectares with 20 household participants. The chairman of cooperative said that doing VietGAP helped to reduce material inputs, better product quality, higher price products, but the high price of products is due to better quality of tea products, in fact, the better tea is sold with a high price, but the real price of VietGAP product or not VietGAP product is not different and the consumers do not care whether is VietGAP products or not.

When doing VietGAP, the members were trained with many courses (Mr. B- Song Cau tea company, Mrs. C- plant protection station, Mrs. U- extension) for planting, cultivating, and plant protection. The management for pest and disease is very important, if you have good learning from training courses you can properly use for fertilizers and pesticides; it does not waste money, so you can reduce the inputs.

At the first years of doing VietGAP, the tea products were sold with a minor amount, but last year (2010), a bigger amount was and this year (2011) the demand of market is increasing, there are some agent offices ordering our tea products such as a mine company, cement plants, Department of Planning and Investment, the provincial police department and some institutions in Hai Phong and Hanoi province.

After receiving the certificate of VietGAP, the cooperative organized a meeting for all members to make a plan for consumption. Each household has a stamp with household's phone number, but actually, people are not interested in doing that. Only the Chairman of the cooperative is still doing that to introduce the tea products via some different channels, sometimes use the tea products as presents to advertise (because it was trained for trademark).

The concerning institutions and cooperation with the Tan Thanh are district agriculture department DARD (the most frequency), sub-department of rural development (training for accounting, management, and office computer), and cooperative union (training for business administration). Other offices: DARD in Province, Accredited center, sub-department of plant protection (Mr. V). These offices used to send invitation for training courses and provide support for transport and lunch.

The procedure of the cooperative is to work directly to the district, during preparing for general meeting the document were submitted to the commune and district, but through commune often takes a time and no one pays attention on, usually the commune pay attention on business companies.

The difficulties of cooperatives at the moment include the need to improve the knowledge on pest and disease management and the use of fertilizers and pesticides, there are many farmers who cannot distinguish pests and use pesticides correctly. They were trained by IPM long time ago but they do not do it often, so they forgot all knowledge about that. Training courses by VietGAP have also instructions on using pesticides and cultivating tea plants but those training courses are not thorough.



This year in the tea garden a lot of leaf disease appears and farmers do not know to treat this disease, they asked provincial agriculture department, but they did not get any feedback about that. They came to district DARD and accreditation center and asked about that, these departments sent 2 staffs to check for farmers' problem but farmers did not get any information feedback. This year, the production of tea decreases due to disease, leading to loss a amount of tea products. There are some fake fertilizers on the market so that the farmers do not know which one is real and or not.

This year is the second year that the cooperative produces following the VietGAP procedure, the cooperative is still getting support from DARD; therefore, farmers do not know about the fee and how much the fee is. However, according to the Chairman's opinion, if the cooperative must contribute the fee, the tea products are still produced following the VietGAP standard, because the benefits are over 10 million VND during 1-2 months of implementation, then the fee can be paid. If it is not profitable one penny will not be paid.

#### ***A3.1.3 La Bang cooperative (Rung van, La bang, Dai tu district)***

*(Interview with Ms. H, chairperson; KI-33)*

The chairperson of La Bang cooperative said that the cooperative was established in December 6, 2006, after she joined in some of the training sections of DARD and visited some other cooperatives; she found that for effective business should she have reputation. She convinced some farmers and established the cooperative, initially with 13 members. The total area was 30 ha. The varieties include Long Van, Phuc Van Tien, Kim Tuyen, TRI777 and Trung Du.

After the establishment, the cooperative got a lot of the support from different organizations such as training on how to make safe products. The chairwoman of the cooperative also tried to participate in some competitions in the province and won the gold and silver prizes, leading to the well known reputation of tea products of LaBang.

2007: the festival of tasty Thai Nguyen tea cup and got gold prize.

2009: the Tea Cultural Festival: got Gold Cup.

2011: the international festival in Thai Nguyen: won Gold Tea Bud prize, Vietnamese tea culture Cup (delicious tea preparing and offering tea skill).

The Management Board of the cooperative also received the support of organizations such as training to improve managerial skills from Agritererra project on marketing, leadership skills, communication skills, persuasion, accounting and recording skills, gender equality. These courses are very useful

Opinion on extension: current extension activities are still in the form of movement, while the livelihood strategy of the cooperative is still self-management, the number of farmers involved in training courses is very limited. In the recent 2-3 years, the activities have been on the support to new varieties but the quality is just not guaranteed. The available varieties do not meet the need of farmers. The chairwoman suggested that If the government really wanted to support farmers then it should come and check the conditions of farmers to know the situation and provide farmers with more choices.

The training on VietGAP is one of cash disbursement, for example, in the last year, 2-3 training courses were offered but inefficient. They are still teaching on what is GAP, the process of producing tea. According to the chairwoman, the extension staff is not really enthusiastic and hearty support on their works. According to Ms. Hai it's really a need to move from the top to down reform, from goals and targets. Although the district has the tea extension for years but it is not effective; extension officials need directly come to farmers and grasp the situation, participate in meetings with farmers in commune and in villages, capture the aspirations of farmers. The staff came to the commune once a month and did not see farmers. The tea industry is changing but farmers are still self-managed. Farmers need scientific techniques, new technologies for producing safe products and steps by steps want to have high-level products. Agricultural extension until now has not made any impact.

There is a vocational training provided by a vocational center which is useful. This center works with the Management Board to find out the need of farmers, and to make the schedule very suitable (out of harvesting time). This course has a lot of practices, is useful and suitable to farmers event with a very modest money support.

The organizations which are related to the activities of La Bang cooperative include: Industrial extension center, district agricultural department (DARD) and rural development sub-department (these organizations support on training and a

number of machines). The Cooperative Union supports credit at an interest rate of 0.65% based on the annual financial statements. The Department of Science and Technology supports on promoting and introducing products through the fairs to develop reputations and support a little bit on fertilizers and some dry machines. Because La Bang cooperative is far from center, these organizations give less concern. Ms. Hai also said that many of the training support did not assess the needs and aspirations of the participants so that the training was with inappropriate content and the efficiency was not high. The Classroom evaluation was done but mainly to please, not really effective. Ms. Hai is also a member of the Committee of Thai Nguyen Tea Association but mainly participate to learn and find opportunities. She did not think those activities were efficient.

In 2011 La Bang cooperative also registered UTZ standards, but because the number of people involved was relatively large (80 members), it was too difficult to implement as the UTZ criteria are complicated. The most difficult thing is in the stage of inspection and finally the management board decided not to do. In the next coming time the cooperative will register to do VietGAP because VietGAP has fewer criterions and is more simple in doing.

The main difficulty of cooperatives today: mainly on investment of machines and place concentration, difficulty in design of packaging appearance, lacking in capital and management capacity.

### **A3.2 Former farm workers as tea farmer**

The interviews with farm workers were conducted in Song Cau Company Information about Song Cau Company (Interview with KI-17)

- 1962-1970: Song Cau tea plantation, growing 232 ha tea, at this time the company also had a duty of raising cattle for ploughing land and cultivating annual food crops due to food insecurity.

- 1971-1980: This was the time that American attacked Vietnam and thus impacted the company. Many tea fields were destroyed. However, the production area still increased up to 580 ha. In which there were 3.8 ha of new variety PH in group number 7. During this period pigs were raised to provide meat for workers and manure for tea plantations.

- 1985: This was the first time that black tea was exported in the new factory founded on May 20, 1985.

- 1994: the cooperation with MARUTASU company from Japan was signed.

- 1995: The name was changed to Song Cau company

- From 1996: Implementing Decree 01/CP (promulgated on January 5, 1995) which allocated land to farm workers through the contract system. The company provided fertilizers and pesticides, as well monitoring and evaluation services. There were more than 700 contracts signed for the duration of 50 years.

- Currently, the company has 2 factories with the producing capacity of 50-60 tons/day, of which there are 2 processing chain machines producing black tea, 1 for green tea and 1 for Japanese tea.

- In Thai Nguyen there are 3 other companies in addition to Song Cau Company (Quan Chu company in Dai tu district with tea growing area of 187 ha; Phu Luong company with the tea area of 150 ha; Bac son company in Pho yen district with the tea growing area of 139 ha). Before Decree 01 in 1995, most of worker farmers had been under these companies (State owner companies) which were tea plantations.

#### *General information about farm workers in Thai Nguyen*

According to a report of ADB (2004), worker farmers highly specialize in producing tea, their farms are well designed which were endowed from the company after the land distribution following Decree 01 in 1996.

The results (from the interviews with worker farmers and the staff of the tea company together with the direct observation of the researcher in the study area) showed that this group of farmers is characterized with a large and intensive tea farm (from 0.5-1 ha). Comparing with cooperative farmers and free farmers, worker farmers have a larger area that is not fragmented like the other 2 groups. Farmers produce 2 kinds of products: fresh tea for selling to the company and dry tea for selling to the open market or to traders. Farmers are quite well trained in cultivating techniques which provided by the company, FU, and from tea extensionists; however, comparing with unlinked farmers in Tan Cuong, farmers here have lower skills in processing and picking tea shoots. Farmers got support from the company

in training techniques as well input supply via a team leader of groups and technical staff of company (interviews WF 01-10; Mr. B- vice directors, KI-17).

#### Background of farming practice

##### *Input use:*

- Area: from 0.5-1 ha that are larger than the farm size of the cooperative
- Varieties:

The change to new varieties has developed very fast since the year 2005, because at that time the traditional variety (Trung Du variety) was old with a low productivity while the new varieties have a high productivity and quality, giving higher income. That is why farmers want to change to new varieties. However, at that time the support of extension to new varieties was not very much (about 30-50% of new variety price) but the procedure of getting this subsidy was very complicated. Farmers don't want to take varieties from extension service.

New varieties are usually adopted by better off farmers and grown separately with the intensive cultivating method for processing at home and selling in free markets while a large portion of tea farms still grow the traditional variety (Trung Du) for selling fresh tea to the company.

Choosing which varieties to grow depends on the preference of the consumers and the price of its products in the markets. The Japanese variety (provided by the company when it cooperated with a Japan tea company in 1994) and Bat tien variety (provided by TRI) are preferred by worker farmers. These varieties have better flavor and higher quality (good taste), favored by consumers and got a higher price.

Among the varieties provided by Extension program (LDP1, Phuc Van Tien, Kim Tuyen) LDP1 varieties are now the most popularly adopted by worker farmers. Buying varieties: from Mr. T (a team leader of Song Cau Company, he owned a nursery tea garden in his house). Farmers reveal that now in the market the Japanese tea got the highest price, followed by Bat Tien Variety. Prices in market (per 1 kg dry tea): the Japanese tea: 200.000-280.000 VND; Bat tien: 120-150.000 VND; LDP1: 100.000-120.000VND; Trung Du variety: 60-70.000 VND/ kg. Fresh tea was sold to Song Cau company at the of price 4000-5000VND/ kg.

*Fertilizer* : after Decree 01 was implemented in 1996, farmers do not have to follow the technical guidance of the company. However, every year the guidance is still was distributed by the company through team leaders to farmers.

The level of fertilizer use depends on farmers's income, for example, 10 million VND income will allow 2 million VND fertilizer use (Mrs. L, agricultural staff in Song Cau company, KI-18).

Worker farmers have 2 kinds of tea gardens: the hilly one which grows Trung du variety to sell fresh tea to the company and the flat one which grows new varieties in an intensive cultivating and process manner at home and sell to free markets for a higher price.

To compare with cooperative farmers, worker farmers are using more chemical fertilizers (most of worker farmers are using the fertilizer named "three colors" and they used to use fertilizer rotationally: e.g. the first time they mixed Nitrogen fertilizer with Phosphate fertilizer and potassium; next time they use "three color" fertilizer and then it would be NPK synthesis fertilizer). Some farmers got information from Tan Cuong commune to use micro-bio fertilizer named Song Gianh for a higher quality of tea products.

*Output market:*

Productivity: worker farmers use a meter long unit of tea line to calculate their productivity. 1000 meter long they got 1 ton fresh tea (or 70kg dry tea).

Previously, worker farmers produced only fresh tea to sell to the company (according to the contract they signed with company) but in the recent time farmers produce 2 kinds of products: fresh tea for selling to the company and dry tea for selling in open market or to traders (because now the company cannot buy all tea products of farmers, it gives freedom to farmers to sell products in open markets).

Price in market (per 1 kg dry tea):

The Japanese tea: the highest price: from 200.000VND-280.000 VND

Bat tien: 120-150.000 VND;

LDP1: 100.000-120.000VND;

Trung Du variety: 60-70.000 VND/ kg.

The fresh tea is sold to Song Cau Company at the price of 4000-5000VND / kg

*A worker farmer who only sells fresh tea to the company:*

Mrs. H was a worker farmer in Song Cau Company 15 years ago. Her mother also worked as a worker farmer in this company. She owns a 5000m<sup>2</sup> of tea farmland (of which a half she got from her mother and a half was bought from Song Cau Company). The variety grown in her tea farm is the Trung Du variety, which grown since 1983. Now the tea bushes are old and reduced in productivity. She is going to replant the tea farm in the next year. Mrs. H only produces the fresh tea to sell to the company. She does not process dry tea to sell in the open markets because of insufficient labor. Her husband is performing off-farm work as a house builder. Mrs. H said that now her practice on tea farm was different from the time she had been working as a worker farmer of the company before. There is no need to use fertilizer in the right time. She is free in making decisions on her farm e.g. when it's rainy she can scatter Nitrogen fertilizer and in March after the tea bushes finished the winter rest she will use NPK fertilizer. According to Mrs. H, there are several meetings of the company with worker farmers in a year, usually in the beginning, in the middle and at the end of the year with information about the plan of the company to buy products of worker farmers. She also got training courses from company 1-2 time in a year (WF04).

*Worker farmer who is going to produce safe tea products:*

Mr. T was a worker farmer 20 year ago. In 1995 he bought a 5000m<sup>2</sup> tea garden from the company with Trung Du variety (now this garden still has 2000m<sup>2</sup> of Trung Du variety, the rest is planted with new varieties LDP1 and Kim Tuyen). In 2001 he bought more than 4000m<sup>2</sup> tea garden from the company for the Japanese variety. The new varieties he bought were provided with 30% subsidy from the extension program. In 2010 he involved in the group of producing safe products with 16 members and got vocational training from the vocational center (the course's duration was 3 months). According to Mr. T, this vocational course is very useful to him because it provides him with many practices and a demonstration visit to successful famers, other courses he has participated are short and not enough for him to understand the techniques related to tea farming. Mr. T said that his group of producing safe tea products has registered with DARD for applying VietGAP standard but the procedure for accepting is slow, they have been waiting for almost 1 year but nobody come to his village to check land and water (WF03).

*Worker farmers in Group13, Hoa Trung commune*

Mrs. T and Mr. D were worker farmers 30 year ago. In 1997 Mr. D bought a tea garden from the company of 0.5 ha and later bought another more 0.5 ha from his neighbor. He has around a 1000m<sup>2</sup> garden in new varieties (Bat Tien and TRI777) bought from Mr. T. The rest of her tea farm is mainly with Trung Du variety (grown from 1986) for producing fresh tea and sell to the company. The new variety garden was intensively cultivated for producing dry tea and sell to free markets. From 1997-1998, their village left the company and started to be under the management of Hoa Trung commune and also have support from the commune in extension programs. Every year there are a lot of training courses and seminar/conferences provided to the villagers from the company, extension programs or input supply companies. Taks are divided as follows. The husband participates in the courses provided by the company and wife participates in courses or conferences informed by the commune. Mr. D has participated in IPM course in 2003 and other vocational courses provided by Song Cau company, he also organized a group of farmers and registered to apply VietGAP standard and got 3 training courses on VietGAP with the same content. In their village, if training course does not provide money subsidy farmers will not attend because “too much nonsense teaching, too many theories and not applicable” as they said. Mr. D also complained that the procedure of VietGAP program is very slow and training on VietGAP in 1-2 days is not enough (WF09&10).

*Information sources:*

- Successful farmer in Tan Cuong: Worker farmers said their skills of producing tea are lower than Farmers in Tan cuong, some of them came to Tan cuong to learn (using fertilizer and processing skill) and they got a higher price. Most of farmers said they used to come to farmers who are selling products at high prices to learn experience (WF02,07, &08). On how to process and how to use fertilizer (WF02 adopted Song Gianh microbiofertilizer from Tan cuong in order to get a higher quality of tea products).

- Workers farmers got support from the company on technical guidance and at the same time they got support from the extension and vocational centers (from Dong Hy vocational center, FU). Some farmers got 3 courses with the same content (WF10).



- One farmer (WF07) whose son is studying at a University and bought a computer for his son and had internet connection, he has shared that in the internet. From google he got a lot of information for cultivating tea (knowing that reducing chemical fertilizer will reduce the acid in the soil). Especially, he can see how a company in Japan is doing.

- The tea picking group (aid group) exchange information when they are picking the tea shoots, when they see that the tea grows well they will ask the owner how to do it, which kind of fertilizer should be used.

- Talking with neighbors and normally doing similar

- For using pesticide, farmers used to look at the instruction written on the pesticide bags. However, they complain that the letters are so small and unit provided was ha while they don't have 1 ha, they used unit "sao"<sup>8</sup>

- Mass media: VTV2 and VTC16 were mentioned by most of worker farmers; however, these programs have information in agriculture in general, not very much on tea.

- Conferences provided by input providing companies: every year, there are 4-5 conferences to introduce new fertilizers or pesticide (WF06,07& 09)

- Books provided by TRI for information on varieties or cultivating techniques (WF08)

- Competitions of high skill on processing: exchange information and learn experiences from participant (WF09)

Worker farmers said in the past they are following technique guiding from Song Cau company but right now, each month they have meeting with company for knowing strategy of the buying plan and selling fresh tea product. Technique guiding was distributed by team leaders at the beginning of the year but farmers are free in making decision on their farm.

Comparing with other groups of farmer, worker farmers got many training technique courses from different sources (tea company, tea extensionist, vocational centers and other sources) farmers reported that only in training in VietGAP they got 3 courses at the same time (WF10). Farmers also reported that when there are

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<sup>8</sup> „sao“ equal to 360m<sup>2</sup>

too much training courses offering, they have to divide for participating, usually husband will participate in training provided by company and wife will participate in the training courses informed by the CAE. Many farmers don't want to participate in the training courses if it did not provide money subsidy for the participants, they said the training courses are not useful, a lot of talking with nonsense.(WF09).

Farmers reveal that the most important sources of information with them are information from the successful farmers who got high price in their products and information from neighbors and the aid groups, they talk with neighbors and exchange information with other farmers when pick the tea shoots together, especially when seeing the tea growth well or discussing who are selling at high price.

#### *Opinions on extension activities*

Most of worker farmers said tea extensionist doesn't have very much activities, Mrs. U (Tea extensionist in Dong Hy) is only involving to varieties program.

##### *a) On variety program:*

Farmers don't want to take varieties from extension because the procedure of getting subsidy is complicated and varieties provided by extension do not meet the need of farmers. They don't like the varieties provided by extension. farmers said: if extension want to support farmers, then they should know which varieties are selling at high price in the market, how much farmer will sell in market, not only focus on quantity of area to report to higher level of government. (WF03,08&09). The time of distributing varieties is not suitable (WF05)

##### *b) On training courses:*

In our village, if the training course have money the farmers will come, otherwise they will not come because they said it's only theory, can't apply in reality (too much theories and talking nonsense). However, farmers still want to attend in the new training course because they expect to learn new thing on technology. They think the later program the more new technique to help reduce labor and more efficiency. (FW09). Many training courses are repeated in similar content (WF09&10)

In my opinion, if extension program want to support farmers then they should investment definitely and focus, don't spread, train the farmers very specific

and careful, giving document for farmers as reference, giving sample product and farmers can look at as example, it will be easier for farmers. (WF08). I have attended too much training courses, and now I am feeling it's enough, don't want attend more (WF03).

Documents distributed in training courses written complicated and difficult to understand (WF03).

The material distributed in the training courses also have a lot of problem, e.g. in page 43 of the guiding VietGAP, advice was: if farmers don't have enough labor, they can scatter fertilizer...I think it's not scientific because if farmers don't have enough labor then they don't do it, stop! Using fertilizer have to scientific, they have to use the right way.

The knowledge level of farmers are very low, every guiding have to precise and in detail, elaborate. The knowledge of farmers depend on the guiding of the staffs, the extension. Each region has different geography, the staffs have to know and give guiding suitable to the land, the climate... (WF07&10).

I expect that there are some courses which have more practice and closed to the reality for farmers and farmers can improve, especially to visit good demonstration in reality on some advantage models which is doing well, too much theory farmers will not believe. (WF06)

With me, training course are enough, I want to visit some other household who doing well. I think the training should go to the village to train some other farmers who don't have vehicle for transport and their vision is very short, they doesn't want to spend too much time (WF03) he got 2 vocational training (from vocational center- mr vuong and from company mr Bon)

Extension have only skill of teaching in the class, they don't have enough skill of practice (WF07) extension should have practice skill suitable to reality; otherwise farmers will not believe and not follow. Many extensionist not able to talk well as farmers (WF07). Extensionist got salary from government but talk and teach farmer not specific, too general. Many farmers just attend in courses because of money subsidy (WF07)

*c) On VietGAP program:*

Some extensionists don't know pest and disease as we know. I think that

some staffs they are telling that farmer should do VietGAP, and what is GAP? It is good agricultural practices, right? I am wondering whether these staffs have good practice? Many staff are not able to communicate and guiding well with farmers. In my opinion, extensionists have to well then farmers will believe them and follow the advice. Many staffs only can stay on the class and teaching theory, they don't know what happen in the field, how is the reality. Some training courses teaching to the farmers is too general because the extension got salary and just do the job, the farmers going to the class to get some money, it's not efficiency. (WF07)

The material distributed in the training courses also have a lot of problem, e.g in page 43 of the guilding VietGAP, advice was: if farmers don't have enough labor, then can scatter fertilizer...I think it's not scientific because if farmers don't have enough labor then they don't do it, stop! Using fertilizer have to scientific, they have to use the right way.

The procedure of enrollment to do VietGAP is slow, we register from last year but did not see the staffs come and check.(WF03&10). The procedure of VietGAP program is very slow and training on VietGAP in 1-2 days is not enough.(WF10). Team leaders of company are only good at theories but not good at practice (WF08). There are many programs from government in kinds of wasting of money (WF10)

*Expectation:*

Training courses should provide more practice than too much theory (WF06)

Extension should pay attention to the farmers, stay closer to farmers to understand what farmers need, what they want to do, consider the opportunities for the farmers, show the farmers what should do in order to get higher income, giving them advice and guiding techniques...they should start from the farmers (WF10)

Information need: market information: price of tea products, where to sell at high price, information on pesticide prices because there are too many kind of pesticide in the market and the prices are varying (WF07).

There is needed to strengthen the linkage between 4 houses (farmer, enterprise, government, and scientist) to find out the good solution for mutual benefit, we are farmers, we don't know how to run business (WF10).

The movement of growing new varieties develop very fast in the year 2005, because this time the cycle of growing old variety (Trung Du variety) are old,

productivity is low while the new varieties have high productivity and quality, give higher income. This thing make farmers want to change to new varieties. In this time the support of extension to new varieties are not very much (about 30-50%) and the procedure are very complicated. Most of farmers don't want to take varieties from extension service. Farmers look at the varieties which have their product are preferred by consumer and was sold at high price to adopt.

After implementing Decree 01 in 1996, farmers do not follow the guiding technique from company.

They are using fertilizer depend on their income. E.g. getting 10 million VND from tea product they will invest 2 million and for fertilizer (Mrs. Nguyen Thi Ly, agricultural staff in Song Cau Company)

The tea picking group used to exchange information when they are picking the tea buds, when they saw the tea grow well they will ask the owner how to do it, which kind of fertilizer should use...

Comparing with cooperative farmers and free farmers, worker farmers have larger area and the area are concentrate, not fragment like the other 2 groups. area growing tea of worker farmers are ranging from 0.5 ha to more than 1 ha.

Worker farmers have 2 kinds of tea garden: the hilly garden which grow Trung du variety will be sold fresh tea to the company and the flat garden which grow new varieties will be intensive cultivating and process at home and sell to free market at higher price

To compare with cooperative farmers, worker farmers are using more chemical fertilizer (most of worker farmers are using fertilizer named "three colors" and they used to use fertilizer rotationally: e.g. this month they used mixing Nitrogen fertilizer with Phosphate fertilizer and potassium; next month they will use "three color" fertilizer and the next will be NPK synthesis fertilizer). The quality of their products also lower and they got lower price in the market. there are 2 farmers in the interview they got information from Tan Cuong commune to use micro-bio fertilizer named Song Gianh for higher quality of tea product.

Beside fertilizer, farmers said the Japanese variety also can produce higher quality to compare with other variety (the same information from Huong Tra cooperative). Worker farmers prefer Japanese variety and Battien variety, these

variety have better flavor than the other (TR777, LDP1, Phuc van tien...). Productivity: worker farmers used to use met long unit to calculate their tea production. Each 1000 met long they got 1 ton fresh tea (or 70kg dry tea). Price: fresh tea was sold to Song Cau company at price 4000-5000VnD/ kg or some time is less. Dry tea product: Trung du got low price: 60-70.000 VND/ kg. Battien: 120-150.000 VND; LDP1: 100.000-120.000VND; Japanese got highest price: from 200.000VND-280.000 VND. Most of worker farmers went to Mr. Thuy Truong to buy new varieties (Thuy Truong is one of team leader in Song Cau company)

*Information sources:*

Worker farmers said their skill of producing tea is lower than Farmers in Tan cuong, some of them came to Tan Cuong to learn (using fertilizer and processing skill) and they got higher price. Most of farmers said they used to come to farmers who are selling products at high price to learn experience.

Workers farmers got support from company on guiding technique and at the same time they got support from extension and vocational center. Some farmers got 3 courses with the same content

There is one farmer (Mr. An) who has son studying at University and he bought computer for his son and had internet connection, he shares that with the internet, from Google he got a lot of information for cultivating tea (knowing that reducing chemical fertilizer will reduce the acid in the soil), especially he can see the company in Japan to see how they are doing.

For using pesticide, farmers used to look at the instruction written on the pesticide bags. However, they complain that the letters are so small and unit provided was ha while they don't have 1 ha, they used unit "sao"<sup>9</sup>. Mass media was not considered by worker farmers also. They said after one day working hard, they just want to relax

Worker farmers said in the past they are following technique guiding from Song Cau Company but right now, each month they have meeting with company for knowing strategy of the plan buying and selling fresh tea product. technique guiding was distribute by team leaders at the beginning of the year but farmers are free in

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<sup>9</sup> „sao“ equal to 360m<sup>2</sup>

deciding of making decision on their farm.

*Evaluation/opinion of farmers on extension activities:*

Most of worker farmers said extension doesn't have very many activities, Mrs. Uyen is only responding to varieties program. Some worker farmers also don't want to take varieties from extension because the procedure is complicated and varieties provided by extension are not meet the need of farmers. They don't like the varieties provided by extension. farmers said: if extension want to support farmers, then they should know which varieties are selling at high price in the market, how much farmer will sell in market, not only focus on how much of area to report to higher level of government.

**A3.3 Free tea farmers (unlinked farmers)**

Three locations were selected for interview with free farmers: Dinh Hoa district (remote area) Dong Hy district (in the middle area) and Tan cuong-Thainguyen city (the center area).

**A3.3.1 Dinh Hoa district:**

*General information about tea farm in Dinh Hoa district*

Dinh Hoa district located in in the Northwest of Thai Nguyen which far from the city center 50km. Population composes mainly Tay ethnic account for 49.2 % who have long history staying in this location and Kinh with 34.8% who arrived to Dinh Hoa in the 1960s following the policy of redistribution of population to the new economic zone of the government (they mainly come from the lowland area like Thai Binh province and Nam Dinh province) (HOA 2011, THUY 2012). The topology characterized by sloping land with valleys interspersed. Tea was considered as the high value industry crop in this area which account for 61,80% of total value of perennial crop in Dinh Hoa (HOA 2011). Dinh Hoa is one of three districts has largest area growing tea in Thai Nguyen with 3.300 ha tea growing. The development of the tea sector is increasing since 2006 with the contribution of the new varieties program supporting by DARD (with new varieties: LDP1, Phuc Van Tien, TRI777). Before the reform in 1986, in Dinh Hoa there were 27 tea cooperatives which now dissolved and distributed to the farmers. At present, in Dinh Hoa there are 3 processing enterprises named Dinh Hoa Company, Son Phu Company and Binh Yen limited liability company. The capacity of 3 tea enterprises can cover 70% of the total

tea production in Dinh Hoa; however, these enterprises always don't have enough material for producing tea, the material is only enough for 50% of the capacity and enterprise can activate only in 3-4 months in a year. The reason of enterprises don't have enough material is farmers used to sell their products to the traders with higher price. Now the enterprises are buying fresh tea at price of 5000VND/kg while the price of traders is 100-200VND higher. Enterprises cannot increase their price of buying input because they are also exporting with low price (around 22.000VND/kg dry tea which needs 4-5kg fresh tea) while at the moment farmers are mainly selling their products to the traders which will export to China.

### **A3.3.1.1. Boc Nhieu commune and Phu Dinh commune**

#### **a) Boc Nhieu Commune**

##### *General information about Boc Nhieu commune*

(Interview Mr. N, Agricultural staff in Boc Nhieu commune, KI 25)

Natural land area: 2.601,9 ha; Number of household: 1.124 households; Number of household growing tea: 779; Number of hamlets: 21 (all of which have tea); Hamlets intensive growing tea: 7

Variety component: mainly using conventional variety which grows from tea seed on hilly land. From 2006 up to now starting grow new varieties which are hybrid varieties: LDP1, Phuc Van Tien, Kim Tuyen, TRI 777. New varieties have higher economic efficiency. In 2010 Boc Nhieu has 9 ha new varieties, 2011 13 ha (LDP1, Phuc Van tien). 2012 farmers need a lot of new varieties but DARD in district give 10 ha. The new varieties mainly grow in dry fields or in valley. Total area growing tea: 152 ha, productivity: 7500 kg/ha and production:: 1.140 tons fresh tea.

***Table A3.3.1.1a Characteristics of Hamlets in Boc Nhieu commune***

<b>Nr.</b>	<b>Hamlet</b>	<b>hhs</b>	<b>Area growing tea (ha)</b>
1	Lạc Nhiêu	78	39,2
2	Hội Tiến	112	33,1
3	Vân Nhiêu	62	17,3
4	Việt Nhiêu	48	18,5
5	Mình Tiến	58	13,2
6	Thâm chè	20	7,5
7	Đồng tâm	25	6,5



Lac Nhieu and Hoi tien hamlets were selected for interview

Ethnic people: 49% Kinh, 50 % Tay and the rest is others

People here mainly depend on agriculture

Distance to the center district: 15 km

99% hhs have electricity

The poor rate: 32,15%

*Hoi Tien Hamlet.*

*General information about Hoi Tien:*

Total are 110 households, of which there are 34 poor households.

Area growing tea: 33 ha

Growing tea in Hoi Tien in the past was following cooperative's guiding techniques. In this time farmers went to the field in the morning when hearing the sound from the bell of cooperative and finished one day working when the bell was rang in the late afternoon. From 1981 there was policy decree 100 which divided cooperative into different groups and later was resolution 10 which distributed land to each household. At this time each labor in 1 household got 2 sao of land (1 sao = 360m<sup>2</sup>). In household 3 children or old person also were calculated as 1 labor.

Now farmers don't dig land for fertilizer but scatter it on the surface of land when it's rainy because land are very slope, if we dig it then the fertility will be eroded away. In Hoi Tien farmers are mainly using Nitrogen fertilizer for tea (each sao of land used around 10kg Nitrogen). They are rarely using other fertilizer.

The main information sources for farmer using to get information on how to cultivating on their farm is oral exchange information with their relative, their neighbors because information from these sources is practical and useful. There are sometime training courses provided by extension. E.g in 14-15 October 2010 farmers got training which organize by Mrs Thuan, Mr Giau in extension station. In this training course farmers can raise questions and extensionist will answer their question on animal, tea and other crops. In Hoi tien there are 1-2 meeting in a year which organized by the head of village to exchange information and experience. In Hoi Tien, there are no TV connection channels of information from Dinh Hoa District and Thai Nguyen province. Farmers can only listen to information from national channel which

provide information on export news. Information for using pesticide was gotten from input sellers; farmers bring the tea branches which have pest and disease to come to input sellers and asked them which kind of pesticide should use.

This year Dinh Hoa district give to commune 10 ha and they send text document to Hamlet and farmers will register, after that staffs in district will come and check whether farmers prepare land in right technique and training technique.

New varieties started growing in Hoi Tien since 2004 because farmers saw that new varieties have higher productivity, better in quality and bring to farmers higher income. With new varieties farmers are using more fertilizer. However, income from new varieties is higher. E.g each sao of land (360m<sup>2</sup>) growing traditional variety give 100 kg fresh tea and need 4 labor but each sao of land growing new variety gives 200 kg fresh tea and also need the same labor (4labors) and price of new variety are in double to compare with the traditional variety.

However, nowadays many farmers are giving up growing tea because income from tea is low.

(Source: interview Mr Kim, head of Hoi Tien Hamlet)

2 farmers was selected for interview in Hoi Tien Hamlet: (UF01 and UF02

2 farmers was selected in Lac Nhieu Hamlet (UF03 and UF04 )

**Table A3.3.1.1 b: General information about Hoi Tien Hamlet**

	Comparing 2 Farmers	
	UF02	UF01
Area	1 mau (3600m <sup>2</sup> )	2 mau
Varieties:	8 sao trung du-1980 & 2 sao TR777 (took from extension-2007). training technique was given before distributing new variety	trung du-1980 & 5 sao LDP1 (took from extension-2010) got information on variety from extension (this variety have more buds)
Tea income per total income	30%	50%
Other income	vegetable, off-farm, fish	pig, fish, off-farm
Productivity	60-80kg/ mau	60-80kg/ mau
Product prices	30-35000VND	80-100.000 (spring season) normal season: 40-50.000vnd

	Comparing 2 Farmers	
	UF02	UF01
		(sometime if price is low, Luong Thua will keep his product at home and wait until price is going up)
Market	selling to dealers who came to her house and collected products.	bring product to free market in district center or other markets where he can get higher price.
Using fertilizer	Using NPK in March and 2 time scattering Nitrogen (in June and August).	Using Phosphate & potassium & manure fertilizer on March and August. Nitrogen was used after each harvest.
And sources information for using fertilizer	Following the information from tea picking group Praying Thien Nong fertilizer for leaf each harvest, together with pesticide Don't want to follow technique from Extension and from TV because tea price is low	Following instruction from training courses (IPM, training for farmers growing new varieties) and information from TV (VTV 2 channel- friend of farmers program) then experience on farm. Now reducing Nitrogen because using too much Nitrogen quality is not good, and reduce it quality will be better.
Use of pesticide	Using pesticide periodically, each harvest pray 3 time and mixing 3 kind of pesticide: mosquito bugs, Greenleaf hopper and Thrips.	Information from training courses, especially from IPM courses and listening to VTV2 program friend of farmers. This information are very in detail and easily understand. They teach on how the pest & disease develop, their cycle...
Source of information on pesticide	Asking the input sellers and exchange information with neighbor.	
Other input	Using 3 time herbicide in a year	Mulching instead of using herbicide (information for mulching got from IPM course)
Processing	depending on how the dealers want to buy	got experience from his parent and his relative, combine with his experience
Investment	60% income from tea (without calculating labor)	40% income from tea (without calculating labor)
Information need	On processing good quality product to sell higher price	Need a lot of information, every Sunday morning have to watch VTV2 and some time call them on program of Ask & Answer with farmers
Problem facing	Going to give up growing tea because it's hard working while	Doubt the quality of fertilizer, there are too much unreal fertilizer in the market, even

	Comparing 2 Farmers	
	UF02	UF01
	income is low. Moving to grow vegetable because it's easier	when buy from Farmer Union
Comment on extensions service	<p>Training course from extension is not close to the reality.</p> <p>Extension should close to farmers, teach them how to use fertilizer to make good quality of tea product, teach farmers how to process good quality.</p>	<p>Varieties provided by extension are low quality, many seedling were death or mixing with other varieties. Time distributed also not suitable (ask farmer to prepare land from March but giving varieties until August or September, after several rainy times soil was full in the hole we digged for planning new varieties.)</p> <p>Farmers in our community are very disappointed in extension and farmer union</p> <p>I don't follow and did not believe in extension because extension many times recommend us to grow some kind of crops e.g. Rattan or acacia but we cannot find the output market, we cannot sell product.</p> <p>Supporting on aquaculture is very poor quality, the fish were given to us in many kind of varieties, when we harvest then it's was disappointed.</p>
Relation with extension		Mrs. Thuan (extension district station): training courses
Relation with other actors	Mainly exchange information with tea picking group: Mrs. Nham, men, nga, trieu thuan on fertilizer and pesticide	<p>Mr Toai(farmers Union) information on new varieties</p> <p>Parent and relative: information on processing and pruning for having higher price</p>
Other Information sources	Processing depend on dealers want to buy. Now they only buy product which dry under sun before frying it.	Looking for information from TV (VTV2: friend of farmers, ask and answer with farmers), information from training course and experience on farm

**Table A3.3.1.1c: General information about Lac Nhieu Hamlet**

	Comparing 2 farmers	
	UF03	UF04
Area	2 mau tea	1,1 mau tea and 2 sao rice and 3 sao vegetable
Varieties	1,5mau new variety (TR777-2007-information from Son Phu-mrs Nguyet) new variety is easier in cultivating than the traditional variety, income from new variety is higher). 2011 took 1 sao new variety more. In 2009 grew more 0,5 mau TR777, took from extension	Trung du variety since 1988
Sharing income from tea/ total income	80% from tea,	50 % from tea
Other income	20% from doing off-farm	50% from vegetable
Productivity	200kg/ harvest x 6 times	20 kg dry tea/ sao x 5 times
Product prices	60.000vnd/kg	30-35.000vnd/kg
Market	Dealers who come to village	dealers
Using fertilizer  And sources information for using fertilizer	600-700 kg NPK in March and scatting 3-4 time Nitrogen when it's rainy From training course and experience on farm, from relative	1200kg NPK was used in March and scatting Nitrogen 2 time in June& August when it's rainy Information from tea picking group
Using pesticide And information sources for using pesticide	In February there are Greenleaf hopper, in April having red mite and in August appeared mosquito bugs. Each harvest praying pesticide 2-3 time Used to describe symptoms of pest& disease to the input sellers, and reading the instruction on the pesticide bags.	Each harvest pray 2 times pesticide Used to ask input seller Exchange information with tea picking group, with relative.
Processing	Information from relative in Son Phu Tea picking should be very careful to reduce breaking the buds	As dealers want to buy, now still tea withering before frying

	Comparing 2 farmers	
	UF03	UF04
Investment	40% income from tea (including hiring labors)	50% without calculating labors
Information need	Want to know new varieties which are tolerant with pest and disease.	Need information on processing good quality to sell with higher price
Problem facing	There are too much pest and disease, paying much money on it. Output market are unstable, price is go down while input like fertilizer & pesticide are going up	Income from tea is low, working hard
Comment on extensions service	Quality of new varieties provided by extension are very low, farmers want TR777 but extension give other one, many seedling were death . Training course provided by extension is easily understanding but they don't know what happen on the farm as we know Extension said we should grow tea at distance of 1.2 to 1.4 met but in practice we grow at 1met because it takes long time for the tea bushes growth and we have to spend more labor for weeding.	We don't know extension because training courses were provided to only farmers who grow new varieties.
Importance information sources	Information from training course and experience on farm, then exchange with neighbors, relative	Exchange with tea picking group: Nga, Trieu Huan
Relation with extension	1-2 time / year in training course: mrs Thuan, mr Giau	Don't know extension
Relation with other actor	Relative in Son phu (mrs Nguyet)	Tea picking group: nham, nga, trieu huan

#### b) Phu Dinh commune

2 farmers were selected for interview: mr L (UF05) in Khau Dua hamlet (ethnic hamlet) and Mr. N (Duyen Phu hamlet- Kinh hamlet). However, there are not different from 2 hamlets.

**Table A3.3.1.1d: General information about Phu Dinh commune**

	<b>Characteristics</b>
Area	1 mau tea and 1 mau rice
Varieties:	Trung Du (1986)
Sharing income from tea/ total income	30% from tea, 30% from pig, 30% rice and 10% doing off-farm
Productivity	200 kg x 5 time
Product prices	30.000vnd
Market	<b>2005</b> sell the fresh tea for Binh yen company, now price is low: did not sell any more and go to the free market in local.
Using fertilizer And sources information for using fertilizer	Depending on the output market. Previously, 1 unit of land income from tea is equal to 3 units of land growing rice but now it's growing down, equal to 2 unit of land growing rice. I am reducing investment for tea. Last year I used 600kg NPK in March but this year I reduce to 200kg. After each harvest used 50kg Nitrogen fertilizer After each 2 year used 50kg K <sub>2</sub> O (potassium)
Using pesticide And information sources for using pesticide	Each harvest pray 2 time: pesticide & fertilizer for the leaf (don't know the name, tell each other with the sign or the logo which printed on the bag : tiger, monkey..) Pray after harvest then second time after 20days, 35 days can harvest we got the information and propagation from the input suppliers, even increase the quantity of pesticide more than the guiding. Exchange information with neighbor: Mr. Nam, Mr. xuan Paid 120.000vndx 2 time
Other input	herbicide
Processing	Drying on the floor before processing
Investment	30% income from tea
Information need	On new technology and processing high quality to get higher price
Problem facing	Fluctuation of output market
Comment on extensions service	Extension used to teach from book, cannot follow every thing
Relation with extension	Still want to have training course with extension but they don't provide. Not everything they said are wrong
Relation with other actors	Exchange information with neighbor: mr Nam, mr xuan
Other Information sources	TV: VT2 friend of farmers

	<b>Nham Chung</b>	<b>Nga Nam</b>	<b>Lieu</b>	<b>Luong Thua</b>	<b>Lan Que</b>
	1Mau	1 Mau of land (=3600m <sup>2</sup> )	1 Mau land growing tea, 1 Mau growing Rice	2Mau	2Mau
Varieties		Trung du and TRI777 (got from extension program) New variety has higher productivity		Trung du and LDP1 (got from extension program) New variety is better, higher productivity but we also have to invest more	Trung du and TRI777 (haft from extension, haft bought from Son Phu village)
Harvesting		5-6 times	5	5-6 times	5-6
Price		30-40.000VND	30-40.000	70.000	50-60.000VND
Innovation		30-40.000	From 2009 bought pruning machine, 2010 bough picking machine	From 1996 had processing machine and from 2000 started applying Now I found that used too much Nitrogen fertilizer the quality of tea product will not good, I change to use manure, the taste of tea now is better	New variety in 2007, have higher productivity, increasing income
Other income sources		Vegetable, fish, off-farm	Pig, rice, off-farm	Pig, fish, off-farm	
Herbicide		Herbicide x		Using herbicide 3	2-3 times



	<b>Nham Chung</b>	<b>Nga Nam</b>	<b>Lieu</b>	<b>Luong Thua</b>	<b>Lan Que</b>
		3 times		times/year	
Using fertilizer		50kg NPK/sao in March Scatter 5-6 kg Nitrogen x 2 times in May and July (when it's rainy)	Last year used 5-600 kg NPK but this year used only 200 kg because tea price going down After harvesting	70-80 kg NPK/sao in March Nitrogen 5kg/sao x 5-6 times (after each harvesting)	Using 30kg NPK/sao in March Scatter 6-7 kg of Nitrogen/sao when it's rainy (after 12 days can harvest) x 2 times The new variety need more fertilizer x 3-4 times scattering Nitrogen
Using pesticide		Bring the tea branch which have disease to the input seller and ask for which kind of pesticide should use Usually pray pesticide for preventing (2-3 times after harvesting)	Following the instruction from input seller Exchange information with neighbor, farmers don't know the name of pesticide and usually called the symbol on the pesticide bag e.g. tiger or Jaguar	After harvesting pray 2 times pesticide	

	<b>Nham Chung</b>	<b>Nga Nam</b>	<b>Lieu</b>	<b>Luong Thua</b>	<b>Lan Que</b>
Sources of information		Sometime watch VTV2 but we don't apply the technique, because tea price is very low	Vtv2 Information from market Asking information from input seller Mainly exchange information with our neighbor	-from parent experience -vtv2: the circle of pest development -IPM course in 2002	Vtv 2: but not very much program on tea Cannot access to TV program of the province and district Mainly exchange information with neighbors, aid group when picking tea together
Problem		Going to give up tea farm and moving to grow vegetable because income from tea is low while we have to work hard (processing until midnight)	Fluctuation of market	Doubt the quality of fertilizer	The output market is difficult, fluctuation of price, tea price is reducing while fertilizer and pesticide is increasing There are too much unreal fertilizer
Opinion on extension program		Extension should closer to farmers, advice	Extension teach farmers only from book, it's far from	Quality of tea varieties is very low (mix with other varieties, rate of death after	Extension don't know about tea as we know because they don't practice on

	<b>Nham Chung</b>	<b>Nga Nam</b>	<b>Lieu</b>	<b>Luong Thua</b>	<b>Lan Que</b>
		farmers how to use fertilizer and processing in order to get higher quality	the reality, not suitable to the condition of the farmers We got money when participating in the training course but we are unhappy Still want to participating in the training course of extension because not all they teach are not correct I like to watch VTV2 because it's easy to understand	planting is high) Time of distributing varieties is not suitable, extension staffs required farmer to prepare land from March, but until August they give seedling, after some rain times, soil was full of the hole we dug before Many recommendation from extension are effect to farmers' economic, now we don't trust extension e.g. other extension programs give farmers not good quality of fish breeding, recommend farmers to grow Rattan and Acacia but we cannot sell it	the farm We want TRI777 variety but extension give hybrid variety (LDP1) and the quality of variety is not good, 9 of 10 were died after planting. The variety we bought from Son Phu can grow well after planting

## **Farmers got support from CARE project**

(Interview with UF06,07,08,09,10 and KI-09)

From 2009, CARE project started supporting farmers in Dinh Hoa district and there were 2 interested groups of farmers growing tea were identified by CARE project in Trung Hoi and Son Phu communes and they got support from project in developing their organization, training techniques on producing safe tea products and processing, marketing skills. Project also supported farmers in processing facilities and helped them to find the consumers, bring them to visit some successful farmers to learn experience in producing tea. After taking the training courses provided by CARE project, farmers have changed the habit of cultivating and processing tea. They realized of using manure or organic material will increase the quality of tea products. They are now following the guiding techniques of VietGAP standard. Using organic material for mulching instead of using herbicide for weeding management, pest and disease were managed by IPM techniques. Processing was guided by experience farmer (Mr. Vinh in Huong Tra cooperative). Under the support of project farmers appreciated the value of new technologies in reducing hard working, reducing using input especially pesticide and earning more money.

In 2011, under the support of project these 2 groups of farmers got VietGAP certificate for producing safe product.

Up to now, products of these groups farmers have increased in quality and got higher price triple time (previously price was 30-40.000VND/kg dry tea, now price is 100-150.000VND), however, farmers are complaining that doing VietGAP is very elaborate works, but in the market consumers don't care about VietGAP or non-VietGAP product.

Training courses provided by CARE, trainers were Mr. V (member of DARD), Mr. B (vice director of Song Cau company) and Mr. V (Huong Tra cooperative)

**Table A3.3.1.1e: Characteristics of Son Phu Village and Trung Hoi Hamlet**

	<b>Son phu village</b>	<b>Trung hoi hamlet</b>
varieties	777, ngoc thuy, phuc van tien, bat tien, trung du (information for varieties comes from head of village- this person also a nursery tea garden owner and from the project)	Trung du (traditional variety) In this hamlet, the land is almost hilly with high degree of sloping land, which is not suitable for growing new varieties
fertilizer	Vandien Fertilizer (special for tea= (NPK 12.5.10)) 25kg/sao x 2 times in March and July + used 7kg Nitrogen and 2 kg Kali x 3-4 times  Manure was used together with NPK in March and July  Previously farmers used NPK in March (50kg/sao) and scattered Nitrogen when it's rainy	25 kg NPK Van Dien /sao x 2 time in March and July. kali: 3kg/sao x 2 time Manure: 400-500kg/sao in March (UF08) NPK Van Dien 20kg/sao x 2 (in March and July) Kali: 4 kg/sao x 2 times (in February and August when it's rainy) Manure 2ton We don't use N because it make the taste of the tea bitter (UF07)
pesticide	Used pesticide after checking tea garden, not use as preventing as before	Know how to check pest and disease, used pesticide only there is needed
Changing in cultivating	Previously producing without technique, mainly used experience from parent. Now project supported training course from project (in 2010)→ more efficiency  In 2005, there is IPM course (mr Vuong) but we did not apply because we were selling at low price  Now supporting from project from planting to processing and marketing, after training we got higher price, we are very happy and want to apply in our practice	Now with the new techniques, we used less chemical fertilizer and increased manure fertilizer Now farmers use bio pesticide, good for our health (UF07)

	<b>Son phu village</b>	<b>Trung hoi hamlet</b>
	<p>(UF09)</p> <p>Project also provide a tour visit to other successful farmers in Trai Cai, we learnt from this successful farmers experience in processing and mulching technique</p>	
Output	<p>Now with the same fresh tea we can process higher quality tea products, so price increase from 30.000-40.000VND to 100.000-120.000VND (triple). However, with the new technique, we have to spend more time and labors. We expect to get higher price (UF09).</p>	<p>Before price was 40.000VND, now increase to 120.000-150.000VND, however, spend a lot of time and doing elaborately (giau) but if we can sell better, we will open more area doing VietGAP</p> <p>Before 40.000 now 250-300.000VND (UF07)</p>
Advantage	<p>Applying techniques from training course provided by project we can reduce money for pesticide and use it more properly (before we used to pray pesticide at noon when it's sunshine and use pesticide for preventing pest and disease, now we can know how to check pest and disease and when to use pesticide (UF09)</p> <p>Applying techniques provided by training course-&gt; increasing in production and price (UF09)</p> <p>Having practice on farm, easier for farmers to understand and remember (UF09)</p> <p>Changing in our habit of using fertilizer, pesticide, tea picking and processing tea (UF09)</p>	<p>Training course from project for doing VietGAP help farmers reducing quantity of pesticide significantly (UF07) and change in picking skill</p> <p>Reducing Nitrogen fertilizer (before we used it very often, scatter N when it's rainy), reducing Nitrogen the taste of tea product will be better (UF07)</p> <p>Products have increased in quality and price is also higher (UF07)</p> <p>Now we don't use herbicide any more, now we started apply mulching (UF07)</p> <p>VietGAP help farmers understand of protection environment (PUF08)</p>
Difficult	<p>At the beginning we are not used to with writing farm diary and always</p>	<p>Output market (UF07)</p> <p>Doing VietGAP is more</p>

	<b>Son phu village</b>	<b>Trung hoi hamlet</b>
	<p>forgot to write it, now it become our habit (UF09&amp;10)</p> <p>Output market still depend on the traders (UF09&amp;10)</p> <p>Still difficult to find output market (UF09)</p> <p>Consumer still did not concern to VietGAP product (UF10)</p>	<p>elaborately but price for VietGAP and non-VietGAP are not different (UF06&amp;07)</p> <p>have negative impact of dirty tea product accident which made by the traders from china, now is difficult for output market (UF07)</p>
Harvesting	5-6 times/year	5-6 times
Need	Want to learn how to produce tea in winter season because in this time price is higher (UF09)	Want to learn winter season producing (UF07)
Information sources	<ul style="list-style-type: none"> <li>- Vtv 2. But farmers don't have time to watch tv (UF09)</li> </ul> <p>VTV 2 do not have very information on tea (UF09)</p> <ul style="list-style-type: none"> <li>- Exchange information with our tea group (UF09&amp;10)</li> <li>- The information from the course provided by project is the main source</li> </ul>	
Opinion on extension program		<p>They should consider the output market, not only provide training courses. New technology can help farmers easier in farming practice, reducing labor but market is also very important. Farmers have to invest too much on their farm but low price will disappointed them (UF07)</p> <p>Don't know extensionist (UF06)</p>

**Table A3.3.1.1e: Source of information used by the farmers under supporting of CARE project**

Source of information	Type of information				
	Cultivating			Processing	Market
	Varieties	Fertilizer	Pesticide		
Head of village	xxx				
Training courses provided by Project	xxx	xxx	xxx	xxx	xxx
Aid group	xx	xx	xx		
Successful farmers		Xx (includes of mulching)		xx	

Most of farmers in these 2 groups revealed that the training courses provided by project are the most important sources of information for them in cultivating and processing tea. Project also gives them training courses in marketing and introducing consumers in Ha Noi capital and Thai Nguyen city. Information from training courses has influence significantly to their cultivating habit, especially in processing.

VTV2 was reported by farmers as an agricultural TV program, but this program don't provide much information about tea and farmers also were busy and don't have much time to watch TV. Some farmers reported that in 2002-2005 they also got IPM course but farmers don't want to apply because price for tea is low.

*Opinion of farmers on training course provided by project:*

Applying techniques from training course provided by project we can reduce money for pesticide and use it more properly (before we used to pray pesticide at noon when it's sunshine and use pesticide for preventing pest and disease, now we can know how to check pest and disease and when to use pesticide (UF09)

Applying techniques provided by training course-> increasing in production and price (UF09)



Having practice on farm, easier for farmers to understand and remember (UF09)

Changing in our habit of using fertilizer, pesticide, tea picking and processing tea (UF09)

Training course from project for doing VietGAP help farmers reducing quantity of pesticide significantly (UF07) and change in picking skill

Reducing Nitrogen fertilizer (before we used it very often, scatter N when it's rainy), reducing Nitrogen the taste of tea product will be better (UF07)

Products have increased in quality and price is also higher (UF07)

Now we don't use herbicide any more, now we started apply mulching (UF07)

VietGAP help farmers understand of protection environment (UF08)

Problem farmers are facing:

At the beginning we are not used to with writing farm diary and always forget to write it, now it become our habit (UF09&10)

Output market still depend on the traders (UF09&10)

Still difficult to find output market (UF09)

Consumer still did not concern to VietGAP product (UF10)

Doing VietGAP is more elaborately but price for VietGAP and non-VietGAP are not different (UF06&07)

Have negative impact of dirty tea product accident which made by the traders from china, now is difficult for output market (UF07)

*Evaluation/opinion on VietGAP program:*

Consumer still did not concern to VietGAP product (UF10)

Doing VietGAP is more elaborately but price for VietGAP and non-VietGAP are not different (UF06&07)

*Expectation:*

Want to learn how to produce tea in winter season because in this time price is higher (UF 07&09). Extension should consider the output market, not only provide training courses. New technology can help farmers easier in farming practice, reducing labor but market is also very important. Farmers have to invest too much on their farm

but low price will disappointed them (UF07). At the moment, farmers expected to get higher price because applying VietGAP is not easy and not simple as they used to do before. They also want to learn how to cultivate tea in winter season because in this time tea price used to increase while tea products are not available in the market. Training courses provided by CARE, trainers were Mr. Vuong (member of DARD), Mr. Bon (vice director of Song Cau company)

Source of information	Type of information				
	Cultivating			Processing	Market
	Varieties	Fertilizer	Pesticide		
Head of village	xxx				
Project	xxx	xxx	xxx	xxx	xxx
Aid group	xx	xx	xx		
Successful farmers (project support for visiting )		Xx (includes of mulching)		xx	

### A3.3.2 Dong Hy District

In Dong Hy, tea farmers closed to Song Cau company and most of farmers here also produce fresh tea and sold to Song cau company. Because they are selling tea products to company, they also got training courses support by company, at the same time farmers got training from vocational center and from extension. Better off farmer used to get priority inviting to attend in training courses, there are too much courses have the same content and farmers refused to attend in the training courses.

Using fertilizer: similar to worker farmers, most of free farmers in Dong Hy prefer using “three colors” fertilizer. Farmers also have hilly garden growing traditional variety (Trung Du) and flat garden growing new varieties, flat garden was intensive cultivating and process at home to sell to free market while the hilly garden are harvested to sell to company.

Interviews with unlinked farmers in Dong Hy (UF11, 12&13)

#### *General information about tea farm in Dong Hy*

Dong Hy district located in the Northeast of Thai Nguyen province and far from the city center 3 km, having 2.606 ha growing tea. Topology characterized by

mountains with low hills dispersed, watering by the Cau River and dense streams, rich of water ground (HOA 2011). Dong Hy has advantages of location near to the city center which was considered as the educational center of the Northern Mountain Region advancing farmers in accessing to new technology. Agricultural land available is suitable for growing tea (HOA 2011)

According to Mrs. U (TE04) (a tea extensionist in Dong Hy) the total area growing tea in Dong Hy is 2.709 ha and the varieties component with 60% traditional variety (Trung Du) and 10% of Kim Tuyen, 10% Phuc Van Tien, 15% LDP1 and 5% Japanese variety. In the recent time, the area growing tea in Dong Hy is increasing significantly, from 2008 to 2010 the area growing tea has increased 132,5 ha

*Background of tea farm:*

Interviewing 3 farmers: Mr. Khuong, Mr. Viet and Mrs. Nga. Coding: UF11, 12 and UF13

Input using: Similar worker tea farmers, tea farmers in Dong Hy have quite large farm size (ranging from 0.5-1 ha). *Varieties*: Better off farmers tend more adopted new varieties and invest more in their farm. They used to get 8-10 times of harvesting with high price (150-300.000VND/kg dry tea). *Fertilizer*: Farmers used “three color” fertilizers, special fertilizer for tea and NPK rotationally (similar worker farmers) three times in a year.

*Output market:*

They used to produce large portion of fresh tea product to sell to companies in Dong Hy area (mainly sell to Song Cau company) and also have partly portion for producing dry tea selling in free market. Better off farmers tend more adopted new varieties and invest more in their farm. They used to get 8-10 times of harvesting with high price (150-300.000VND/kg dry tea)

Poor farmers are mainly selling fresh tea product to the companies, they don't have skill in processing dry tea and used to got low price (60.000 VND-80.000VND/kg dry tea). These farmers usually got 5-6 main harvest times in a year and the last harvest time in the end of the year when productivity is low, they will process (drying) it and sell to free market.

### *Better of farmers in Dong Hy*

Mr. V and Mr. K are tea farmers in Khe Mo commune, they own around 1 ha tea farm. Each harvesting time, they produce 2,5ton fresh tea to sell to tea company and 150 kg dry tea to sell in free market (normally there is trader came to their village and bought their product. Because they are selling fresh tea to company, they got many training courses provided by tea company. They also got training courses provided by extension programs. Mr. V and Mr. K were members of IPM club from 10 years ago, now with the support of extension station and plant protection station (Mrs. C) the IPM club developed into self-managed extension club and they have meeting every month. They are going to develop their club into cooperative in order to get support from different institutions e.g. cooperative union. Because of having large farm and interested in learning new things from scientific knowledge, they always get invitation from extension to participate in their program; however, in recent time (from 2 years ago up to now) they refused to participate because there are nothing new in the training courses. Similar worker farmers, Mr. V and Mr. K also used “three color fertilizer” for their tea farm (3-4 times in a year) (UF11&12).

### *Poor farmer in Dong Hy*

Mrs. N is also tea farmer in Khe Mo commune since 1989, she mainly produce fresh tea to sell to company, each harvesting time she got 2,5 ton fresh tea. According to Mrs. N, in the year 1991-1995 her income was better than now (in this time company required farmers to cover their tea farm with black plastic, and farmers got good price from company). Now income is low but easily to sell because there are 2 stations (one from Song Cau and one from Hoa Binh company)are competing in buying fresh tea for farmers, farmers are following the requirement of market demand. Similar worker farmers, Mrs. Nga used “three color fertilizer” for her tea farm rotationally with NPK and Nitrogen fertilizer. In her village most of farmers are doing the same like her, depending on economic status they will increase or decrease the quantity of fertilizer. They used to discuss and exchange information when picking tea together in the picking tea group. Mrs. N used to participate in extension program 2-3 times in a year and she found that now there is improvement in extension method (provided by extension station) farmers

can raise the question and extension will answer and explain to them, not only teaching as before (UF13).

#### *Information sources used*

Similar worker farmers, farmers in Dong Hy got a lot of training courses from different programs e.g. training course from extension, from Song Cau Company and other sources. Husband and wife also have to separately to participate in different program. The better off farmers reported that now they have to refuse to participate in extension training courses because there is nothing new, cultivating techniques were repeated again and again in the training course. Better off farmers also reveal that they are members of IPM clubs supported by CIDCE and they were influence from the training techniques provided by IPM training courses (trainers were Mrs Bich Phuong, Mr. Vuong), training techniques help them increasing productivity and reducing using input. Better off farmers also admitted that they got benefit in from Song Cau Company in providing training technique as well other information in producing tea, especially information on varieties.

Poor farmers reported that in the year 1990s they were in the better situation when company can buy their products at good price but now situation is different, market is fluctuated while price of fertilizer is increasing. They also don't want to invest on tea or applying new technology on their farm because market is not attractive. *Poor farmers*: mainly exchange information with the aid group when they were picking tea together on using fertilizer and pesticide

*Better off farmers*: have been active in asking information for improving their product. *VTV 16* was reported by farmers in Dong Hy as TV channel they like but there is very few information on tea.

#### *Evaluation on extension program*

Extension program: teaching in the training courses provided by extension are too much theory, some time difficult for farmers to understand because farmers are different in cognitive level (UF11). There is nothing new, cultivating techniques were repeated again and again in the training course. (UF11&12)

#### *Expectation*

Desired to have processing training course for understanding how to control the temperature (heating of machine) (UF12). Want to have stable output market (UF13). To develop self-managed club into cooperative for searching opportunities (UF11)

### **A3.3.3 Thai Nguyen city**

Thai Nguyen city has developed the scheme of producing safe product from 2011- 2020 with the target in 2015 will gain 80% tea area following VietGAP process and in 2020 there are 100% area growing tea applying VietGAP process in six communes (Tan Cuong, Phuc Thieu, Phuc Xuan, Quyet Thang, Phuc Ha)

From 2006-2010, there are 135 training courses on transferring new techniques were provided to farmers on the scheme. In 2009 and 2010, Thai Nguyen city supported 30% price of new varieties LDP1, TRI777 and the province supported 40% price of varieties for Kim Tuyen, Phuc Van Tien, Keo Am Tich. 2010, QSeap project supported 100% price of new varieties to encourage farmers opening new area

Thai Nguyen city was considered as the educational center (with many universities and colleges) and socio-economic center of the North Mountain Region which far from the Ha Noi capital 86 km, having advantages in transportation roads to the capital and other provinces in the region. This area also has comparative advantage in climate which closed to Nui Coc Lake. Tea farmers have long traditional skill of processing tea and have reputation of green tea products. Closed to the center, tea farmers in this area got a lot of support from different organizations e.g. Tea Research Institute (TRI), Thai Nguyen Agricultural and Forestry University (TUAUF), provincial Department of Agricultural and Rural Development (DARD) and NGOs (CIDCE, CECI...)

#### ***Tan Cuong commune***

Located in the tourism region of Nui Coc Lake, farmers in Tan Cuong not only got the endowment of the natural in cool climate but also the convenient of the market where many tourists can be their attractive consumers.

The tea farmers in Tan Cuong are the community having longest traditional producing tea in Thai Nguyen province. Since 1925, there are a group of Vietnamese soldier recruited by French in the First World War had released and came to Tan Cuong to settle in this area. They came to Phu Tho to take tea varieties and established the processing station in Tan Cuong. Their green tea products were famous from this time. In 2007, Tan Cuong has been granted the Geographical Indication (GI) by the Department of Intellectual Property under the Ministry of

Science and Technology. According to Mr. K (KI26) (staff of Farmer Union in Tan Cuong commune), the total area growing tea in Tan Cuong is 400 ha with 1300 households involving tea farming. Farm size is small and fragment.

In Tan Cuong there are 2 clubs of farmers practicing safe tea product and organic products. The safe tea product club was established in 2003 under the support of TRI at the beginning with 6 members, in 2006 members were increased into 12 members with the total area 5,3 ha. Mr. T said that: under the support of TRI, their members got training courses and bio-micro fertilizer, now they reduce using chemical fertilizer, using IPM in their practice farming. They are now understand that using too much chemical fertilizer and pesticide is not good for the tea farm (the tea bushes are not strong to against pest and disease, the quality of tea is also not good).

The organic tea product club was established in 2002 under the support of New Zealand project cooperated with Thai Nguyen University of Agricultural and Forestry (TUAF). Began with 4 members and increased to 19 members in 2006 with total area 3,7 ha. According to Mr. K, chairperson of the club, after several years producing organic tea farming, farmers realized that doing organic is good because at first it is not harmful to the health of the farmers themselves; however, now the club has stopped their activities because their productivities is going down, too much pest from other farms came to their farm, while price of organic tea products are not attractive farmers to do organic farming. They are planning to move to apply process of producing safe tea product (UF18).

### *Situation of the farms*

In average farm size is about 1 Mau (3600m<sup>2</sup>), better off farmers have bigger farm size (around 1 ha)- Tea varieties component with 80% Trung Du variety (traditional variety) and 20% hybrid varieties (LDP1, Kim Tuyen, Phuc Van Tien, Thuy Ngoc, TRI777). The new varieties are popular in Tan Cuong including LDP1 and TRI777. LDP1 variety is easier in cultivating while TRI777 has too much pest and disease. However, TRI777 are suitable for household lacking of labor because it allow farm to harvest late some days (it's not possible with LDP1), the tea shoots of TRI777 is bigger, easier for farmers in picking (UF20). Traditional variety (Trung Du) are still preferred by farmers in Tan Cuong because it have better tolerant than the new varieties and suitable to grow in hilly land (UF15&19).

*Fertilizer:* Getting high price, farmers have capacity of investing more in fertilizer, especially using bio-micro fertilizer named Song Gianh and Que Lam which were acknowledged by the farmers that helping increasing quality of tea products and improving the soil. Comparing with techniques requirement, tea farmers in Tan Cuong still used more Nitrogen fertilizer than the guiding techniques while Kali fertilizer was used less than guiding. Farmers reported that using Kali fertilizer make the tea products have better flavor but the water of tea extracted is not attractive to the consumers (UF20). The demonstrations of using bio-micro fertilizer of DARD in Thai Nguyen and TUAFF also have influence to the habit of using fertilizer of the farmers in Tan Cuong.

*Pesticides:* Using pesticide for preventing pest and disease are still popular in Tan Cuong. Farmers in Tan Cuong have high skill of processing green tea products, the taste of tea products in this area are different from other places.

For increasing productivity in winter season when farmers used to get higher price owing to the TET festival of Vietnamese people (lunar calendar new year), farmers have different strategies in pruning the tea bushes, they divided their tea farm into different plots and prune it rotationally from September to December in order to get continuously and high productivity during winter season. Doing winter season started in the late of 1980s after the old cooperative style was dissolved and land was distributed to farmers. According to Mr. T (UF15), a well-known tea farmers in Tan Cuong, he started to keep a plot of his tea farm not to prune in October (farmers used lunar calendar, equal to November in international calendar) as usual and intensive cultivating and watering for getting harvest in Winter season, he also used a lot of cutting grasses for mulching (for weeding management and keeping humid for the soil), his neighbors saw that and they also imitate him to do the same.

*Output:* Farmers got high price from 150.000VND to 300.000VND, especially Mr. T (UF15) and Mr. T(UF16) has reputation in high quality products. These 2 farmers got price from 1 million- 3 million VND/kg dry tea in their special products. Many farmers are able to hire labor for picking the tea shoots.



## Sources of information used

Training courses provided by DARD and other program tend to go to the better off farmers in Nam Thai and Hong Thai village where have clubs of producing safe product and organic product (UF14, 17&20). Many farmers never participate in extension program because they were not invited and they also do not want to participate in (the course in other village) they also see that farmers participate in the training course provided by extension does not perform better than what they have done.(UF14).

Mrs. H (UF20) (Go Phao village) has revealed that last year she participated in 2 vocational courses which organized in her village. This is the first time she has participated in extension program because normally the courses provided in other village, she was busy and cannot participate in program. The training courses provided to her village because Mr. K, a villager living in Go Phao, started to work in Farmer Union in Tan Cuong commune and he give chance to this village to get training courses. According to Mrs. H, having training course is useful because she can gain knowledge about tea cultivating, understanding how the fertilizer interact with the soil, having knowledge in pest management... these knowledge she don't know before, she just cultivate tea based on experience and exchange information with some neighbor on which kind of fertilizer is good. Mrs. H said: "the training course is very interesting but we cannot apply all in our practice farming, reducing too much nitrogen the product will not be good" (UF20).

Mrs. B (TE12), a extensionist from IPM program, she also a input seller in Tan Cuong in the past, was mentioned by the farmers as important source of information. Farmers used to came to her house to ask information about pest and disease or information about new variety, when there is a new pest or disease appear on their tea farm, they can call Mrs. B to ask information and advice. (UF16,17&19). Better off farmers got information from different programs provided by DARD, TUAFF and Tea Research Institute (TRI). Mass media was not mention as source of information for tea farmers in cultivating tea. VTV16 has information on agricultural in general.

## ***Opinions /evaluation on Extension programs***

### ***Varieties program:***

Similar other groups of farmer, farmers in Tan Cuong also reported that varieties provided by extension are not good and used to be mixed from different varieties (UF19) and farmers want to have other varieties which are not in the list of varieties provided by extension (UF20)

### ***Training courses:***

Extension told us to prune tea in December but in reality we have to prune from September in order to get high productivity during TET festival, this time price of tea is going up, we can get more income (UF20)

Processing technique provided by extension also cannot apply, they teach us how many minute and how many circle of processing but we have to depend on many thing e.g. the fire and temperature (UF20)

We cannot apply technique from extension because it's in theory (UF14)

Farmers got training courses provided by extension did not make any different from other farmers who did not participate in training courses (UF14)

Scientific is very professional, applying technique have to depend on our condition (UF16)

### ***Sharing experience in producing good tea product***

Mr. T (UF16) is the most famous name of tea producer in Tan Cuong, his products always get higher price to compare with other producers. He shares his experience: producing tea need to take care in every steps in order to get high quality products, picking tea in the morning when it's not heavy rainy or sharp sunny, keep and transfer the fresh tea carefully before processing otherwise it will be damaged. Processing required a sensitive of the hand with the heating, pay all the passion to it. The good taste of the tea products will show all flavors of the soil, of the wind and the sun, the water and the fire.

In October 2007, Tan Cuong has been granted the geographical indication (GI) by the Department of Intellectual Property under the Ministry of Science and Technology. Total area growing tea in Tan Cuong is 400 ha in around 1300 households.

Normally, in Tan cuong each farmer own 6-7 sao of tea area. Some farmers have 1 or more than 1 ha but it's not popular in Tan cuong. The 2 famous farmers who are well-known in this area are Mr. T and Mr. T , they are living next together. Varieties component: 80% Trung du variety, 20% hybrid varieties including LDP1, Kim tuyen, Phuc van tien, thuy ngoc, TR777. Plan in next year will increase to 30% is hybrid varieties.

The movement of grow new hybrid variety LDP1 was in 2000-2004 and TRI777 variety was in 2005-2006. Most of farmers like hybrid variety LDP1 because this variety is easily in cultivating, high in productivity and quality is good, not very much disease. TRI 777 has high productivity, quality is good but it has too much disease, however some farmers still want to grow this variety because it has big buds, easily in picking, and can harvest late 2-3 days, easy for farmers who have less labors. While LDP1 was complained having small buds, difficult in picking and hiring labors, this variety also cannot harvest late like TRI777. The farmers have long experience in cultivating tea like mr. Tien Yen said “new varieties have high productivity but the tolerance is lower to compare with the traditional variety named Trung du”.

#### **Annex 4: Description of the tea extension group**

##### *General information*

From 1999, tea was considered as key value product for developing economic of farmers in 9 provinces (Thai Nguyen, Phu Tho, Tuyen Quang, Ha Giang, son la, Dien Bien, Nghe An, Lam Dong, Yen Bai). Regarding the value of the tea sector, the government implemented Decree 43 in the year 1999 for developing tea in the areas and established the management board of developing tea to help develop the tea schemes. Due to the characteristic of tea farmers in Thai Nguyen are mainly small holders cultivating tea on small farms and fragment, 80% of farmers are processing tea at home and sell products to free market, in order to fulfill the plan of the Tea Development Scheme DARD Thai Nguyen has requested the people committee to recruit extension group to help DARD in implementing activities related to tea in the scheme. In 2001, 25 tea extensionists was employed and up to now the number of tea extensionist in the scheme 3 stages: period 2001-2005 (scheme of producing, processing and marketing tea) period 2005-201(scheme of developing tea) and period 2011-2015(scheme of increasing quality, safe

agricultural products and develop bio-gas) always are 25 staffs. In which, 2 staffs are in Board Management and 23 staffs are technical staffs.

Each district has at least 1-4 extensionist respond to the activities related to growing tea.

These extensionist were under the monitoring and evaluating of DARD in district and have meeting with the Board management each month, each quarter of year.

Annually, the Management Board evaluated the extensionist's activities through the results of their works (implementing the annual development plan in the local area they are responding). In order to get salary, the extensionist have to submit the list of their working days which certified by DARD in district and their report to the Management Board of the scheme. The salary of extensionist will depend on their list of working days. At the end of the year, evaluating of extensionist will be done by DARD in district and then send to the Management Board and report to DARD (DARDI-01 and 02).

These numbers of extension staffs are unstable, some extensionist have move to find other jobs, and only 6 staffs were working from the beginning up to now, the others are new. Comment on the tea extensionist the vice management board (Mrs. Hoang Mai) said:” the name of tea extensionist already express their duty, they were sending to different districts, under the direction of DARD and the management Board. Working on all activities on tea: training to farmers, directing technique, propagating new technologies and implementing the plan from province on opening new area, re-planting.

the development of tea sector in Thai Nguyen in recent year are very fast, both in production and productivity, the last 2 years grow more 1000 ha new varieties. These achievements have depending on the direction of the leaders at different levels and the effort of extensionist

Every year, DARD provided training courses to the extensionist for improving their professional and new technology in order to improve their working.

#### *Qualification of the tea extension group*

Most of the tea extensionists are graduated from crop science faculty of TUAf (excepted only one extensionist graduated in Ha Noi University)

Most of extensionist got training courses provided by DARD for improving their works. However, only the old extension who worked since 2001 (6 extensionist up to now remaining) got training on Extension methods (supported by CIDCE project). The others got training courses on VietGAP which provided by Tea institute and some got training course on teaching methods from Education University (they have to pay for the fee themselves).

These extensionist said they want to have some other training course for extension methods, methodology of approaching farmers, teaching methods and state management because their works is not only transferring technology, but also on state management. The new extensionists want to have deeper training courses on tea and new techniques.

Extensionist also revealed that at the beginning they are not confident to work with farmers because they don't have enough knowledge on practice

The duty of tea extensionist was divided by each quarter

- The first quarter: from February to April: sending text documents to the commune and guiding for register on new varieties or building demonstrations.
- From April to June: checking land preparing after farmers registering and providing training course to farmers
- Third quarter: from August to September: distributing varieties and building demonstration
- Fourth quarter: October to December: monitoring and evaluating after planting

#### *Material using in the training courses provided to farmers*

Main documents provided by DARD which preparing by tea institute (Documents on VietGAP; technique documents: Standard for green tea No. 511-2002, TCN-446-2001 on technique of planting, cultivating and harvesting for tea.)

#### *Relation with other actors:*

Mainly in relation with extension center (on cooperating of training course for farmers) and plant protection station (on monitoring pest and disease)

Contact with farmers: through 2 channels (training courses and visit their farm when checking land preparing before distributing new varieties). And contact with farmers through agricultural staffs in the commune.

Difficult facing:

- The farm size is very small and fragment, it's difficult to monitor and implement new policy. Extensionist said that solution for this problem is building group farmers.

- Farmers have low awareness on using fertilizer and pesticide, they don't follow the technique guiding, solution for this problem is providing training courses for farmers.

- The fluctuation of market: there is needed sustainable market for farmers. However, tea extension work not including market activities.

- The price for safe products and normal products are not different in market, it's difficult to convince farmer to apply VietGAP program

- Salary for the extensionists as well other staffs are very low and can not enough for living life, this lead to the results that they can not concentrate and dedicate on their works.

*Table A4.1 Description of staff TE01 (Graduate in 1998 in crop science TUAU) of tea extension group*

<b>Taks and daily activity</b>	<b>Material used for working with farmers</b>	<b>Views on farmers problems and expectations</b>	<b>Main problems</b>	<b>Expectations for improving farmers' conditions</b>	<b>Cooperation with other actors</b>
State management: typing texts and documents for guiding and implementing direction from government programs to different levels. - Planning on duties for every year, every	Documents using for training courses: building from the book and handouts which provided by	Farmers in Dinh Hoa are still not focusing on the quality of the tea product, they are working on the quantity, the product have low price. The reasons for this problem are: the habit of the farmers, farmers are	Labor mainly are old people and children, the young labors go to the city to find off- farm jobs. Salary for the extensionists as well other staffs are very low and cannot	Training on extension skills, especially participatory skill to understand the need of farmers. Need to have updated	Very limited

Taks and daily activity	Material used for working with farmers	Views on farmers problems and expectations	Main problems	Expectations for improving farmers' conditions	Cooperation with other actors
<p>quarter.</p> <p>- Transferring technologies: skills of communication and teaching</p> <p>- Approachin g farmers and advocacy</p> <p><i>first quarter:</i> building plan (e.g new varieties area for the district, area for replanting, component of the varieties...), propagating and advocacy, send the announcement to the local PC for the farmers to register. After that, we will synthesize the number of registers, component of varieties and report, evaluate the training courses need for the farmers and</p>	<p>DARD, our team have 3 staffs working in this district</p> <p>we contribute and building the document together and use it for training. We also read the news and document s from internet but very less because we have only an old computer and it's difficult to use.</p>	<p>free to cultivate tea and don't follow the technique, each household do in different ways, they use fertilizer whenever they want, scattering fertilizer instead of digging and cover , praying pesticide even at noon ... (I think the solution for this is to train more on techniques);the fluctuation of the market (solution: intervention on purchase machenism of product which bring benefit for the farmers, connecting the processing company with the material areas), in Dinh hoa the middlemen used to buy the tea product which dry on the sun with low price and it's not</p>	<p>enough for living life, this lead to the results that they cannot concentrate and dedicate on their works.</p> <p>Difficult in transferring VietGAP: farmers used to with freedom in cultivating, while tea farms are small and fragment , farms located in resident areas; farmers don't have knowledge in using fertilizer and pesticide→ it's difficult in monitoring and managing of quality product</p> <p>The market's still not so much difference between safe product and not</p>	<p>knowledge about tea</p> <p>I want to have training in state manageme nt and planning skill.</p>	

<b>Taks and daily activity</b>	<b>Material used for working with farmers</b>	<b>Views on farmers problems and expectations</b>	<b>Main problems</b>	<b>Expectations for improving farmers' conditions</b>	<b>Cooperation with other actors</b>
<p>prepare for it.</p> <p><i>Second quarter:</i></p> <p>Training for the farmers before planting as well as monitoring how they preparing land. Training other courses (e.g VietGAP)</p> <p><i>Third quarter:</i></p> <p>Distribute varieties; Building demonstration plot on VietGAP, fertilizer...</p> <p><i>Fourth quarter:</i></p> <p>monitoring and evaluating after planting</p> <p>2001-2005: Open the area growing new varieties; Transfer new technologies: variety, technique; Increase awareness of the tea farmers; Introduce new varieties and test, transferring, opening area</p>	<p>We also have to know all the policy relating to our activities (e.g policy on subsidy of new variety, policy on VietGAP program ...)</p> <p>because we always have to explain to the farmers.</p>	<p>attractive the farmers</p> <p>Farmers are facing problem of output market, we tried to cooperate with tea companies for product consumption. In 2003 we implemented decree 80 of contract farming, and the company tried to buy product for farmers through contract; however, after the war in Iraq, the export market was breakdown and this activities also can not develop any more. This time there are 2 tea companies in this area (Binh yen &amp; Quan Vuong) and they still buy product without contract. I think that the leaders in higher levels can help to bring enterprises</p>	<p>safe product, getting difficult in advocacy farmers to producing safe product.</p> <p>Awareness of the farmers on safe food are still low. There are too much types of pesticide on the market.</p> <p>Awareness of farmers is low</p> <p>There are too many kinds of pesticide in the market</p> <p>We are trying to create interested group for easier to implement VietGAP, selecting team leaders which are trust by farmers in the group, however, we don't have training for team leaders</p>		



<b>Taks and daily activity</b>	<b>Material used for working with farmers</b>	<b>Views on farmers problems and expectations</b>	<b>Main problems</b>	<b>Expectations for improving farmers' conditions</b>	<b>Cooperation with other actors</b>
<p>2006-2010: continue to open new areas</p> <p>2011-2015: increase efficiency of production and processing, marketing, sustainable development, continue developing new varieties (2 strategies: open new areas and change old variety areas which have low productivities)</p> <p>Now subsidy 100% for new variety for farmers, however, it's will be distribute to each area regarding to the funding of the government and the register of the farmers</p>		<p>connect with the farmers on consumption of product, the extensionists only can do is to consult to the leaders.</p> <p>In order to reduce the difficulty in small farm size, we try to strengthening the farmer organization through develop groups of farmers.</p> <p>We are planning to develop 3 groups in Son phu, Trung Hoi and Thanh Dinh, the leaders of group will be the head of village because they have reputation in the village.</p> <p>However, this leader don't have any salary or any money for this job, they also still don't have training course for leading group and skills of working group</p>	and there is no allowance for the leaders of groups		

*Table A4.2 Description of staff TE02 (Graduate in 2008 on crop science TUA F ) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectations</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>	<i>Cooperation with other actors</i>
<p>plan is to grow 150 ha and Intensive cultivation for higher productivity Workshop of demonstration intensive cultivating tea product</p> <p>The plan depends on the leaders of the commune and the program of province and district, we have meeting at the end of the year and the leaders of the commune will register (e.g: this year province gave 150 ha, leaders of the commune will register consulting for DARD of the district to have document and implementing targets</p> <p>From planting, cultivating to harvest and have reputation</p> <p>Our group have same plan and divide by communes</p>	<p>When farmers have questions, I search information from internet and discuss with our colleagues, I search information from internet every day for searching information and documents. Our office have 1 old computer and only me can use it.</p> <p>I learn from mass media (e.g friend of farmers vtv2 channel)</p>	<p>To compare to other districts, Farmers in Dinh Hoa produce lower quality product, mainly tea dry under the sun, and farmers used to get lower price.</p> <p>farm size is very small and fragment, it's difficult to implement demonstration as well as Farmer apply very less new technique because of their awareness</p>	<p>implementing VietGAP farmers have difficulty on writing farm diary training provided for extension is not specific: each location has different characteristic but we got training similar implementing VietGAP is complicated, there are many criteria, and farmers have to write farm diary but they are not used to with writing diary</p> <p>our work in reality is very much different from what we learn from book and in university, we have to learn from our colleagues and from farmers, I also learn from TV in program "friend of farmer" to learn the way to talk with farmers</p> <p>For example: when we talk about pH of the soil, we can not measure by machine, and we have to use some indicator trees (e.g myrtle tree) this thing I learn from colleagues</p> <p>don't have enough facility in office, allowance is low</p>	<p>Need training on extension method, and skills of training farmers</p> <p>Need training for updating knowledge about tea, especially on plant protection</p> <p>There is needed to have stable output market for farmers to attract them to apply new techniques</p>	<p>Mainly cooperate with our tea extension group</p>

*Table A4.3 Description of staff TE03 (Graduate in 2000 in crop science in TUAU ) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectations</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>	<i>Cooperation with other actors</i>
<p>To support DARD district to develop the tea scheme</p> <p>First period: 30% LDP1 and TR777</p> <p>Second period: 50% new varieties and guiding to produce safe product and VG</p> <p>Third period: (until 2015) 60% new varieties and safe product, VG (VG started in 2008)</p> <p>VietGAP program: In 2010: certified for Huong Hoi, Phu Hoi in Son Phu in VietGAP standard</p> <p>This year: 3 groups in Son Phu, Trung Hoi and Thanh Dinh</p> <p>New varieties program: guiding to change new varieties:</p>	<p>Reference and material for training courses mainly from the documents distributed by DARD in province.</p>	<p>When I contact with the farmers very often I can have experience from reality practice of tea farm e.g diseases learning from the book is different on the reality and the circle life of the pest and disease also different, I have to learn</p> <p>To develop demonstration: we have many meeting again and again, because of the awareness of the farmers and the local authority still doesn't have intervention</p>	<p>When I contact with the farmers very often I can learn experience from reality e.g diseases learning from the book is different from reality and the circle life of the pest and disease also different, I have to learn from farmers.</p> <p>Transferring: have to close to the reality, have picture-&gt; easier for farmers to understand but now we only have teaching method as speaking and farmers have to listen to.</p> <p>I have to learn from my colleagues experience for teaching methods and transferring methods, if only teaching from the book, farmers will not believe me.</p> <p>To develop demonstration: we have many meeting again and again, because of the awareness of the farmers and the local authority still doesn't have intervention</p> <p>farm size is small</p>	<p>To support farmers in output market, there are 3 processing companies in Dinh Hoa but they don't buy product for farmers</p> <p>Farmer in DH are following the the process of drying tea under the sun, price is low</p> <p>In my opinion, to transfer knowledge to farmer, there is needed to have visible documents, to have specific pictures, it will be easier for farmers to understand.</p> <p>Now our training to farmers are only talking/teaching/speech.</p> <p>Communicating with farmers also have to consider different groups of farmers, different location...teac</p>	<p>With plant protection station (in training IPM) and extension station(in providing techniques training and monitoring land preparing and new varieties)</p>

<p>growing new and re-growing on the areas the tea bushes are very old and have low productivities</p> <p>First quarter of the year: we have plan of 150 ha new varieties and intensive cultivating on 2000 ha to increasing productivity to 90-100 ta/ha and demonstration in Diem mac 5 ha</p> <p>Second quarter will monitoring how farmers prepare land and training for them</p> <p>Third quarter will check seedling garden</p> <p>Fourth quarter will distribute varieties to farmers and at the end of the year will be monitoring and evaluating</p>			<p>and fragment, difficult to implement some program from province e.g VG require 10 ha</p> <p>This year and last year because of the bidding mechanism, nursery garden in Dinh hoa have transfer to Dai Tu, and Dinh hoa have varieties from another place, it make the seedling have low quality due to the transportation process</p> <p>*** what we learn from book is different from reality (in pest and disease, in tea picking method,...many things related to tea cultivating are different from book.</p> <p>When I started to work as tea extensionist I was confusing because I don't have enough knowledge in practice, about situations in reality</p> <p>*** the fluctuation of output market and the increasing of fertilizer price don't attract farmers on tea cultivating</p> <p>Don't have enough computer and internet, we have only very old computer, it is difficult to access to new information</p>	<p>hing farmers knowledge from book they will not want to listen</p> <p>The most important is extension method, education skill and professional knowledge on tea</p> <p>If 3 tea companies can activate and able to buy product for farmers with suitable price mechanism, to strength the linkage btw farmers and company, farmers don't have to depend on traders, it will be easier for extension in transferring knowledge</p> <p>Want to have suitable allowance for dedicate to work and have enough training in method of approaching farmers</p>	
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*Table A4.4 Description of staff TE04 (Graduated 1997 in crop science in TUAFA) of tea extension group*

<i>Tasks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectations</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>	<i>Cooperation with other actors</i>
<p>The main tasks are training farmers and transferring technologies (new varieties, new policies, demonstration, VietGAP demonstration)</p> <p>There are some more work got from district DARD (70% works from provincial DARD, 30% from district DARD)</p> <p>We are tea extensionist but our tasks included of state management, not only transferring technology</p> <p>Training provided to farmers around 20-30 courses in a year (in which there are 5-7 courses have money support from provincial DARD, the other don't have fund)</p> <p>The scheme of tea development: phase 1: 2000-2005: producing, processing and consumption and tea development. Phase2: tea development; phase 3: increasing capacity of producing and processing, consumption toward VietGAP</p> <p>Implementing via sending text documents to commune and urge them to fulfill the plan.</p>	<p>Documents : the origin was provided by DARD (the Vietnamese techniques standard for producing tea)and we re-compile it to be suitable to our region. E.g time of using fertilizer and time pruning .</p> <p>area where farmers produce fresh tea for the company we introduce the process of using N and K in 4 times and using P after pruning but areas produce higher quality product we introduce process of using less P and increasing manure</p>	<p>Now the awareness of farmers have increased, they understand the benefit of new technologies but when I started to work in the scheme in 2001, it was difficult to work with farmers, they always disagree with extensionist and try to argue when we provided training to them.</p>	<p>area we have to respond are very large area we have to cooperate with agricultural staffs in the commune (248 staffs)</p> <p>low allowance but comparing with other staffs we cannot complain because all are in similar situation farmers are not specialization in producing tea, they have different type of products, their farms are small and fragment.</p> <p>Now the awareness of farmers have increased, they understand the benefit of new technologies but when I started to work in the scheme in 2001, it was difficult to work with farmers, they always disagree with extensionist and try to argue when we provided training to them.</p> <p>We don't have extension method, mainly used our experience</p> <p>We are tea extensionist but our tasks included of state management, not only transferring technology</p>	<p>Regional planning for growing tea but up to now the output market are not stable→ difficult</p> <p>Creating interested groups is a temporary solution for easier to implement activities</p> <p>Need to have training on extension method, I know about participatory approach when I participated in CIDCE and other NGOs projects and I like it very much.</p> <p>Intervention started from the need of farmers will be easier to get farmers to adopt</p>	<p>With CPC: provided documents to staffs in CPC</p> <p>Plant protection station: in monitoring pest and disease</p> <p>Song Cau company: in organizing conference: in raw material area, encourage company to buy fresh tea for farmers</p>

*Table A4.5 Description of staff TE05 (Graduated in 1992 in crop science faculty of TUAF) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectations</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>
Responding to 5 communes (Tan Long, Quang Son, Hoa Trung, Hoa Thuong and Song Cau) Tasks divided by quarter (similar Uyen)	Documents provided by DARD	Being a tea extensionist has to master and professional on tea (good knowledge on tea). Close to farmers and coax them as with children. Awareness of farmers are very low, they don't cooperate well, e.g when we go to their farm to check the land even give to them the variety for free but they don't cooperate and not on the farm, but when we provide money they will come very fast. To change awareness for farmers is difficult. The decree 80 is not success because farmers only follow their benefit	We mainly use teaching methods on the class, because Farmer Field School methods like IPM program we don't have skills and don't have enough fund to do that. farm size is small and fragment -> difficult in implementing and fulfill plan. <u>Awareness</u> of farmers are <u>very low</u> , they don't cooperate well, e.g when we check the land even give to them the variety for free but they don't cooperate, they are not on the farm when we come to them but when we have money they will come very fast. To change awareness for farmers is difficult. Working with group of farmers is difficult, the team leader was selected by farmers themselves and don't have salary or other support Work hard, fee for go to the field is low (200.000 VND/month) Out put market: can not control the quality Decree 80: farmers follow their benefit (short vision)	To have higher salary and fee for going to the field

*Table A4.6 Description of staff TE06 (Graduated 2000 in crop science in TUAF ) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>	<i>Cooperation with other actors</i>
<p>Task from tea development scheme from provincial DARD (period 2010-2015: producing safe product toward VietGAP standard) and from DARD city for developing special product in Tan Cuong (from 2006)</p> <p>The main tasks are training techniques and transferring technology</p> <p>New varieties program: inform farmers via sending text document to the commune, let the farmers register with commune, then check land preparing and train farmers techniques (in April and May), and then distribute varieties (in August)</p> <p>Beside the tasks from DARD-Province I have to do some tasks from DARD of city</p> <p>now the programs of province and city is producing safe tea product toward VietGAP</p> <p>Beside training to the farmers on cultivating tea I have transfer new technology such as new varieties, VietGAP program... now the programs of province and city is producing safe tea product toward VietGAP</p> <p>I respond to 3 communes: Tan cuong, Phuc triu and Thinh Duc.</p>	<p>With the training course the target is safe product: we have to follow the documents and guildings from Ministry of Agriculture and Rural Development with 12 principles for VietGAP Training courses of cultivating technique: hand out provided by tea institute.</p> <p>Other sources of finding documents: from internet: updating disease and pest from different documents, selecting and using it in the training. From agricultural journal</p>	<p>Farmer s still have problem in keeping hygiene and producing safe product</p>	<p>There are mainly on new technique such as cultivating tea, VietGAP... training on methodology of extension is less, we got some at the beginning but there's long time ago and I cannot remember.</p> <p>Problem of output market: Our task not only extension as transferring technology but also state management (manage of varieties, fertilizer)</p> <p>Stable output market for farmers</p>	<p>Need to have updated knowledge about tea and new technologies</p> <p>To find out the solution for stable output market for farmers</p>	<p>Cooperate with the vice-chairman of Farmer Union in Tan Cuong commune</p>

Table A4.7 Description of staff TE07 (Graduated 2005 in crop science in TUAUF ) of tea extension group

Taks and daily activity	Material used for working with farmers	Views on farmers problems	Main problems	Expectations for improving farmers' conditions	Cooperation with other actors
<p>my tasks is Responding to 3 communes: Phuc xuan, Quyet thang, Phuc ha and it divided by quarter and seasons (spring, summer, Autumn and winter) Training for the farmers. Normaly in April and May we started to train farmers and in July and August farmers will grow the new variety.</p> <p><i>First quarter:</i> urging farmers to fulfill the plan of the year on cultivating and doing VietGAP (this year our duty is 70 ha new varieties and 2 demonstration on VietGAP). TN city have plan of 2 demonstration (utz certified in Tan Huong cooperative which supported by Solidaridad and VietGAP in Tan Cuong - 13 hhs- mr Tien Yen in Hong Thai which supported by DARD-Qseap 100%). Demonstrations of using micro-bio fertilizer (Song Gianh) funding by Thai Nguyen city (for 3 communes: Tan Cuong, Phuc Xuan, Phuc Triu in 16 ha, each hhs 2-3 sao and subsidy from DARD city 60% price of fertilizer. Tan Cuong has 2 demonstration in Hong Thai village New variety: PDP1, PHuc van tien, kim tuyen</p>	<p>Following the document provided by MARD With the training course the target is safe product: we have to follow the documents and guildings from Ministry of Agriculture and Rural Developm ent with 12 principles for VietGAP Training courses of cultivating technique: hand out provided by tea institute. Other sources of finding documents : from internet: updating disease and pest from</p>	<p>My experience is from farmers. Now I feel confident in my work and in working with the farmers (chi dao san xuat) the weakness of the farmers: don't plant the new varieties in right time, they used to plant after harvesting rice, when they have time without considering technique. Farmers still use chemical pesticide, they also use too much chemical fertilizer to compare with the principle(rec ommended 2-300g but farmers used 1kg N/ 1 kg dry tea product). Farmers pray</p>	<p>In implementin g VietGap: farmers have difficulty in writing diary of farming, they don't follow the instruction of using pesticide, this make our work become very difficult, if they don't follow the process, then we have to do it again.</p> <p>At commune level don't have support staffs (CAE) for supporting our work The fluctuation of Output market cause farmers not dedicate in their farming practice The fluctuation of Output market cause farmers not dedicate in their farming</p>	<p>Need to have training on extension skill</p> <p>Stable output market for farmers.</p>	<p>With plant protecti on station and extensi on station in monitor ing pest and disease and providi ng training course to farmers (not much with extensi on station) Tea institute : mainly providi ng training for extensi on (ToT) for implem enting VG</p>



Taks and daily activity	Material used for working with farmers	Views on farmers problems	Main problems	Expectations for improving farmers' conditions	Cooperation with other actors
<p><i>Second quarter:</i> training courses (15 courses for the farmers) monitoring/checking how the farmers prepare land for planting new varieties, monitoring/checking/directing nursery garden</p> <p><i>Third quarter:</i> distribute new varieties and building demonstration on VietGAP (2 demonstration in Hong Thai 1 and in phuc triu), fertilizer (demonstration of using Song gianh fertilizer-subsidy program from the city for 3 communes: Tan cuong, phuc xuan and Phuc triu= 16 ha= 2-3 sao/hhs (subsidy 60%))</p> <p><i>Fourth quarter:</i> directing on winter season and urging farmers to plant the new varieties in time. Training courses: around 15 courses in a year (in total 30 courses together with Hai), content in technique of planting new variety and intensive cultivating. VietGAP process Subsidy for VG' fee: 60-70 millionVND/demonstration</p> <p>Criteria for selecting demonstration: intensive area, farmers are enthusiastic, following the direction of extension</p>	<p>different documents, selecting and using it in the training. From agricultural journal Documents distributed when we participated in training course provided by DARD The main document is following the standard from MARD with 12 criteria</p>	<p>pesticide every harvest season while we recommended praying when the pest and disease appear. We still don't have solution for this problem. In implementing VietGap: farmers have difficulty in writing diary of farming, they don't follow the instruction of using pesticide, this make our work become very difficult, if they don't follow the process, then we have to do it again.</p>	<p>practice, farmers are inactive with output market→ there is needed enterprises to cooperate with farmers to buy their product Our allowance is low but we cannot complain, it's in regulation Difficult to advocate enterprises to buy tea product for farmers because tea price of tan cuong farmers are very high (expensive) and enterprises cannot buy. Last year we introduce some enterprises from China but they just came to visit and we did not see they buy products for farmers.</p>		

*Table A4.8 Description of staff TE08 (Graduated 1997 in crop science in TUAF ) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectations</i>	<i>Main problems</i>	<i>Expectations for improving farmers' conditions</i>	<i>Cooperation with other actors</i>
Follow the plan from DARD in province. In 2012: 250 ha new varieties (3 varieties: LDP1, Phuc Van tien, Kim tuyen) we make document and send to the communes for register VietGAP program Working with Thuan and Toan (each person respond to 10 communes) Produce safe product and build reputation through change new varieties and increase quality	We have same document and depend on the areas have different characteristic of nature, and we will give different techniques of cultivation e.g the process is 10 kg N but in Dai tu land have higher fertility and we introduce to farmers use less N, e.g 5 kg N. when using too much N the tea bud is big but the leaf is thin, and quality of product will be low, and K also must be lacking. Material documents for the training courses: we have 2 materials: one is for growing new varieties technique and the other is producing safe product (VietGAP) When I started to work as tea extensionist I was facing many problems, working as tea extensionist require higher knowledge on tea than I was trained in the university. What I was trained in university can only use 10%. I have to learn experience from tea farmers in area who have high experience	To compare with the year 2000 to now tea product in Dai tu have higher productivity and higher quality of product. The market become larger: to Hanoi, Quang ninh, Hai phong, and Ho Chi Minh city.	When I started to work as tea extensionist I was facing many problems, working as tea extensionist require higher knowledge on tea than I was trained in the university. What I was trained in university can only use 1/10. I have to learn experience from tea farmers in area who have high experience and share this knowledge with farmers have lower experience. the fluctuation of the market, farmers are free to sell products, don't need reputation	Want to have training on extension skills and knowledge on tea processing Need to have enough allowance	extensionist and staff in Plant protection station, extensionist in extension station

*Table A4.9 Description of staff TE09 (Graduated 2004 in crop science in HAU ) of tea extension group*

<i>Taks and daily activity</i>	<i>Material used for working with farmers</i>	<i>Views on farmers problems and expectati ons</i>	<i>Main problems</i>	<i>Expectations for impromiving farmers' conditions</i>	<i>Coopera tion with other actors</i>
<p>Training courses for the farmers: 7-10 course (program from province) And 20-30 courses (program from district)</p> <p>VietGAP program (training techniques, creating interested group, guiding how to write farm diary)</p> <p>This year we support 2 groups in Vo Tranh and Phan Me with 15-20 households in &gt;15ha/group. The first year we support farmers the fee to produce VietGAP. At this time we already consulted farmers and waiting for certify for farmers.</p> <p>Fertilizer demonstration: Net 26 fertilizer in 50-60 households / 19 ha (this demonstration for reducing N) we support farmers 80% fertilizer. Criteria for selecting farmers: enthusiastic and have convenient place. increasing the quality of tea product of the province. We provide training courses for the farmer on growing new varieties and VietGAP in order to produce high quality product.</p> <p>Program which from commune (farmers need)-&gt; extension station of district will implement</p> <p>Program from DARD: our tea extension group will implement</p>	<p>Sources of the material documents: from DARD and tea institute. We also search information from internet through Google and sometime reading agricultural journal.</p> <p>Material documents for the training courses: we have 2 materials: one is for growing new varieties technique and the other is producing safe product (VietGAP)</p>	<p>Farmers in Phu Luong: divided into different areas: Votranh and Tuc Tranh commune doing better than other places, they want to produce high quality product. However, most of farmers are facing with output market. They want to have sustain output but until it still depend on the free market.</p>	<p>Farmers depend heavily on the free market, they are expecting for stable output market and have reputation on their product</p> <p>If tea product can contribute big role to their income farmers will concentrate and willing to invest on it</p> <p><i>When started to work with farmers as tea extensionist I found there are too difficult in my work , but now the situation is easier because</i></p> <p>We share information with farmers on pest and disease together and help them to increasing efficiency on product. Now farmers are more open with us, we can discuss and exchange</p>	<p>We also want to have higher salary, hungry can not work better and devote for working</p>	

*Table A4.10 Description of staff TE10 (Graduated 2009 in crop science in TUAU ) of tea extension group*

<b>Taks and daily activity</b>	<b>Material used for working with farmers</b>	<b>Views on farmers problems and expectations</b>	<b>Main problems</b>	<b>Expectations for improving farmers' conditions</b>	<b>Cooperation with other actors</b>
<p>Duties are mainly state management, transferring technology, propagating new technique, policy...</p> <p>Our tasks: depend on the plan from DARD in province; all the activities related to tea, our works have characteristics of seasons. , e.g the plan of growing 100 ha new variety and we have to implement it through building plan for different communes, making documents to urge the commune to fulfill the plan</p> <p>-New varieties program (LDP1, Phuc van Tien and Kim tuyen)</p> <p>-VietGAP program (training, building demonstration)</p>	<p>I used to search information from books, internet.</p> <p>Documents for training courses: we have to follow the standard documents provided by MARD: the standard of nurturing and processing tea 446-2001 and producing safe tea product, VietGAP document No 1121-2008.</p> <p>With this standard documents and reference from the practice and geography of local area, trying to meet the standard.</p> <p>The document 1121 for producing safe tea product: recommended 1 ton fresh tea should use 30 ton N (pure) but in reality, farmers used 1 kg ure fertilizer for 1</p>	<p>Cuong We request them to register in February to April, in July we will check and evaluate after that we will distribute the new varieties.</p> <p>Farmers said that if you want to give the variety why request too much? This is the awareness and their habit. They are free on their land, we can not ask them to follow, we just recommend them to do.</p> <p>I used to discuss with the famers on their problem and help them to find the solution.</p>	<p>when I left the university I found that it's difficult to approach the farmers because I don't have knowledge and experience on this methodologies and I have to learn myself. I have to learn about the culture and habit of the farmers and their awareness. E.-g with the new variety program: on the procedure: farmers have to register then take the varieties, the requirement is that farmers have to follow the technique of preparing the land before planting the new variety. They have to plant the tree for shading, digging the land as the technique advice... many farmers don't want to do that because they want to plant whenever time is convenient to them, it's difficult for us in monitoring and evaluating.</p> <p>We request them to register in February to April, in July we will check and evaluate after that we will distribute</p>	<p>I think there is needed the company which will buy the product for the farmers. In the case of coffee situation, the company buy the product for the farmers, even the price is not high but farmers still have benefit, then they will be very happy and they will follow all requirement. (cuong)</p> <p>The plan with policy comes from top down, not suitable to the situation. It should be from the bottom up, the exchange information among the different partners to meet the need of each other.</p>	<p>TRI: testing and demonstration of new varieties (5 ha Kim Tuyen variety in Van Tai company for producing Oolong tea) and transferring techniques for nursery garden.</p> <p>They also test new variety of PH8-PH9 in Dai Tu and have conference for evaluating new varieties (participants were extensionists and staffs responding to tea activities) evaluating varieties focus on tolerance with pest and disease, and the growth of new varieties, they don't provide specific information about varieties e.g. the characteristic of variety, the chemical content in tea product, capacity for producing which kind of tea product...documents varieties provided by TRI are very much simple</p>

<p>-Cooperation with plant protection station to monitor pest and disease to inform farmers, monitoring the growth of tea garden</p> <p>-Monitoring and managing the nursery garden</p> <p>Pho yen has 18 commune and there are 11 commune producing tea. Our group has 3 staffs and each of us respond to 3-4 commune</p>	<p>kg tea product. This training course we used document: no. 446-2001 and no. 1121-2008, other references are tea lecture from TUA F (this document is very good, detail but it's not close to the reality in the local area) and documents from internet. On the nutrition: doesn't meet the practice of the farmers in this area. E.g: document 446: recommended 5-6 kg N/sao but in the reality farmers used 2-3 times; recommended using fertilizer in 3-4 times but farmers used fertilizer after each harvest. On plant protection. Recommended the name of pesticides which are not available in the local area: e.g Tre bon, which is prohibited now. This is in</p>		<p>the new varieties. Farmers said that if you want to give the variety why request too much? This is the awareness and their habit. They are free on their land, we can not ask them to follow, we just recommend them to do.</p> <p>The staffs in the extension station are almost graduated from crop science or animal husbandry. There are very less staffs which graduated from extension faculty. Last year in our extension station there is a staff graduated from extension faculty but I found that even he graduated from extension major, he has extension methods, he has knowledge from different majors but it's not deep understading and he is not able to explain to the farmers when they asked him on pest and disease. I think he has too much theory. In extension activities I found that there are a lot of activities on crop science, then staffs graduated from crop science can easily do extension activities. I think that a good graduated extension students will have</p>		
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	<p>the past, very old. The document are not up to date. I used to search information from books, internet. This training course we used document: no. 446-2001 and no. 1121-2008, other references are tea lecture from TUAF (this document is very good, detail but it's not close to the reality in the local area) and documents from internet.</p>		<p>advantage on methodology of approaching farmers, but he still need to have deep knowledge on the domain he want to bring to the farmers. Graduating from crop science have some difficulties at the beginning on approaching farmers and we have to learn about that, but we have deep understanding on crop science, then easier in working with farmers. If farmers ask about the technique of cultivating, on pest and disease, we are able to answer them. But the staffs which graduated from extension they don't know which kind of pest and disease Knowledge got from university are mainly in theory, we do not have experience in practice. In our office, there is a extensionist graduated from extension faculty in TUAF, I think he is better in communication method, but in specific knowledge to transfer to farmers is not good Now extension activities are mainly in crop, graduated from crop science will be better in</p>		
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			<p>working as extension</p> <p><i>Document distributed by MARD are not suitable for recommending farmers: e.g the document 446</i></p> <p>standard recommend farmers to use fertilizer 3-4 time in a year, but in reality farmers used fertilizer after each harvesting time. Recommended to used TREBON pesticide but actually now this pesticide was not used by farmers for long time. in document 1211</p> <p>standard Recommended farmers used 30 ton pure Nitrogen, but in reality farmers used 1 kg ure fertilizer for each 1 kg dry tea they harvested. And using fertilizer have to depend on the situation of the soil and other conditions, how to used fertilizer in the land mix with sand, which fertilizer is suitable for each different soil... there are no specific guiding documents.</p> <p><b>TRI:</b> testing and demonstration of new varieties (5 ha Kim Tuyen variety in Van Tai company for producing Oolong tea) and transferring</p>		
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			<p>techniques for nursery garden.</p> <p>They also test new variety of PH8-PH9 in Dai Tu and have conference for <i>evaluating new varieties</i> (participants were extensionists and staffs responding to tea activities) evaluating varieties focus on tolerance with pest and disease, and the growth of new varieties, they don't provide specific information about varieties e.g. the characteristic of variety, the chemical content in tea product, capacity for producing which kind of tea product...documents varieties provided by TRI are very much simple difficult in transferring VietGAP to farmers because implementing VietGAP is complicated and farmers feel of uncertainty about output market, they don't know whether they can sell product with higher price or not.</p>		
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## Annex 5 : List of interviews

No.	Code	Topic of the interview	Place of interview	Date (DD/MM/YYYY)
1	KI-01	<ul style="list-style-type: none"> <li>- TRI's activities on tea sector</li> <li>- Personal activities with the tea sector</li> <li>- Coordination with other organization on activities related to the tea sector</li> </ul>	TRI	27/08/2010
2	KI-02	<ul style="list-style-type: none"> <li>- TUAF's activities on tea sector</li> <li>- Personal activities with the tea sector</li> <li>- Coordination with other organization on activities related to the tea sector</li> </ul>	TUAF	22/08/2010
3	KI-03	<ul style="list-style-type: none"> <li>- General information on DARD's activities related to tea</li> <li>- Activities of QSEAP project</li> <li>- Information about the tea extension group</li> </ul>	DARD Thai Nguyen Province	10/10/2011
4	KI-04	<ul style="list-style-type: none"> <li>- Detail DARD's activities related to tea</li> <li>- Characteristics of different locals in Thai Nguyen which have intensive areas with tea playing a crucial role as income sources to farmers</li> <li>- NGOs, companies and cooperatives working on tea in Thai Nguyen</li> <li>- Coordination with other organizations on activities related to the tea sector</li> </ul>	DARD Thai Nguyen Province	10/10/2011
5	KI-05	<ul style="list-style-type: none"> <li>- Activities of sub-department of Plant Protection in Thai Nguyen</li> <li>- Activities related to tea development</li> </ul>	Sub-department of Plant Protection in Thai Nguyen	27/08/2010
6	KI-06	<ul style="list-style-type: none"> <li>- Activities of Extension Center</li> <li>- Activities related to tea development of extension center</li> </ul>	Thai Nguyen Extension Center	27/08/2010
7	KI-07	<ul style="list-style-type: none"> <li>- General information on tea activities of DARD Yen Bai</li> <li>- Activities of QSEAP Yen Bai project</li> <li>- Coordination of DARD Phu Tho with Tea Research Institute and other</li> </ul>	Tea festival in Thai Nguyen	12/11/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date (DD/MM/YYYY)</b>
		organizations on tea activities		
8	KI-08	<ul style="list-style-type: none"> <li>- General information on tea activities of DARD in Phu Tho Province</li> <li>- Activities of QSEAP project</li> <li>- Coordination of DARD Phu Tho with tea institute and other organizations on activities related to the tea sector</li> </ul>	DARD Phu Tho Province	26/08/2010
9	KI-09	<ul style="list-style-type: none"> <li>- Contribution of CARE to tea farmers in Dinh Hoa</li> <li>- Activities from beginning until now</li> <li>- Methodologies of approaching farmers</li> <li>- Results</li> <li>- Coordination with extension and other organization</li> </ul>	Son Phu Commune Dinh Hoa district	13/10/2011
10	KI-10	- Activities of Agriterra project	Farmer Union office	28/08/2010
11	KI-11	<ul style="list-style-type: none"> <li>- Activities on tea of FU</li> <li>- Activities and contribution of Agriterra project, evaluation of this program</li> <li>- Vocational training program provided by FU</li> <li>- Cooperation with DARD and other organizations on tea activities</li> </ul>	Farmer Union office	17/11/2011
12	KI-12	<ul style="list-style-type: none"> <li>- General information on tea cooperatives</li> <li>- Activities supporting Tea Cooperatives</li> </ul>	Cooperative Union	26/11/2011
13	KI-13	<ul style="list-style-type: none"> <li>- General information on tea cooperatives</li> <li>- Activities supporting Tea Cooperatives</li> </ul>	Sub-department of Rural Development	26/11/2011
14	KI-14	Activities of Thai Nguyen Tea Association	Tea Association	26/11/2011
15	KI-15	- General information of Vocational training program	Vocational training center	24/10/2011

No.	Code	Topic of the interview	Place of interview	Date (DD/MM/YYYY)
		<ul style="list-style-type: none"> <li>- Information on vocational training for tea farmers (number of courses, name of the local which farmers got vocational training courses, content of training course, duration, trainers, materials, supporting of the center to the farmers and the contribution of farmers to the training courses)</li> <li>- Procedure implementation of vocational training course from beginning to the end of one training</li> </ul>	of Dong Hy district	
16	KI-16	<ul style="list-style-type: none"> <li>- Information of VINATEA and some views on the development of tea sector</li> <li>- Information of the tea companies in Thai Nguyen</li> </ul>	Song Cau Tea Company	19/10/2011
17	KI-17	<ul style="list-style-type: none"> <li>- General information of Song Cau company</li> <li>- Information of different worker farmer groups</li> <li>- Supporting from company to the farmers and duties of farmers to the company</li> </ul>	Song Cau Tea Company	19/10/2011
18	KI-18	<ul style="list-style-type: none"> <li>- Duties and responsibilities of agricultural staffs in songcau company</li> <li>- View on worker farmers: how they apply techniques, problems they are facing</li> </ul>	Song Cau Tea Company	19/10/2011
19	KI-19	<ul style="list-style-type: none"> <li>- General information on the company</li> <li>- Activities supporting farmers</li> <li>- Coordination with other organizations</li> </ul>	Tea Festival in Thai Nguyen	12/11/2011
20	KI-20	<ul style="list-style-type: none"> <li>- General information on the company</li> <li>- Activities supporting farmers</li> <li>- Cooperation with farmers and other organizations</li> </ul>	Tea Festival in Thai Nguyen	12/11/2011
21	KI-21	<ul style="list-style-type: none"> <li>- General information on the company</li> <li>- Activities supporting farmers</li> <li>- Cooperation with farmers and other organizations</li> </ul>	Tea Festival in Thai Nguyen	12/11/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date</b> (DD/MM/YYYY)
22	KI-22	General information on the company - Activities supporting farmers - Coordination with other organizations and with farmers	Hoang Binh company	13/11/2011
23	KI-23	General information on the company - Activities supporting farmers - Coordination with other organizations and with farmers	Van Tai company	13/11/2011
24	KI-24	- Qualifications - Duties - Technique of guiding the cultivation of tea in Van Tai company	Van Tai company	13/11/2011
25	KI-25	-General information of Boc Nhieu Commune -Information on tea producing in the commune (area, component of varieties, number of households producing tea, villages have intensive tea areas) -Planning in the coming time -Extension activities in Boc Nhieu on Tea -Duties and responsibilities of agricultural staff in commune - Activities related to development in tea farming -Procedure of informing farmers on tea activities (e.g policies, training courses) and feedback information	Boc Nhieu Commune	11/10/2011
26	KI-26	-General information of TC commune -Characteristic of the tea area in Tan Cuong (area, component of varieties, number of tea farmer/total) -Planning for the future -Extension activities in Tan Cuong on Tea - Duties and responsibilities of agricultural staffs in commune - Activities related to tea development -Procedure of informing farmers on tea	Tan Cuong Commune	18/11/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date (DD/MM/YYYY)</b>
		activities (e.g policies, training courses) and feedback information		
27	KI-27	-General information of Khe mo commune -Information on tea production in the commune (area, component of varieties, number of households producing tea, villages have intensive tea areas) -Future plans -Extension activities related to tea in Khe Mo on Tea - Duties and responsibilities of agricultural staffs in commune -Procedure of informing farmers on tea activities (e.g policies, training courses) and feedback information	Khe Mo commune	17/10/2011
28	KI-28	Role of Village Head in extension activities related to tea		12/10/2011
29	KI-29	Role of Village Head in extension activities related to tea		22/10/2011
30	KI-30	General information on the cooperative (history of development, members, activities, constraints and opportunities) -Supporting from different organizations to the cooperative, evaluating on these supports -Activities supporting farmers -Cooperation with farmers and other organizations	Tan Huong Cooperative	10/11/2011
31	KI-31	General information on the cooperative (history of development, members, activities, constraints and opportunities) -Support from different organizations to the cooperative, evaluating on these supports -Members support activities -Cooperation with farmers and other		25/10/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date (DD/MM/YYYY)</b>
		organizations		
32	KI-32	General information of the cooperative (history of development, members, activities, constraints and opportunities) -Support from different organizations to the cooperative, evaluating on these supports -Members support activities -Cooperation with farmers and other organizations	Tan Thanh cooperative	13/11/2011
33	KI-33	General information of the cooperative (history of development, members, activities, constraints and opportunities) -Support from different organizations to the cooperative, evaluating on these supports -Members support activities -Cooperation with farmers and other organizations	Thai Nguyen Tea Festival	13/11/2011
34	TE-01	Interview guide for Tea Extensionist	DARD's office of Dinh Hoa district	12/10/2011
35	TE -02	Interview guide for Tea Extensionist	DARD's office of Dinh Hoa District	12/10/2011
36	TE -03	Interview guide for Tea Extensionist	DARD's office of Dinh Hoa district	12/10/2011
37	TE -04	Interview guide for Tea Extensionist	DARD's office of Dong Hy district	17/10/2011
38	TE -05	Interview guide for Tea Extensionist	DARD's office of Dong Hy district	17/10/2011
39	TE -06	Interview guide for the Tea Extensionist	Tan Cuong Commune	18/11/2011
40	TE -07	Interview guide for Tea Extensionist	Tan Cuong	18/11/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date (DD/MM/YYYY)</b>
			Commune	
41	TE -08	Interview guide for Tea Extensionist	Tea beautiful Contest in the Festival	09/11/2011
42	TE -09	Interview guide for Tea Extensionist	Tea beautiful Contest in the Festival in Thai Nguyen	09/11/2011
43	TE -10	Interview guide for Tea Extensionist	Tea beautiful Contest in the Festival in Thai Nguyen	09/11/2011
44	TE -11	Interview guide for Tea Extensionist		10/11/2011
45	TE -12	Interview guide for Tea Extensionist		10/11/2011
46	UF-01	Interview guide for Tea Farmers	Boc Nhieu commune	13/10/2011
47	UF-02	Interview guide for Tea Farmers	Boc Nhieu commune	13/10/2011
48	UF-03	Interview guide for Tea Farmers	Boc Nhieu commune	13/10/2011
49	UF-04	Interview guide for Tea Farmers	Boc Nhieu commune	13/10/2011
50	UF-05	Interview guide for Tea Farmers	Phu Dinh Commune	14/10/2011
51	UF-06	Interview guide for Tea Farmers	Trung Hoi commune	14/10/2011
52	UF-07	Interview guide for Tea Farmers	Trung Hoi commune	14/10/2011
53	UF-08	Interview guide for Tea Farmers	Trung Hoi commune	14/10/2011
54	UF-09	Interview guide for Tea Farmers	Son Phu Commune	15/10/2011
55	UF-10	Interview guide for Tea Farmers	Son Phu Commune	15/10/2011
56	UF-11	Interview guide for Tea Farmers	Khe Mo Commune	17/10/2011
57	UF-12	Interview guide for Tea Farmers	Khe Mo	17/10/2011

<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date (DD/MM/YYYY)</b>
			Commune	
58	UF-13	Interview guide for Tea Farmers	Khe Mo Commune	18/10/2011
59	UF-14	Interview guide for Tea Farmers	Tan Cuong Commune	20/11/2011
60	UF-15	Interview guide for Tea Farmers	Tan Cuong Commune	18/11/2011
61	UF-16	Interview guide for Tea Farmers	Tan Cuong Commune	18/11/2011
62	UF-17	Interview guide for Tea Farmers	Tan Cuong Commune	20/11/2011
63	UF-18	Interview guide for Tea Farmers	Tan Cuong Commune	19/11/2011
64	UF-19	Interview guide for Tea Farmers	Tan Cuong Commune	19/11/2011
65	UF-20	Interview guide for Tea Farmers	Tan Cuong Commune	19/11/2011
66	WF-01	Interview guide for Tea Farmers	Song Cau Town	19/10/2011
67	WF-02	Interview guide for Tea Farmers	Song Cau Town	19/10/2011
68	WF-03	Interview guide for Tea Farmers	Song Cau Town	20/10/2011
69	WF-04	Interview guide for Tea Farmers	Song Cau Town	20/10/2011
70	WF-05	Interview guide for Tea Farmers	Song Cau Town	20/10/2011
71	WF-06	Interview guide for Tea Farmers	Song Cau Town	21/10/2011
72	WF-07	Interview guide for Tea Farmers	Song Cau Town	21/10/2011



<b>No.</b>	<b>Code</b>	<b>Topic of the interview</b>	<b>Place of interview</b>	<b>Date</b> (DD/MM/YYYY)
73	WF-08	Interview guide for Tea Farmers	Song Cau Town	21/10/2011
74	WF-09	Interview guide for Tea Farmers	Hoa Trung Commune	22/10/2011
75	WF-10	Interview guide for Tea Farmers	Hoa Trung Commune	22/10/2011
76	CF-01	Interview guide for Tea Farmers	Ms Nhai's house	26/10/2011
77	CF-02	Interview guide for Tea Farmers	Ms. Le's House	27/10/2011
78	CF-03	Interview guide for Tea Farmers	Ms Thoa's house	26/10/2011
79	CF-04	Interview guide for Tea Farmers	Mr. Kien's house	27/10/2011
80	CF-05	Interview guide for Tea Farmers	Tan Huong cooperative	26/10/2011
81	CF-06	Interview guide for Tea Farmers	Mr. Vinh's House	25/10/2011
82	CF-07	Interview guide for Tea Farmers	Mr. Phuc's house	24/10/2011
83	CF-08	Interview guide for Tea Farmers	Mr. Mai's house	25/10/2011
84	CF-09	Interview guide for Tea Farmers	Tea festival Thai Nguyen	14/11/2011
85	CF-10	Interview guide for Tea Farmers	Mr. Quang's house	25/10/2011