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Rural Clusters: Promoting Structural Transformation in Armenia

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ABSTRACT

The purpose of this thesis was to investigate the possibility of application of the cluster based rural development approach in Armenia to promote its structural transformation. Case study was selected as a research methodology, and both qualitative and quantitative methods were employed. Analysis of the key findings from the ‘field’, i.e. - the potential cluster, shows that rural households practice a livelihood strategy, that was named here as “minimal production - ensured consumption” strategy. Rural smallholders diversify their livelihoods, but this diversification is of defensive character. Obstacles and local potential for cluster activation were also analyzed, as well as the projection of further developments was provided. From the ‘common’ list of constraints this study identified two specific ones that have to be targeted first in the given rural context. Based on the analysis on macro, meso and micro levels, general criteria for rural cluster formation in Armenia have been proposed. Those criteria are not fixed and should/can be amended depended of the specifics of rural areas within the country. As a result, this exploratory case study concludes with a proposition that clusters can be viewed as a way to overcome mini-economy effect in the context of Armenia, so that rural clusters unify separated economic potential in rural areas and promote regional development, which will transform the country’s economy in the long run (structural transformation).

Key words: cluster, rural development, structural transformation, rural farm economy (RFE), rural non-farm economy (RNFE).

Dedicated to Armenia

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ACRONYMS AND ABBREVIATIONS

DFID – Department for International Development (UK)

FG – Focus Group

HIs – Household Interviews

KIs – Key informants

MoA – Ministry of Agriculture

NKR – Nagorno-Karabakh Republic

PRSP – Poverty Reduction Strategy Paper

RFE – Rural Farm Economy

RNFE – Rural Non-Farm Economy

WB – World Bank

I. INTRODUCTION

1.1 Background

Armenia is a small landlocked mountainous country in the Caucasus region with the territory of 29,743 sq. km. (ARMSTAT 2008). While a part of the USSR, Armenia was highly industrialized country, specialized in hi-tech developments (Anderson 2003:3). In late 1980s, industry accounted for about 70% of GDP, and 40% of total employment. Armenia was considered to have obtained the social and economic characteristics of “welfare state”, with 2/3 of population being urban (Saryan 2006:193).



Source: www.cia.gov

After its independence in 1991, all economic ties with other Soviet republics, developed over the previous 50 years, collapsed. Meanwhile, the 1988 earthquake, unrest in Georgia¹ and Armenia's support to NKR (Nagorno-Karabakh Republic) in its 1991-1994 war with Azerbaijan and consequent blockade by Turkey brought on severe economic and energy crises. Armenia's industry collapsed, GDP decreased by 55% in 1993 compared to 1990 and unemployment became widespread. Consequently, population's quality of life declined sharply and around 50% of the population found itself in poverty (ibid).

Within these extremely unfavorable starting conditions, economic liberalization reforms have launched with land privatization in 1991, price liberalization in 1992, followed by a large-scale privatization program (1993-1996). Like in the other former USSR countries, hyperinflation was on the background of Armenia's transition. Macroeconomic stabilization in the country is

¹ That time the only way to outer world for landlocked Armenia

considered to be reached by 1996, when inflation was brought to one-digit level (Golikov 1999:107 in Heenan and Lamontagne 1999).

Land privatization in Armenia resulted in the formation of around 320,000 farms on the basis of previous collective and state farms² (Lerman and Mirzakhanyan:2001). The policy of land privatization played its important role in preventing wide spread hunger in 1991-1994 (Sunny 1997:347-387 in Hovhannisyanyan, 1997). In the situation of economic collapse, agriculture also became the “last employer” for all unemployed (ibid). Consequently, small farms dominate rural landscape up to date.

However, after initial shock Armenia’s economy was rapidly recovering in 2000-2008, registering two-digit annual economic growth (EDRC:2008). Despite the significant progress in economic development, rural areas and especially the remote ones, remain underdeveloped, with high level of poverty. Correspondingly, Armenia’s Poverty Reduction Strategy Paper (PRSP 2003:44) stresses the need for agriculture based rural development and more equal territorial development.

1.2 Research problem

According to the common view among development economists, structural transformation is a key process for a long-term progress in developing countries (Cypher and Dietz 1997). Meanwhile, the ‘cluster’ concept, generally understood as geographic concentration of interconnected businesses, suppliers, and associated institutions (Porter 1998:197), became dominant in the field of regional economics and economic geography since early 1990s.

Poor countries lack well developed clusters, and even if they compete in the global markets, they do so with cheap labor and/or natural resources. To move beyond this stage, development of well-functioning clusters is essential. A recent global cluster survey found that in developing and transition economies cluster-based development is significantly younger than in advanced economies (Ketels et al: 2006-5). Clusters have become an increasingly widespread tool for economic development in mid 1990s, being primarily associated with advanced economies.

² *Respectively called ‘kolkhoz’ and ‘sovkhoz’*

Later researches indicate that the cluster concept is relevant for developing countries as well (Nadvi and Schmitz:1999).

Armenia experienced significant transformation over the last two decades, moving from centralized planned towards market economy. Despite the overall socio-economic regress during the first years of transition, later years became the period of rapid growth. Poverty³ decreased from 56% in 1998 to 25% in 2007 (EDRC:2008). However, economic life in Armenia is mostly concentrated in the capital (Yerevan⁴) and its surroundings, while rural regions remain underdeveloped (especially the remote ones).

The **motivation** for this study is to investigate the relevance of cluster concept for rural development in Armenia; a country where cluster based economic development approach towards rural development has not been practiced yet. At the same time, as a developing country Armenia should undergo structural transformation, which is one of the major determinants of the long-term growth and development.

The **purpose** of the present study is to investigate the possibility of application of cluster based rural development approach in Armenia to promote its structural transformation.

The two specific **research questions** are:

1. *What has been the pattern of structural transformation in Armenia since 1990?*
2. *What are the constraints for rural cluster formation in Tavush region of Armenia?*

Correspondingly, the study of cluster formation was conducted through the prism of macro-level process of structural transformation of the country. The research was geographically concentrated in the Tavush northern region of Armenia, and included five villages as a group for potential cluster (meso-level). Rural households in the potential potential cluster were in the focus of the study as well. Employing the concepts of cluster and structural transformation implies that the study was conducted at macro (country - Armenia), meso (sub-region – the potential cluster) and micro (smallholder producers and enterprises as major units of rural

³ Poverty incidence defined by income levels.

⁴ The capital of Armenia – Yerevan, accounts for almost half of the country's population (3,3mln people live in Armenia)

clusters) levels. The three dimensions that characterize complexity of this study are space (cluster concept), time (structural transformation) and levels of change (macro-meso-micro).

1.3. Rationale for choosing Tavush region and the specific setting

Armenia is geographically small country, where the mountainous landscape dominates. Administratively Armenia is divided into 10 regions (*marzes*), not counting its capital Yerevan, where almost half of Armenia's population is concentrated (ARMSTAT 2008). Two of Armenia's regions (Ararat and Armavir marzes) lie within Ararat Valley, which has fertile land, is relatively more densely populated and is the major agricultural producer (ibid.). Having in mind the need for generalizability of the present study's results, these regions have not been considered as a research area. From the remaining eight regions, Tavush region was selected because firstly, it is not close to the capital⁵. On average, geographically it is within the same distance range as the most of country's rural areas. Secondly, Tavush was known as an important agricultural producer before the collapse of previous system, so it was preferred for the study. The specific villages have been selected because they are not far from the regional center (town Ijevan) and are grouped around the highway which comes from Ijevan. Hereinafter, this group of villages will be referred to as the 'potential cluster'. Also, my initial interest in the region was conditioned with the fact that Tavush receives some attention from development-related organizations in Armenia that try to promote rural development⁶. Starting from 2005, a regional development program has been implemented in Tavush region by the Department for International Development (DFID).

⁵ Shortcomings in road infrastructure and poorly developed internal railway communication (because of the mountainous landscape) make a distance of 50 km and over quite significant and transportation costly, especially for rural poor and smallholders.

⁶ Initially I was planning to have my internship with Armenia Fund, which operates throughout Armenia and NKR, and I even had preliminary agreement to volunteer for them. I also thought this organization might help me in the data collection process, with regard to organizational issues and access to locals. However, I did not get a chance to work with them, and due to academic time schedule pressure had to find another organization to do the internship. But given my interest in the research topic, I decided to continue on, and found another local "Integrum" NGO, which is mentioned as 'Gatekeeper' in this thesis.

1.4. Research Frontier

The concept of structural transformation of developing economies was developed in mid 20th century, within the school of development economics. The need for agricultural development and industrialization, with subsequent changes in GDP and employment structures of the developing countries was researched by A. Lewis (1954), Kuznets (1957), Chenery (1955), Syrquin (1998). Technological spillovers were first highlighted in Marshallian analysis of industrial districts in the early 20th century, and were brought back to central stage by Krugman (1991) and Porter (1990, 1991) in the early 1990s in the form of cluster concept. Right afterwards, the cluster concept⁷ gained extensive attention from academics, business consultants, different organizations and the governments. This concept was later on researched by Winters (2008), Ketels (2003), Sölvell (2008), Nooteboom and Wolthius (2005), Virkkala (2007), Gibbs and Berhat (1997), Michael (2007), Martin and Sunley (2003). At the same time, the vast amount of cluster researches has been conducted in relation to the industrial and high-tech sectors. Thus, Muller and Sumner (2005) indicate that cluster concept is not widely applied towards agriculture, making a parallel that compared to other sectors, application of the same concept in agriculture is quite in line with agriculture's share in GDP of developed countries, which is around 2%.

The link between the economy's structural transformation process and the cluster development in the academic literature is not widely discussed, supposedly due to a reason that the former concept is much older and relates to developing countries, and the latter one is relatively new and initially originated in developed countries. However, in the academic literature the link between these concepts is viewed through the prism of growth as meso-economic process. The growth itself is determined by the structure of production, its sectoral composition and inter/intra sectoral linkages, with microeconomic changes [at cluster and household levels] as building blocks (Ocampo 2004)⁸ (**N.B.**). This macro-meso-micro level synergy of structural transformation is viewed as an interplay between rural farm (RFE) and non-farm economies (RNFE) within a rural cluster (Winters et al:2003, Start:2001, Reinert:1998),

⁷ *The cluster concept is also known as industry cluster, business cluster or Porterian cluster.*

⁸ **N. B. It should be noted here that Ocampo views cluster at micro level, but we find it more appropriate to distinguish clearly between meso-level as clusters, and micro-level as households/smallholders/private enterprises.**

with cluster based economic development being recommended as a new model for microeconomic policies (Ketels 2003, Ketels et al 2006).

With regard to Armenia, limited researches related to RFE and RFNE have been done, and those were mainly commissioned by the World Bank (WB) and DFID [Bezemer and Davis (2002, 2003), Davis and Asatrian (2002), Kharatyan and Janowski (2003)]. Rural livelihoods in Armenia have been studied by Bezemer and Lerman (2003) and Kharatyan (2003). Recently the cluster-based economic development concept started to be applied by the Competitive Armenian Private Sector Program [funded by the United States Agency for International Development (USAID)], but it relates to the sectors of tourism and information technologies⁹.

Academic researches on clusters in Armenia, especially on agricultural clusters, are extremely limited. This situation comes from the reality that clusters are not developing in Armenia yet. At the same time, changes in Armenia's economy structure have been studied more in depth both by local researchers and by international organizations, mostly by the WB (Manasyan and Jrbashyan 2002; Saryan 2006; Hovakimyan 2007; WB 2006). However, the literature review shows that a comprehensive comparative analysis of Armenia's structural transformation over the last two decades, based on a "three-sector economy" model is absent and is needed to be done to get a comprehensive understanding of this process.

The **significance of this study** is that possibility of rural cluster formation in Armenia will be investigated. Another significant feature of the present study is that it tries to look at the macro process of structural transformation from the meso (cluster) and micro (households) level, which is being done in the Armenian context for the first time¹⁰ (**N.B.**).

1.5. Thesis structure

The thesis has five chapters. After this introductory chapter, theoretical framework is presented in Ch. 2, and methodology is outlined in Ch. 3. Analysis is represented in Ch. 4, where the research questions are answered in the sequence – first structural transformation is analyzed, and then – the potential cluster. Analysis ends with Conclusions presented in Ch. 5.

⁹ However, the mentioned cluster initiative seems to perceive Armenia in a whole as cluster itself, relatively to the global market, given the small territory of the country (29,800 sq. km.). The development of agricultural/rural clusters is not within the scope of that program's activities.

¹⁰ **N.B.** My own opinion is that study of structural transformation from household and regional perspective is not a common thing, as normally clusters and structural transformation are studied independently.

II. THEORETICAL FRAMEWORK

The pattern of structural transformation is that low productive and subsistence agriculture that employs the majority of labor force is replaced by high productive, commercial agriculture which accounts for only a small share in the economy's total employment structure. At the same time, structural change happens when the greatest part of GDP/income is produced in industry and services, and share of agriculture in GDP decreases [Kuznets 1957; Chenery and Syrquin 1975; Syrquin (1998)]. This is supported by changes in the existing institutions and by the creation of new ones, previously nonexistent but necessary for development. Along with the process of structural transformation, labor productivity in various sectors approaches to the same level due to spread of technologies and human capital accumulation. There is negative correlation between income per capita and share of GDP in agriculture, and positive correlation between income per capita and industry's share in GDP (ibid).

Development requires structural transformation of the national economy and its rapid diversification as much as possible - a long process, when manufacturing/processing industry starts absorbing more labor force released from agriculture due to its raising productivity (Cownie 1974). Agricultural productivity and production growth, as one of the most important prerequisites of structural transformation of the economy, changes not only proportions/shares of agriculture and industry in GDP and employment, but also completely changes economies of rural areas, creating opportunities for various non-agricultural activities. The RFE - RNFE linkages are explained by complementarity between agriculture and industry. Increasing productivity in agriculture brings to expansion of processing industries, thus driving diversification and rural industrialization. Agricultural surplus produced in RFE creates demand for other locally produced (simple) industrial goods and services. Continuous agricultural growth also creates backward and forward linkages and drives development of services and manufacturing sectors in rural areas, which are directly or indirectly connected to agriculture/farming (Ashley and Maxwell 2001).

Classical development economics studies, which have structural transformation in their focus, are very important for understanding RFE and RNFE development (Winters et al 2008; Start 2001). These studies also suggest that diversification of the economy is a critical determinant of development (Syrquin and Chenery 1989). The major synergy between macro,

meso and micro levels during the process of structural transformation is the following: agricultural (RFE) sector decreases and industrial (non-agricultural sector, including RNFE) increases at macro (meso) levels, resulting in transformation of rural and non-rural households' income and consumption structures. Winters et al (2008) show that along with rural economy growth, households' involvement in RFE declines and is being gradually replaced by participation in non-agricultural activities. This long-term trend is reflected in Engel's law, according to which poorer households devote a higher share of their income on food than wealthier households (ibid). Along with the macro-level structural transformation, shift of micro-economy level towards non-agricultural activities will be the essence of transitioning rural economy (Winters et al 2008). Being a broader concept than agricultural development, rural development recognizes the importance of nonfarm activities, which are more important for low-income families than for high-income families (Tomich et al 1995:201-212). Any attempt at poverty alleviation and livelihood improvement should account for both rural non-farm and farm activities. A crucial aspect of rural development is the growth of RFE-RNFE production linkages that develop agricultural cluster (Reinert 1998).

As was mentioned above, structural transformation at meso and micro levels will be reflected with a shift from RFE to RNFE. The structural transformation process implies increasing productivity in agricultural sector and higher incomes for rural households, which will affect their consumption pattern. At the same time, changes in RFE (i.e. - increasing agricultural productivity during the process of structural transformation) and emerging/growing RNFE will have implications for rural livelihoods as well. There are several and not much different definitions of livelihoods, but the most common one given by Ellis (2000:10) will be applied, according to which livelihood comprises the assets and the activities that together determine the living gained by the household.

Ketels (2003:12) cites the findings of Global Competitiveness Report¹¹, according to which there is positive and statistically significant relationship between cluster development level in national economy and GDP per capita. This correlation does not prove causality, but it strongly suggests that development of stronger clusters is one aspect of overall economic development (ibid.). The latter, however, is strongly connected to the process of structural transformation.

¹¹ That survey was conducted in 2003 covered 101 countries, survey data coming from about 8000 business leaders.

Cluster based economic development approach is still in process of formation, and it should be viewed as a new model for microeconomic policies¹² **(N.B.)** leading to the improvements in microeconomic foundations of prosperity [at household level]¹³ in a given location (Ketels 2003).

Porter (1998:197) defines clusters as “geographical concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions that compete but also co-operate”. Clusters are based on capabilities that are linked to a particular location (Porter, 1998). They are not seen as fixed flows of goods and services, but rather as dynamic arrangements based on knowledge creation/exchange and increasing returns (Krugman, 1991; Sölvell, 2008). Nooteboom and Woolthuis (2005) mention that a “correct” definition of cluster depends on the scientific background of the researcher and on the purpose of the study. While economists and management scholars emphasize the economic and technological features of clusters, spatial economists and geographers emphasize spatial effects of localization. Cluster can be a Marshallian ‘industrial district’, regional concentration of related activities, structures of supply, or networks of firms (producers) with more/less durable linkages, input-output connections between industries, or network of firms connected with a certain domain of technology (ibid.). This is relevant not only for industrial, but for agricultural/rural clusters as well (Reinert, 1998:1-3)¹⁴.

In a cluster, different types of activities are often combined, with shared purpose and linkages with markets of inputs and outputs. The benefits of clusters often arise when organizational and geographical proximity occurs along with institutions, and clusters are often based on value chains or supply links of economic activity (Virkkala:2007). An important subset of clusters is identified primarily as a cluster of similar establishments that draw upon common suppliers (Gibbs and Bernat, 1997).

According to Nooteboom and Woolthuis (2005), an important issue is the delineation of clusters, where importance is given to the following:

¹² **N.B.** Ketels refers here to the clusters, but the term “microeconomic policy” is used. As was mentioned before, the present study perceives cluster to be at meso level.

¹³ Explanation in brackets is given by the author of the master thesis

¹⁴ Literature review shows that most of the cluster studies have been conducted with regard to industrial clusters. It is more easy to understand this situation if we take into account that cluster concept originated in developed countries, where industrial and high- tech sector constitute a skeleton for the national economies.

- Economic-geographical boundaries;
- Actors within the boundaries should have a significant tie with the “core” of the cluster;
- “Portfolio” of related technologies or technical trajectories.

Michael (2007:22) mentions that cluster advantage is that co-location of alike firms will produce a range of synergies, which can enhance the local market growth, as well as increase employment and production. Author mentions that Porter (1991; 2003) and others have demonstrated this approach in macro-regional analyses, but little was done to apply it to localized or micro environment (ibid)¹⁵ **(N.B.)**.

The cluster formation can be explained by some natural factor advantage, such as climate, soil, ore deposit, forest resource, transportation route or port (Sölvell 2008:54). Another way, in which a cluster can be formed, is referred to the prominent role of entrepreneurship. Even a single entrepreneur can increase local demand by starting new business, which will bring to formation of the new, spin-offs firms. Ultimately that can result in the emergence of cluster. In his explanation of this second, “entrepreneurial way” of cluster formation, Sölvell refers to Krugman’s (1991) well-known example of carpet manufacturing cluster in the state of Georgia, (United States). The importance of formation of social capital and informal networks in a cluster model is attributed not to the formation, but to the growth stage of cluster (ibid:56). However, Sölvell (2008:57) points out that it is difficult to detect any particular driver for cluster formation, but many clusters originate from factor advantages such as natural resources or particular skills.

According to Ketels (2003:5), theoretical literature points to clusters as a factor for all stages of economic development, but in less developed environments clusters will tend to be not that much advanced as well. The cluster dynamics depends on and can be reinforced by purposeful action (ibid). Ketels (2003:18-23) argues that a more productive way “to think about efforts to develop clusters”, i.e. cluster formation, is the “cluster activation” approach. Cluster activation is focused on overcoming the most serious obstacles for higher productivity (and innovation) in the clustered area. Thus, the cluster formation process is considered to be an evolutionary one, where

¹⁵*N.B. Unlike other researchers mentioned before, Michael seems to clearly distinguish between meso and micro levels. My own opinion is that a more ‘economic’ view on clusters leaves the meso level rather unrevealed, because for economists there are mainly macro- and micro- levels that are analytical, which is respectively reflected in the names of sub-disciplines , i.e. ‘Macroeconomics’ and ‘Microeconomics’. Economic geographers, on their hand, seem to perceive clusters as a spatial concept, which would better fit into meso-level.*

joint action can impact/change the business environment (ibid). In developing and in most transition countries clusters are often focused on “basic” industries, while in advanced economies there is a tendency to favor high-tech industries (Ketels et al 2006).

The critique of the cluster concept is that either cluster-model approaches are too general to deal with diversity of spatial concentrations in real life, or they are not able to transcend the particularities of a specific case (Martin and Sunley 2003). Clusters represent a geographic concentration, where spatial processes play an important role. But recently there is an increasing awareness that drawing geographical boundaries could be an impossible task, because of the many processes (i.e. inter-firm linkages, knowledge spillovers, social networks) that take place at different spatial scales at the same time, and because the spatial range of these processes is unlikely to be stable over time (ibid). The critique outlines that cluster model has been developed mainly as a theoretical model, without being supported by much empirical work. Martin and Sunley (2003) mention that hardly any comparative studies and concrete empirical testing of the main propositions of the cluster model have been undertaken, and that there is no consensus on the key variables and the method of identifying and mapping clusters. Ketels et al (2006:7) state that there is no single model that can fit all clusters, and it is essential that each cluster initiative finds the approach that will be the most effective under the given circumstances.

Based on the theoretical discussions, own position with regard to rural clusters is as follows. Structural transformation at micro and meso levels will be reflected in a shift from RFE towards RNFE, which also will impact households’ livelihoods and consumption pattern (Winters et al 2008). Based on the theoretical framework, rural cluster in the present study is understood as geographical proximate area, in which actors should have significant ties with the core activities of the cluster, based on portfolio of related technologies, when growing RFE-RNFE linkages promote cluster development (Reinert 1998). Additionally, this study applies the cluster activation approach that focuses on the elimination of the obstacles that prevent from attaining higher productivity. Entrepreneurs’ role in the process of cluster activation is given importance as well. The latter is considered to be a drive for cluster formation (Kettels 2003).

III.METHODOLOGY

3.1. Research Design

Having the meta-theoretical position of interpretivism, an exploratory single case-study was considered as the most appropriate research design. Yin (2003:13) defines case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident.” Exploratory case studies investigate the development and characteristics of phenomena, and often have a goal to develop hypotheses of cause – effect relationships (Yin, 2003:14-15). This analytic approach combines detailed description and presentation of the contextual conditions of the case (Yin 2003, in Creswell et al. 2007: 245). Correspondingly, the present study tries to find out whether cluster development can promote (cause) structural transformation in Armenia, focusing on the possibility to develop a potential cluster (phenomenon) within the given setting (real-life context of the potential cluster) with unclear boundaries between those two (applicability of cluster concept to the potential cluster). Barkley (2006:5) mentions that case studies are applied to explore “innovative” policies. Exploratory case study presents the potential benefits of change (rural development and structural transformation in the long-run) and generalizations are made to the theory, and not to the population. (ibid:6-8). Flyvbjerg (2006:42) states that good social science research is problem driven and not methodology driven, when both qualitative and quantitative methods are selected based on the specific research issue (ibid.). To conclude the methodological discussion of the selected research strategy, the complexity of this research should be noted as well. Barkley (2006:12) points out that the complexities, contradictions, and causal relationships of the situation may be better revealed in case studies than through the other research methodologies. From this point of view, case studies may also complement the pure statistical analysis (ibid).

3.2. Methods and data collection

Based on the chosen research strategy, method-mix consisting of quantitative and qualitative methods has been applied to this study. Quantitative methods were applied to conduct macro level analysis of structural transformation. The source of this secondary data is the WB’s World

Development Indicators (WDI) Online database. The reason for choosing WDI instead of national statistics is that indicators in WDI are aggregated in a way that allows to conduct analysis of structural transformation based on the “three-sector” economy model, according to the structuralism methodology (Behrman:1982)¹⁶. Another pro for WDI is that data in it allows inter-country comparisons¹⁷. The criticism here can point to the fact that WDI data is based on national statistics, which can be not the most correct one in a transition or developing country. However, data was used for a long period of time to observe the dynamics of transformation, and not to use absolute figures for a given year, which otherwise could have made difference.

Qualitative methods somehow follow the macro-meso-micro chain logics, respectively represented by Key Informants (KIs) at MoA, Focus Group (FG) with prospective entrepreneurs from the region, and Household Interviews (HIs) in the potential cluster. The latter were key informants at micro level. As part of qualitative methods, key informants were considered because they provide specific knowledge on complex, contemporary phenomena (Boolsen 2005:172, Mayoux 2006:17).

Key informants (KIs) Interviews with 8 department heads from Armenia’s MoA have been conducted to get understanding of the existing problems, past and current developments and future prospects for the potential cluster and Armenia in general, as well as to learn more about existing programs of MoA. During the period of interviews I had a privilege to access KIs as was simultaneously working with MoA within a DFID-funded project¹⁸. Consequently, those were not one-time meetings as the author had an opportunity for continuous follow-up, by phone or meeting in person again. When additional information was needed, I had the opportunity to talk to department’s specialists as well. KIs interview guide can be found in Appendix 1.

Gatekeeper and the Focus Group (FG) To have better access to local communities in the potential cluster I found local “Integrum” NGO that was helping me in the field. This NGO

¹⁶ Within the “three-sector” economy model the latter is viewed as consisting of three sectors – industry (includes construction), agriculture (includes fishing, forest sectors) and services (includes wholesale and retail trade). Armenian national statistical data classification is somehow different., especially with regard to sub-sectors mentioned in the brackets The WB has its own methodology of aggregating statistics from various countries. Fore more, please refer to World Development Indicators Online database.

¹⁷ A range of indicators are presented in USD, current and constant for a given year, expressed in PPP (purchasing power parity), so inter-country comparisons are possible.

¹⁸ In September-December 2008 I worked as Project Methodology Advisor within DFID-funded “Support to the Roll-Out of Programme Budgeting in Armenia” project. Major responsibility was to work with Armenia’s Ministry of Agriculture to develop qualitative, non-financial indicators for programs included in the new budget format for 2009.

was especially helpful in establishing contacts with existing/prospective entrepreneurs from the potential cluster. The purpose of FG was to reveal local rural farm and non-farm business development opportunities and constraints, which otherwise would remain unknown to the researcher. The possible risk here could have been that people with little local knowledge are proposed for participation by the gatekeeper. A ‘pilot focus group’¹⁹ in a more informal way was held first, followed by the main FG session. Following Lloyd-Evan’s (206:153) suggestion of having 6-8 participants, I had 7 participants as potential entrepreneurs and me as facilitator. FG discussion guide is in Appendix 2.

Household Interviews (HIs) Guides for interviewing selected representative households have been developed and pre-tested (3 HIs), and the initial interview guide was revised. Questions were open-ended so that the respondent needed to explain his/her answers (Boolsen 2005:173). Given the resource and time limitations, as well as considering the geographical coverage, I applied the **oriented selection sampling strategy** (Flyvberg 2006:51), to maximize the utility of information from small sample and a single case-study (ibid.). My interest was in finding out the ‘average profile’ of rural households in the potential cluster, and the gatekeeper assisted in identifying representative households²⁰ (**N.B.**), based on the following **criteria** developed by me:

- In the given village, households size and assets (land, livestock, labour) are on the ‘average’ level, as perceived by the locals;
- Based on my previous research experience in rural Armenia²¹, I decided to purposefully select people from 30-60 age group, as normally the responsibility to earn income lies on them;

¹⁹ Around half - hour session.

²⁰ **N.B.** It was the researcher who was making the final choice on certain household and the interviewee from the representative households, to eliminate the risk with gatekeepers identified above.

²¹ In September –December 2005, I was employed by the EU-TACIS funded REDAM (Regional Development in Armenia) project and was conducting labour force and institutional development related assessments in Ararat and Vayots Dzor regions of Armenia. What relates to my experience from these researches is that normally people under 25 are not that much interested in agriculture, also earning livelihoods is not their major responsibility (for males, if not married and living separate from parents, which happens quite rarely in rural settings). Most of them will be helping on farms, and some also study, but if they would have chance they would rather leave their villages. Communication with people around 60 and over showed that whatever you ask the parallels with and concentration on prosperous Soviet future is rather inevitable.

- Gender balance in selecting interviewees from the representative households. Among others, one of the rationales for keeping gender balance was to make it possible for the researcher to grasp the diversity of local specifics, i.e. to have opinions both from male and female headed households (secondary literature review showed that almost 1/3 of households in Tavush region are female headed).

The gatekeeper prepared the list of 25 potential interviewees and after visiting them, the author tried to visually check the compliance with proposed criteria, and also had a chance for informal communication. Later on, 18 interviews in 5 villages have been conducted in November-December 2008. The author is a native speaker, so no translation was needed. Interview guide is presented in Appendix 3. The fact of myself 'being an outsider' for the community members was also considered, but I tried to establish better informal communication with locals, to become able to make **non-participatory observations** as well (Flyck 2006:216).

3.3. Validity, reliability and generalizability

Validity, reliability and generalizability are of utmost importance for a single case study dealing with a complex phenomenon. Barkley (2006:5) mentions that this situation increases both the cost of the study and the skill set of the research team. Greater number of cases and collecting information from different sources becomes critical for the single case-studies (ibid.) In the present study, the macro-level analysis of structural transformation was based exclusively on the secondary source. (Barkley, 2006:10) mentions that inappropriate consideration of the role of external factors - political and economic environment, can affect credibility of the case study. To avoid inaccuracies and for the sake of validity, reliability and generalizability, I used triangulation method to view the things from different points of view (Mikkelsen 2005:96-97). Information from different secondary sources has been employed to overcome these limitations and to cross-check all data. The macro-level analysis studied Armenia's economy structural transformation for 1990-2007, so this macro-level aggregated data and long-term dynamics observation eliminate the risk of external environment not being considered.²² Also having 'macro' aspect in the mentioned 'macro-meso-micro' logical chain implied that this study has KIs both from the

²² *Over the long term, political developments and decisions have their impact on economy, and the macro-level aggregated economic data thus reflect both political and economic environment.*

‘case’, i.e. – the potential cluster, and from Armenia’s MoA. Information from the latter level can be viewed as ‘complementary’²³ **(N.B.)** to another part of primary data coming from the ‘meso-micro’ level (FG and HIs). Along with literature review²⁴, analysis of secondary data, the multi-level sources of primary data were thought of as contributing to the generalizability. Also, during all the interviews I did my best not to ask leading questions, as they can significantly affect the reliability of data.

3.4 Ethical considerations

All interviews have been conducted on the basis of prior informed consent. HIs have been conducted on the basis of anonymity, so that interviewees can feel ‘safe’²⁵ and talk freely. I clearly explained to FG participants that I need information for academic research, and I am not trying to promote someone’s business, or submit information to any potential investor, so that they also can freely express their ideas in terms of potential business risks especially. I however promised to share my final draft with the “Integrum” NGO²⁶, so if they will need to support their future business plans with some research, they can freely access it. Maybe for the considerations alike²⁷ I was asked for anonymity, which was promised to them as well.

²³ ***N. B. In its nature data coming from key informants at MoA is primary data for the current study.***

²⁴ *Presented in the part “Research frontier” above.*

²⁵ *Again I have to refer to my previous experience as especially in the rural Armenian context, it is important to make sure that the information they give out is somehow ensured against ‘potential’ misuse.*

²⁶ *And will do so once final draft is ready.*

²⁷ *Here are meant the competitive interests from a bigger region, and possibly some other considerations as well. However, I was not asking them about the reasons, as I should have ensured anonymity, if asked.*

IV. ANALYSIS

The analysis section has been constructed according to the macro-meso-micro chain logics, so that it studies the macro level first (pattern of structural transformation, 4.1), and then goes to meso and micro levels. Correspondingly, the cluster analysis section (4.2) starts with a brief presentation of the potential cluster (4.2.1) The study of local constraints for the potential cluster activation and their impact on the livelihoods, RFE and RNFE are analyzed (4.2.2 and 4.2.3 respectively). Cluster analysis continues with presentation of business development opportunities (4.2.4). Finally, the projections for the future are made. All the previous sections are built in here to analyze the macro-meso-micro synergy of transformation on the example of the case.

4.1. Armenia's structural transformation in 1990-2007

The dynamics of Armenia's GDP in 1990-2007 is represented in Table 1. During the years of war, energy and economic crisis GDP decreased by around 53% in 1990-1993. Later on, a more positive dynamics in reforms implementation brought to two-digit annual growth rate, and as of 2005 Armenia's GDP has recovered compared to its pre-transition value (base year- 1990). This, however, should not lead to a misunderstanding in a way that previous level of quality of life and welfare has been regained, as Soviet statistics accounted GDP by another methodology, and

Table 1. Armenia's GDP in 1990-2007

	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
GDP (real, constant 2000 USD, bln)	2.82	2.49	1.45	1.32	1.39	1.49	1.58	1.63	1.75	1.81	1.91	2.10	2.37	2.70	2.99	3.40	3.85	-
GDP annual growth (%)	-	-11.7	-41.8	-8.8	5.4	6.9	5.9	3.3	7.3	3.3	6.0	9.6	13.2	13.9	10.5	13.9	13.3	13.7*
GDP per capita (PPP ²⁸ , constant 2005 USD)	2936	2616	1549	1446	1561	1703	1830	1912	2068	2149	2289	2523	2869	3285	3643	4162	4728	

Composed by author based on data extracted from WDI Online Database; <http://www.crrc.am/index.php/en/41/27>

²⁸ PPP – Purchasing Power Parity

many services, especially those which were free (education, healthcare, resort tours at symbolic prices, etc.) were not counted in GDP. Table 2 represents Armenia's GDP growth by sectors of economy in 1990-2007. If we approach to Armenia's transformation analysis based on a three sector economy model, it becomes clear that the sectoral interplay during the years of economic crisis was caused by the collapse of industry which was an objective process for an over industrialized transition economy in blockade and war. During that period, a significant decrease in service sector share has been registered as well. At the same time, decrease in agricultural production (and agriculture's share in GDP) was relatively small due to land privatization implemented in 1991 and labor force migration from industry to agriculture.

Table 2. Armenia's GDP growth by sectors in 1990-2007, (%)

	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
GDP annual growth (%)	-	-11.7	-41.8	-8.8	5.4	6.9	5.9	3.3	7.3	3.3	6.0	9.6	13.2	13.9	10.5	14.0	13.3	13.7
Industry	-	-16.0	-73.0	0.7	8.7	0.8	6.0	1.9	0.9	6.0	8.1	6.8	20.5	23.7	7.2	18.8	18.5	12.0
Agriculture	-	-2.0	-8.7	-5.8	3.1	4.0	2.0	-4.5	12.9	1.4	-2.4	11.7	3.8	4.1	14.2	11.2	0.4	9.6
Services	-	-	-22.8	-45.2	-47.8	19.1	20.0	5.8	5.0	5.2	5.4	4.2	12.1	10.7	10.8	13.5	14.6	12.4
Industry*	-4.0	-	-	8.9	9.6	2.6	1.1	1.3	-2.2	5.4	6.6	3.9	13.9	15.6	2.2	7.4	-0.3	3.2
Construction*	-24.7	-	-	-20.3	5.7	-5.8	25.2	3.9	10.6	7.7	28.9	4.8	41.5	45.5	15.3	35.5	38.9	18.4

Composed by author based on data extracted from

WDI Online Database; <http://www.crrc.am/index.php/en/41/27> * - separate statistics on industry and construction according to National Statistical Service data, extracted from EDRC Website data base, http://www.edrc.am/project.html?cat_id=67

The years 1994-2000 can be considered as slow recovery period when economic growth was based mainly on service sector and on industrial growth during some years (but mainly construction. 2000-2005 can be thought of as rapid recovery period, when all three sectors of economy grew. The dynamics represented in the tables above shows that:

- In 1990-2007 the decrease (fluctuations) in agriculture sector was not that sharp as it was in industry and services;
- If we do not consider economy from a "three sector" economy model standpoint, i.e. – construction sector considered separately, but not included in industry, then it becomes obvious that in 1996-2007 (after the cease-fire and establishment of macroeconomic stability in late 1995), the growth in construction sector was always exceeding the growth in industry sector (mining, manufacturing and energy subsectors). Thus, construction had the major role in economic growth for about a decade.

Table 3 represents data on Armenia's economy structure in 1990-2007. This statistics says that as of 1990-1991 (the last years of the USSR existence, i.e. – pre-transition period), Armenia had an economic structure of an industrial country (in 1990 industry made 52% of GDP, including 17.6% construction sector and agriculture had relatively small, a 17.4% share in GDP). A high share of industry was a common feature for the most of the former socialist economies, which were named 'over-industrialized' to point the fact that industry (and especially military and heavy industries) were much more developed than the service sector. As in other transition (former socialist) economies, during the first years of transition the process of deindustrialization was remarkable. Thus, industry sector in Armenia halved in three years, making its share in GDP 26.9% as of 1993. Industry recovered later on, and its share in GDP increased, but that happened mainly due to the growth in construction.

Table 3. Armenia's GDP structure by sectors in 1990-2007, (%)

	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06	07
Industry	52.0	49.2	39.4	26.9	37.0	32.0	32.6	33.2	30.8	32.2	35.4	33.2	35.1	38.5	38.0	42.5	43.6	45.6
Agriculture	17.4	25.0	31.0	51.4	44.9	42.3	36.8	32.0	34.0	29.5	25.5	28.3	26.0	23.7	24.7	20.8	19.6	19.4
Services	30.7	25.8	29.6	21.7	18.2	25.8	30.6	34.8	35.2	38.3	39.0	38.6	39.0	37.8	37.4	36.7	36.8	36.0
Construction*	17.6	x	x	3.9	6.7	6.5	7.4	8.1	8.0	8.3	10.3	9.6	12.6	15.7	15.6	27.9	24.5	28.4

Composed by author based on data extracted from

WDI Online Database; <http://www.crrc.am/index.php/en/41/27> * - separate statistics on construction according to National Statistical Service data, extracted from EDRC Website data base, http://www.edrc.am/project.html?cat_id=67

Meantime, after land privatization in 1991, agriculture became the ‘last employer’, as many unemployed from collapsed industry tried to found employment in agriculture. At the same time, with the crash of previous system, agriculture lost most of its infrastructures, and became non-commercial in its nature, providing only basic living means for the households engaged in it (Suny 1997:347-387 in Hovhannisyanyan 1997). In 1993-1994 almost half of GDP was being produced in agriculture, but in a decade after, its share in GDP decreased to around 20%. The service sector also decreased initially, with the start of transition, and then resumed its shares, but with no significant changes.

Analysis shows that during the years of transition, when deindustrialization was in progress, Armenia’s GDP structure moved from industry to agriculture, but not to services. The latter (increase in service sector during the process of deindustrialization) is characteristic to a “successful or efficient scenario” of transition (Tenev 1998:32-48). But, if we take into consideration the starting conditions of transition (war, blockade, energy and food crisis), and the results achieved in a medium term, it would be more correct to describe Armenia’s transformation as ‘partially inefficient’, based on the major criteria of the employment structure transformation (ibid.). The partial efficiency here can be explained with gaining a more balanced GDP structure over time after initial shock, i.e. more balanced shares of agriculture and industry in GDP. Service sector share recorded no significant change, and that can be counted for inefficiency. Another reason for Armenia’s structural transition inefficiency can be revealed by analyzing the employment structure, presented in Table 4.

Table 4. Employment in Armenia by sectors of economy in 1990-2006, (%)

	90	91	92	93	94	95	96	97	98	99	00	01	02	03	04	05	06
Agriculture	17.7	23.3	30.9	33.8	33.9	37.4	40.8	41.3	42.5	43.3	44.4	45.1	45.0	45.9	46.9	46.2	46.2
Services	38.3	36.2	33.1	33.1	33.9	36.0	35.8	36.7	36.6	36.7	37.2	37.5	38.0	38.3	38.6	38.3	38.2
<i>Industry</i>	30.4	27.4	25.7	23.5	23.9	20.5	17.8	16.7	15.7	15.0	14.1	11.6	12.0	12.5	12.2	12.3	12.9
<i>Construction</i>	-	-	-	-	6.5	5.1	4.7	4.3	4.2	4.1	3.6	3.3	3.3	3.4	3.1	3.2	2.7

Composed by author based on data extracted from
WDI Online Database - <http://www.crrc.am/index.php/en/41/27>;
EDRC Website data base) http://www.edrc.am/project.html?cat_id, RA NSS
<http://www.armstat.am/file/doc/99450483.pdf>

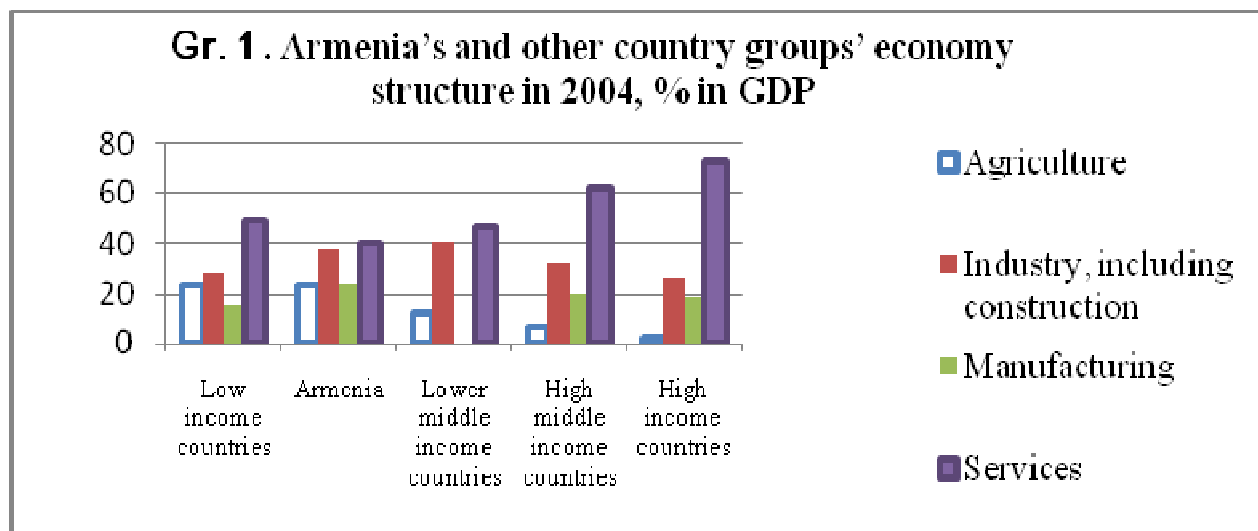
As seen, concentration of labor force during the deindustrialization took place not in service sector ('efficient scenario'), but in agriculture. The long-term trends in employment structure are not positive – employment in services does not change (increase) significantly, and it was decreasing in industry sector. On the other side, employment in agriculture was continuously rising, except for a 0.7% decrease in 2005. **Thus, a structural characteristic of employment, which is one of the major indicators of country's economic development in a long term, is not positive for Armenia. Currently, employment in industry is not large, but in agriculture it makes 45-47%, which means that half of country's labor force produces only about 20% of GDP.**

If we compare the dynamics of structural indicators for GDP and employment, it will become clear that agriculture's share in GDP tends to decrease, and employment remained almost unchanged. At the same time, the service sector share did change significantly neither in GDP, nor in employment structure. Based on the analysis above, some conclusions can be made:

- The structural transformation in Armenia took place mainly between industry and agriculture, and service sector did not change significantly, which does not comply to successful scenario of transformation in transition (former socialist) countries,
- On the other side, each country's initial conditions of transition, as well as the fact of existence of big shadow sector of economy in transition countries should be taken into account, especially when it comes to service sector (in a three-sector economy model it includes retail and wholesale trade and transport among other subsectors, which mostly remained undeclared). As per different estimates, shadow economy in Armenia varies makes 30-50% of GDP (USAID 2004:17). Thus, real structural dynamics in Armenia is supposedly more favorable than the one we get from official statistics. Also, industrial recovery brought to implementation of import substitution (mainly in food processing, dairy, etc.). Based on that, structural transformation of Armenia's economy can better be described as 'partially inefficient';
- There is an enormous gap in productivity between agriculture and industry sectors, which becomes obvious while comparing GDP and employment structures. As already shown in analysis, Armenia's growth in a recent decade was mainly driven by industry, especially

construction, and also services sector. Productivity is much higher in these sectors, and it explains why the recent growth (Table 2) was not based on employment increase in the given sectors, but took place due to increasing productivity. Meantime, agriculture remained low-productive, and that's why rural population was not influenced by that two digit economic growth, and that is why there is difference in development of capital and the rural areas.

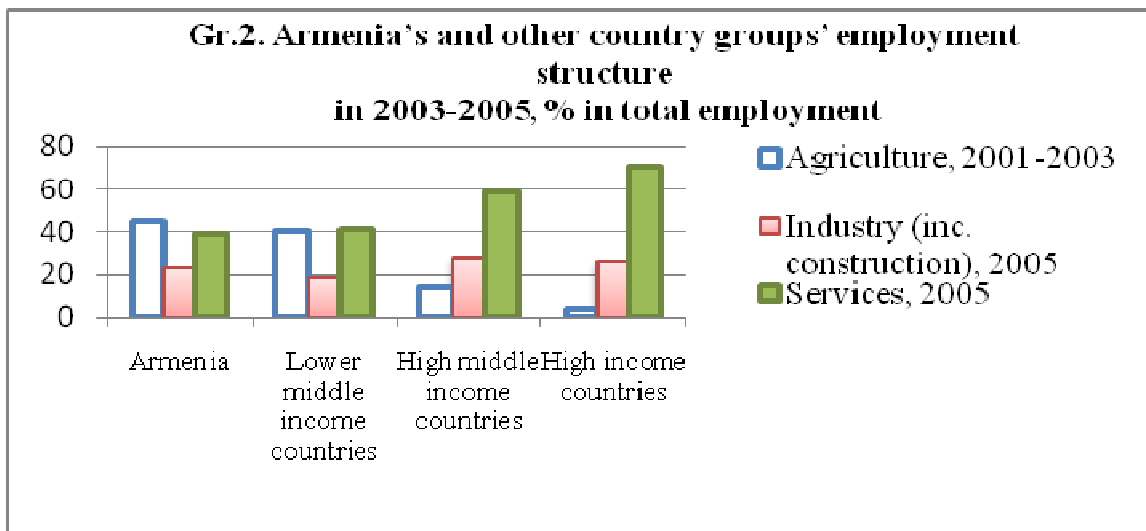
The analysis of structural transformation can be extended further on by comparing Armenia's economy structure with the structure of other economies (industrial and developing nations). According to WB classification (WDI 2007), Armenia belongs to lower middle income countries' group and comparison of its economic structure with other country groups in presented in Gr. 1.



Source: Composed by author based on data extracted from WDI Online Database - <http://www.crrc.am/index.php/en/41/27>

Although Armenia belongs to the lower middle income countries' group, its economic structure is more alike the one that low income countries have. Even more, the misbalance in Armenia's economy is that even in low income countries service sector has a bigger share in GDP. The major difference here is Armenia's greater industry share in GDP, which almost the same difference as shares in services. In case of Armenia, this is explained with rapid growth of construction.

If we compare Armenia's economic structure with high middle income countries group as a possible target for the coming decade(s), then it becomes clear that during the process of structural transformation agriculture's share in GDP, and also its share in total employment (see Gr.2) should considerably decrease in favor of service sector, and labor force should migrate from agriculture to mainly the service sector, but also to industry. From this point of view, it is a major problem for Armenia to overcome productivity gap between agriculture and industry. As mentioned, employment structure should also change (data represented in Gr.2).



Composed by author based on data extracted from WDI Online Database - <http://www.crrc.am/index.php/en/41/27>

From the analysis presented in this section we can conclude that industrial growth in Armenia, mainly conditioned by rapid expansion of construction, did not result in much changes in terms of structural transformation and there is still a significant gap between the productivity in agricultural and non-agricultural sectors. Actually, growth is there, but rural areas are not developing, and overall progress of the country is being impeded. If the current situation continues, and economic structure remains unchanged, Armenia can find itself in a specific situation of 'dual economy' in terms of employment structure, with significant and low productive agricultural sector on one hand, and productive industrial and services sectors on the other hand.

4.2. Analysis of findings from the potential cluster

4.2.1. The “Potential Cluster”

As long as the cluster concept implies some geographical proximity (presented in theoretical discussion section), the villages in Tavush region, where data collection took place, have been selected so that their geographical proximity is ensured. Basic information about the Tavush region, based on secondary sources, is presented in Appendix 4. The data collection was directed to, and the present analysis itself is dedicated to the exploration of the potential and constraints for local development in the selected area. The potential cluster is comprised of five villages. Those villages are Aknaghbyur, Ditavan, Khashtarak, Lusadzor and Lusahovit. General information about the villages is presented in Table 5 below.

Table 5. Armenia. Tavush region. Basic Information on the potential cluster

	Aknaghbyur	Ditavan	Khashtarak	Lusadzor	Lusahovit
Distance from Marz Center (Ijevan)	13 km	19 km	11 km	10 km	14 km
Population	460	400	1800	680	400
Households	190	145	550	160	150

Source: Local authorities, given by NGO rep. to the researcher, approximate numbers

4.2.2. Constraints in the potential cluster: presentation of findings

Infrastructure (roads, water and natural gas supply, irrigation)

The physical infrastructure in all of five communities needs significant improvements, as it is mostly obsolete. Only electricity supply in potential cluster is regular and seems to satisfy everyone (there were actually no complaints from households or from potential entrepreneurs). KIs at MoA (#1, 2 Appendix 1) and results of FG indicate that poor infrastructure continues to be a major problem in rural development in general, and in the potential cluster specifically, affecting both rural farm and rural non-farm subsectors development. In general, infrastructure is basically the one that

remained from soviet times, and due to the hardships of transition period, little investments have been made; mainly to keep infrastructures operational KIs (#1, 2).

Irrigation is somehow problematic for all communities. There is an old pumped pipeline feeding communities' irrigation network, passing through neighboring villages. It is obsolete and water losses are substantial, which is one of the reasons why not all households can have access to irrigation in the quantities they need. Also, in all communities, internal network is deteriorated, making irrigation non-sustainable. **Roads** in most of communities are also in not good condition, especially the villages' internal road network. I have seen parts of internal roads, which tell that once they have been paved; holes and deformations are also common. **Water and natural gas** supply in the potential cluster exist, but water supply network is deteriorated and there are areas in the communities with no natural gas supply. Communities have different degree of access to natural gas as the supply network does not cover whole areas. Knowing the Armenian context and common practice that if there is lack of irrigation households will start using drinking water for irrigation, during informal communication with rural inhabitants I was asking them if they do the same²⁹. Common reply was definite "yes". Also, during this informal communication I learned that this practice is not good for harvest. I followed-up this with KI#2, who told me that "irrigating with drinking water is not desirable". Together with water losses, this practice affects productivity and other households' access to drinking water.

Use of agricultural inputs: The lack of resources/inputs that are essential for increased agricultural development is one of the major factors that constrain the development of agriculture in Tavush region and Armenia in general. Most of the interviewed households expressed the opinion that they are not able to afford expensive agricultural inputs such as fertilizers, seeds (new and better varieties) and machinery. According to KIs (#2, 3, 4), farmers in that area, and generally throughout Armenia, do not use some important minerals as calcium and phosphate. In this context, an interesting example is presented in this footnote³⁰. The available machinery in the potential cluster is old, deteriorated, and not the one that can be used on smallholdings. According to most of interviewees (KIs and HIs), irrigation

²⁹ *Data collection was implemented in November-December 2008, and it is not an active agricultural season in Armenia and the mountainous regions especially. Consequently, the author was unable to observe this practice in action.*

³⁰ *The "Agro-chemistry" SNCO, that operates within the MoA, prepares and regularly updates agro-chemical maps of agricultural lands for each community throughout Armenia (including the potential cluster). Those maps have recommendations on which kind of fertilizers should be used in the given community (or for its specific zones), but local authorities are not motivated to obtain them because those maps are not in demand (as most of rural households do not use expensive fertilizers) (KI #4).*

(as input) needs to be improved, and even if irrigation is irregular, households still need to pay the full amount for irrigation, which means additional costs with getting little of the resource. Farm machinery services are expensive and sometimes, especially in high seasons, are not available both physically (due to low quantity and machinery being old, so often broken when its services is needed), and from the point of view of its cost (most farmers do not have their own machinery, so have to buy these services and also pay for fuel).

Access to markets and financial resources: Marketing of agricultural products is one of the major problems for Armenian farmers. This key issue was discussed with MoA officials and the general view is that the problem originated after the collapse of USSR, because those times agricultural products were sold through collective and state farms. With land privatization and break of that system, it was up to farmers to organize their farms and market their produce. With regard to the potential cluster, there are no wholesale markets to ease/provide access to markets (FG, Appendix 2). The absence of food processing in the potential cluster was mentioned as one of the reasons for that, and the generally poor developed food processing industry in the whole region also contributed to that (most of food processing in Armenia is concentrated in or around the Ararat Valley). Limited processing facilities, which are also away from the potential cluster, within poor infrastructure and limited volumes of possible purchases add to the market access problem. Poor access to the markets is reflected in the commercialization level of agricultural produce, represented in Table 6, a rough estimate (HIs, Appendix 3). Exception here is meat as it is a high value product that can provide one-time significant cash inflow for households. Normally, this income will be either reserved for consumption during winter months, or is consumed for purposes not related to current household consumption.

Table 6. Agricultural production commercialization level in the potential cluster

Agricultural product	Commercialization level (part of output that is being traded or exchanged with other goods), % in total, as estimated by interviewees (HIs)
Grains (wheat and barley)	25%
Potato	15%
Vegetables	15%
Milk	30%
Eggs	30%

Meat	80%
Fruits	20%

Source: Household interviews in the potential cluster (Appendix 3)

KIs at MoA (#1, 2, 3) pointed out that most rural households in Armenia have problems with access to credit resources on affordable terms to develop agriculture and/or alternative non-farm activities. Agriculture in Armenia is strongly influenced by climatic risks with actually no protection systems for farmers (like hail stations, etc.). The difficulties with taking credits are stronger in remote areas like Tavush region, as rural households that are closer to capital city (Yerevan) will own relatively more capital/assets, also they benefit from better market access (wholesale markets in Yerevan). This allows them to have more diversified agricultural production, including high value products. For the smallholders in the potential cluster, the interest rates are high, the credit term is short, and the major condition is land mortgage against the credit. Within these conditions, most of interviewed rural households in the potential cluster indentified that they do not want to run a risk of losing their land if they take a credit, because of the ‘low’ harvest, the damage by climate or the impossibility to sell in time (HIs, Appendix 3).

In general, rural areas lack well-operating infrastructure and have little access to extension services (KI#7). HIs and FG (Appendixes 2, 3) indicate that these problems are applicable to the potential cluster as well. KIs (# 1, 2, 3) at MoA also stated that agricultural productivity increase is a crucial problem in the sector of agriculture. Because of that, the subsidizing of farmers will be directly tied to productivity increase, which is set as one of the preconditions for receiving subsidies in the following years (2009 will be the starting year) (KI#6). The problem of low agricultural productivity is especially true for Tavush region and the potential cluster, where the majority are the smallholders practicing subsistence agriculture.

Thus, the major constraints for cluster activation can be grouped as:

- 1) Agricultural technologies/inputs and extension services (seed and planting materials, fertilizers, artificial insemination, small-size farm mechanization)
- 2) Infrastructure
- 3) Access to rural finance
- 4) Access to markets

At the same time, review of previous studies conducted in Armenia indicates that many Armenian smallholders are finding it very difficult to break out of subsistence production. They have difficulties in gaining access to irrigation and other supporting infrastructure, to financial resources for essential investments and to markets (Kharatyan 2003). These constraints characterize agriculture not only in the potential cluster, but Armenian agriculture in general.

4.2.3. Constraints' impact on livelihoods, RFE and RNFE in the potential cluster

Lack of irrigation, poor cattle breeding activities, obsolete and insufficient agricultural machinery and inaccessibility to the main market roads are the main economic constraints in the potential cluster. Given the small size of the farming plots, farmers in the villages are not able to use the land most efficiently, primarily because of lack of irrigation capacity. As a result, they primarily grow grains - wheat and barley, which are less burdensome in terms of irrigation, but are also lower value crops (HIs, Appendix 3). There are opportunities to establish greenhouses to grow off-season tomatoes, peppers, cucumbers and other vegetables. Irrigation would also increase the growth of rich fodder which would in turn aid cattle productivity as well as breeding. The current number of cattle in all villages is not very substantial (as evaluated by the interviewed household and village mayors in informal communication), compared to previous time of soviet collective farming and industrialized agriculture). However, an increase in fodder coupled with proper breeding techniques can increase milk productivity. The FG (Appendix 2) results allow to make a very rough estimation - an increase in fodder, coupled with proper breeding techniques can increase milk productivity from 15% to 20%. The number of cattle per household in Khashtarak seems to be more than in other villages, but the cattle breeding still can be developed in other communities as well. Many rural residents did not benefit from privatization of livestock that took place after the collapse of previous system, and even those who privatized livestock slaughtered it for meat to make livelihood during the years of economic crisis in early 1990s. On average, each household has 1-2 cows in the cluster communities, but there are still households that do not own any cattle. Thus, number of cattle in the area is very limited, but if the irrigation is in place, there is possibility for fodder growing, and so for increasing the livestock (HIs, FG Appendices 2, 3).

The crop (grain) production in the potential cluster is not perspective given the needs for and investment in machinery and inputs, low prices for grains and open competition on world markets and in Armenia, which imports most of grain it consumes. Thus, it is unlikely that grain production can provide a sustainable livelihood especially for low income households, given that smallholders make majority in the area. That option is applicable to mostly “entrepreneurial farmers”, who can take credit to invest in agriculture (FG, Appendix 2). Due to initial capital endowment (some machinery and bigger land plots) or ability to obtain credit (with land mortgage as the major source), some entrepreneurial farmers can be supported to specialize in production of high quality seeds (wheat, barley and potatoes) or in machinery contracting (tractors, drills, cultivation equipment, sprayers, and combine harvesters). As mentioned above, starting from 2009, MoA will implement its first agriculture monetary subsidizing program (KI# 1, 6), and this program is available to all farmers in Armenia, including those in potential cluster. This subsidy program will target only wheat production, and the mechanism is that farmers first invest and cultivate areas, and then apply for state subsidy, which is calculated per 1 hectare. The average amount per ha will be around 100USD³¹, and during FG (Appendix 2) the general consensus was that only those owning bigger plots of lands can have the ‘economy of scale’ and thus, really benefit from this program as the compensation (subsidy) is not considered to be substantial. Other households will benefit from greater availability of farming equipment, improved seed and employment opportunities.

As was presented above, commercialization of agricultural produce is low and households mostly produce for their own consumption. These occasional income flows, together with private transfers (money received from labor migrants) and own agricultural produce (reserved for winter in the form of homemade preserves) are the major components of livelihoods of rural households in the potential cluster (HIs, Appendix 3).

At the same time, food items dominate in the consumption structure (Table 7). Non-food consumption is mostly for utilities, electricity, tobacco, alcohol (mostly homemade, which is very popular) and telephone services. Only a few of respondents mentioned healthcare or education related expenditures in their expenditure structures.

³¹ This is an initial amount based on 2009 draft budget of Armenia’s MoA. At the time interviews took place with key informant, a final budget was in process of approval, so possibly changes might happened.

Table 7. Consumption structure per household in the Potential cluster, % of total income

	Food	Non-food
Average for the potential cluster	60%	40%

Source: HIs in the potential cluster (Appendix 3)

Despite the mentioned difficulties in farming, around 2/3 (roughly estimated) of the potential cluster's households are involved in both farming and livestock production. An interesting piece of otherwise weak rural-urban linkages is that local agriculture employs also some workforce from the nearest town (Ijevan). Those are mainly urban households who either have their own small house in the village, or have relatives and in high seasons might come to help (with some reward in product for winter season).

Thus, rural farm economy (agricultural activities) is the major source of livelihoods for the majority of rural households in the potential cluster. Nearly each third household in the potential cluster is headed by woman, which can be partially explained as a consequence of the 1991-1994 war, and also - with the fact of labor migration. The direction of labor migration is either construction/service sector in Yerevan, or seasonal works (mainly construction) in Russia. At the same time, availability of labor resources in the potential cluster is not a problem here. Due to the fact that agricultural activities are seasonal, it is rather underemployment (especially during the period from late autumn till mid spring) that characterizes usage of labor resources in the potential cluster. Also, there is no specific policy for agricultural employment (KI#1), and in reality there is no support for rural unemployed, as according to the law, rural inhabitants who own even small plot of land and/or other assets (cattle, machinery, etc.) are considered to be self-employed, without any regard of real usage of the land or assets. Thus, these people do not have access to employment centers' services (help in finding other employment, training courses, etc.). This problem is common for Armenia (KI #1) and affects rural households' opportunities to learn new skills and find off-farm employment.

Rural non farm economy sector is very limited in the potential cluster. The decrease in non- farm activities after the collapse of previous (socialist) system made farming the major source of income for those who previously relied mostly on off-farm activities. There are not any

private operating enterprises (services or food processing or any other) that could have contributed to non-farm employment and livelihood diversification in the potential cluster. Actually none of the households interviewed was exclusively involved in non-farm activities. Only for those owning small shops, trade can be the major income of livelihood, but those are exceptional cases. Also, because RNFE can be an important source of cash for rural households so that they can pay for some basic necessities (some food items and utilities), its being insignificant in the potential cluster is reflected in the fact that taking credits from local shops with real payment at some point in future (when the household receives cash income), or bartering it for locally produced food items, is a common practice. Some public services like post office, school, and local municipalities, along with 1-4 shops in each community, depending on its size, constitute RNFE in the potential cluster, which can provide only limited off-farm employment.

The above analysis of data from different sources (KIs, FG, HIs) shows that for many farmers, attempting to produce to satisfy potential markets, to which they find it difficult to access, is a great risk to take – it is not rationale to produce some high-value perishables within the absence of relevant infrastructure and market accessibility. Inputs usage is low, especially the use of fertilizers, and the available ones are sometimes outdated, quite often those will be the pesticides (KI #4), and extension programs are weak, if they exist (FG). Also, interest rates remain high, inputs are of unreliable quality (not only fertilizers, but also seeds). Leasing opportunities, which might introduce smaller and more appropriate farm machinery to the market, are still rare and expensive. Given these constraints, subsistence farming is a rational approach – it generates very low income, but minimizes the risk of loss and food insecurity. I name this livelihood strategy as “**minimal production – ensured consumption**” strategy³² (N.B.). It is also reflected in agricultural production commercialization rate and the consumption structure of rural households.

³² *N.B. To the utmost knowledge of the author, this livelihood strategy is not being named directly like that in the literature. During the literature review I did not come across this term. If anyway it exists, it's using without reference was in no case made deliberately.*

4.2.4. Business development opportunities in the potential cluster

During the FG with prospective local entrepreneurs conducted in the potential cluster, several business development opportunities have been identified by the FG participants. All of these business opportunities, related to the growth of RNFE, draw on local agricultural potential, which is currently unrealized. The directions to develop business locally include:

1) Production of dried fruits. In case irrigation is in place (restored), and more land can be irrigated, there is possibility to found new orchards and increase production of fruits in the area. As long as there are difficulties with market access, and fruits normally cannot be kept fresh for long within hot climate, participants of FG think that production of dried food can be an option. Technology is well known (traditional one) and capital expenses will not be high (no need for expensive modern equipment). The problem here can be the unknown marketing prospects, as the produce will have to compete on local Armenian market. To be exported, more sophisticated systems of food safety control and certification systems³³ will be needed (laboratory testing of raw materials, control at producer level and technical conditions for the production process). Also, in case of producing dried fruits, the potential cluster will have to compete with the similar producers from other regions, particularly the ones from Ararat Valley. Also, this facility can be used for drying some specific herbs, which are used as additives to the tea produced in Armenia. Also, some herbs have medical usage. The herbs can be collected from nearest forests and pastures by local inhabitants and can provide small additional earnings. However, more research on market prospects for the potential products will be needed.

2) Establishment of small distillery. The idea here is to establish essence/oil distilling facility that will produce oil of the local medicinal/fragrant herbs and flowers for local use or export, which can also produce fruit alcohol. The raw material for this will come from surplus of fruits from households' lands, which is small in number and not commercialized, as well as some wild types of fruits from nearby forests (the potential cluster is rich in medicinal herbs), and herbs - as indicated above, herbs can be collected locally and also households can grow some of them. Herbs are also used in the daily diet of people and many villagers grow them for personal use, e.g. tarragon, marjoram, oregano, thyme, and various kinds of wild mint. Essences of these herbs are widely used in the popular medicine and naturopathy. Again, the project was thought by FG participants as

³³ HACCP standards would be needed to be in place. HACCP stands for Hazard Analysis and Critical Control Points. This standards ensures food safety.

directed to increasing local employment opportunities, and if produce marketing issue is solved (market for potential product is still indefinite and study on local and external markets for the products is needed), it can turn into profitable business as well. This produce has no shelf life, can be kept for indefinite time, and could be sold to medical/pharmaceutical companies. Especially implementation of this project would need business consulting services (mainly for exporting abroad, certification requirements).

3) Milk collection facility/slaughter house. The potential cluster has a potential for cattle breeding, given the favorable climatic conditions and some grazing areas, as well as potential to produce forage for cattle. Cattle and milk production has been traditionally the main occupation of the village communities in the region. Milk is being traded for other goods, both food and non-food items, but this happens on occasional basis. As the milk can be utilized for preservation within a two-hour period, dairy/milk producing companies do not collect milk from the potential cluster and surroundings as there is no milk collection unit (with special conditions for cooling and preserving it for future processing).

At the same time, the major difference of this business idea from the others is that demand for milk on Armenian market is high (as estimated by FG participants), and still major dairy companies of Armenia are significantly depended on the relevant imports. The FG participants informed that this business idea was even discussed at local levels, with “Ashtarak Kat” CJSC (one of the leading dairy producers in Armenia), and there is demand for milk and there is at least one potential buyer for the product. The milk collecting facility, if established, has a potential to serve not only the potential cluster, but also some other rural communities which are within the distance of 2 hours³⁴. If the number of cattle in the potential cluster increases, it will also be possible to establish a slaughter house, which can serve the whole Tavush region then. There are several programs that try to promote rural development in Armenia, and I was told that this last business development opportunity was discussed with them as well. At least, my impression is that locals hope that the things will move on.

³⁴ *Not only transportation/driving time counted here.*

4.3. Constraints removal and growth of RFE-RNFE linkages in the potential cluster. Projection

The present agricultural technologies/inputs used in the potential cluster are considered inappropriate by even the users, compared with what and how was done in previous times of industrialized agriculture under the socialist farming system. On the other hand, quality seeds and planting materials are costly and their usage represents the risk. Farm mechanization is preferred to be substituted with labor, and inputs and services like artificial insemination and disease control are costly for subsistence farmers. These farmers actually have no resources for that, neither would they take such a risk (HIs), as it seems to be against the above identified livelihood strategy “minimal production – ensured consumption”. In other words, subsistence farmers often can find themselves in a ‘vicious circle’. Existence of infrastructure and access to rural finance is essential for farmers to try to break this circle, i.e. to change livelihood strategy. At least some households expressed desire to do so, but also provided that basic access to output markets is ensured, which again is mostly related to road connection.

During the FG, local economic development opportunities have been discussed, and participants mentioned that introduction of gravity line irrigation system, serving several communities, will allow to grow new orchards and crops. This in turn can become basis for the production of dried fruit (vegetables), which have high market value. Availability of irrigation would also increase the growth of rich fodder which would in turn contribute to cattle productivity and livestock breeding.

Development of non-farm activities in the potential cluster, with links to local agricultural sector, can have significant role in the growth of local RNFE, which in turn, is also an important factor for further agricultural development. Non-farm activities will also decrease the seasonal unemployment and underemployment (surplus of labor) in the potential cluster, will contribute to the efficient use of local resources, contributing to the increase of rural households’ standards of living in the long run. Non-farm activities could provide an alternative for those involved in subsistence farming. This may free their land, thus contributing to the formation of bigger land plots. This process of land consolidation will also promote activities and/or will contribute to formation of local class of “entrepreneurial farmers”, but that will happen in a very long term.

Development of RNFE, especially with regard to processing industries based on existing potential/resource base, is crucial for rural growth and cluster formation. Labor-intensive micro, small and medium enterprises could be the option for the potential cluster, at least at the starting stages of cluster activation process. In any case, most of these entities will be significantly linked to RFE in the medium-run as well. With the rise of RNFE, employment possibilities for some farmers (to diversify their livelihoods, i.e. – to get additional sources of income) include other farms and processing of agricultural products, as well as rural infrastructure sub-sector. In the farming sector, a shift towards more labor intensive fruit and vegetable production (also in greenhouses, off season) can generate more employment opportunities, which is more time and investment consuming, but also provided that effective access to markets available for smallholders.

If small scale farming is to provide a decent livelihood for subsistence farmers, activities need to be based on high value products. The possibilities identified in the potential cluster include milk production, fruits (dried and preserves), vegetables, and herbs (cultivation of species currently collected from the wild and these can be dried or pickled). This local potential can only be realized within the existence of necessary infrastructure. The production and marketing of organic products could be a longer term strategy, but this will mostly be depended on possible markets and certification process currently not available in Armenia, as well as more sophisticated systems and infrastructures.

4.4 Tracing the macro-meso-micro synergy: From the potential cluster to structural transformation

The macro level analysis of structural transformation in Armenia revealed the pattern of country's economic transformation and the structural misbalance. Armenia's impressive growth and overall development over the last decade was conditioned by productivity increase the non-agricultural sectors. This resulted in a situation when around half of country's labor force is engaged in agriculture, producing only around 20% of GDP, which means that employment structure is misbalanced and there is a productivity gap between agriculture and other sectors of economy. The latter is the major reason for the differences in the level of development and standards of living in the capital and the regions. Comparative analysis of Armenia's and other developing and developed countries' economies shows that employment structure becomes an

important indicator of development process in the long run, which is changed along with the growth of agricultural productivity. Thus, agricultural productivity growth is a precondition for effective structural transformation and long term development in Armenia. This is quite within the theoretical framework. On the other hand, findings from the potential cluster tell that structural transformation is not happening and the “vicious circle” is still not broken. At the same time, the constraints identified are mostly of general character for Armenia. Structural transformation of a developing economy is a long term and macro level process (gradual increase of agricultural productivity and transfer of labor to non-agricultural sectors), which will be depended on the process of rural transformation on meso (sub/regional) and micro levels (households’ employment, production and consumption structures).

Like the majority of Armenia’s small farms, smallholders in the potential cluster have little access to essential productivity-enhancing inputs that promote sustainable use of land, water and pastures. Analysis of constraints for cluster activation in potential cluster showed that they could be considered as the typical ones that hinder rural development in most of developing countries. These constraints hinder the increase in agricultural productivity (micro-level), impede development of local RNFE in the potential cluster in pur case, and on regional (meso) level in general. Consequently, RNFE in the potential cluster remains limited, and RFE is based on subsistence agriculture, with weak links and difficulties to access market (reflected in a relatively low rate of agricultural commercialization level). Smallholders in the potential cluster seem to find themselves in a “vicious circle” formed by those constraints, when initial low capital base (land, cattle, machinery) and poor access to rural finance (little opportunities to increase initial capital base), coupled with given insufficient infrastructure, makes it too difficult/risky to produce agricultural surplus. That risk is being strengthened with expensive inputs and unknown market prospects for smallholders’ produce, and as a result, limited volumes of agricultural production for own consumption is produced. This creates the situation when little savings for the next reproduction circle are reserved, and rural households again have to start the next reproduction circle with low capital base.

The analysis of constraints and their impact on rural livelihoods, RFE and RNFE in the potential cluster indicates that mainly those constraints are the same hindrances for higher agricultural productivity. Correspondingly, a gradual process of increase in agricultural

productivity, along with improvements in the institutional and infrastructural settings, remains a key issue both at macro level (Armenia's economy structural change), meso-level (the potential cluster with its RFE and RNFE sectors), and smallholder rural households (employment, production and consumption structures).

Thus, agricultural productivity becomes crucial for putting in work macro-meso-micro level synergy. On the example of potential cluster it is clearly seen that this type of synergy is not in place, and that is why structural transformation in Armenia is 'partially inefficient', as was shown during the macro-level analysis.

Raising agricultural productivity plays crucial role for income growth in rural areas and in the academic literature it is considered to be a key to poverty alleviation and rural development. However, qualitative analysis allows to provide more insights into the local environment and to embrace the whole context. The qualitative analysis for the potential cluster showed that subsistence smallholders mostly adopt a livelihood strategy that was named here as "minimal production – ensured consumption" strategy. In the case of potential cluster, rural diversification (around 2/3s of households both cultivate land and have livestock), means a shift towards low-return activities (after the collapse of previous industrialized agriculture system and fragmentation of land during the land privatization of 1991), in order to ensure minimal household income. In this case, because of low agro-productivity and subsequent low incomes (productivity defines incomes), local economic growth is not achieved. Limited RNFE (compared to the one existed previously) provides only insignificant and/or additional income for rural households in the potential cluster, which is used for expenses needed to be paid in cash (for example, utilities), and can be viewed as only a temporal relief³⁵ (the consuming behavior of taking food in credit from local shops, with delayed payment depended on next cash income inflow).

The qualitative analysis allows not only to analyze existing constraints more in depth, but also to study the prospects for future local economic development (potential cluster activation). According to the theoretical framework, cluster can be developed through the growth of RNFE-RFE linkages. At the same time, RNFE was very limited in the potential cluster, so for local rural development not only growth of agro-productivity in RFE, but also promotion of RNFE is very

³⁵ In some cases it can be viewed as a refuge from poverty.

important. The latter is closely tied with existence of private businesses and potential entrepreneurs. Even a single business in the potential cluster (depended on its reliance on local RFE production) can change a lot, because for RFE that will imply greater marketing opportunities (market access). At the same time, the potential/existing entrepreneur needs to see the market prospects for his own production. The necessary infrastructure should be also in place to reduce production and transaction costs, which will improve local businesses' competitiveness on a greater regional and/or national level. The constraints identified for the potential cluster, especially the infrastructure, apply both for RNFE and RFE. Among the three business development opportunities identified, the business idea of establishing a milk collecting/slaughter facility seems to be the most feasible and expedient for a number of reasons. Firstly, the existing natural resource base, and secondly, more feasible market prospects, as was shown above. There is knowledge about technology/production in the potential cluster, which can be upgraded in case of success and transition to a more industrialized type of agriculture. The infrastructure and market access therefore become those two urgent constraints in the potential cluster by targeting which it can be possible to activate it, and that seems to be the way of breaking smallholders' "vicious circle". However, for future development, removal of all other constraints will become a priority. The theoretical framework indicated that normally at early stages of development, clusters in developing economies are based on natural resources potential, but in the certain specific case it is also human resources that can contribute to cluster activation. At the same time, access to rural finance is important not only for smallholders, but also for the (existing) potential entrepreneurs in the potential cluster³⁶.

Once the macro-micro-meso synergy of structural transformation is launched, at further stages of rural development RNFE (now including not only processing, but also trade and services) in the potential cluster will develop as a response to changes in the environment – new markets and opportunities that provide higher incomes. The implication for the potential cluster is that after breaking smallholders' "vicious circle", the livelihood strategy will change/transform as well.

When agriculture is not subsistence any more, but commercial in its nature, increase of agricultural productivity will free labor for non-agricultural sectors (Lewis, 1951).

³⁶ *They will be in need for a start-up capital and/or capital base refinement, which will drive RNFE growth.*

Diversification in the potential cluster then will no longer be of defensive character, but will rather point to rural households' adjustment to changing environment, i.e. – desire to capture new opportunities, diversify households' labor force distribution between agricultural and non-agricultural employment, and receive (higher) incomes from different sources. From this perspective, changes in livelihood strategy (micro level) will reflect the structural transformation taking place at meso- (RFE-RNFE interplay) and macro- levels. In other words, by **observing certain areas' livelihoods over time, we can trace structural transformation process at micro level, which otherwise would be expressed in macro-level figures and will actually tell nothing about the quality of transformation.** Thus, micro and macro level studies applying qualitative and quantitative methods respectively can provide a more comprehensive understanding of the structural transformation process and its impact on the lives of rural households. The real link here seems to be the meso-level, and in this study we tried to place it there in the Armenian context

Local initiative to develop business in the potential cluster is also important not only because it directly contributes to the creation RNFE (in this sense it is just necessary). Only top-down direction (national and regional authorities' initiatives, for example by securing budget financing for infrastructure (re)construction is not enough. Bottom-up initiatives in their turn will advocate local interests and promote development opportunities in a wide sense. Also existence of local initiative can contribute that resources secured for rural development are used efficiently. To drive development at local level (break smallholders' vicious circle and activate the potential cluster), both level initiatives are required³⁷.

³⁷ This is also can be seen as private-public partnership in rural development.

V. CONCLUSIONS

The value of this study is that for the specific setting researched, two major constraints were separated from the list of ‘common’ constraints. To activate the potential cluster, they should be dealt with first. Those major constraints are infrastructure and market access. For any other setting, the specific constraints can be the same or different, but that will be greatly depended on the local context. Also, the research showed that smallholders in the potential cluster practice specific livelihoods, which I called “minimal production – ensured consumption” livelihood strategy. The diversification in the given context is of defensive character and does not point to diverse sources of employment and incomes that can bring to higher standards of living in the long-run.

Based on the study results, general criteria for rural cluster formation in Armenia can be proposed. Those criteria should be amended based on important specifics of any given setting, but they are still applicable to the most of Armenia’s regions.

- Existence of local potential, mainly based on natural and/or human resources;
- Investments in infrastructure so that it has the greatest possible number of beneficiaries;
- Similar socio-economic profile of rural households in the proximate geographical rural area;
- Existence of local initiative (potential/existing entrepreneurs with business ideas).

However, it is difficult to activate clusters in real life. This requires sufficient investments at the first stages and support (resources) for the next stages, i.e. – it takes time and resources. Although the government’s role was not in the focus of this study, but it definitely is of utmost importance, as it can change the old and create the new environment. Only a short notion in this regard can be made here. Currently Armenia tries to implement program budgeting concept, according to which the state budget financing should be secured based on the given Ministry’s programs. The author’s experience with DFID funded project tells that MoA already has its 2009 budget in a new format and rural infrastructure rehabilitation program is included in it.

Meanwhile, community selection criteria for being included in the road/irrigation reconstruction projects seem to be rather vague and it also appears that certain communities are selected because of formal and informal political lobbying (all of communities need infrastructure, but resources are limited). **This study can be useful in a sense that having in mind cluster formation, government might allocate its scarce resources more efficiently than just selectively financing infrastructure projects in different rural regions.**

The concluding remark is that cluster based approach to rural development can promote structural transformation first at meso-micro level. As was seen on the example of potential cluster, in case of success, more visible effects at micro level in the form of developing RNFE and RFE can be observed in medium-run. In case rural clusters expand across Armenia, it will most likely put multiplier and acceleration effects in work at regional (meso) level. The communities around will also start to somehow benefit from nearby rural clusters, rural-urban linkages can be expected to grow, and this will enhance regional development, *ceteris paribus*. Spatial expansion will promote micro-meso-macro level synergy and that will impact country's structural transformation dynamics in the long-run. **Clusters can be viewed as a way to overcome the mini-economy effect in the context of Armenia, so that rural clusters unify separated economic potential in rural areas and promote regional development, which will transform the country's economy in the long run.** This can be viewed as a new hypothesis, which is a natural product of exploratory case study presented in this thesis. At the same time, this issue has to be explored in future studies and by other researchers. This study tried to provide a holistic picture on the whole process, but obviously, more detailed insights into each level in macro-meso-micro chain are needed. Those future studies will create a pool of knowledge on cluster based development that might become a good basis for future policy actions.

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APPENDIX 1. KEY INFORMANTS FROM ARMENIA’S MINISTRY OF AGRICULTURE AND AFFILIATED BODIES

No.	Title, Name, Surname	Position
1.	Mr. Hovhannes Hovhannisyan	Head of Finance, Economics and Accountancy Department
2.	Mr. Gagik Manucharyan	Head of Crop Production, Forestry and Plant Protection Department
3.	Ms. Karine Yesayan	Head of Horticulture Development Division
4.	Mr. Vachagan Baghdassaryan	Director of Agro-chemical Services Inspectorate
5.	Mr. Grisha Baghyan	Food Safety and Veterinary State Inspectorate
6.	Mr. Vladimir Manukyan	Head of Subsidies Department
7.	Mr. Levon Minasyan	Science, Education and Consultancy Department
8.	Mr. Ashot Hovhannisyan	Stock Breeding and Pedigree Department

APPENDIX 2. INTERVIEW GUIDE FOR FOCUS GROUP DISCUSSIONS

Held at researcher's place in the field on November 5, 2008

I. Opening

Good afternoon gentlemen. Hope you are doing fine. As you might remember from our previous meeting that was organized by representative of "Integrum" NGO, I am a university student and I am doing my research on rural development in your region. Last time we agreed for this time and I appreciate you all coming today. Our meeting will last about 1 hour, maybe 10-15 minutes more; I hope it works for everyone?

(Check for time constraints)

- Question about the smoke break in between

Me: We can take a short break for 10 minutes; we have coffee here as well, so yes, sure we will have break

As we agreed last time, during the preliminary meeting, your answers are entirely confidential, I am not recording your voice, so please feel free. As agreed, the only thing is that I will be taking my notes, and sometimes I might ask you to repeat, or to explain, or to provide an example. The latter is important for me to understand the whole situation in depth, but if you do not need to mention name(s) of persons, if you need to refer in your example to someone(s). Also, I would like to ask you that everything discussed remain 'here'. Can we start? Any questions before?

(The group agrees, no questions)

II. Discussion The following questions have been discussed (with break in between)

- Infrastructure, economic, social and other ties between the selected group of villages
- Local views on economic development potential
- Resource availability (labor force, finance, technology, land, any other you can consider relevant)
- Local opportunities and constraints for business: Summary

III Concluding part

Thank you for your active participation, it was really an interesting discussion and we managed to discuss a lot. Do you have any other questions?

(Here comes remark in a form of joke that we have already covered pretty much)

Thank you very much again. Here are my visiting cards, in case you will have questions, feel free to contact me directly or through the NGO.

APPENDIX 3. INTERVIEW GUIDE FOR REPRESENTATIVE HOUSEHOLDS

Interviews were conducted at interviewees' homes in respective villages in Nov-Dec, 2008

I. Opening

Good afternoon/ evening. How are you doing (...name of participant...)? Last time we agreed for having an interview today. Our meeting will last approximately 1 hour? Is it still OK? If you have other things to do I can come another day.

(Check for time constraints)

As you might remember, I am a university student and I am doing my research on rural development in your region. Your answers are entirely confidential, I do not use recorder, and nothing you tell me can be used in any way against you. I have questions that also ask the practices of your neighbor, please do not mention their names if you do not want to (you might want to give examples to explain something). So please feel free when you will talk. The only thing is that I will be taking my notes, and sometimes I might ask you to repeat, or to explain, or to provide an example. Is this OK for you?

(Check for the agreement)

II. Discussion. The following question have been discussed (sometimes around the 'coffee table')

- Actual labor force in the communities (availability, structure, gender). Your own assessment, please. Migration to capital or outside Armenia?
- Agricultural production constraints and opportunities. What can you say about your household?
- What your household produces? What part of your produce you sell? Is this share more or less the same for your neighbors as well?
- Household's incomes and consumption structure. You do not have to name me the amounts, if you do not want to, I am interested in shares (explanation comes).
- Economic, social and other ties with other nearby communities.
- What is missing in infrastructure?
- Local views on economic development potential. What is your opinion?

III Concluding part

Thank you for your active participation; it was really an interesting to learn about your experiences. If you have question, please go ahead. (Answer to the questions, if any). Thanks again.

APPENDIX 3. (Cont.)

Distribution of interviewed households in the potential cluster

	Aknaghbyur	Ditavan	Khashtarak	Lusadzor	Lusahovit
Total number of registered households in the village	190	145	550	160	150
Interviewed Households	4	3	5	3	3

APPENDIX 4. SOCIO-ECONOMIC PROFILE OF TAVUSH REGION BASED ON SECONDARY SOURCES REVIEW

Tavush region (or *Tavushi marz* in Armenian) occupies the northeast part of Armenia. It has borders with Georgia in the north and Azerbaijan in the east, and with Gegharkunik and Kotayk regions in the south, and Lori in the west. The region has beautiful nature and some fertile agricultural lands, with the South Caucasus Mountains covering much of the area. Mixed forests



<http://www.mapsofworld.com/armenia/map/armenia-map.jpg>

with a diversity of flora and fauna occupy half of the region. Summers in Tavush are hot, and winters normally mild. Regional center is Ijevan town, the region has 5 urban and 57 rural communities. In 2008, the population in the region was 134,000 people, of which two-thirds lived in the four urban communities and one-third in the 58 rural communities (*ARMSTAT:2008*). Official unemployment in the region is high, at the level of 8,8% (*ibid.*). Agriculture is a major economic activity in Tavush, providing employment and livelihoods for a large proportion of the population (*TRDP-2006*). Farmlands cover 36% of the land area of Tavush. There are two main agro-ecological zones – the low-lying forest-free areas (below 900m) and the mountainous areas rich in forests (above 900m). In value terms, 57% of production results from crop and horticulture based output, and 43% from livestock based output. The region is characterized by the production of milk, meat, potatoes and grain. Tavush is also well known for grape production with climatic conditions of the region, which are favorable for the cultivation of stone-fruit crops, legumes, sub-tropical fruits, as well as grapes. The structure of production largely follows national averages, that is, small farms (average farm size of 1.46 hectares, and 96% of farms less than 3 hectares, and 56% of farms less than 2 hectares, fragmented holdings) (*TRDP:2006-15*). Small livestock holdings (average below 2

APPENDIX 4. (Cont.)

livestock units per holding), poor access to agricultural input and output markets (thin markets, numerous small rural communities served by a weak communications infrastructure), low yields, low mechanization, low levels of modern agricultural inputs (including finance) and low levels of commercialization characterize the region's agriculture.

The importance of agriculture is reflected in the PRSP (2003:40-44), which associates rural poverty in Armenia with low levels of agricultural productivity. Contributing factors to low agricultural productivity include: small and fragmented smallholdings, poorly developed input and output markets, limited access by farmers to the support services that they need to raise productivity (for example, agricultural extension and credit), and the poor state of rural infrastructure, especially irrigation and rural roads. These problems are especially acute in Tavush.

Emigration from the region is still significant, including seasonal labor migration. Thus, one recent study indicated that 3% of region's population was residing outside Armenia, while 4.2% of household members aged 15-64 had left for seasonal work outside Armenia for one or more months (*Interim Poverty Snapshot: 2008*). According to the results of the same survey, the average household size in Tavush was 4.0, which is almost identical to the national average.