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The Effect of Social Capital to Rural Community's Productivity

**(A Case Study of Segoroyoso and Bawuran Village,
Bantul Regency, Yogyakarta Province)**

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INDONESIA

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Introduction

1.1. Research Background

Development in Indonesia has effects both negative and positive. Many areas have developed the quality of life of their community that can be seen in the access to basic needs. But as experiences in other developing countries, the development focusing on growth had negative effects of social inequality. Centre of Statistical Data (1990) reported the number of villages that categorized as poor and very poor and most of the poor located in rural areas in Indonesia.

The question of the research started from the evident of rural poverty in Bantul Regency. Some areas can cope and deal with it but the others cannot deal with. Community who are able enhance the productivity can reduce their poverty, but community with low productivity still live in poor condition. Lack of assets (human, natural, physical, financial and social assets) to attain basic necessities is one of dimensions of poverty. Assets ownership depends not only on the behaviour on the market, but also on the performance of institutions of state and society.

Most of people in Segoroyoso and Bawuran villages work in agricultural sector as farmers and or breeders. Community in Segoroyoso village is a kind of community that able to improve their ability in management and technology. They, them selves, increase their productivity. This case is interesting because many villages have the same problem, but they cannot enhance their productivity either by them selves or by government donor. Bawuran village is an example of a village that is not able to improve its productivity. Bawuran village is taken for a sample of low community productivity because of both Segoroyoso and Bawuran villages are located contiguously and have similar characteristics of demographic and resources.

Centre of Statistical Data reported that on 1990, Segoroyoso village had alleviated its poor condition to be a non-poor village category and Bawuran village was still categorized as a poor village. Some policies and programs had been set by local government to improve the quality of life of poor villages. At present, the community productivity of both two villages are still different if be measured by the physical assets of community. Based on the similar characteristics between the two villages, it means that there is social assets within the community that make productivity of community in Segoroyoso village higher than community productivity in Bawuran village. The interesting question is: Is there any relationship between social capital and the community productivity?

However, human capital, capacity building and regulation are other factors influence community productivity. This research focuses on the impact of social capital within the community in those two villages, whether the increases in social capital can be shown to influence productivity.

1.2. Institutional Background

1.2.1. Local Organizations

Basically, rural organizations in Bantul Regency (and in Indonesia generally) as many reports note, are lack of stable primary groups, or village organizations, outside of the nuclear family. The general population and often village officials themselves are not aware of the existence of many of these village institutions, still less their aims, target groups or the services which in theory may be made available through them (Hansen & Mahoney, 1978).

The majority of the "village institutions" in Bantul Regency (Figure 1.1) are government sponsored or government directed institutions. Village institutions are organizations outside the public bureaucracy. In this figure, the village institutions are:
a. Breeder association and neighbourhood association, as community based organizations (represent the community). But even they are represent the community, they are still directed by local government (village and municipal official). This means that the organization is not real a community based organization (CBO).
b. KUD (village economic enterprise/village economic cooperation), an organization that is currently being sponsored by the government as multi purposed cooperative for rural sector development.

1.2.2. The Role of Local Organizations

- Political Organizations

Indonesia had applied decentralization system in 2001 in which central government had decentralized most of state authorities to local government (regency). The head of regency is appointed by governor (head of province, who appointed by president). Starting in 2006, the direct vote will be done in all regencies in Indonesia in which citizens will choose their candidate directly as a Head of their Regency.

The two principle actors in the rural political arena are the civil servant/civil services (in the Regency, and municipality offices) and village official. The primary functions of the civil service are to administer the programs of central and local government and as agent for transmitting among sub regional, regional and central government interest. The smooth functioning of civil service administrations depends on the cooperation of village officials.

Unlike officials at higher levels of administrations, the village officials are locally elected. The duties of the village officials include administration of the village and assisting in the implementation of government programs. Its roles in local government are both to safeguard the interest of his community and to act as an agent of local and central government is village affairs (Hansen and Mahoney, 1978).

- Economic organizations

Economic organizations involved in this framework are KUD and breeder association. They have function for governmental sponsored cooperatives for supply of credit, provision and other livestock and agricultural inputs (and its distribution). The economic organizations have a high influence to affect the social and technological changes in (rural) community to bring

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about greater agricultural productivity (including livestock productivity). The main task of bringing about this change has been entrusted to public bureaucracies. But as public bureaucracies alone cannot reach the rural target groups, and sustain production-oriented activities. KUD and breeder association are created as an extended arm of these bureaucracies to undertake the task.

- Community organizations

Community organization basically consists of neighbourhood association, women association and youth organization. Mainly, they have function in maintain the local law and order and resolve local disputes. I determine women and youth organizations as a part of neighbourhood organization because of the same functions.

- Private Sectors

Privates that involve in breeder activities are bank, that consist of commercial bank (private/non-governmental bank, but the number is so limited and they are not exist in rural economic development) and other informal (sometimes illegal) bank that are formed by community (money lenders, individual creditor and credit association). They have informal links to community because they have some attractive strategies more than governmental bank promotions.

1.2.3. The environment of local organizations in Bantul Regency

- The Nature and Culture

The Government of Bantul regency has vertical relationship with the lower authorities and departments. Relate to the breeder organizations, there are intra relationship within livestock and agriculture department, trading and industries department and governmental bank. Basically, local government is not attractive in which they do not deal with the citizens directly, but do hierarchically by link to the community via community's organizations both in formal and informal networks.

Similar to the typical of other governmental system, the local government of Bantul regency is bureaucratic in nature and based on regulations and procedures. To cooperate with NGO often is against the culture of governmental organizations. Among governmental organization have low trustworthy to NGO because of the differences in both of their culture. The strong culture of governmental organizations had made the limited number (the absence) of NGO within the community. The condition is also happen in the absence of CBO in the framework. Community organizations in this local institution are not a form of CBO, because they are formed by government and even they represent the community, the government intervention is still strong.

The intermediary agents in the framework are village economic enterprises (KUD), neighbourhood association and breeder association. All those agents are community organizations in which there are representative of community in those organizations, despite KUD. Community organizations play important role as agents of information exchange because the limitation of community capability to link directly to the governmental services.

Figure 1.1. : Social Capital Framework in Local Institutions of Bantul Regency
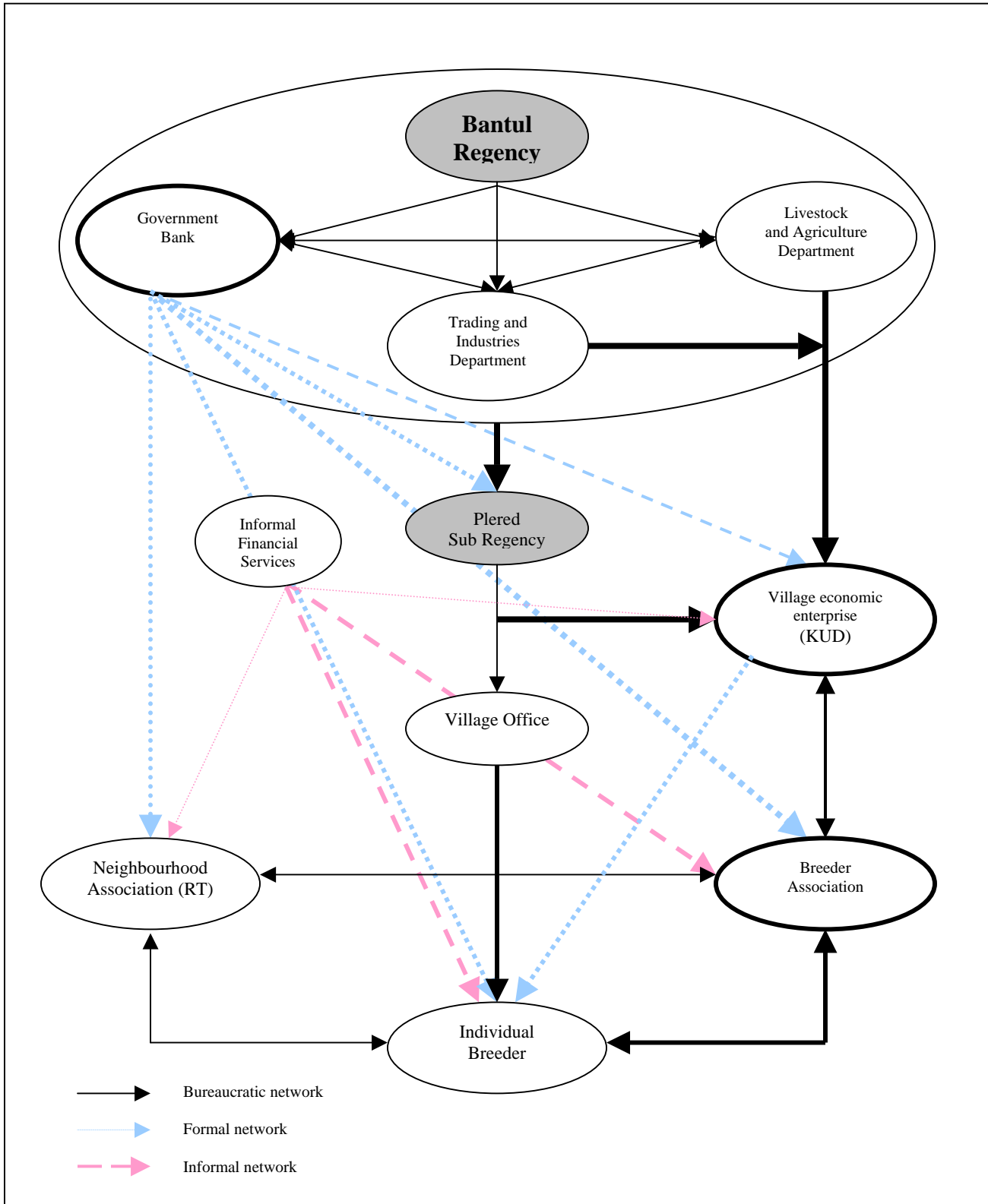
In the figure of institutional framework (Figure 1.1), there are some overlapping tasks in each organization dealing to community. The limited corporation and different goals in each organization had made the service provided and information flow inefficiently. It looks that governmental organizations (municipality, village office) just do the function for formal legalization. The conditions such as good for decentralization, but basically, they are occur because of the limited corporation and capability of governmental organizations to deal with social problems by create the social policies focusing on the fundamental issues within the community and deliver the task responsibilities. The limitation of the framework is that informal financial institutions (private bank, moneylenders and other credit providers) has no relation to the local government and it had made, in such cases, a negative effect for community because of the rule and regulation of informal financial services do not concern to community welfare. The lack of information on community's organizations concerning the role and abilities of the other organization had made an obstacle on their ways of working together.

The two-ways communication in the relationship among government, private bank and community's organizations is limited. The high power distance of local government during centralization era, still remain. The trust of local government to NGO is low and it looks to the absence of NGO in the information flow to the breeder.

There are three critical factor which determine the capacity of the local organizations to perform an effective role particularly with regard to mobilization (in term of participate) of the community and diffusion of the benefits of development among them, particularly in enhancing the productivity:
- Local development policy (Livestock and agricultural policies)
  Development policy in Bantul Regency, tends to promote community participation, and it will build greater reliance on community organization for attainment of these goals
- Role of the public bureaucracy
  The strength and orientation of public bureaucracies have strong effects to the nature of the role of "village organizations". The decentralized system has made an opportunity for village organization to sustain themselves, but most typical of them are not sustain on their own if they are disaffiliated (not do partnership) with the bureaucracy.
- The nature of the local power structure (local organizations)
  The political change in 2001, that result in promoting good governance have made the executive in local (and also central) government develops an alliance with the local bureaucracy. But, still the community organization, in certain times, do function as an instrument of the elite. It has made damage for breeders.

1.2.4. Building Relationship for Local Economic Development

Based on the institutional framework above, it can be explained that individual breeder do a long and complex network gaining information in order to enhance their productivity.

The linkage between breeder-breeder association-Governmental Bank/Informal Financial Services and KUD-Livestock and Agriculture Department-Governmental Bank are strongest at this point. The strong relationship between breeder-breeder's association-Governmental/Informal Financial Services occurs because of the organizational culture that responsive to the breeder economic interest.

The interaction between breeder-breeder association-KUD is not so strong because:
- The function of KUD as instruments for government policy remains a strong arm of elite interest and it is in certain policies, do not support the community's interest.
- The KUD covered a large number of populations in a wide area (usually KUD responsible for a sub municipality) and it makes the goal activities is difficult to be reached.
- The head of KUD (and cooperative officials) are under control of local elites.
- The dual function of KUD as a profit maker and for community productivity.

The weak function of KUD has made the relation between breeders - breeder association - informal financial services become stronger. The bureaucratic system in governmental bank procedure is also strengthening the existence of informal financial services, because poor community find difficulty to provide collateral for apply credit.

The strong ties of breeder – breeder association – government bank/informal financial services relate with the use of horizontal social capital. Community with strong social capital will use their network and take initiative actively to build vertical relation. The strength of interactions between breeder and local organizations will affect the effectiveness of the cooperation and those will affect the breeder productivity basically by:
- Information and technological exchange
- Share and solve problems
- Resources flows

The effectiveness of the cooperation not only depends on the activeness of the community initiative and the social capital, but also on the use of institutional functions. If the institutions do not deliver the services and make the functions work, the two-way flows of relation will not happen, and it makes the vertical social capital does not work effectively.

Concerning to the critical role of certain organization in breeder activities, the theoretical framework explains the question remark on the background: Is there any relationship between interaction of breeder and local organizations (structural social capital), and the breeder's productivity?

This research focuses on the relationship among breeders and relationship between breeders/breeder associations – local institutions. The different level of social capital between community in Segoroyoso and Bawuran villages makes a difference in productivity of both two villages.

1.3 Research Questions

- Does social capital effect the productivity of rural community?
- How does social capital effect the productivity of rural community?

1.4 Hypothesis:

- Community with high social capital has higher productivity

1.5 Research Objective

To describe, compare and analyse the rural community development to enhance their productivity.

1.6 Research Originality

This research will have some specific themes about the affects of social capital to rural community productivity in Bantul regency, Indonesia. As far as I know there is no research having similarity of locus of this research.

1.7 Research Benefit

The results of this research hopefully can give contributions to development program using community-building development process. Knowing assets and characteristics of the community will make rural economic development programs can be applied successfully. Social capital has operational implications in institutional knowledge in:

- Assessing implementation risk
- Project/program design
- Policy formulation

Chapter 2
Theoretical background

2.1. Social Capital
2.1.1. Definitions

Social capital has become an important concept in human development. Many definitions have been offered by social scientists. The definitions of social capital basically can be divided into two broad types depending on the primary focus: sociological approach and development economic approach (Adler, 2000):

- In sociological approach, social capital is defined as a resource facilitating action by a focal actor, a resource that inheres in the social network that tying focal actor to other actors. This view begins with the idea that actions of individuals and groups can be greatly facilitated by their membership in social network, especially by their direct and indirect links to other actors in these networks.
- The other view (political scientist and developmental economists) looks at social capital as a resource located in the external linkages of a focal actor, other strands of social capital research focus on social capital as a feature of the internal linkages that characterize the structure of collective actors (groups, organizations, communities, etc as distinct from individual actors) and give them cohesiveness and its associated benefit.

Table 2.1. Definitions of Social Capital

Authors	Definitions of Social Capital	External vs Internal
Coleman	"Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that would not be attainable in its absence". (1990)	External
Portes	"the ability of actors to secure benefits by virtue of membership in social networks or other social structures". (1998)	External
Fukuyama	"The ability of people to work together for common purpose in group and organizations" (1995) "Social capital can be defined simply as the existence of a certain set of informal values or norms shared among members of a group that permit cooperation among them". (1997)	Internal
Putnam	"features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (1993)	Internal
Woolcock	"the information, trust, and norms of reciprocity inhering in one's social network" (1998)	Both

Source: Adler (2000)

Basically, there is no fixed definition of social capital, and the concept is discussed in many contexts other than in relation to livelihood. Three concepts of social capital can be distinguished (Haan and Ufford, 1999):

a. Putnam's analysis (1993) of civic traditions, democracy, and regional development. He explained regional differences in social structures and networks. Social capital consists of social networks and associated norms that have an effect on the productivity of the community.

Putnam argues that vertical relations based on authority have a limited capacity for collective action and economic performance and horizontal relations based on trust and shared values are more likely to have economic success.

b. Coleman (1988) defined social capital much more broadly, as a variety of different entities, which have in common that they consist of some aspect of social structure and facilitate certain actions of actors within the structure. Coleman values both vertical and horizontal organizations by arguing that certain forms of social capital may be useful for one action but useless or harmful for another.

c. Woolcock (2000) include in social capital the most formalized institutional relationship and structures such as government, law, and civil liberties.

2.1.2. Perspectives on Social Capital and Economic Development

The simply definition of social capital is the norms and networks that enable people to act collectively (Woolcock, 2000). The simply definition allows to focus on the sources of social capital; to incorporate different dimension of social capital and recognize that communities can have access to more or less of them and to link the different structure of communities to the state.

Woolcock (2000) defined four perspective of social capital on economic development based on multi-disciplinary research of World Bank. The differences among those perspectives are primarily the unit of analysis on which they focus, their treatment of social capital as an independent, dependent or mediating variable and the extent to which they incorporate a theory of the state (Table 2.2).

Table 2.2. Four view of Social Capital: Key Actors and Policy Prescriptions

Perspective	Key Actors	Policy Prescriptions
Communitarian View	Community groups Voluntary sector	'Small is beautiful' Recognize social assets of the poor
Network View Intra ('bonding') and Inter ('bridging') community ties	Entrepreneurs Business groups 'Information brokers'	Decentralization Creation of enterprise zones 'Bridging' social divides
Institutional View Political & legal institutions	Private and public sector	Grant civil and political liberties Transparency, accountability
Synergy View Community networks and state- society relations 'Linking'	Community groups, civil society, firms and states	Co-production, complementarities Participation, linkages Scaling up local organizations

Source: Woolcock, 2000

The most recent approach, the synergy view, stresses that social capital treated as a mediating variable and suggests three central tasks:
▪ to identify the nature and extent of the social relationship characterizing a particular community, it's formal institutions and the interaction between them.
▪ to develop institutional strategies based on an understanding of these social relations, particularly the extent of bonding and bridging social capital in a society or community.
▪ to identify ways and means by which positive manifestations of social capital can offset, and/or be created form, its negative manifestations.

The synergy view is strengthening the perspective of the World Bank on the World Development Report 2000/2001 that distinguishes social capital based on three dimensions:

- Bonding social capital: ties connect people who share similar demographic characteristic.
- Bridging social capital: implies horizontal connections to people with broadly comparable economic status and political power. The ties focus on relations within and between communities.
- Linking social capital: consists of the vertical ties between community and people in positions of influence in formal organizations (vertical connections).

Linking social capital refers to ties to people in position of authority such as representative of public and private (bank) institutions. Bridging social capital concern to horizontal ties, linking social capital is more vertical, focusing to the key persons having influence in political and economic power. The nature and extent of social ties between client and providers is the key of vertical network. Local leaders and intermediaries able to facilitate connections between communities and external development assistance constitute an importance source of linking social capital (World Bank, 2004).

The institutional concept of social capital, is also defined by Paldam (2000), inheres in how people relate to each other, either individually or through informal and formal institution. Social capital is defined at the grass roots level. The ease of building and upholding social capital depends upon the environment provided by the state and its institutions. Those relate to the trust in government and institutions in general and the legal system.

2.1.3. Sources of Social Capital

2.1.3.1. Network

Social capital is about relations among persons. James S. Coleman (1988) in his discussion of the social capital context of education argued that social capital comes about through changes in the relations among persons that facilitate actions. Coleman's original advocacy of the concept of social capital was based on the idea that it is an input of human capital. Coleman (1990) defined social capital as the set of relationship between individuals and within groups, which make possible the achievement of certain ends that would not be attainable in its absence. Social capital is accumulated history in the form of social structure appropriate for productive use by an actor in the pursuit of his/her interests. Social structure itself emerges out of interaction entered by individual pursuit of their income interest. Three elements of social capital were identified obligations and expectations, which depend on *trustworthy* of the social environment*, information channels* (network) and *social norms*.

Coleman's view can be explained further in a view that social capital is the attitudinal, behavioural, and communal glue that holds society together through relationship among individuals, families, and organizations. It is a community's internal potential to accomplish what it needs to do. Efforts to overcome the specific problems of the individuals, families, and neighbourhood will make little progress if it is done without social capital (Mattesich, 1997).

Putnam (1993) observes critical differences between horizontal and vertical network:
" A vertical network, no matter how dense and no matter how important to its participants, cannot sustain social trust and cooperation. Vertical flows of information are often less reliable than horizontal flows, in part because the subordinate husbands information as a hedge against exploitation. More important, sanctions that support norms of reciprocity against the threat of opportunism are less likely to be imposed upwards and less likely to be acceded to, if imposed. Only a bold or fool hardly subordinate lacking ties of solidarity with peers, would seek to punish a superior".

Putnam (2000) also writes that social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them.

2.1.3.2. Norms

A number of theorists see social capital as primary based on shared norms. Portes (1998) and Putnam (1993) focus on the norm of generalized reciprocity. This norm of generalized reciprocity resolves problems of collective action and binds communities. It thus serves to transform individuals from self-seeking and egocentric agents, with little sense of obligation to others, into members of a community with shared interests and a sense of the common good (Adler, 2002).

A perspective norm within a collectivity that constitutes an especially important form of social capital is the norm that one should forgo self-interest and act in the interest of the collectivity. The norms are internalised, and in others they are largely supported through external rewards for selfish actions and disapproval for selfish actions. But, whether supported by internal or external sanctions, norms of this sort are important in overcoming the public goods problem that exists in collectivities. Effective norms can constitute a powerful form of social capital (Coleman, 1988).

2.1.3.3. Beliefs

The role of beliefs has received relatively little attention in social capital concepts. Portes (1998) argue that shared experiences and the common beliefs contribute to social capital because they create a strong sense of community and solidarity. Portes cites Marx's analysis of emergent class consciousness in industrial proletariat: workers learn to identify with each other and support each other's initiatives because they are thrown together in a common situation of adversity and therefore form similar beliefs (Adler, 2002)

Dasgupta (2002) argues that beliefs are drawn inevitably to the notion of culture, which is bond up with the idea of social capital. Culture is used to denote differences in the beliefs people hold about one another. Beliefs can play an even more complex role in which cultural stereotypes can persist even when there are no intrinsic differences among groups. These differences gave rise to institutional differences (with feedback to attitudes and beliefs), which help to explain why some community (countries) became winners, while others enjoyed a brief period of success before losing to the winner.

2.1.3.4. Rules

Formal institutions and rules can have a powerful indirect effect on social capital via their other sources (network, norm and beliefs) and they can also have direct effect. (Adler, 2000):
- Formal rules and institutions can shape the network structure and the content of the ties. Podolny and Baron (1997) in Adler (2000) note that formal organization shapes and determines much of informal organization because many ties come with positions and are not voluntary chosen. Such an impact of formal structure on network structure will in turn influence social capital
- Formal institutions can influence norms and beliefs. Formal institutions can also affect social capital more directly. Levi (1996) in Adler (2000) in her criticism of Putnam's and Fukuyama's research argue that government is a major source of social capital. Strong government responsive to people's needs plays a direct role in building social capital in community.

2.1.3.5. Trust

Most literature argues that trust plays a critical and variable role in the literature on social capital. There is some confusion in the definitions of social capital when define the concept of trust: in which equate social capital with trust (Fukuyama, 1995, 1997); some see it as a source (Putnam, 1993); some as a form (Coleman, 1988). But according to the development of social capital definitions, it can be defined that trust is conceptually distinct from social capital and that it is both a source and an effect.

Trust and social capital are mutually reinforcing. Fukuyama (1995), argues that trust is both the condition for, and the effect of, the forms of social capital – collective values, social networks and cultural mores – that underpin social cohesion and shape economic growth. According to Paldam (2000), social capital essentially deals with trust. Indeed, the notion of trust is important for building a relationship to be reciprocal. It is can be recognized that all those perspectives of social capital above refer to the elements of social capital that basically notice the central importance of trust that can make a possible of network and reciprocity.

Trust is not associated with all types of networks, even those that are horizontally organized or which have a heterogeneous group of members. In context of institutional involution, some (but not all) informal networks are more closely associated with trust and trustworthy behaviour. The *context* of group membership is as important, they submit, as its density or structural form (Krishna, 2000).

2.1.4. Relation of Social Capital to Other Forms of Capital

Social capital is one of five assets of individuals/household/community used for their life. As Rakodi (2002) describes, livelihood approach proposes that thinking in term of strengths or assets is vital as an antidote to view of (poor) people as "passive". It requires a realistic understanding of these assets in order to identify what opportunities they may offer, or where constrain may lie. The relationship of community's capital can be described in livelihood framework (Figure 2.1.).

The framework suggests that there is a close link between the overall assets status of an individual, household or group, the resources on which it can draw in the face of hardship and its level of security. The framework proposes to how people make use their assets to deal with the threat and opportunities of livelihood (Rakodi, 2002).

At household, community and societal levels, the assets available are said to constitute a stock of capital. This capital can be stored, accumulated, exchanged or depleted and put to work to generate a flow of income or benefits. For social interaction to be termed "capital", it must be persistent, giving rise to stocks (for example, of trust and knowledge) on which people can draw, even if the social interaction itself is not permanent (Rakodi, 2002). Level of social capital and the ability to call on the social networks involved vary in space and time. They may break down because of repeated shocks (such as drought), economic crisis or physical insecurity (such as violence and crime) (Moser, 1996). Like other types of assets, social capital can be used to maintain and improve livelihoods (Winter, 2001) and the mediation function because of social capital gives the actor access to other capital (Haan & Ufford, 2001)

Figure 2. 1. Livelihood Framework
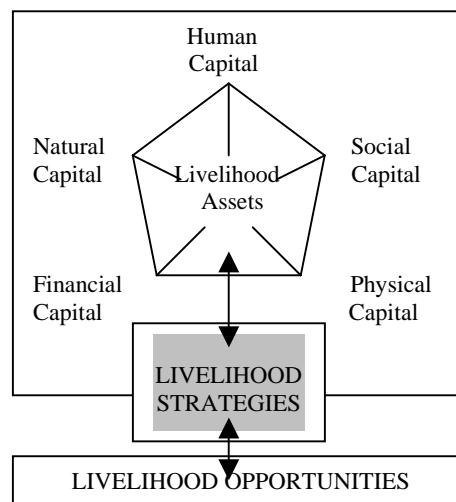
Source: Rakodi, developed form DFID Sustainable Livelihood Guidance Sheet, Section 2.1. by Tony Lloyd-Jones

Explaining the social capital can not run from the concept of human capital, because human capital is the source of social capital. But, it is different if we compare the physical, human and social capital. If physical capital refers to physical objects and human capital refers to the materials and properties of individuals, social capital refers to the connections among individuals in the social networks and the norms of reciprocity and trustworthiness that arise from them. The difference is that social capital calls attention to the facts that civic virtue is most powerful when embedded in a sense network of reciprocal social relations. A society of many virtuous but isolated individuals is not necessarily rich in social capital (Putnam, 2000). Human capital is an important complementary relating to social capital. Without human capital, social capital can be unproductive. Community building flourishes human capital to be social capital, efforts done by community to improve their social capacity (Mattessich, 1997).

Similar to the significant valuable of physical or human capital as assets for attain basic necessities, social capital can be a valuable development asset. In general, household or communities with more social capital will be more productive and effective in their use of resources. To be more productive, community with more access to social capital are likely to be better off. Social capital has contribution such as human and physical in their ability to improve people's welfare. Understanding the social capital developing strategies can help the community to enhance their productive livelihood to reduce their poor conditions.

2.1.5. Dimension of Social Capital

Social capital consists of several different levels (micro, macro and meso) and dimensions (structural and cognitive plus collective action as an outcome measure). Figure 2.2. explain that social capital operates at several levels, from the micro to macro and in both structural and cognitive dimensions.

At the micro (and meso) level, social capital deals with individual and within communities, and it encompasses vertical as well as horizontal associations. The meso-level of social capital captures social structures, as well as the ensemble of norms governing interpersonal behaviour. Macro level view includes the social and political environment that develops norms and shapes social structures. This level encompasses formalized institutional relationship and structure, such as government, the political regime, rule of law, the court system and civil and political liberties. (World Bank, 2002)

Figure 2.2. The Primary Dimension of Social Capital
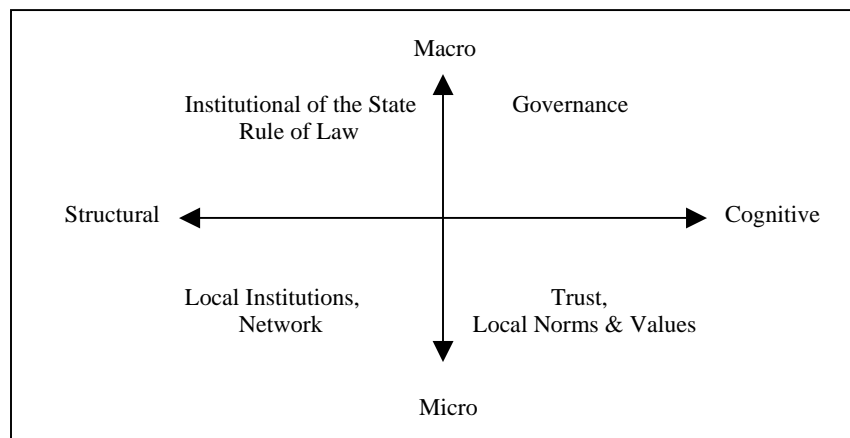
Source: World Bank, 2002

Structural social capital relate to the membership of individual and community in association and how the network occurs. Factors influencing structural social capital are the structure, the membership and the functions of the association. The interaction of people can be done through formal and informal associations. The other form of interaction is by informal (interaction outside formal associations). These informal aspects shape people's thoughts and attitudes about interacting with others (World Bank, 2002).

Cognitive social capital focuses on these more subjective elements of interpersonal behaviour, considering solidarity, trust and adherence to community norms. The cognitive elements of social capital – relating to norms, values, attitudes and beliefs –must be assessed separately and in addition to its structural elements – relating to networks, roles, rules, precedents. While cognitive elements *predispose* people toward mutually beneficial collective action, structural elements of social capital *facilitate* such action (Uphoff 2000; Krishna 2000).

Both structural and cognitive dimensions matter, and they must be combined to represent the aggregate potential for mutually beneficial collective action that exists within any community (World Bank, 2002).

2.1.6. Measuring Social Capital

How we measure social capital depends on how we define it. The most comprehensive definitions of social capital are multidimensional, incorporating different levels and units of analysis. Trust, civic engagement, and community involvement are generally seen as ways to measure social capital. Depending on the definition of social capital and the context, some indicators may be more appropriate than others (World Bank, 2000).

Measuring social capital may be difficult, but it is not impossible, and several excellent studies have identified useful proxies for social capital, using different types and combinations of qualitative, comparative and quantitative research methodologies. (Woolcock, 2000).

Increasingly, social science research, including economic research, integrates both quantitative and qualitative methods in the quest for research designs best suited for assessing complex issues and concepts. Integration of complementary methodologies is a fruitful strategy for several reasons: to confirm and corroborate results via triangulation, to elaborate or develop analysis, to provide richer detail, and to initiate new lines of thinking through attention to surprises or paradoxes. It is especially important to integrate complementary data collection techniques when trying to analyse a complex and innovative concept such as social capital (World Bank, 2000).

Different from other form of capital, social capital is difficult to be measured because of its component are many varied and in many instance are intangible and also the concept of social capital dimensions (community, network, groups, etc) have not been agreed yet among different multi-discipline perspectives. Recent researches have measured social capital quantitatively using indicators of social capital in certain questioner as an instrument for survey.

Qualitative methods, including observation, participant observation, life histories, in-depth interviews, and focus group research, have long been used to elucidate values, perceptions, attitudes and opinions of individuals and also groups, providing scope for in-depth examination of relationships and behaviours. These "social representations" encompass especially the cognitive aspects of social capital, and they are also useful for identifying and evaluating the nature of trust that exists in communities, and for analysis of social representations (Krishna, 2000).

The current perspective of social capital dimensions has been developed as The World Bank (2004) defines six dimensions of social capital base on previous survey work in developing countries. The dimensions capture structural and cognitive social capital, and also the outcomes:

- Groups and networks
- Trust and solidarity
- Collective action and cooperation
- Information and communication
- Social cohesion and inclusion
- Empowerment and political action

Box 2.1. Combining Dimensions of Social Capital

As a result of the complexity of social capital, it is most appropriate to separate the different aspects of social capital, speaking about membership density in organizations, subjective measures of trust, or frequency of collective action. However, for some analytic purposes, researchers have combined these dimensions into a single social capital index (which of course does not mean that social capital is seen as a single-dimension concept). For example, in their analysis of community-based water projects in Central Java, Indonesia, Isham and Kahkonen create social capital index that consist: the quality and quantity of local groups, density of membership, meeting attendance, participation index, community orientation, number of join village activities, a social interaction index, and a neighbourhood trust index. Notably, they also analyse each of these dimensions separately.

Sources: World Bank, 2000.

2.2. Productivity

One of the most important measures of economic performance is productivity. Meier (1995) explains that improvement in the quality of people as productive agents must be a central objective of development policies. He emphasizes human capital because the knowledge embedded in human beings is the basis for achieving an increase in total factor productivity.

In economic perspective, productivity is a concept that measure ratio of total output to a weighted average of input. Two important variants are labours productivity, which calculates the amount of output per unit labour and total factor productivity, which measures output per unit of total inputs (Samuelson & Nordhaus, 2005).

The economic perspective of community productivity has strong relationship to the theory of local economic development. Coffey and Polese (1985) in Syret (1995) identify three basic themes for local economic development: the importance of entrepreneurship for the economic vitality of a locality; the significance of retaining human capital and reducing out-migration in poorer regions; and the potential for intra and inter linkages amongst locally based enterprises.

The other perspective rises from social view. Castells (1996) argued that productivity drives economic progress by increasing the yield of output per unit of input over time that humankind eventually mastered the forces of and, in the process, shaped itself as culture. Further he described that the specific ways of increasing productivity define the structure and dynamics of a given economic system.

Productivity is an outcome of organizing human resources and technology, where differences in individual productivity reflects variation in human capital or competence other things being equal. Based on managerial and economic perspective, productivity is mainly a function of three variables: technology, labour and institution/organization (Bennasi, 2004).

There are two key problems that should be acknowledged. Firstly is the fact that the selection of different inputs and outputs yields different productivity measures. Secondly is researcher has to cope with the diversity of the sum of the factor inputs and outputs, many of which are of a qualitative nature (Accel-Team, 2004 in Aspin, 2004).

2.4. The Relationship between Social Capital and Productivity

2.4.1. Contribution of Social Capital

There are many factors influence productivity. The factors are started from human capital as locality followed by building the social capital of community to accomplish the task responsibilities. Locality is an important thing because of it is a motivator in the process of productivity improvement. The main potencies of locality are enterprise, innovation, and entrepreneurship (Syrett, 1995).

One of the important ways in which social capital can contribute to household productivity is by making household enterprises more profitable (World Bank, 2000). Locality has no benefit to community if there are no connections within the community into a network considering to norm, believe, trust and rule. Network amongst individual entrepreneurship will affect the community's productivity by information exchange, share and solve the problems and also obtaining complementary resources. The network will create a regeneration economic condition for sustainability.

Social capital as a network of economic explains the relationship. Castells (1996) defined that there is a relationship between business network and the emergence and consolidation of the network enterprises and productivity. The definition of social capital defined by Coleman (2000) strengthening the relationship that the network will enhance the possibility to achieve the goal.

The economic concept of social capital also can be seen in the concept of cluster. There are three basic forms of cluster: pure agglomeration, the industrial concept model and the network, was developed initially outside mainstream economics and owes rather more to sociological perspectives (Gordon, 2000). The network of economic in intra and inter the actors of economic activities has make an efficiency and effectiveness production process.

Dasgupta (2002) argued that social capital is most usefully viewed as a system of interpersonal networks. Social capital is not only an aspect of human capital but also a component of total factor productivity. The worth of social capital depends upon the kinds of activities in which members of network are engaged. Based on the definitions above, social capital has social and economic impact. The economic impact of social capital is contribution to efficiency by lowering transaction costs; sharing knowledge and innovation; risk taking; and improved quality of output (Aspin, 2004).

Box 2.2. How does social capital increase productivity

How does social capital increase productivity?

- Collective action
  - Communities demonstrate their cognitive and structural social capital by acting together to supply public goods
  - With these needs having beet met, these communities are more productive
- Minimize transaction cost
  - Fewer contracts and contract disputes when people trust each other and the institutions that operate among them
- Unambiguously positive assets?
  - Exclusive versus inclusive social capital

Source: World Bank, 2000.

The development of social capital perspectives is the consequences of the importance of social capital in community and economic development. Putnam (2000), described why social capital is importance:

- Social capital allows citizens to resolve collective problems more easily. Social norms and networks that enforce them provide such as mechanism.
- Social capital greases the wheels that allow communities to advance smoothly. Where people are trusting and trustworthy, and where they are subject to repeated interactions with fellow citizens, everyday business and social transactions are less costly
- Social capital improves our lot by widening our awareness of the many ways in which our fates are linked.
- The networks that constitute social capital also serve as conduits for the flow of helpful information that facilitates achieving goals.

Figure 2.3. Relationship between social capital and productivity

Social Capital → Collective Action → Efficiency → Productivity
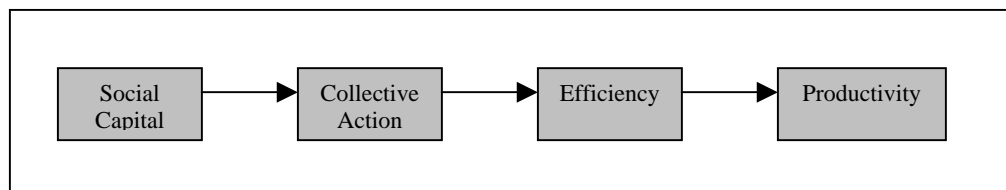
Through social capital, the quantity and quality of the other form of capital can be improved. Mutual trust and reciprocity lower the cost of working together. Lower cost improves the efficiency of economic actions and therefore reinforces financial capital. When people are linked by common norms and sanctions they may more easily form new organizations to pursue their interest, including claim making in political-domain (Haan & Ufford, 2001)

2.4.2. Lessons from international experiences

Explaining productivity of certain community should be linked to the concept of livelihood framework because community productivity has close relationship to the livelihood strategy. Livelihood was not seen as inevitably determined by natural environment, because social reality and force of habit were considered to be more important (Haan & Ufford, 2001).

To achieve a livelihood people make use capitals that involve human capital, natural capital, physical capital, financial capital, and social capital. But, Sen (1981) in Haan & Ufford (2001) shows that livelihood depends not only on direct access to capitals, but also how the use of capitals is embedded in a wider social, economic, political and natural context.

Social capital clearly has the potential to enhance people's livelihood, and one may expect that it improve the sustainability of that livelihood in terms of coping and adaptation. As Winter, who conducted study in the case of rural development project in Latin America (2001) describes that livelihood strategy is a process similar to a production function in that it requires inputs (assets) and results in outputs (outcomes), it cannot be measured or compared directly. What can be measured are the assets of households, the activities they undertake and the outcomes they receive at a given point in time.

Social capital contributes to productivity through interaction between people. The value of social capital depends on the structure of relation within the network. There for, it needs to consider indirect ties as well as direct ties to measure social capital. This view of the important aspects of social capital to contribute productivity is described by Bennasi (2003). He conducted a research of the contribution of social capital in firm in Italy and it effects in:
- Using social relations to mobilize group members to participate in certain activities. Establish social relation contains the necessary trust and knowledge about each other that facilitate communication and enhance cooperation.
- Using group members' social capital to augment and complement the knowledge of the group. The knowledge exchange in a collective action has more impact than within any single individual.

The benefit of social capital for productivity of farmer organizations in Gal Oya, Sri Lanka is an example of how of the improvement in system performance and efficiency occurs. In the agricultural management, structural social capital can facilitate and support the mutually beneficial collective action in the way of people needs to have roles: for making decisions, to mobilize resources, for communicating efficiently and effectively, for coordinating activities and finally for resolving the dispute and conflicts that arise.

Fafchamps and Minten (1999) also describe the contribution of social capital. They explain that knowing other traders boost the productivity of agricultural traders because of social contact reduce the transaction cost. Their research conclude by the result of start-up conditions have a long-lasting effect on the proactive resources of agricultural traders (see Box 2.3).

The function of structural social capital can be accomplish through formal and informal roles and other mechanism, so societies are not limited to just formal social structures, because informal structures can be as or more effective than formal relationship (Uphoff and Wijayaratna, 2000). The emphasise of informal roles and other mechanism is important because of the typical of relationship in rural communities is done by informal relationship.

Connecting to vertical ties (linking social capital), we can find the contribution of social capital for people to get access easier to credit. The study of influence of social capital on the rural credit in the case of a Javanese village indicate difference impact of social capital on each type of credit. Meeting attendance was found positively influence the amount of formal credit (Brata, 2004).

Box 2.3. Evident from agricultural trade

Social capital is seldom used in the modeling of economic production processes. However, the returns to social capital in a real world with transaction costs might be as important as to labor and physical or human capital. Evidence from Madagascar shows that (i) agricultural traders rank the importance of relationships for success in business higher than input prices, output prices, and access to credit or equipment; (ii) better connected traders have significantly larger sales and gross margins than less connected traders after controlling for physical and human inputs as well as for entrepreneurial characteristics; (iii) traders who do not develop the appropriate social capital, do not grow. The evidence indicates that three dimensions of social network capital should be distinguished: relationships with other traders, which help firms to economize on transaction costs; relationships with individuals who can help in time of financial difficulties, which insure traders against liquidity risk; and family relationships, which reduce efficiency, possibly because of measurement error. Social network capital enables traders to deal with each other in a more trustworthy manner by granting and receiving credit, exchanging price information, and economizing on quality inspection.

Source: Fafchamps & Minten (2001)

The case study in Cameroon is also strengthening the result of Javanese villages. The literature suggests that the use of existing social ties between lender and borrower improves the access of the poor to credit, and also for the repayment. A critical element of program success is the existence of trust between borrowers and lenders, which is in large part created and maintained by the predictable and transparent application of the lender's rules. Implicit or unconscious reliance on traditional patron-client relationships between loan agents and borrowers reinforces adherence to the program's rules, even if they are not consistently enforced. In addition, the "corporate culture" among the staff of the lender organization also appears to be a critical element of program performance (Bastelaer, 2000)

The importance of the access to credit we mention here relates to the institutional background of local organizations. The vertical ties of the community mostly are done between the financial service providers and the community in order to improve their productivity.

Box 2.4. Reassessing the role of social capital of networks trade organization and the livelihood of traders in West Africa

Social capital is equally omnipresent in the cattle trade. Giving large sums of money to a collector to buy cattle demonstrate the confidence of the network chief in his collaborator. Sending 30 head of cattle on the hoof over the Nigerian border to avoid customs control and to sell at more profitable price at the Ibadan terminal market, means putting a lot of confidence in herders. Several respected and wealthy landlord-brokers in the coastal towns of West Africa are retired long-distance traders. The image of being a retired traders confers on these landlord-brokers the required position of neutrality. Social capital may have a religious underpinning, too. In West Africa, the traditional trade sectors – such as those for food grain and cattle – are generally dominated by Moslem traders. Islam is often referred to as providing traders with a set of elementary trading regulations as well as binding them together into a supra-community. It provides a set of norms and values that have a significant impact on trade organization and the strategies of traders.

A brief description of the management of trading networks gives us a perfect insight into how social capital can be created, maintained, and expanded. Generally, there are three types of relations between the chief traders and his collaborators. Firstly, there are kinship relations between the chief trader and several of his subordinates. Secondly, is the matrimonial alliance. In this case, certain individuals become linked to the chief through marriage to one of his daughters or female kin. And the third, there is the employer-employee relationship, which usually takes the form of patron-client relation. To become successful in the cattle marketing, newcomers who do not belong to the inner circle of insider have to create social capital, but they do so by exploring weak ties. Their entry is not facilitated by social capital based on strong ties, but primarily by the possession of the other capital.

Source: Haan and Ufford, 2001

2.5. Theoretical Framework

This research focuses on how social capital in different levels influence community's productivity. The level of social capital here, consist of both internal and external social capital. Internal social capital is a form of bonding (horizontal ties) social capital that describes ties within community and external social capital as a form of bridging and linking (vertical ties) that involves external factor of productivity: market and institutions.

Social capital is form of trust, network, rules, norms and beliefs. Those sources of social capital are used as variables that will be translated into practical indicators. The measurement of the sources will determine the level of social capital within the community.

We recognize the other factors influence both the level of social capital and productivity. Human capital that involves entrepreneurship and individual skill is the dominant factor and so do the market and regulation as the exogenous factor for productivity. Human capital is the source of social capital in which community building initiative flourish the human capital to be social capital. Market and regulation are factors influence the economic mechanism of cattle trade. The research will describe those exogenous factors but do not measure them.

Figure 2.4: Theoretical Framework
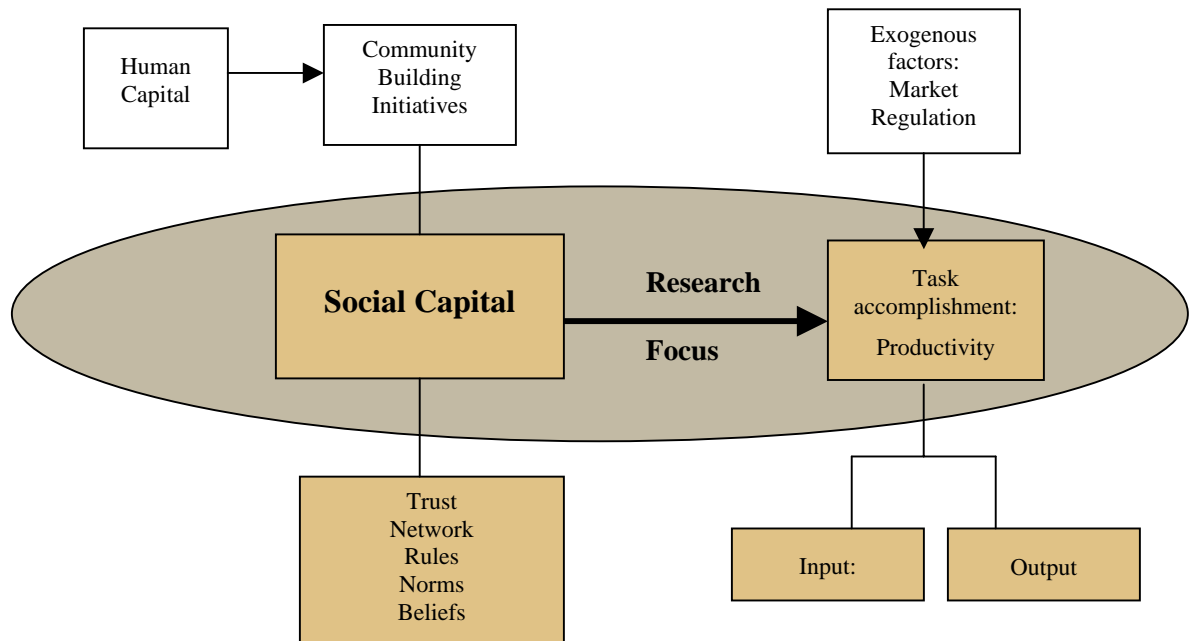
Chapter 3
Research Method

3.1. Method

This research is a deductive research in which the research based on deductive logic. Deductive logic is started from major premise (general theory) and researcher do testing of thing (minor premise) suggested following the major premise (Djunaedi, 2000). Technique of data collection and analysis in this research is both of quantitative and qualitative. Bogdan and Taylor (1982) in Moleong (2002) defined qualitative method as a research procedure which data is descriptive as written words or said from the analysed persons.

This research collects information from sources in a population by survey. Survey research is research-taking samples from a population and use questioner as an instrument for data collection. Survey research can be used for descriptive. Descriptive research is purposed to measure accurately for a social phenomenon (Singarimbun, 1995). The aim of descriptive research is to make description, overview systematically, factual and accurate of facts, characteristics, and relation between the phenomenon-researched.

3.2. Research Areas

The research was conducted in two villages: Segoroyoso and Bawuran village, Bantul Regency, Yogyakarta Province, Indonesia. Both of the two village located in the hill area in the boundary of Bantul Regency. Segoroyoso is a non-poor village, in which most of people living there can enhance their welfare. Villages surrounding Segoroyoso village mostly are poor. Bawuran village is chosen as a sample of poor villages located surrounding Segoroyoso village, because of the location is contagiously to Segoroyoso village, so the characteristic of demographic and resources are almost similar (see map in annexes).

Segoroyoso and Bawuran village is located contagiously in hilly areas in the east of Bantul Regency (Figure 1). Segoroyoso village is a very important village in Yogyakarta Province because it is the biggest meat supplier in Yogyakarta, and it also supplies the meat to the outside of Yogyakarta Province. Bawuran village is closely located to Segoroyoso village, but the cattle production in the area is so different compare to Segoroyoso village.

3.3. Research Stage

The field research was conducted on July – August, started by identified of input (Population, Unit Analysis and Sampling Methods). Population in the research consists of cattle breeders in Segoroyoso and Bawuran Village. The unit analysis is cattle breeder included in local breeder association. The sampling method is purposive sampling.

This research is a case study in which based on deductive logic. Technique of data collection and analysing in this research is both of quantitative and qualitative. This research collects information from sources in a population by survey. The stages of the research are:

a) **Preparation,** consist of:
   1. Formulate the background, problem, research question, objective, benefit and the originality of the research
   2. Formulate the concept and the theory to "social capital" and "productivity"
   3. **Formulate the objective and the research method**
   4. **Arrange the literature**

b) **Research Implementation**

Data compilation is done by:
   - Survey (Interview by guideline/structured interview, and general interview /non-structured interview).
   - Observation by field trip to identified the research.
   - Secondary data collection from many related institution.

The secondary data needed to be collected form related institutions (Figure 1.1.) Those data needed gain and support information in primary data based on the variable above are:
   - The profile and characteristics of community
   - The Local Organizational Profile

The overall objective of the institutional profile is to delineate the relationship and networks that exist between formal and informal institutional operating in the community, as a measure of structural social capital.

c) **Data Analysis**

Field data of interview result, secondary data and observation result are processed both of qualitatively and quantitatively. The data processing will be analysed and be compared based on the two villages data to get a provisional conclusion. The comparison of the provisional conclusion and the theory base will result a final conclusion.

Empirical data that had been completed are analysed by both of qualitative and qualitative approach. Analysis of phenomenon is done by compare the characteristics and facts in each location to get the provisional conclusion. Input data and analysis will product the final conclusion.

d) **Formulation**
   - Final report
   - Recommendation

The research stages are described in the research framework (Figure 3.1).

3.4. Survey Pilot

The objective of survey pilot basically is to test the quality of the questions as research instrument, is the instrument reliable and valid? The survey pilot had been conducted to kelompok ternak Andini Mas (name of the local breeder association) located in Trimulyo village, Bantul Regency. The area is located ± 10 km from the research areas.

The survey pilot was done by test re-test, ask the same sample with the same questions or ask the same sample with the same questions, in different sentences but in the same meaning. The result of the survey pilot is that some questions are difficult to be answer and some confusing (network question with 2 option answer). It give us suggestion to *ask the questionnaire directly* to the sample and not just give the questionnaire to the sample for fulfilling and send back to us. The number of close questions for the breeders are 78 questions and it takes ± 2 - 2,5 hours for each breeder. But, after we did the real survey, it took at least 3 hours per breeder, because they were so interested if be asked about cattle productivity.

3. 5. Sample

Population of sample area is household who lives in the village and registered as inhabitant in 2002 (Village Statistic, 2002). To determine population for the research (the cattle breeder) is difficult because mostly, they are household who have cattle but they were not categorized as cattle breeders in local community's administration. The reason is because the cattle breeder is informal job opportunities, and can be categorized as farmer or trader as the main job. Data of Animal Health Agency of Plered Sub Rregency (2003) reported that household who has cattle in Segoroyoso and Bawuran village is 90% of the number of household.

Sample chosen are all cattle breeders included in breeder's organization in the village (Table 1). The breeder's members of breeder organization in Bawuran village are 40 households. Based on the data, then we determine the same sample in Segoroyoso village. The members of PPDSS are 27 breeders and we need one more breeder organization to make the balance of the sample.

Table 3.1. The sample of research

Village	Population	Breeders	Number of Breeder's organizations	Sample Location (Dukuh)	Sample (Household)	Name of breeder's organization
Segoroyoso	5.648 (2.044HH; 1.160 prs/KM2)	1.840 HH	3 (in Dusun Sego-royoso, Jembangan and Trukan)	Segoroyoso Jembangan	27 13	PPDSS Sukamaju
Bawuran	5.482 (1.436 HH; 1.103 prs/KM2)	1.293 HH	1	Jambon	40	Ngudimulyo

3.6. Unit of Analysis

Unit analysis of the research is household of cattle-breeder as member of group. Sampling unit of the research is same as unit analysis: cattle breeder group as a relationship form of persons. Sampling in the research is based on purposive sampling in which the sample is all of cattle breeder group in Segoroyoso and Bawuran village. Research focuses in cattle breeder as member of a community group in Segoroyoso and Bawuran Village.

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Table 3.2. Sources of Data

Source	Informant	Number of respondent
Segoroyoso village	Cattle breeder as members of organizations	All cattle breeders who are
Bawuran village	Cattle breeder as members of organizations	members of organizations
Breeder organization	The leader or persons who have influence or power	1
Community organization	The leader or persons who have influence or power	1
Local institutions	Head of:	
	Village institutions	1
	Neighbourhood associations	1
	KUD	1
	Informal Financial Services	1
	Government Bank	1
	Local Government	1

3.7. Variable
3.7.1. Dependent Variable: Productivity of Household

The dependent variable of the research is productivity of cattle breeders who are members of organization. Productivity is measured by comparing the input used in production process and the outcome produced. Both input and output based on the cattle as an input of breeders, farmers and traders. The productivity measured will be compared both in Bawuran and Segoroyoso villages to find the relationship to the push factor.

Table 3.3. Dependent Variable

Variable	Indicators	Practical Indicators	Method	Source
Productivity	Input	Number of cattle/breeder	Quantitative	Primary
		Area grassland/breeder	Quantitative	Primary
		Number kg fertilizer/ha	Quantitative	Primary
		Number kg additional fodder/head of cattle	Quantitative	Primary
		Number calves born/year	Quantitative	Primary
		Number cattle died/year	Quantitative	Primary
	Output	Number of cattle sold/year	Quantitative	Primary
		Age cattle when sold	Quantitative	Primary
		Weight cattle when sold	Quantitative	Primary
		Price/kg life cattle	Quantitative	Primary

3.7.2. Independent Variable: Social Capital

Basically, social capital has three basic sets of indicators (Figure 2.2.):
- membership in associations and network (structural social capital),
- trust and adherence to norms (cognitive social capital)
- collective action (an output measure)

All indicators are translated into practical indicators that can be applied in local situations.

Independent variable (see Table 3.3.) is consists of all indicators of social capital as an independent variable in the research. Basically all those indicators can be used to measure social capital in level of bonding, bridging and linking. Relate to the institutional framework (linking), the indicators used are linked to local organizations, how interaction does between

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household member of group (unit of analysis) to the groups that have relationship with, or the households do transactions with.

Adaptations needed during the observation in:
- Choosing the most appropriate topics relate to the community background
- Reviewing the question and answer codes that relevant to local context
- Translation into local language
- Perception of community for the indicators

Table 3. 4. Independent Variables and Indicators of Social Capital

Variables	Indicators	Practical Indicator	Methods	Technique	Sources
Network	Group	Groups (Type, density, diversity)	Quantitative (from qualitative data)	Interview	Primary
		Frequency of meeting attendance	Quantitative (from qualitative data)	Interview	Primary
		Connections to other groups	Quantitative (from qualitative data)	Interview	Primary
		Issues discussed	Quantitative (from qualitative data)	Interview	Primary
		Benefit for members	Quantitative (from qualitative data)	Interview	Primary
		Range of contributions	Quantitative (from qualitative data)	Interview	Primary
		Informal network (community's interview)	*Qualitative*	*Interview, mapping, diagramming*	*Primary*
	Information flow	Information flow	Quantitative (from qualitative data)	Interview	Primary
Trust	Trust & solidarity	*Perception of trust*	*Qualitative*	*Interview (Open)*	*Primary*
		Problem solving	Quantitative (from qualitative data)	Interview	Primary
		Taking Risk	Quantitative (from qualitative data)	Interview	Primary
		Trust to other breeder	Quantitative (from qualitative data)	Interview	Primary
		Dispute mediation	Quantitative (from qualitative data)	Interview	Primary
Norms & Rules	Norms & Rules	*Perception of norms and rules*	*Qualitative*	*Interview (Open)*	*Primary*
		Agreement of quality of beef cattle	Quantitative (from qualitative data)	Interview	Primary
		Sanctions	Quantitative (from qualitative data)	Interview	Primary
		Mutual help	Quantitative (from qualitative data)	Interview	Primary
	Collective action	Breeder's problem solving	Quantitative (from qualitative data)	Interview	Primary

Some indicators based on World Bank Working Paper No. 18, 2004.

3.8. Analysis of Variable

Data collection of the research will be analysed by quantitative and qualitative. The dependent variable will be analysed quantitatively, and independent variable will be both analysed qualitatively and quantitatively (based on qualitative data). Fusion of quantitative and qualitative is done because of the limitation of type of data.

Based on the result of the fieldwork, data questionnaire will be analysed using statistic analysis to describe the relationship between dependent and independent variable.

3.8.1 Factor Analysis

Factor analysis is used to uncover the latent structure (dimensions) of a set of variables. It reduces attribute space from a larger number of variables to a smaller number of factors and as such is a "non-dependent" procedure (that is, it does not assume a dependent variable is specified). Factor analysis could be used for any of the following purposes:

- To reduce a large number of variables to a smaller number of factors for modelling purposes, where the large number of variables precludes modelling all the measures individually.

- To select a subset of variables from a larger set, based on which original variables have the highest correlations with the principal component factors.

- To create a set of factors to be treated as uncorrelated variables as one approach to handling multi collinearity in such procedures as multiple regression

- To validate a scale or index by demonstrating that its constituent items load on the same factor, and to drop proposed scale items which cross-load on more than one factor (www.staff.ncl.ac.uk)

3.8.2. Regression Analysis

The use of regression analysis is to detect the effect of independent variable of network, trust and rules and norms to dependent variable of cattle productivity. If Yij represent a measure for cattle productivity, social capital is determined by individual characteristics of network (X_1), trust (X_2) and norms and rules (X_3). The general equation is:

$$Yij = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + e$$

In which,
a = constanta,
b = regression coefficient
e = dummy variable

The regression analysis uses confidence level of 95% (probability value = 5%). The regression analysis is not used to predict the value of dependent variable, but to test the hypothesis of the effect of independent variables to dependent variable. Linier regression analysis is used to detect the most influence variables that affect the dependent variable.

Generally, the hypotheses are:
H_0 = Variables Xi/e have no effect to Y
H_1 = variables Xi/e have effect to Y

The criterion for test the hypotheses are:
   a. Reject the H_0, if the probability value $< 0,05$
   b. Not reject the H_0, if the probability value $> 0,05$

The method of regression analysis in this research is by Enter methods, in which all variables are used in analysis. Regression analysis is used also to analyze the relationship between indicators (Xi-i) and the variables (Xi) in the same methods. For ordinal data, it needs standardization of data by Z Score. The study will primarily concern with the standardized regression coefficient since these can be utilized in all compulsory the association between independent and dependent variables both in direct and indirect effects.

3.8.3. Qualitative Analysis

Qualitative analysis is used to analyse qualitative data gained from open questions, qualitative (nominal) close questions, and observation that explain quantitative data. Generally the analysis explore the evidence during the research survey relate to the theoretical background. Qualitative analysis has an important rule to prove the hidden phenomena in close questions.

Qualitative instruments are useful for gathering information on how motives, attitudes, and preferences affect economic behavior, perceptions, and the barriers and opportunities that determine cattle productivity. These instruments are not intended to be statistically representative or to reflect measures of central tendency; rather, they yield information that is primarily descriptive but can broaden the field of inquiry to include questions, issues, and factors that are otherwise likely to be missed in quantitative instruments.

3.9. Scope (Level) of Analysis
The scope of the research is the effect of social capital to community's productivity in Bawuran and Segoroyoso village. The research focuses on the forms (sources) of social capital as components that are complementary one each other to the community productivity. The exogenous factors such as human capital, market and regulation, are assumed constant (in controlled).

3.10. Relationship of Variables

The figure shows the relationship of independent and dependent variable that will be prove in further analysis. Independent variable consist of dimensions in social capital and the dependent variable is cattle productivity. The presume is that there is relationship between the two variables and analysis will prove the presume and the extent of the relationship.

Figure 4.3. The relationship among independent (Xi/e) and dependent (Y) variables
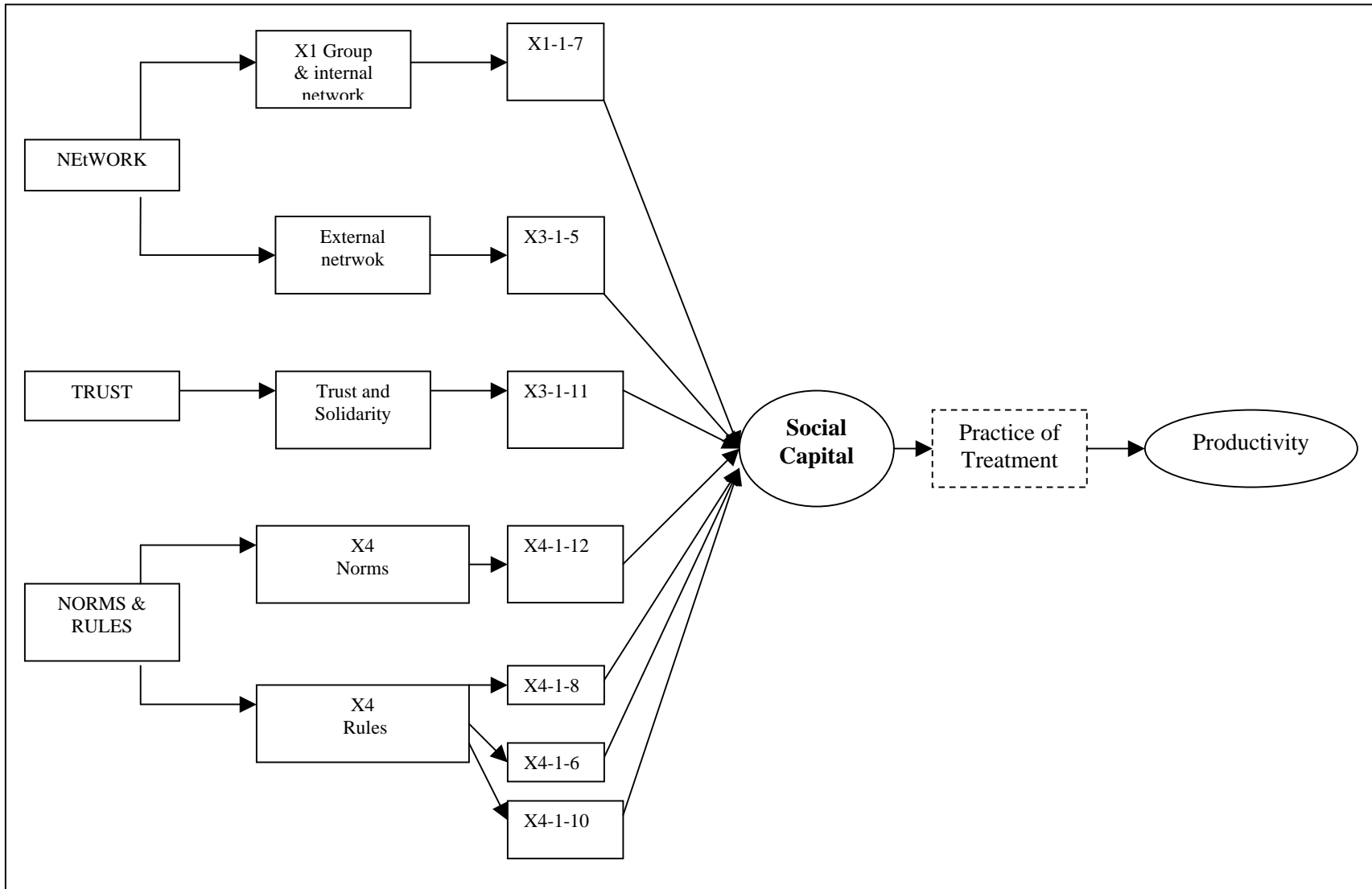
Figure 3.1. Research Framework
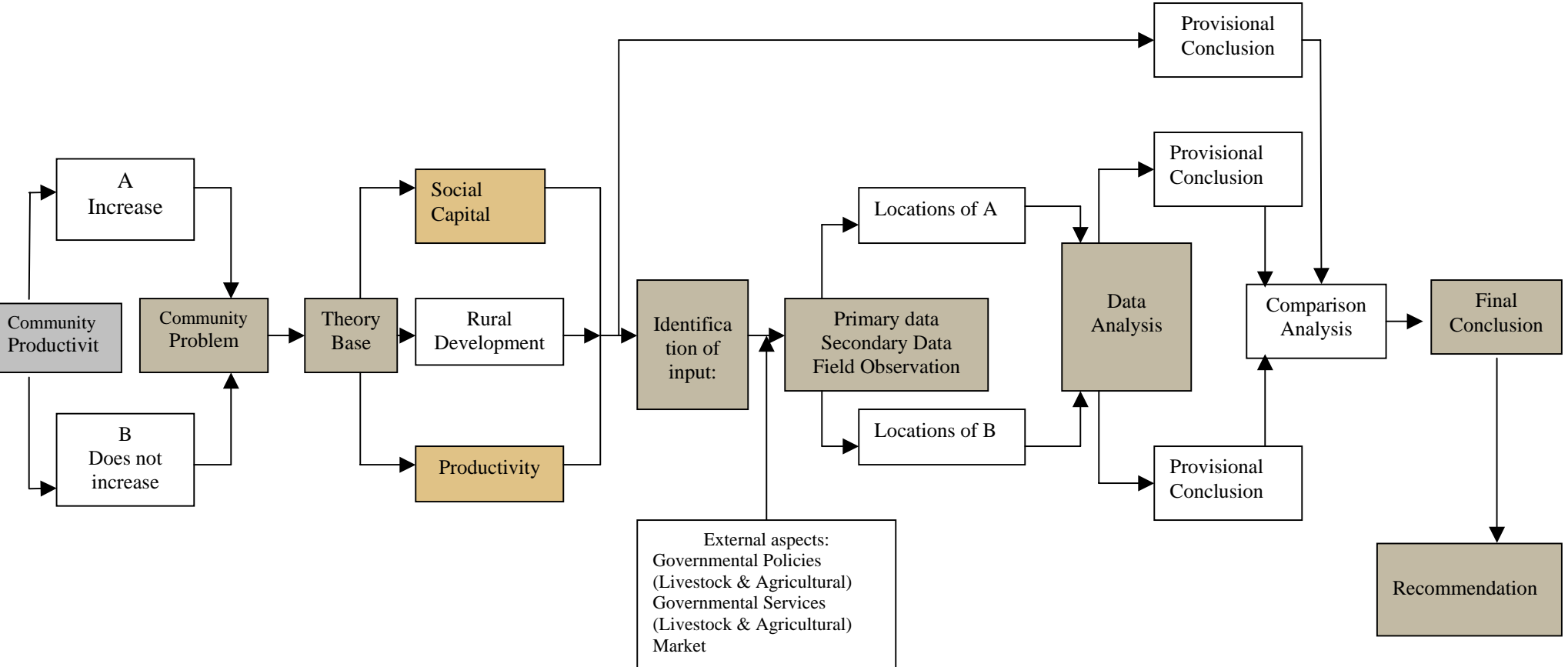
Chapter 4
Results

4.1. Research Areas
4.1.1. Description of Research Areas

Segoroyoso and Bawuran villages are two of 5 villages located in Plered Sub Regency (District), Bantul Regency, Yogyakarta Province. Village located in Plered Regency are:

Table 4.1. Number of Village in Plered Regency

No.	Village	Total Areas (Ha)	Number of Dusun (Sub Village)
1	Plered	4.25	11
2	Segoroyoso	4.87	9
3	Bawuran	4.97	7
4	Wonolelo	4.54	8
5	Wonokromo	4.34	12

Source : Survey Data

Based on registration of population in end year 2003, population and its distribution in Segoroyoso and Bawuran villages were:

Table 4.2. Population and its distribution

Village	Population	Dusun (Sub village)	Total areas (Ha)	Explanation
Segoroyoso	5.648	Srumbung	115.98	
		Jembangan	63.86	Research Area
		Kloron	17.34	
		Segoroyoso I	12.96	Research Area
		Segoroyoso II	42.17	Research area
		Trukan	75.28	
		Dahromo I	26.68	
		Dahromo II	94.68	
		Karanggayam	38.14	
		Total	487.09	
Bawuran	5.482	Tegalrejo	33.54	
		Bawuran I	95.69	
		Bawuran II	24.41	
		Sanan	49.52	
		Kedungpring	55.66	
		Jambon	99.31	Research Area
		Sentul Rejo	138.32	
		Total	496.95	

Sources: Plered in Figure 2003

Most area both in Segoroyoso and Bawuran village is non-productive area allocated for food crop (especially for paddy) and seasonal vegetables and fruits. Most of the area cannot be planted for paddy regularly by irrigation because of the location and the limited water available. The paddy plantation depends on the rainy season. The extent non-productive areas in those villages trigger the people living there to do alternative occupation beside as a farmer

Figure 4.1. Map of Research Location
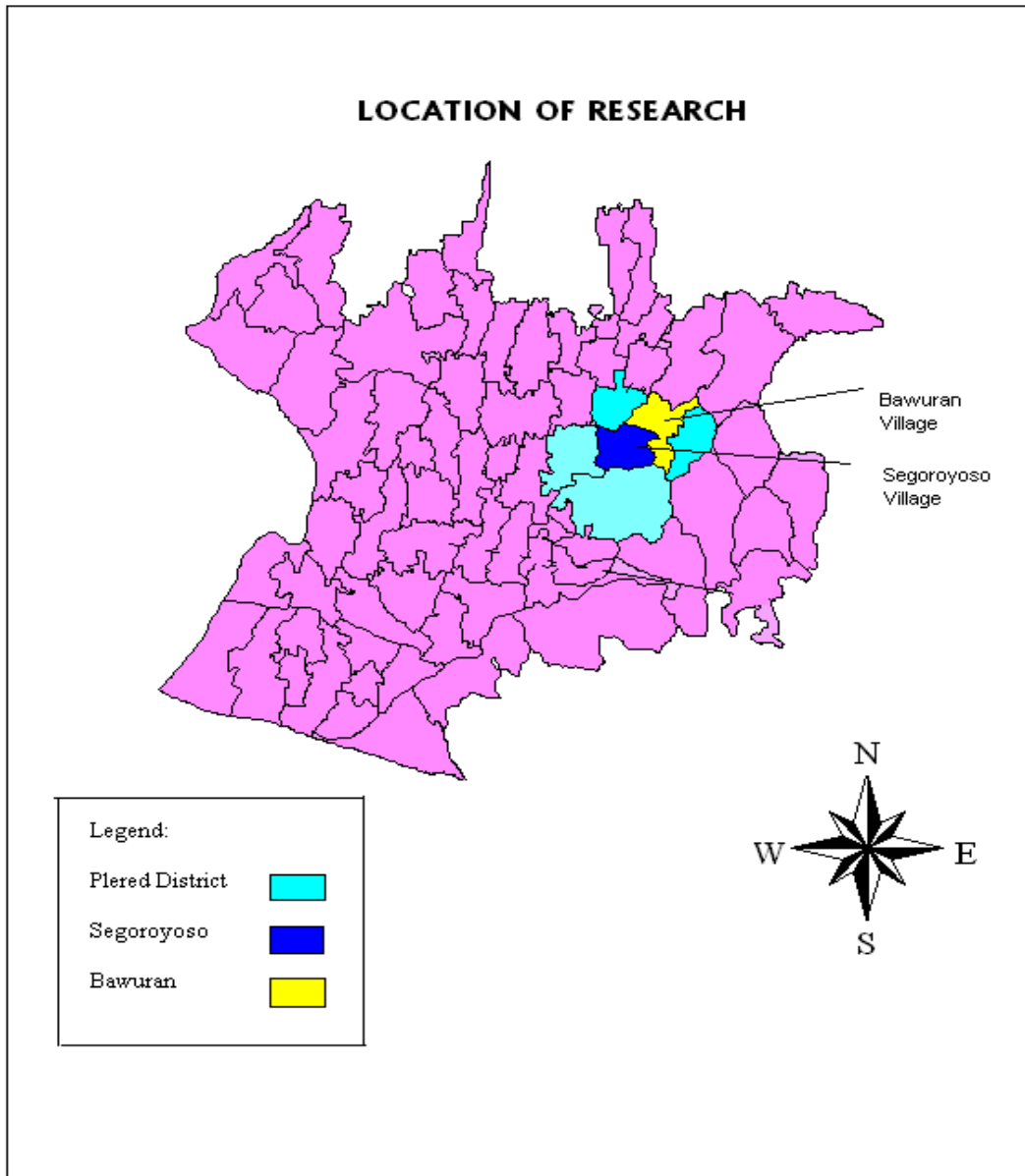
Table 4.3 Total areas and the functions

Areas Functions	Segoroyoso (Ha)	Bawuran (Ha)
Rain-fed paddy field (Sawah tadah hujan)	222.46	120.55
Dry land cultivation (Tegalan/kebun)	132.80	204.82
Yard (pekarangan)	94.05	112.68
Others	37.78	58.91
Total	487.09	496..96

Source: Plered in Figure 2003

Most of population in Segoroyoso and Bawuran village are employed in traditional agriculture, with a substantial subsistence component. Nearly, all agriculture is rain-fed, labour intensive depending primarily on household labour, hand-uses almost no modern input and uses only a few rudimentary tools with an almost complete lack of mechanization.

4.1.2. Historical Data of Breeder Development

The cattle breeder development in Segoroyoso village had started since year of 1960s when there were some slaughters lived and developed their skill in horse breeding and slaughtering. The increasing of meat demand made the slaughters developed their capacities, not only in horse slaughtering but also in cattle breeding. Slaughter (Jagal sapi = local, java language) is a specific skill and mostly, the skill was passed on from old to other generation down within a big family and made it as a locale genius

Before 1990s, breeders in Segoroyoso and Bawuran village had similar treatment of cattle breeding, in a traditional system. In 1990s, local government gave aids for enhancing the local capacity by gave cattle for poor households in Segoroyoso and other programs related. The increasing of meat demand had led the cattle development in Segoroyoso grows fast. Almost all of household in the village (90%) have cattle (Plered in Figure 2003), because despite it can enhance their livelihood, it is also easier to get a immediately need (urgent need) of cash fund, because it is easier to sell cattle every time they need money than to sell other materials.

In 1990s, the treatment for cattle start to shift from traditional system to fattening system in order to achieve the target weight in certain time to gain higher profit. The slaughters who also have cattle (they are slaughter and also breeders), had an initiative to form a breeder association and further the association developed not only for slaughter but also for breeders who do not have skill in slaughtering. The increasing members had made the association be formed not in only Segoroyoso Dusun (Sub Village), but also in Jembangan and Trukan Dusun.

Cattle breeding in Bawuran village had a similar starting point compare to Segoroyoso village. Most breeders in Bawuran village treat their cattle in traditional way, and most of them did their cattle breeding not as a primarily but as a second occupation. Succeeds of cattle fattening in Segoroyoso had triggered the breeders in Bawuran to do the same thing. The fattening system had applied by Bawuran breeders since 1985s and they developed a breeder organization in 1995. Not all cattle breeder associations have group cattle stall. Bawuran village has a group stall located in Jembangan dusun. The stall developed 7 years ago to

maximize the better treatment and minimize the environmental effects. The stall land is given from village treasury land (tanah kas desa) for breeders who have limited land to develop the cattle. The stall is also developed in Segoroyoso village (in Trukan dusun). The aims of the developing are same, but because of the limitation of the land, not all breeders can place their cattle there. The stall just for the breeders located surrounding the stall.

The poor condition of Bawuran village had made local government gave many aids through related program and incentives, but not in specific programs for cattle breeding such as in Segoroyoso village. Up to now, compare to Segoroyoso, the aids and material provided by local government is more in Bawuran than in Segoroyoso, but aids from government for local poor people in Bawuran have not changed its poor village condition to be non poor village yet. The village is still categorized as poor village.

4.1.3. Local Cattle Treatment

Generally, cattle treatment can be split into two categories: traditional and semi modern treatment. Traditional system relates to the feeding that do not optimal both in quantity and quality, and the cattle are part of agricultural occupation. Semi modern (more develop system) consists of three kinds: breeding (reproduction), feeding and management (stall, general treatment, treatment for illness and marketing)(Kanisius, 1980). All the cattle treatment had been done in government program of Panca Usaha Ternak Potong (PUTP, Five Efforts of Cattle Breeding) that consists of:
- Use a good breed
- Give a good quality of food
- Good and healthy treatment
- Treatment for illness and common diseases
- Profitable marketing

The kinds of cattle that had been developed by breeders are local (java cattle, Bali cattle) and Europe cattle (Bos Taurus; Java = metal, sub mental, limoesin). Most fatteners choose bos Taurus because they are faster to get optimum weight in certain time compare to local cattle. Local cattle are also developed because the population is high and so the price of baby cattle (new calves) is lower than Bos Taurus.

Cattle breeders both in Segoroyoso and Bawuran village do dry lot fattening (rather than pasture fattening), in which they focus on feeding for their cattle. The food consists of bean, corn, residual extracted of paddy, and other additional food that is mixed.

4.2. Data and Measurement

Social capital can be measured in two different ways, by measuring the membership of formal and informal groups the respondent joining and by measuring informal interdependence based on people's involvement in collective action activities. This research conducts questions that enable us to create the level of social capital using both of the two approaches.

4.2.1. Network

Network is an important variable of the use of social capital in the case of Segoroyoso and Bawuran village. We describe the network questions into two categories, internal and external. Internal network relates to the relationship among breeders, and relationship among breeders and other actors with similar characteristic in both the same village and in the different village (outside the village). External network is relationship among breeders and institutions (formal and informal) as external factors for the breeders. The result of the fieldwork describes the differences of them.

4.2.1.1.   Internal Network

Questions about internal network were simply the number of group in which an individual (household representatives) was a member. It relates to their activities, participation, money contribution and the connection to other group that effect their opinion of the group performance in general.

Table 4.4. Internal Network in formal group

Type of Group	Segoroyoso				Bawuran			
	A Number of group joined	B Most important group	C (%) Particip.	D (%) Contri-bution	A Number of group joined	B Most important group	C (%) Particip.	D (%) Contribution
Breeder group or cooperation	35 (87.5%)	30 (85%)	L= 17.5 M= 52.5 H= 17.5	L= 12.5 M = 12.5 H = 62.5	38 (95%)	38 (100%)	L= 85 H= 15	L= 100
Trader and business association	27 (67.5%)				3 (7.5%)			
Neighborhood or village committee (RT)	38 (95%)	30 (79%)	L=7.5 M=32.5 H= 55	L= 23 M = 2 H = 13	40 (100%)	37 (92.5%)	L=10 H= 60	L =97..5 H=2.5
Religious group	38 (95%)	9 (24%)	H = 22.5	L=9	38 (95%)			
Finance (credit, saving) group	15 (37.5%)				37 (92.5%)			
Sports group	7 (17.5%)	6 (86%)	H = 15	H=6	2 (5%)			

Source: Survey Data
Note: A= Number of group as a percent of all membership   L   = Low
             B = The most important group for breeder at present   M   = Medium
             C = Participation in group activities (%)   H   = High
             D = Money contribution in group activities (%)

There are 3 breeders association in Segoroyoso village: PPDSS (Persatuan Peternak Daging Sapi Segoroyoso, located in Segoroyoso Dusun), Suka Maju (located in Jembangan Dusun), and Kelompok Peternak Dusun Trukan. The breeder association in Jembangan village is only

1 (one), namely Ngudi Mulyo located in Jambon Dusun. Beside the breeder association, most of household is included in neighborhood committee and Muslim's association. Both two associations are important for community for gain information, socialization and discussion about community livelihood.

Question (11) benefit of joining the group (have similarity with question (10) issues discussed and (12) access to services) explains the benefit of involving to breeder's organization for the breeders. The combination of those questions and open questions explain the question remark of how does social capital affect the breeder's productivity.

The results below are the question having differences of answer's value and have important weight for social capital. Internal network here explains the network among breeders in their organizations. It relates to the benefit of their activities in organizations as a form of collectivity. We skip the other questions that have similar result of answer.

Table 4.5. Service Access as benefit of joining group activities

Access of groups	Segoroyoso	Bawuran
A. Education or training	5	22
B. Market access	4	15
C. Agricultural input or technology	21	29
D. Credit or Savings	30	17
E. Information	32	31
F. Other (specify)	4	0

Source: Survey Data

Breeders in Segoroyoso have different opinion about the output of included in groups. More than 50% breeders in Segoroyoso answer that group help them to get access to information, credit and agricultural input, and join to breeder association help them to solve cattle problem and to improve their quality of life. Breeders in Bawuran have opinion that mostly, joining to group helps them to get access to information, agricultural input and training rather than access to credit.

Table 4.6. Issues discussed in group meetings

Issues discussed	Segoroyoso	Bawuran
Training	3	1
Market access	9	12
Credit access	3	1
Problem solving	12	21
Does not know	13	7

Source : Survey Data

The opinion about issues discussed during group's meetings, the benefit of joining the group and the access provided by the group affect the member's contribution in-group activities. The more they get the benefit the more they contribute both in material and non-material contributions (Table 4.4). In Segoroyoso, member's contribution in neighborhood's committee is low, but the contribution for breeder association mostly is high. It is caused of the lower benefit they got from neighborhood association than the benefit of breeders association.

Table 4.7. Main benefit of join the group

Main benefit	Segoroyoso	Bawuran
Improve quality of life	9	18
Network	1	0
Problem solving	25	17
Training	0	1
Other	4	3

Source : Survey Data

4.2.1.2. External Network

Questions of external network focus on the external organizations that give benefit both direct and indirect to the productivity of cattle. Based on the observation, we determine the organization here as government and bank to simplified the question for breeders.

Table 4.8. External network of breeders in Segoroyoso and Bawuran village

No. Questions	Segoroyoso	Bawuran
61. *Local government support the breeder's association*		
Strongly agree	0	5
Agree	**18**	**31**
Neither agree nor disagree	6	1
Disagree	12	2
Strongly disagree	2	0
Don't know	0	1
62. *Local government provide aids to enhance the capacity of breeders*		
Strongly agree	0	3
Agree	10	**14**
Neither agree nor disagree	10	1
Disagree	**16**	2
Strongly disagree	2	0
Don't know and prefer not to respond	2	**20**
63. *Bank and informal financial services lend money*		
Strongly agree	3	0
Agree	**24**	6
Neither agree nor disagree	0	5
Disagree	7	3
Don't know	3	**26**
64. *The institutions (bank and government) help to solve the cattle problems*		
Strongly agree	0	2
Agree	**17**	8
Neither agree nor disagree	9	0
Disagree	8	5
Strongly disagree	1	2
Don't know and prefer not to respond	5	**22**
65. *Government rules for cattle development give benefit for breeders.*		
Strongly agree	0	3
Agree	3	**20**
Neither agree nor disagree	4	3
Disagree	10	1
Strongly disagree	1	0
Don't know and prefer not to respond	**22**	13
Number of respondents	**40**	40

Source : Survey Data

Table 4.8 describes that most breeders in Segoroyoso village have lower level of interaction to government than in Bawuran village. But the interaction between breeders and bank (formal and informal) in Segoroyoso village is higher than in Bawuran village. The explanation of the interaction relates not only to the network variable but also to the trust among breeders and both of government, bank and other institutions.

4.2.2. Trust

Trust among breeders implies the cognitive social capital that enables them to do collective action and network. Questions of trust relate to actions among breeder to solve their problem and taking risk collectively, that all the activities based on trust among people (neighbourhood) and breeders. The result below involves questions with have differences between the two villages and skip questions with have similarity of the answers.

Table 4.9 Trust among breeders in Segoroyoso and Bawuran village

No. Questions	Segoroyoso (%)	Bawuran (%)
19. If I have to go away, I ask my neighbour/fellow stock breeder to watch my cattle		
Agree strongly	0	2,5
Agree somewhat	**62.5**	**77,5**
Neither agree nor disagree	0	0
Disagree somewhat	**37.5**	17.5
Disagree strongly	0	2.5
20. When I have to solve a problem, it is difficult to fid fellow stockbreeders to help		
Agree strongly	7.5	2.5
Agree somewhat	2.5	**45**
Neither agree nor disagree	2.5	5
Disagree somewhat	**82.5**	42.5
Disagree strongly	5	5
23. I am willing to join for the loan under condition that the breeders guarantee each other loan		
Agree strongly	37.5	10
Agree somewhat	**52.5**	**40**
Neither agree nor disagree	0	10
Disagree somewhat	2.5	35
Disagree strongly	0	5
25. If I were offered to take a bank loan that I guarantee with my cattle, I will take the opportunity		
Agree strongly	25	5
Agree somewhat	**55**	35
Neither agree nor disagree	0	0
Disagree somewhat	12.5	**45**
Disagree strongly	0	0
26. The stock breeders in this village can generally be trusted		
Agree strongly	7.5	22.5
Agree somewhat	**77.5**	**75**
Neither agree nor disagree	0	2.5
Disagree somewhat	5	0
Disagree strongly	5	0

N = 40 households / village
Souce : Survey Data

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Breeders in Segoroyoso have strong trust to financial services providers (bank and other providers) and they tend to do taking risk collectively, because of the high trust among breeders (82.5%). The high level of trust also benefits them to solve problem. The diffusion of information among breeders as an output of network makes them easier to solve cattle problem.

4.2.3. Norms and Rules

Norms and rules relate to the process of how breeders share the knowledge to treat their cattle. Questions of norms and rules are determined into two categories, norms (opinion of norms among breeders) and rules (treatment to cattle). For going to depth interview, we split the rules questions into reproduction, feeding and general rules (consists of treatment for illness and common diseases and marketing). We recognize that between the villages has difference norms and rules in cattle breeding and fattening, but we will look focus on the process of sharing information for cattle productivity improvement. The different treatment does not matter; the important thing is the strong norms among breeders for the best treatment for cattle productivity. It will look at the high score of same norms (same answer in each question) in which high score explain the strong norms among them.

Table 4.10 Norms among breeders

Norms	Segoroyoso (%)	Bawuran (%)
51. Most of my fellow stockbreeders have the same opinions on stockbreeding as I have		
Agree strongly	5	2.5
Agree somewhat	47.5	57.5
Neither agree nor disagree	2.5	17.8
Disagree somewhat	45	22.5
52. We often discuss about what the best way of stockbreeding is		
Agree strongly	7.5	7.5
Agree somewhat	72.5	85
Neither agree nor disagree	0	5
Disagree somewhat	20	2.5
53. It is no importance that other breeders have different opinions		
Agree strongly	10	5
Agree somewhat	87.5	57.5
Neither agree nor disagree	0	17.5
Disagree somewhat	2.5	20
55. Low standard breeders should be excluded from the breeders association		
Agree strongly	5	0
Agree somewhat	10	17.5
Neither agree nor disagree	42.5	20
Disagree somewhat	42.5	62.5
56. Breeders who have low standard of stockbreeding bring shame upon the village		
Agree strongly	5	0
Agree somewhat	60	70
Neither agree nor disagree	22.5	12.5
Disagree somewhat	10	17.5
Disagree strongly	2.5	0

57. Every stockbreeders is welcome to the breeders association
no matter his ideas on and results in stockbreeding

Agree strongly	0	2.5
Agree somewhat	87.5	67.5
Neither agree nor disagree	5	7.5
Disagree somewhat	5	22.5
Disagree strongly	2.5	0

Source : Survey data

Table 4.10 describes the questions with different number of answers and it gives explanation about different treatment between breeders in the two villages. We skip other questions that have similarity of the answers. The result describes that breeders in Segoroyoso village (in some questions) have very strong norms for cattle treatment. In specific norms, all of them have same norms (100% give the same answer).

Table 4.11 Reproductions, Feeding and General Treatment (Rules) among

No. Questions	Segoroyoso	Bawuran
28. I do not pay much attention to the selection of the future bulls		
Yes	4	6
No	**36**	27
I don't know	0	7
33. I am interested in buying good cows and heifer calves from		
my fellow stock breeders		
Yes	**38**	29
No	2	10
I don't know	0	1
34. Do you think that your way of dealing with the reproduction of the		
herd is the most ideal way?		
Yes	2	16
I should improve	**38**	16
No, but it is difficult to improve	0	7
I have no idea	0	1
38. I feed them additional concentrate		
Yes	1	24
No	**36**	16
I don't know	3	0
40. Do you think your way of feeding is the most ideal way?		
Yes	2	16
I should improve	**37**	15
No, but it is difficult to improve	1	9
42. I check them on a regular basis		
Yes	**39**	26
No	1	14
47. I always try to treat them for illness		
Yes	**40**	22
No	0	15
I don't know	0	10
54. Do you think that you generally deal with the cattle in the most ideal way?		
Yes	2	6
No	**36**	26
I don't know	2	8

Source : Survey Data

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The rules among breeders in Segoroyoso village are stronger than breeders in Bawuran village. It is described by the high number of the same answer in each question of rules. The information flow of the rule distribute to almost all breeders so they do the same rule of best practices. Most breeders in Bawuran village get limited information of the best practices, so each breeder treat his cattle by his knowledge and mostly, each breeder has different treatment.

4.2.4. Cattle Productivity

Table 4.12 below is the mean of cattle productivity in both two villages. It describes the differences of cattle productivity between them. We recognize that there is different scale of cattle business in the two villages (look at the mean of number of cattle), but the focus is on the differences between average weight growth of cattle/month despite other measures of productivity that consist of the differences between: number of cattle the have one year ago and now; the different input they need (fertilizer fro grass and additional feed); number of new cattle born and cattle died; number of cattle sold and bought and age, weight and price of cattle when it sold.

Table 4.12 Productivity of Cattle (Means and SD)

Indicators (Input-Output)	Segoroyoso	Differences	Bawuran	Differences
66. Number of cattle now	37.43 (46.35)	4	2.15 (2.77)	0,03
67. Number of cattle one year ago	33.43 (33.49)		2.18 (1.81)	
68. Fertilizer for grass needed/ha (kg)	100 (135.87)		67.5 (0.54.18)	
69. Additional feed needed/head cattle (kg)	5.53 (2.18)		2.6 (0.90)	
70. Number of new calves born/year	1.88 (3.47)	1,75	0.8 (0.52)	0,8
71. Number of cattle died/year	0.13 (.52)		0	
72. Number of cattle sold/year	20.1 (27.73)	0,48	0.53 (0.64)	-(0,30)
73. Number of cattle bought/year	20.58 (39.83)		0.23 (0.48)	
74. Age, weight and price of cattle when it was sold (year)	1.1 (1.08)		2.33 (1.40)	
75. Weight of cattle when sold (kg)	267.53 (246.37)		0 (Do not know)	
76. Price/head live cattle (Rp)	2.63 (1.00) (4-6 jt)		1.08 (0.73) (<4 jt)	
77. Average weight growth / month (kg)	**29.13** **(14.14)**		**1.9** **(3.54)**	

Source : Survey Data

This table shows huge differences between average weight growth of cattle/month between Segoroyoso and Bawuran village. The differences mostly had happened because of the low information gotten among breeders in Bawuran. Most of them did not know the average weight growth / month of their cattle because they do not have a profit thinking of cattle productivity, but they believe that approximately the growth is not far from the mean. Only 4

breeders (10%) from 40 respondents who answers the average weight growth in economic view (about 10-15 kg/ month), and the growth is still lower thn the target growth of breeders in Segoroyoso. This case is different if we compare to the result in Segoroyoso. All breeders in Segoroyoso (100%), from smallest scale (have 1 cattle) until the biggest scale (have more than 200 cattle) answer the average weight growth/month exactly. The always calculate the weight target that cattle should accomplish and the input for cattle (food, medicine, additional food) per month.

The differences focus on the real improvement of cattle productivity. The different scale of business as we can see in the (huge) different amount of cattle ownership, because of some (4 breeders) have more than 100 cattle and it influence the mean of cattle ownership in Segoroyoso village (Table 4.13).

Table 4.13 The scale of cattle ownership in Segoroyoso village

Number of cattle	>199	100-199	50-99	25-49	10-24	<9
Number of breeders	1	3	8	6	7	15

Source : Survey Data

4.3. Combine Dimensions of Social Capital

4.3.1. Scale of Social Capital

Scale of social capital is a measurement method that had been conducted by General Household Survey, Health Department Agency of England, 2000. Summaries variables are produced by combining the answers to different questions, with the value depending on the answer based on descriptive statistic. The score should be equivalent across questions with range from –2 to +2 and using 0 for neutral or don't know answers.

Table 4.14 The Scale of Social capital in Bawuran and Segoroyoso village

Village	Network			Trust	Norms & Rules
	Internal	External			
		Bank & IFS	Government		
Bawuran	282	8	83 **High**	237	1459
Segoroyoso	351 **High**	30 **High**	-13	350 **High**	1770 **High**

Source : Survey Data

Table 4.14 shows the scale of each dimension of social capital. It shows that breeders in Segoroyoso have higher scale of internal network, external network to bank and IFS, trust and norms. Breeders in Segoroyoso have lower scale in the relationship to government. The fact relates to the historical background of those villages, in which Bawuran has still categorized as poor village and Segoroyoso had alleviate its poor. Poor condition made Bawuran got some programs for it, more often than Segoroyoso did. The scale of (-13) explains the lack of trust among breeders to local government and they have bad opinion about the local government that had made a weak relationship. It is such a good support for Segoroyoso, in which the non-

poor condition made them independence from some government 's aids and the village development goes faster rather than if it depends on aids and other incentives from external.

The interesting result occurs in the scale of external network to bank and informal financial services providers (IFS). Breeders in Segoroyoso have strong relationship with Bank and IFS because they often got loans from them and the loans helped them to solve financial problems. The relationship occurred by breeder's initiatives themselves, and not because of government support or pressure.

4.3.2. Statistical Analysis

Statistical analysis is used to analyze the quantitative data in each variable. We use statistical methods of Factor Analysis and t test to reduce the data ad to compare means between variable. But the primarily statistical techniques are correlation and multiple regression analysis.

Figure 4.2. Analytical Methods
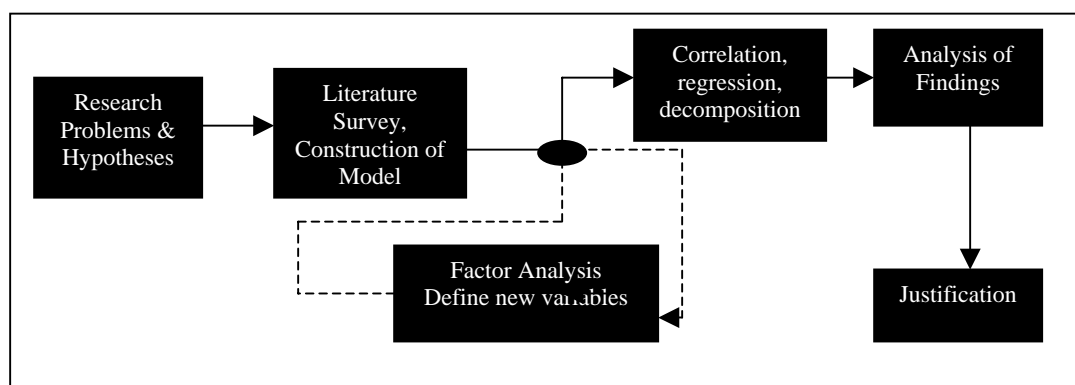
(Source: Jae, 1975)

4.3.2.1. Factor Analysis

The survey results were analyzed using factor analysis. Factor analysis is a well-established statistical technique for classifying large number of interrelated variables into a limited number of dimension or factors. The purpose using factor analysis in this research is to identify any underlying attitude towards social capital perspectives within breeders in both two villages. The underlying pattern can be represented as clusters (factors) or closely related responses to particular sub-sets or group questions, where the statistical analysis seeks to minimize the within-group variation of responses and maximize the between group variation. The results of this analysis are typically reported as the factor loading – the correlation between the responses to an individual statement and the group to which it belongs (Newcastle Univ, 2000)

To test the hypothesis, this research used the factor analysis before do regression and correlation. Factor Analysis used to reduce the complexity of the independent variables as imply in the survey questionnaire. The stages in factor analysis are defining variable domain, method of factoring of principal component, factor rotation of varimax rotate, naming the factor, and building composite indices (factor score) from the factor score coefficient matrix.

4.3.2.2. Varimax Rotated Principal Component Analysis on Independent Variables

Variable domain defined in this analysis based on the dimensions of social capital that involves network (internal and external), trust, norms and rules. The huge numbers of indicators in each dimension affect its co linearity. Tables below describe the highest factor loading and hide the lower factor loading.

Table 4.15 Varimax Rotated Principal Component Analysis of Internal Network

Internal Network	Factor 1	Factor 2	Factor 3
	Interaction	Motivation and financial matter	Participation
Participation (decision making)			-.572
Participation (number of group joining)			.515
Participation (meeting attendance)			.784
Financial Contribution		.630	
Motif to join		.784	
Interaction	.742		
Money provider in urgent matter		-.654	
Invitation	.698		
Eigen Value	1.733	1.605	1.393
% Variance	21.658	20.064	17.415

Source : Survey Data

Factor extracted from internal network dimension (Table 4.15) consist of 3 factors from 8 variables involve, namely:
a. Interaction that consist of active interaction and passive interaction based on invitation of households' members and groups they are joined;
b. Motivation and financial matter (of joining the group) that explain the contribution of household who included in groups, their motivation in joining the groups and the financial providers who they expect whenever they need immediately cash.
c. Participation in groups, that consist of participation of respondents in group decision making, in meeting attendance and the number of group they have been joined.

Table 4.16 Varimax Rotated Principal Component Analysis of External Network

External Network	Factor 1	Factor 2
	Financial support	Regulation support
61. Government Support		.878
62. Government Aids	.833	
65. Regulation		.729
63. Loan from Bank	.826	
64. Bank offer Problem solving	.821	
Eigen Value	2.261	1.326
% Variance	45.211	27.243

Source : Survey Data

The third factors extracted from variable of trust (Table 4.17). The result of factor rotating extract the high factor loading of factors tat consist of:

a. Risks taking that conclude the questions of mutual help among people and the ability to taking risk both individually and collectively. The factor namely risk taking relate to the low level of breeder's risk taking because of the high level of mutual help among people whenever they got in troubles.
b. Mutual help that involves the activities giving mutually benefit based on trust.
c. Trust to breeders that consist of level of mistrust to environment (stranger people) and trust to breeders.
d. Sharing information (among breeders). It describes the importance of discussing the cattle problems to learn one each other.

Table 4.17 Varimax Rotated Principal Component Analysis of Trust

Trust	Factor 1	Factor 2	Factor 3	Factor 4
	Risk taking	Mutual help	Trust to breeders	Sharing Information (among breeders)
Mutual help				
17. Mutual help (+)	.748			
20. Mutual help (-)		.615		
Taking risk				
23. Collectively	-.628			
25. Individually	-.886			
Level of mistrust				
18. To people		-.614		
22. To breeders				-.728
21. To environment (unsafe)			.622	
Level of trust				
19. Trust to people		.748		
24. Sharing information				.689
26. Trust to breeders			.802	
Eigen Value	2.013	1.554	1.381	1.231
% Variance	20.129	15.544	13.812	12.310

Source : Survey Data

Table 4.18 Varimax Rotated Principal Component Analysis of Independent Variables

Norms	Factor 1	Factor 2	Factor 3
	Agreement of Treatment	Diversity	Sanction
50. Self opinion	.610		
53. Diversity treatment		.604	
54. Standard treatment	.817		
55. Sanction (excluded)			.714
56. Sanction (shame)			.771
57. Not agree to different ideas	-.662		
58. Restrictions for Membership		-.640	
59. Discussion of standard of breeding		.778	
Eigen Value	1.892	1.452	1.357
% Variance	23.648	18.155	16.968

Source : Survey Data

Dimensions of norms and rules are split into two variables of norms and variable of rules. Factor rotated of 8 variables in norms variable extract 3 factors namely agreement of treatment, diversity of treatment opinion and sanctions of a consequence being group's member (Table 4.18). Factor rotated of rules variable, in basic analysis, consist of reproduction, feeding and general rules (preventive treatment of diseases and marketing) that imply in 18 questions. The factor loading in rules extracted in 7 factors involving all three rules (Table 4.19).

Table 4.19 Varimax Rotated Principal Component Analysis of Independent Variables

Rules	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6	Factor 7
	Modern treatment	Productivity target	Repro-duction	Traditional treatment	Buying motif	Weakness	Grazing
27. Planning for future cattle			.727				
28. Selection future cattle						-.736	
29. Discussion for best treatment							
30. Buying motif for new calves					.791		
31. Keep motif for future cattle			.623				
32. Selection motif for future cattle			.796				
33. Expectations of buying new cattle					.717		
35. Grazing							.863
36. Fertilized grassland		-.594					
37. Additional food crops	.723						
38. Additional concentrate		.778					
39. Others	-.653						
41. Checking (un regularly)				.773			
42. Checking (regularly)	.665						
43. Sell (need cash)				.862			
44. Sell (in optimum weight)		-.673					
45. Disease Preventive treatment	.689						
48. Illness treatment (-)						.791	
Eigen Value	2.102	2.050	1.958	1.912	1.710	1.455	1.287
% Variance	11.680	11.390	10.880	10.624	9.502	8.085	7.149

Source : Survey Data

4.3.2.3. Regression analysis

Regression analysis is done based on factor score from the factor score coefficient matrix. It can be done by do multivariate among all (19) factors of social capital and cattle productivity; and by multivariate between each variable (Xi: Fit). The result will describe the extent of each variable has effect to the dependent variable and the extent of the decomposition of the independent variables have effect to dependent variable.

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4.3.2.3.1. Multivariate Analysis

Table 4.20 shows Adjusted R^2= 0.721 that means the 72.1% of observation variability of cattle productivity can be explained (affected) by social capital. The other 27.9% are effected by other variables. F value (11.771) is higher than F table (1.75) means that the regression equation can be used to predict the dependent variable.

By do regression analysis between each variable (X_i – Y), it gives the results that norms has lower effect to dependent variable (10.8%) compare to other variables (X_1, X_2, X_3, X4, X_5) and it also have higher value of standard error for estimate.

Table 4. 20 Result of Multivariate Analysis

Independent Variable	R	R^2	Adj. R^2	Std Error of the Est.	dF	F	Sig. (0.05)
Social Capital (19 factors)	.888	.788	.721	9.052	19 (60)	11.771	.000
Social Capital (19 factors + group performance)	.913	833	.776	8.111	20 (59)	14.716	.000

Source : Survey Data

The second regression analysis consists of 19 factors of independent variable and group performance factor as the intervening variable estimated. The group performance here is tested as a given variable and is not as a part of internal network that generally involve the group activities. The explanation for its value is 0 for Bawuran and 1 for Segoroyoso. The result of the analysis gives explanation that group performance increasing the R, R^2 and Adjusted R^2 and dF. It means that group performance gives contribution for the equation of the effect of social capital to cattle productivity.

4.3.2.3.2. Correlation Coefficient

Related to the regression analysis that had been done into 2 ways, the coefficient correlation also gives different result of those analyses. The first table (4.21) is correlation coefficient of social capital (19 factors) and the dependent variable. The table shows that there are 5 factors that significantly have correlation to dependent variable: internal network (3 factors), risk taking (trust) and agreement of treatment (norms). Variable of rules (7 factor) has no correlation significantly to dependent variable.

The different result occurs if we compare the result to Table 4.22. Table 22 is the correlation coefficient of 19 factors and group performance variable. The result is only 2 factors of social capital that correlate to dependent variable: factor of motivation and financial matter (part of internal network) and agreement of treatment (part of norms). In the matrix, trust and rule have no correlation for dependent variable.

Table 4. 21 Probability Value and Correlation Coefficient of Independent Variable (19 factors)

Independent Variables	Beta	t	Sig (0.05)	Zero Order	Partial	Justification
Constant	**15.450**	**5.2666**	**0.000**			Significant
F1: Group interaction	3.389	2.411	**.019**	..262	.297	Significant
F2: Motivation & Financial matter	5.715	3.708	**.000**	.625	.432	Significant
F3: Participation	3.031	2.137	**.037**	.332	.266	Significant
F4: Financial support	2.290	1.344	.184	.339	.171	
F5: Regulation support	.207	.173	.863	-.136	.022	
F6: Risk taking	3.996	2.669	**.010**	.588	.326	Significant
F7: Mutual help	-.140	-.095	.925	-.026	-.012	
F8: Trust to breeders	-1.771	-1.179	.243	-.483	-.150	
F9: Sharing information	1.477	.951	.345	.348	.122	
F10:Agreement of treatment	2.840	2.347	**.022**	.240	.290	Significant
F11: Diversity	-1.690	-1.305	.197	-.057	-.166	
F12:Sanction	.367	.285	.777	-.207	.037	
F13:Modern treatment	-.287	-.213	.832	.061	-.027	
F14: Productivity target	-.277	-.249	.804	.054	-.032	
F15: Reproduction	-2.283	-1.292	.201	.075	-.165	
F16: Traditional perspective	-.453	-.313	.755	-.167	-.040	
F17:Buying motive	-1.260	-.962	.340	-.330	-.123	
F18: Weakness	-2.692	-1.842	.070	-.422	-.231	
F19:Grazing	3.113	1.955	.055	.471	.245	

Sources: Survey data

Table 4. 22 Probability Value and Correlation Coefficient of Independent Variable (19 factors) and intervening variable

Independent Variables	Beta	t	Sig (0.05)	Zero Order	Partial	Justification
Constant	**6.824**	**2.896**	**.005**			
Group performance	**17.252**	**3.967**	**.000**	.802	.459	Significant
F1: group interaction	1.999	1.529	.132	.262	.195	
F2: Motivation & financial matter	4.590	3.256	**.002**	.625	.390	Significant
F3: Participation	1.578	1.193	.238	.332	.153	
F4: Financial support	1.244	.803	.425	.339	.104	
F5: Regulation support	-.189	-.176	.861	-.136	-.023	
F6: Risk taking	2.160	1.522	**.133**	.588	.194	
F7: Mutual help	.131	099	.921	-.026	.013	
F8: Trust to breeders	1.290	0831	.409	-.483	.108	
F9: Sharing information	-1.635	-1.023	.310	.348	-.132	
F10:Agreement of treatment	2.478	2.277	**.026**	.240	.284	Significant
F11: Diversity	-.699	-.589	.558	-.057	-.076	
F12:Sanction	1.524	1.280	.205	-.207	.164	
F13:Modern treatment	-.575	-.475	.637	.061	-.062	
F14: Productivity target	1.121	1.060	.294	.054	.137	
F15: Reproduction	-2.072	-1.716	.091	.075	-.218	
F16: Traditional perspective	-.117	-.019	.928	-.167	-.012	
F17:Buying motive	-2.072	-1.739	.087	-.330	-.221	
F18: Weakness	-2.400	-1.830	.072	-.422	-.232	
F19:Grazing	2.192	1.517	.135	.471	.194	

Sources: Survey data

4.3.2.3.3. Regression Equation

For this research, Yij represent a measure for cattle's productivity of each breeder. Regarding the theoretical background of social capital, social capital is determined by individual (household) characteristics of each dimension: network (X_{1-2}), trust (X_3) and norms & rules (X_{4-5}), and a random term of group performance (Z).

$$Y = B + B_0X_1 + B_1X_2 + B_2X_3 + B_3X_4 + B_4X_5 + B_tZ_t$$

In the further finding analysis, the equations basically are determined in five forms represent each dimension of social capital: internal network, external network, trust and norms & rules relate to the representing factors. The single social capital equation is defined by do regression analysis of 19 factors involves as the extraction of 5 variables.

Based on the regression and correlation coefficient (Table 4.20 and Table 4.21) it can be defined the regression equation of social capital:

$Y = 15.450 + 3.389\ f1 + 5.715\ f2 + 3.031\ f3 + 2.290\ f4 + 0.207\ f5 + 3.996\ f6 - 0.140\ f7 - 1.771\ f8 + 1.477\ f9 + 2.840\ f10 - 1.690\ f11 + 0.367\ f12 - 0.287\ f13 - 2.77\ f14 - 2.283\ f15 - 0.453\ f16 - 1.260\ f17 - 2.692\ f18 + 3.113\ f19$

The equation for social capital, which involves the intervening variable, is:

$Y' = 6.824 + 1.999\ f1 + 4.590\ f2 + 1.578\ f3 + 1.244\ f4 - 0.189\ f5 + 2.160\ f6 + 0.131\ f7 + 1.290\ f8 - 1.635\ f9 + 2.478\ f10 - 0.699\ f11 + 1.524\ f12 - 0.575\ f13 + 1.121\ f14 - 2.723\ f15 - 0.117\ f16 - 2.072\ f17 - 2.400\ f18 + 2.192\ f19 + 17.252\ Group\ performance.$

4.3.2.3.4. Justification

Based on the statistical analysis above, we can justify that independent variables having relationship to dependent variable (cattle productivity) are:

a. Internal network, consist of:
   - Group interaction (involves interaction and invitations)
   - Motivation (to join the group) and financial matter (contribution to group and money provider they expect in urgent)
   - Member's participation (in decision making, meeting attendance and number of group joining)

   The factors above are significant (level < 0.05) and have correlation to Y both in zero order and in partial with other factors.

   External factors that consist of financial and regulation support are not significant, in which it will not reject Ho and means that there is no effect of both two factors to Y. Factor of financial support has correlation to Y in zero order, but the correlation is weak in partial.

b. Trust, consist of taking risk (relate to financial support) and problem solving.
   Variable trust that consists of 4 factors but there is only 1 factor of risk taking that has

effect in significant level and it has correlation to dependent variable. Other 3 factors do not affect Y significantly.

c. Norms that involves group standard treatment
Variables of norms and rules are variables that have the most number involving, but within the factors, there is just 1 factor that is significant (has effect to Y), namely agreement of treatment (part of norms variable). All factors of rules (7 factors) are not significant (has no effect to Y), event though there are correlations among the factors to Y, both in zero and partial order.

d. Social capital equation

- F test in the regression equation above shows that F value is 11.771 (F table = 1.75). The higher value of F than F table means that the regression equation can be used to predict the dependent variable

- Adjusted R2 and Standard Error of the Estimate
Adjusted R2 defines the extent of a model can be used to make a prediction accurately. In the equation, the adjusted R2 = 0.721 that means the prediction of Y explained by social capital variable is 72.1% and the 27.9% is explained by other variables.
Standard error for estimate explains the probability of wrong prediction of Y. The big number of standard error most is caused by the big number of deviation standard in each data (Y, X, and f).

e. Intervening Variable

Intervening variable of group performance is a given variable existing within the sample population. The intervening variable strengthens the relationship in which it increasing the R, R^2 and adjusted R^2 significantly. It means that group performance increasing the relationship of social capital to cattle productivity and also the weight of intercept, but the absence of the variable do not make the relationship between social capital weak because the relationship is still high (R= 0.888, Adjusted R^2 = 0.721).

4.3.2.4. The External Factors

4.3.2.4.1. Entrepreneurship

The research problems started from a unique case happens in Segoroyoso as an important village in Yogyakarta Province in cattle development. The research started with the implicit question about "the local genius" that had made the village better than the surroundings beside the social capital factor. In theoretical review, the implicit question about the "local genius" still imply in the term of human capital, especially entrepreneurship that both direct and in-direct effect the success of the breeder.

We recognize that entrepreneurship has effect on cattle productivity in Segoroyoso, but it is not a peculiar. Entrepreneurship matters to other capital too (Fafchamp & Minten, 1999). As ability to taking risk, entrepreneurship is the (main) meaning of question 23 and 25 (in

variable of trust), in which give result of the higher level of taking risk among breeders in Segoroyoso than in Bawuran. But the research generally does not measure specifically and place it as external factor.

4.3.2.4.2. Finance

Finance has very important effect in the practices of cattle treatment, especially in feeding. The richer will give better food for cattle rather than the poorer. The research does not measure the breeders finance specifically. The financial background of the breeders can be seen in the productivity question, about the differences of cattle they have at present and in one year ago.

If we go depth to the answer of breeders in Segoroyoso, most of them have perspective that finance does not matter. The difficulty can be resolved by (such as) sell one cattle for food supply and they do relationship with financial service providers. The limited trust to the financial service in Bawuran had made finance matter for them.

4.3.2.5. Figure of effect

Figure 4.3. below shows how independent variables effect to dependent variable. The dimensions of social capital are defined as independent variables, and consist of factors as the extraction of variables.

4.3.2.4. Figure of effect

Figure 4.2. The relationship among independent (Xi/e) and dependent (Y) variables
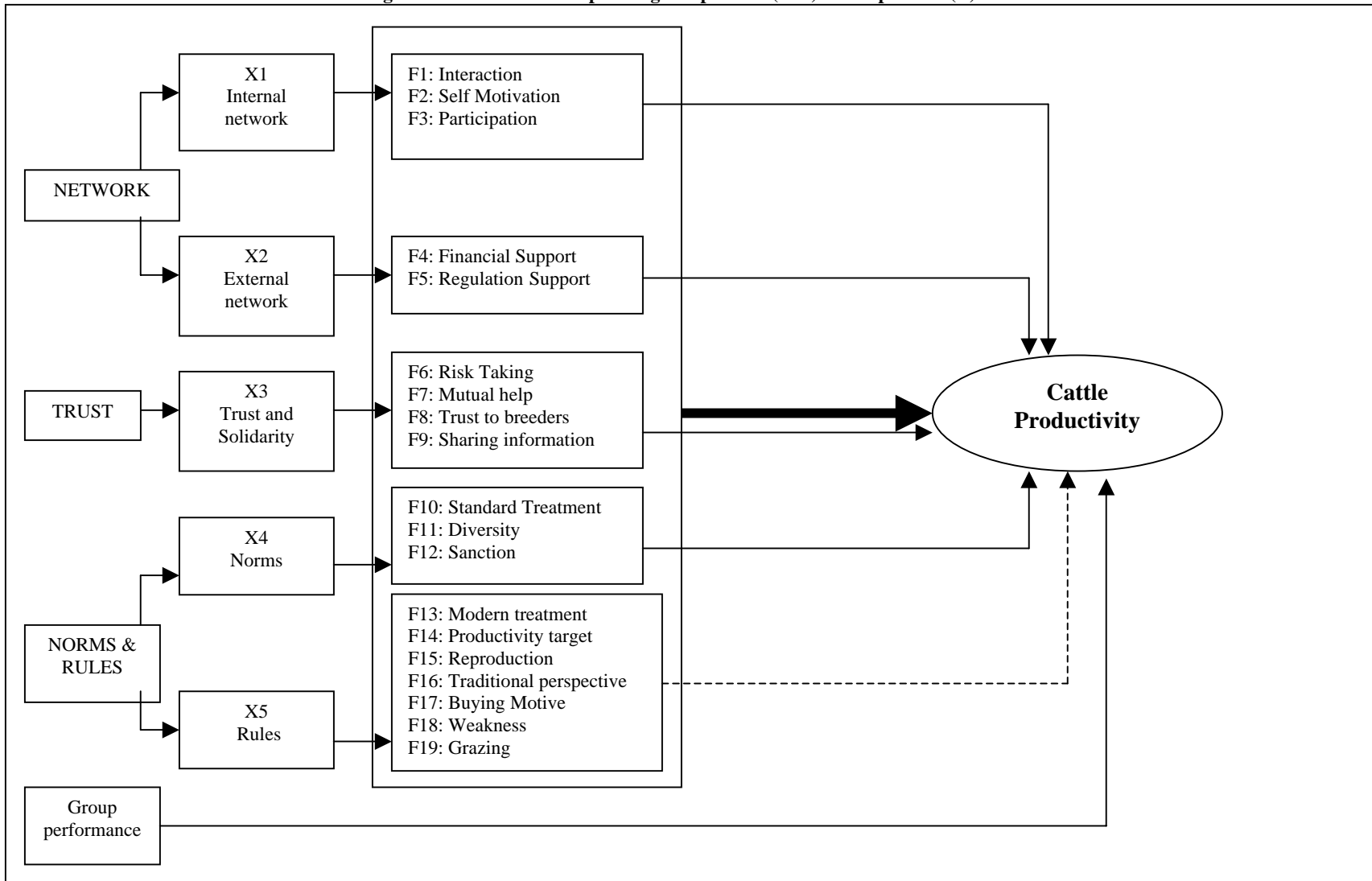
4.4. Evidence of Social Capital in Segoroyoso and Bawuran village

Observation during field research focuses on the phenomenon of social capital among breeders. The result of the observation not only based on the fact-finding but also based on the open question with breeders and key informant of local institutions.

4.4.1. Network

Social capital contributes to productivity through interactions between people, in which the resources of any person in the network influences their closest relations. The value of social capital depends on the structure of relation within the network and the contact with relations, and it does not depend on how many contacts made (Burt (1992) in Bennasi, (2003)). Some people may have few direct ties, but these may be connected to several others, and therefore may contribute more than a larger group of people all tied to each other.

The specific skill of slaughter had developed the cattle breeding in Segoroyoso. The fact is that the skill had triggered other people to develop cattle breeding because of the high need of life cattle by the slaughters. The innovations of cattle meat also develop the meat industries in the village, mostly to serve the meat that had not sold in certain time and for other part of life cattle that can't be sold (cattle skin). The "cattle actor chain" has strong impact to the high productivity of cattle breeding, because "each chain" knows about what the next chain needed and the standard price of the need. It explains that the social capital here is a form of an economic view of cluster (Figure 4.3.).

Figure 4.3. Internal Network of Cattle Cluster In Segoroyoso village	Figure 4.4 Internal Network in Bawuran village
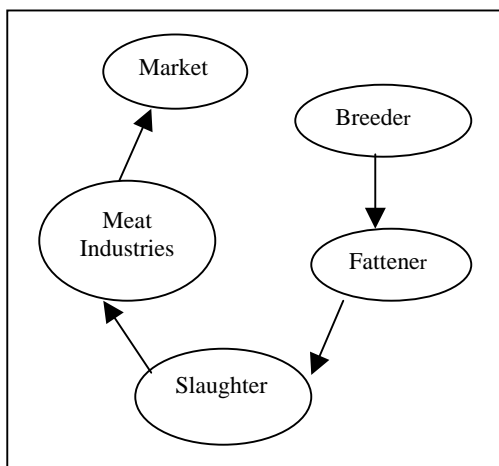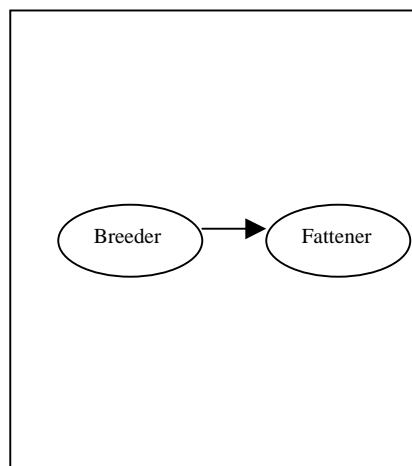
Source : Survey Data   Source: Survey Data

We recognize that the economic view of social capital (cluster) has an important effect in Segoroyoso. The concept of social capital opens interesting avenues for exploring how economic development is shaped by social context. According to Sverrisson (2002), the agglomeration of breeders enhances the probability of innovative activities and complementarities among enterprises in the village would increase the probability of innovation. It is occurred because of in collectives where specialize and therefore have much

to do with other, innovation is both more feasible because direct competition is less, and easier because of larger margins.

The need of life cattle in Segoroyoso can't be fulfill only by cattle breeders in the village. The slaughters need more cattle from outside village (such as Bawuran village), and outside of regions. It is because the development of cattle slaughter and meat industries in Segoroyoso is fast and made the village as a center of cattle breeding in Yogyakarta Province.

The relationship pattern in cattle production in Bawuran and mostly in Segoroyoso primarily based on kinship in which a success cattle breeder give support both financial and the knowledge to the closest family members (mainly include relationship of father – brother - son – son in law). This evidence has similar pattern to the relationship pattern of cattle trading in West Africa (Ufford, 2002). The high risk of investment in cattle made them do this opportunity carrefully and based on trust relationship.

Cattle breeders in Segoroyoso ask to their close family, the most influence breeder, or the richest breeder if they find cattle problems. "The Big Boss" in Segoroyoso are two cattle breeders who have more than 200 cattle and they decide the important rules in cattle treatment and standard price of life cattle. Breeder in Bawuran mostly do not ask someone else for solve their problem. There is no one who have strong influence in the village who can encourage breeders to have strong motivation for enhancing their cattle productivity.

4.4.2. Institutional

The institutional framework (figure 4.5 and 4.6) between both 2 villages describes the differences. The institutional framework in Segoroyoso village involves more external network with local institutions such as government bank, informal financial services and university. The external organization that have network with breeder in Bawuran village is only government.

The institutional framework as described below is based on the institutional framework that had been defined in Chapter I of Thesis Proposal. The differences in both two villages are based on the open questions and observation conducted to key informants of local institutions.

Williamson (1997) in Mayerson (2001) stated that trust can be distinguished into three categories: calculative trust (justified by expectation and economic change), personal trust and institutional trust. The institutional trust is defined as transaction-specific safeguards (governance) that vary systematically with the institutional environment within which transaction are located.

The frameworks describe that breeders in Segoroyoso build relationship with more institutions than breeders in Bawuran. Breeders in Bawuran have relationship just with government but breeders in Segoroyoso have relationship with university, government bank, informal financial services and limited relationship with government (lack of trust to government). The relationship with government relate to the general condition of the village. Bawuran is categorized as poor village and it needs more aids both material and non-material from government. Segoroyoso is non-poor village, and most people in Segoroyoso can improve their productivity by them selves.

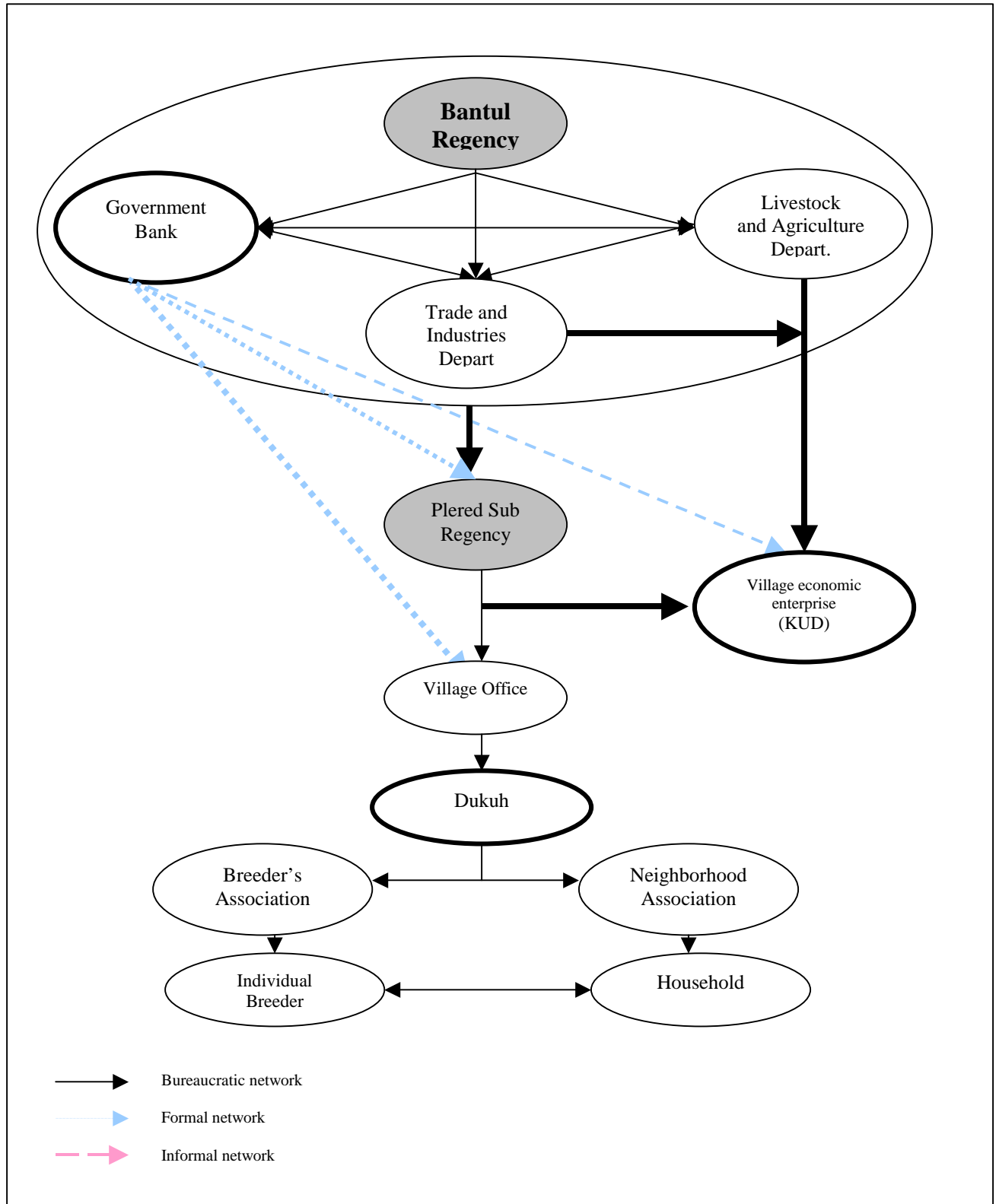Figure 5: Social Capital Framework in Local Institutions of Bawuran Village

Figure 4.6: Social Capital Framework in Local Institutions of Segoroyoso Village
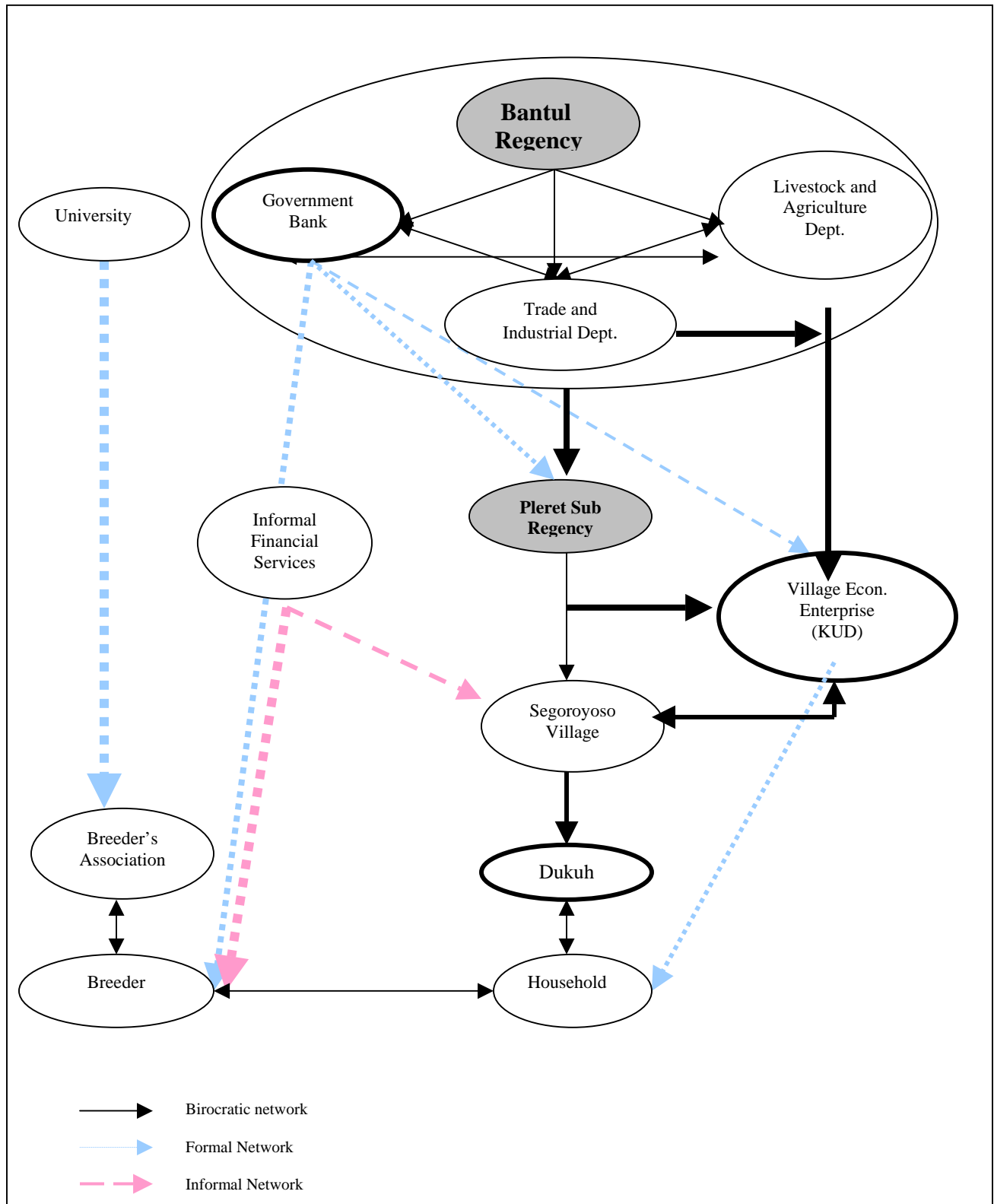
4.4.3. Cattle Treatment

The practices of cattle treatment that consist of treatment in reproduction, feeding and preventive measures generally same both in Segoroyoso and Bawuran. Survey found the differences in which most breeders in Segoroyoso treat their cattle more develop than in Bawuran. The base perspective of cattle development in Bawuran is in traditional way, in which they mostly do not think about productivity, because of the limited information they got for the importance of improving the cattle productivity. Financial support is important for cattle treatment, but previously the information and knowledge for knowing the importance of the "profit thinking", is more important because it can trigger the breeder to solve the financial problem by themselves.

Diffusion of information is not spread within breeders in Bawuran since the reproduction started. The knowledge to choose the best new cattle born replacing the stock is limited compared to the same cases in Segoroyoso. The diffusion of information is continued in feeding and preventive measures. The un-spread of diffusion information here is caused of the sense to gain more information is low and the sense to give information for other is also low. It relate to the lack of trust among breeders. Mostly, breeders having low number of cattle ownership do the situation rather than the richer.

4.5. How Social Capital Effect Cattle Productivity

Based on the close and open questions, we can describe and explain of how social capital affect the cattle productivity. Collective action of individual network, trust and norms give benefit for the efficiency of cattle production and those affect the cattle productivity (Figure 4.7).

Firstly, the research focuses on group performance and its internal network as a form structural capital dimension. The member's participation, contribution and connection affect its group performance that enables all members to gain benefit from it. The more activities groups made the more benefit all members get. Members of group in Bawuran mostly agree that their breeder association is not as strong as the breeder association of Segoroyoso. They recognize they got only few benefits from it, but the problem is they have no ability to develop and strengthening their group.

> " I don't know about the cattle organization, because I think it is not live and also not die. We never meet and discuss together about cattle. We meet and discuss just in informal, every evening when we give food for cattle in group's stall. But, the issues discussed are not focus and there are no new information about best treatment for cattle" (Sn, 45 yrs, Bawuran).

The opinion is different if we compare to the answer of one respondent in Segoroyoso who represent most respondent's answer that have similar meaning. Group performance in Segoroyoso is so strong and it had been studied by other breeder organization to do so. Members of the group have a sense of ownership because they had got benefits from it.

> " We do discuss every week to get the recent information about best practices for cattle treatment and also the new standard price for life cattle. By invite the

university we know about the best treatment of reproduction, feeding and also the marketing. Our organization gives us benefit for information. " (Gn,, 45 yrs, Segoroyoso)

Both internal and external network are done because of the trust among breeders included in group. The strong trust enables them to do activities collectively mostly to solve their problem, and other activities that give them mutually benefits. The trust also relate to the practices of norms and rules within the breeders. All respondents in Segoroyoso, from small-scale breeders until a big one, surprisingly, had done the kind of treatment (PUTP: breeding, feeding and management). Even they are small breeders who have one or two cattle, they think about profitable marketing (productivity target). Information about PUTP is a primary base for them to achieve best cattle for enhancing their quality of life. All respondent answer:

> *' If you want to know why we can achieve better result of cattle treatment than breeders in Bawuran village, it is because we think about the productivity. We always think of how to give a good food for them. If our fund is limited to buy the food, we sell one of our cattle as the fund for feeding. It does not matter if we just have one cattle but we have adequate food for it."*

Secondly, concept of trust had different conceptual among breeder's opinion. The dualism believe in trust occurs in daily life and in the context of business. In the fact, some breeders admit they trust their neighbors by doing social activities collectively, feeling safely with their environment but in contrary, some breeders keep their recent information about cattle treatment and mostly in marketing activities. It looks like their friends (breeders) are their rivalry.

> *" Of course I trust my neighbors. I feeling safe and whenever I go, my cattle have never been stolen. " (Hend, 27 yrs, Bawuran)*

Social capital can be defined simply as an instantiated set of informal values or norms shared among members of a group that permits them to cooperate with one another. If members of the group come to expect that others will behave reliably and honestly, then they will come to *trust* one another. Trust acts like a lubricant that makes any group or organization run more efficiently. (Fukuyama, 1999, p16). The definition can be translate into the respondent' opinion below:

> *" I recognize some breeders keep their knowledge and do not like to share because they think that it make other breeders will take advantage or opportunity of mine. I think it's wrong, because why should we keep? I trust them, and we can enhance our life by sharing and do mutually collective action " (Ih, 30 yrs, Segoroyoso).*

> *"I should be careful answer question about trust because I should ask you trust in what term? In daily life, yes I recognize breeders and people in this village generally can be trusted, but we should be careful with them in business transaction. I cannot give my knowledge to others except my close family"(Wd, 30 yrs, Segoroyoso)*

The third, concepts of norms and rules have a high position in the daily life of cattle breeders both in Segoroyoso and Bawuran. The general feeding rules of breeders in Segoroyoso and Bawuran village mostly is similar, the different view concepts in norms and rules is about the standard and the diversity. The existing practices in Segoroyoso are interesting because most of breeders recognize the diversity of the cattle treatments and the practice they do standard rules of treatment. The standard means the similarity rules among them for best practices. Diversity and standard are two different concept and the breeders execute in the same line. but it was different if we learn about the answer of breeder in Bawuran about productivity:

> " I think we have similar treatment for cattle because we had information for best standard treatment. The difference is maybe in the food processing. I fry the food serve to cattle because cattle intestines cannot absorb raw soybean. But the kind of food and times I think is same and even it is different it does not matter"(Sun, 45yrs, Bawuran).

The interesting is the result of strong norms within the breeders in Segoroyoso for achieving the productivity target. All breeders have agreement for the treatment that they should calculate the input they had expensed and the output they will get when sell the cattle.

> "Principally, I should get the target weight per month, based on the average fund I had spent each day (each month). I spent at least Rp. 10.000- Rp 20.000 each day for the food, so I must get at least 25 kg weight growth per month or approximately Rp. 500.000 per month I get when I sell the cattle I don't think so if breeders in Bawuran have same perspective" (Sup, 50yr, Segoroyoso).

Let we compare to the answer form breeders in Bawuran:

> " I did not measure the weight growth per month. What I had done is give food for cattle and it needs at least Rp. 8.000 each day. I did not calculate the money I had spent when I sold, because I have just thought that I save money in cattle because it was difficult for me to save cash fund." (Fa, 55yr, Bawuran)

> " I think that the average weight growth 10-15 kg per month. Sometimes I got profit Rp 200.000 per month, but sometimes I loss.' (Rus, 36 yrs, Bawuran)

> " I do not think about the productivity, because every one do so. It does not matter if I lost the profit because at least, I still get the amount when I bought the cattle. But I do not know why sometime the price is so low so I got lost for profit?"(Gmt, 40 yrs, Bawuran)

In previous explanation, it had been explained the benefit of joining the group for breeders: solve the problems, sharing knowledge and information and financial support (Table 4.5, 4.6 and 4.7) as the next explanation below. The result of questions give the explanation that mostly, cattle breeders make use of the network, trust and norm among breeder for solve the cattle problem collectively, sharing knowledge and information and also make use the network to financial services for gain financial support. The collective action of breeder had made the treatment for the cattle improve and so do the quality of the cattle. It can be seen that in Bawuran village, in which lack of trust and norms, the effort among breeders to improve

the knowledge is low, so the quality of the cattle is lower than the quality of cattle in Segoroyoso village.

As Greve and Bennassi reported based on social capital research in Italy (2003), the bright side of social capital is widely accepted by scholars who highlight that social capital may be instrumental and help actors both in a social and in an economic sense, that often are interwoven and hardly detachable from one other. Social capital has four main effects. 1) Getting information 2) transfer of knowledge, innovation, and diffusion of technology or practices 3) combining complementary knowledge and helping solving problems and 4) brokerage. These effects may be present simultaneously to a larger or lesser extent depending on the task at hand. The effects of social capital to cattle productivity may vary over time depending on the needs and the competence of those accessing social capital.

Problem Solving. Breeders in Segoroyoso have strong trust to financial services providers (bank and other providers) and they tend to do taking risk collectively, because of the high trust among breeders (82.5%). The high level of trust also benefits them to solve problem. The diffusion of information among breeders as an output of network makes them easier to solve cattle problem.

Problems in cattle development generally are diseases, food, birth treatment, and financial matter. Most breeders ask other breeders or veterinarians (mantri hewan or dokter hewan) for common diseases and birth treatment, ask the most influence breeders for buy or sell the cattle and go to their close family or to the "big boss" for financial matters. Financial matter here means urgent needs of cash or if the breeders getting trouble with loan (bankrupt) as a result of mismanagement.

Sharing information. The information flow of the rule distribute to almost all breeders so they do the same rule of best practices. Most breeders in Bawuran village get limited information of the best practices, so each breeder treat his cattle by his knowledge and mostly, each breeder has different treatment. Most important information got from breeder' group in Segoroyoso are the recent best standard treatment and recent standard price of cattle life.

Innovation diffusion. The increased use of additional inputs is consistent with a story of better diffusion of information, both about the availability and the proper use of fertilizer grassland, additional food, other mixed food and treatment for diseases. However, given that clearly superior practices are usually adopted very rapidly and that the listed "innovations" have been around for some time it is doubtful this channel could explain such large differences.

Imperfect information. It has long been recognized that economic performance will be enhanced by a social situation in which market transactions are facilitated. This in turn is enhanced by greater degrees of confidence that one's potential partners are likely to be reliable and by greater information. This in turn is affected by a number of factors, such as the available mechanisms for formal or informal enforcement and expected compliance with social norms (Grief (1993) in Benassi (2003)). Personal ties and reputations among breeders were an important part of the development of cattle breeding and trade.

Financial Support. Cattle development has close relationship with financial matter because it needs high investment. The price per head cattle approximately Rp. 5 - 12 million, the food per day need at least Rp. 8.000 and other needs of vitamin and medicines. The urgent needs of cash for daily life, for daily cattle treatment or mismanagement force breeders to have high stock of fund or/and in high-risk position. The financial support relate to the properly management, loan for investment and the financial providers when they need immediately cash. The high level social capital enables the breeders to gain financial support easily because the high level of trust make the network and transaction done.

Figure 4.7. How Social Capital affects Cattle's Productivity?
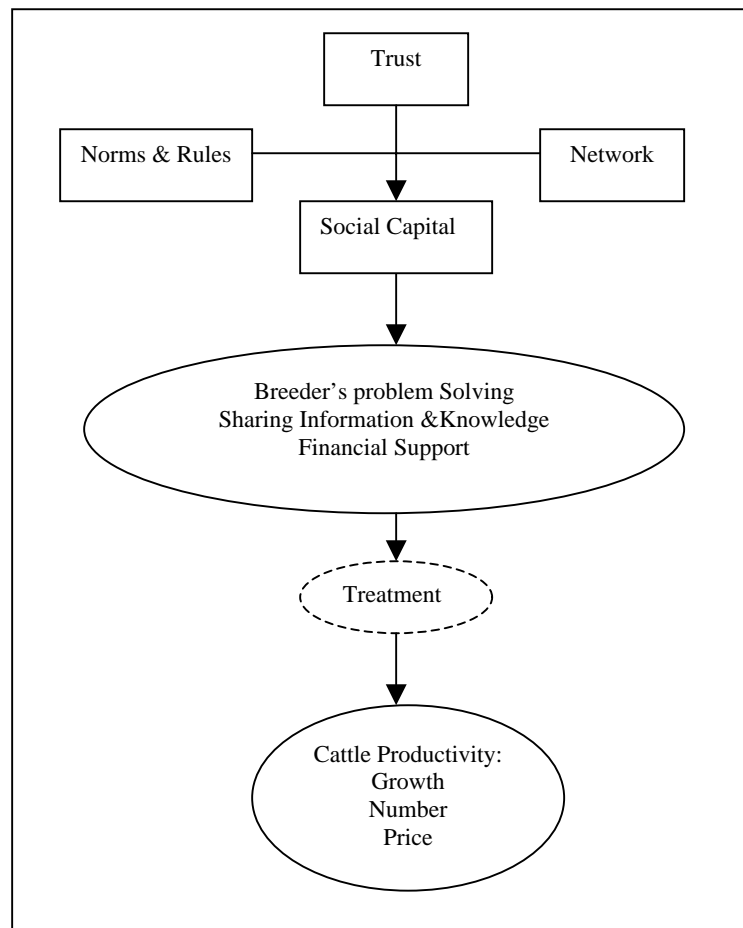
Source: Survey Data

Chapter 5
Conclusion

Research problems started form the unique and important village in the East of Yogyakarta Province. Segoroyoso village is the centre for cattle development in Yogyakarta Province and cattle breeding had made them alleviate their poor conditions. The interesting question is that breeders live in the surrounding the village still live in poor conditions.

The research studies about the effect of social capital to cattle productivity and began with hypothesis that village having high level of social capital has higher level of cattle productivity. Social capital have multi dimensions: cognitive (trust and rules and norms) and structural (network and rules) and can be measured in two different ways, by measuring the membership of formal and informal groups the respondent joining and by measuring informal interdependence based on people's involvement in collective action activities. This research conducts questions that enable us to create the level of social capital using both of the two approaches.

Social capital benefits the cattle breeders mainly through: get network based on trust and norms and make use the network for solve the cattle problems, sharing information and gain financial support. We find evidence in Segoroyoso village that social capital enables breeders to deal with other breeders in a more trust and strong agreement of quality of cattle by granting and receiving credits and exchanging price information.

Based on survey data it is shown that cattle breeders in Segoroyoso village have high level of social capital rather than cattle breeders in Bawuran village and resulted that cattle breeders in Segoroyoso have higher level of cattle productivity than in Bawuran village (measured by average weight growth/month).

Data analysis results factors having relationship with social capital:

1. Network, that consist of factors:
   - Interaction that consist of active interaction and passive interaction based on invitation of households' members and groups they are joined;
   - Motivation and financial matter (of joining the group) that explain the contribution of household who included in groups, their motivation in joining the groups and the financial providers who they expect whenever they need immediately cash.
   - Participation in groups, that consist of participation of respondents in group decision making, in meeting attendance and the number of group they have been joined

   Statistical analysis explains that the relationship between breeders and institutions (local government and financial services providers) give low effect to cattle productivity

2. Trust
   Factor of variable trust that has relationship to cattle productivity is risks taking that conclude the questions of mutual help among people and the ability to taking risk both individually and collectively. The factor namely risk taking relate to the low level of breeder's risk taking because of the high level of mutual help among people whenever they got in troubles

3. Norms and rules
   Factor of variable norms that has relationship to cattle productivity is agreement of treatment in which involves self' (breeder) opinion of best treatment, group standard treatment and support for diversity treatment.
   Further, the analysis gives result that rules have no relationship to cattle productivity, in which it can be described that mostly there are similarities of treatment in both two villages and have no significant effect for its productivity.

Group performance is a given factor (intervening variable) that can enhance the relationship between social capital and cattle productivity if we regress it in the analysis. Group performance enhance the relationship but the absence of group performance do not make the weak relationship of soccial capital to cattle productivity.

We find evidence that social network capital enable breeders to deal with each other in a more trustworthy manner by granting and receiving financial support, exchanging price and best practices information, and solve the problems easily. The evidence indicates that three dimensions of social network capital should be distinguished: relationships with other breeders, which help breeders to solve the cattle problems (treatment); relationships with individuals who can help in time of financial difficulties and insure breeders against liquidity risk; and family relationships, which reduce efficiency and also for solve the financial matters.

The interesting case occurred in Segoroyoso in which social capital happens as a form of cluster. The strong ties among breeders-fatteners- slaughters-meat industries benefit in enhancing the productivity and faster the cattle development in Segoroyoso. It is occurred because of each "actors" know what is the needs of other actors and they got information for it.

Beside the findings, this research got recommendations that we recognize, are very important for further research focus on social capital. The recommendations are based on difficulties found during the field survey:

1. Social capital is a multidimensional and multi-faceted concept. It needs a focus of observations in particular variable (dimensions of social capital). Combining all dimensions in one observation sometimes makes it difficult to be analysed because of the multifaceted perspectives but we face limitation of the research time. This research recognizes that network, trust, and norms & rules are broad concept having many variables.

2. Cattle Productivity is non-stable, means-end chain unclear and the output is not easy to be measured. The difficulty is almost all respondent did not measure the output productivity in the past precisely. It needs the more clear objectives of cattle productivity in next research. Having said this, there are two key problems that should be acknowledged (Liem, 2001). The first is obvious: the fact that the selection of different inputs and outputs yields different productivity measures. Secondly, researchers have to cope with the 'diversity of the sum of the factor inputs and output, many of which are of a qualitative nature'

3. Productivity is a broad concept having many external variables that may influence. Research with focus on productivity as the dependent variable should take into account the intervening variables in the conceptual framework.

4. This research agree to Liem (2001) statement that the real danger with the concept of 'social capital' is that it is a concept that seems to cover every aspect of organizational behavior that we do not quite understand and cannot directly measure.

5. As many researches reported, social capital benefit for project implementation. Knowing the level of social capital in community will help local government to implement the certain projects. Beside the benefit of given social capital, we recognize that social capital can be developed for enhance the productivity in order to improve the community's quality of life. The concept of social capital provides us with an opportunity to sharpen the focus of earlier findings based on network analysis and clustering concept. The economic concepts of social capital that can be formed in the concept of cluster prove the replicable of social capital but it takes long times for accumulate the trustworthy to form network and norms.

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ANNEXES

1. Distribution of Sample

2. Scoring of Respondent's Answers

3. Statistical Analysis
    3.1. Descriptive Statistic of Bawuran
    3.2. Descriptive Statistic of Segoroyoso
    3.3. Summary, ANOVA, Coefficient, Correlation (X, Y)
    3.4. Summary, ANOVA, Coefficient, Correlation (X, Y, Z)

4. The Questionnaire

Annexes 1. Distribution of Sample

Figure 1.1. Distribution of Sample in Segoroyoso village

Figure 1.2. Distribution of Sample in Bawuran village

Annexes 2. Scoring of Respondent's Answers

1.   Internal Network

Questions	Segoroyoso	Bawuran
1. Type group/organization	0	0
2. Name group/organization	0	0
3. Most active household member	0	0
4. Actively in participate in decision making	28	56
5. Members of HH participate in organization	16	26
6. The most important groups in household	0	0
7. How many times participate in group activities	47	41
8. How much money contribute in the group this year	64	37
9. How does become a member of the group	72	52
10. Issues discussed in the meeting	0	0
11. Main benefit joining the group	0	0
12. The group help to get the access	0	0
13. Group interaction with group outside the village	22	24
14. People who able to provide money	53	18
15. Invitations in last month	49	28
16. Main sources of information about government	0	0
Summaries variable score	**351**	**282**

External Network

Questions	Segoroyoso	Bawuran
61. Local government support the breeder association	6	39
62. Local government provide methods and aid to build the capacity.	-(10)	18
63. Bank and IFS lend money for breeder business	23	3
64. The institutions help to solve the cattle problem	7	5
65. Government rules give benefit for breeders	-(9)	25
Summaries variable score	**17**	**90**

2. Trust

Questions	Segoroyoso	Bawuran
17. Most of people in the village are willing help when you need it	48	51
18. In this village one has to be alert or someone is take advantage of you	28	17
19. If I have to go away, I ask my neighbours/fellow stockbreeders to watch my cattle	10	24
20. When I have to solve a problem, it is difficult to find fellow stockbreeders to help	30	1
21. I ever can go away, or my cattle will be stolen	49	32
22. If I discuss cattle matters with my neighbours, they will take advantage of mine	24	20
23. I am willing to join the loan under condition that the breeders guarantee each other loan	50	0
24. It is important to discuss cattle matters, we will all learn from it	43	44
25. If I were offered to take a bank loan that I guarantee with my cattle, I will take the opportunity	37	0

Questions	Segoroyoso	Bawuran
26. The stock breeders in this village can generally be trusted	31	48
Summaries variable score	**350**	**237**

3. Norms & Rules

Questions	Segoroyoso	Bawuran
27. I select the future bull from the bull calves of the best cows in my herd	62	70
28. I do not pay much attention to the selection of the future bulls	64	42
29. I discuss with the fellow stock breeders about who has the best cows and bulls calves	28	40
30. I eventually buy a bull from someone else if I expect this to give better result	80	72
31. I just keep any heifer calves from my best cows to replace the mother cows in the future	58	62
32. I select heifer calves from my best cows to replace the mother cows in due time	62	63
33. I am interested in buying good cows and heifer calves from my fellow stock breeders	72	38
34. Do you think that your way of dealing with the reproduction of the herd is the most ideal way?	116	79
35. They can graze in the field whatever they want	74	78
36. They are turned out on fertilized grassland	76	66
37. I grow and feed them additional feeder crops	73	60
38. I feed them additional concentrate	73	64
39. Others feed	0	0
40. Do you think your way of feeding is the most ideal?	79	58
41. I only see them when I want to sell some of them	76	64
42. I check them on a regular basis	76	24
43. I sell some of them when I need the cash	60	56
44. I only sell them when they reach a optimum age/weight	61	39
45. I treat them preventively for common diseases	80	62
46. When they get ill, they will die	80	46
47. I always try to treat them for illness	80	14
48. I would like to treat them when they are ill, but the vet and medicines are too expensive	44	24
49. Do you think that you generally deal with the cattle in the most ideal way?	79	82
50. I have very strong opinions on how stockbreeding should take place	36	26
51. Most of my fellow stock breeders have the same opinions on stockbreeding as I have	5	16
52. We often discuss about what the best way of stockbreeding	27	39
53. It is not important that the other breeders have different opinions	42	19
54. It is important for the members of the breeder association to have the same standards for stock breeding	-3	22
55. Low standard breeders should be excluded from the breeders association	11	18
56. Breeders who have low standards of stock breeding bring shame upon the village	22	21
57. Every stockbreeders is welcome to the breeder association no matter his ideas on and results in stockbreeding	34	20
58. I will never ask help or advice from a stockbreeders with different ideas	32	34
59. To keep the standards of stockbreeding high, we should discuss and learn from each other	39	41

60. I ask someone who really knows about cattle		
Summaries variable score	**1770**	**1459**

Annexes 3. Statistical Analysis

1.   Descriptive Statistic of Bawuran

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
1. Type group/organization	40	1	2	1,02	,158
3. Code of most active household member	40	1	1	1,00	,000
4. How actively this person participate in decision making	40	1	4	2,87	,686
5. Members of household participate in organization	40	1	3	1,67	,730
6. The most important groups in your household	40	1	2	1,02	,158
7. How many time (a month) anyone in your household participate in group activities	40	0	3	1,33	,694
8. How much money or goods your household contribute to this group in this year/	40	0	2	,95	,316
9. How does one become a member of this group/	40	2	4	3,43	,712
10. What kind of issues discussed in the meetings are?	40	2	5	3,55	1,085
11. What is the main benefit from joinig this group?	40	1	5	2,37	1,254
12. Does group help your household get access to any of the following services?	40	1	1	1,00	,000
13. Group interaction with group outside the village/neighborhood?	40	1	3	1,60	,545
14. People and close relatives who would be willing and able to provide money for you?	40	1	5	2,55	1,395
15. Invitations in last month	40	0	3	1,58	,781
16. main sources of information about what the government is doing	40	1	8	4,17	2,591
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
17. Most people in the village are willing to help when you need it	40	1	2	1,72	,452
18. In this village, one has to be alert or someone is likely to take advantage of you	40	2	4	3,42	,903
19. If I have to go away, I ask my neighbors/fellow stockbreeders to watch my cattle	40	1	5	2,40	,900
20. When I have to solve a problem, it is difficult to find fellow stockbreeders to help	40	1	5	3,03	1,097
21. i never can go away, or my cattle will be stolen	40	1	4	3,80	,648
22. If I discuss cattle matters with my neigbors, they will take advantage of mine	40	2	5	3,50	,961
23. I am willing to join for the loan under condition that the breeders guarantee each other loan	40	1	5	2,85	1,167
24. It is important to discuss cattle matters, we will all learn from it	40	1	2	1,90	,304
25. If I were offered to take a bank loan that I guarantee with my cattle, I will take the opportunity	40	1	4	3,00	1,013
26. The stock breeders in this village can generally be trusted	40	1	3	1,80	,464
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
61. Local government support the breeder association	40	1	6	2,10	,871
62. Local government provide many methods and aids to build your capacity	40	1	7	4,08	2,080
63. banks and infromal financial sevices lend money to bussiness in your breeder community	40	2	6	4,88	1,620
64. The institutions (banks and or government) help you when you need them to solve the cattle problems	40	1	7	4,58	1,880
65. The government's rules for cattle development give benefit and the most ideal away for you?	40	1	7	3,38	1,970
Valid N (listwise)	40				

Descriptive
Statistics

	N	Minimu	Maximu	Mea	Std.
66. How many cattle you have	40	1	17	2,15	2,769
67. How many cattle you have one year	40	,00	10,00	2,175	1,8100
68. How much kg do you need	40	,00	200,0	67,500	54,1839
69. How much additional fodder do need for each head cattle?	40	1,00	5,00	2,600	,9001
70. How many new were	40	,00	2,00	,8000	,5164
71. How many died/year	40	,00	,00	,0000	,0000
72. How many cattle you sold this	40	,00	2,00	,5250	,6400
73. How many cattle you buy this	40	,00	2,00	,2250	,4797
74. At what age when sell your	40	,00	4,00	2,325	1,4030
75. At what weight you sell your	40	,00	,00	,0000	,0000
76. How much life cattle	40	,00	2,00	1,075	,7298
77. How much average weigt does?	40	,00	15,00	1,775	3,5408
Valid N	40				

2. Descriptive Statistic of Segoroyoso

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
1. Type group/organization	40	1	2	1,20	,405
3. Code of most active household member	40	1	1	1,00	,000
4. How actively this person participate in decision making	40	1	4	2,98	,891
5. Members of household participate in organization	40	1	3	1,80	,564
6. The most important groups in your household	40	1	2	1,20	,405
7. How many time (a month) anyone in your household participate in group activities	40	1	3	1,95	,639
8. How much money or goods your household contribute to this group in this year/	40	1	3	2,30	,911
9. How does one become a member of this group/	40	2	4	3,83	,446
10. What kind of issues discussed in the meetings are?	40	1	5	3,62	1,295
11. What is the main benefit from joinig this group?	40	1	5	2,73	1,132
12. Does group help your household get access to any of the following services?	40	1	1	1,00	,000
13. Group interaction with group outside the village/neighborhood?	40	1	3	1,55	,783
14. People and close relatives who would be willing and able to provide money for you?	40	1	5	1,70	,883
15. Invitations in last month	40	1	3	2,23	,947
16. main sources of information about what the government is doing	40	1	8	6,10	2,182
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
17. Most people in the village are willing to help when you need it	40	1	4	1,80	,608
18. In this village, one has to be alert or someone is likely to take advantage of you	40	2	5	3,72	,751
19. If I have to go away, I ask my neighbors/fellow stockbreeders to watch my cattle	40	2	4	2,75	,981
20. When I have to solve a problem, it is difficult to find fellow stockbreeders to help	40	1	5	3,75	,899
21. i never can go away, or my cattle will be stolen	40	4	5	4,22	,423
22. If I discuss cattle matters with my neigbors, they will take advantage of mine	40	1	5	3,60	,900
23. I am willing to join for the loan under condition that the breeders guarantee each other loan	40	1	4	1,75	,707
24. It is important to discuss cattle matters, we will all learn from it	40	1	4	1,92	,526
25. If I were offered to take a bank loan that I guarantee with my cattle, I will take the opportunity	40	1	4	2,08	,917
26. The stock breeders in this village can generally be trusted	40	1	5	2,23	,862
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
28. I do not pay much attention to the selection of the future bulls	40	1	2	1,90	,304
30. I eventually buy a bull from someoen else if I expect this to give better result	40	1	1	1,00	,000
34. do you think that your way of dealing with the reroduction of the herd is the most ideal way?	40	1	2	1,95	,221
40. Do you think your way of feeding is the most ideal	40	1	3	1,98	,276
41. I only see them when I want to sell some of them	40	1	2	1,98	,158
42. I check them on a regular basis	40	1	2	1,02	,158
43. I sell some of them when I need the cash	40	1	2	1,13	,335
44. I only sell them when they reach a optimum age/weight	40	1	2	1,48	,506
46. When they get ill, they will die	40	2	2	2,00	,000
49. Do you think that you generally deal with the cattle in the most ideal way?	40	1	3	1,98	,276
50. I have very strong opinions on how stockbreeding shoul take place	40	1	4	2,10	,744
51. Most of my fellow staockbreeders have the same opinions on stcokbreeding as I have	40	1	4	2,88	1,067
52. we often discuss about what the best way of stockbreeding is	40	1	4	2,32	,888
53. It is of no importance that other breeders have different opinions	40	1	4	1,95	,450
54. It is important for the members of the breeders association to have the same standards for stock breeding	40	1	4	3,08	1,047
56. Breeders who have low standards of stockbreedings bring shame upon the village	40	1	5	2,45	,846
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
61. Local government support the breeder association	40	2	6	3,10	1,194
62. Local government provide many methods and aids to build your capacity	40	2	6	3,40	1,081
63. banks and infromal financial sevices lend money to bussiness in your breeder community	40	1	6	2,65	1,292
64. The institutions (banks and or government) help you when you need them to solve the cattle problems	40	2	6	3,20	1,363
65. The government's rules for cattle development give benefit and the most ideal away for you?	40	2	7	4,95	1,467
Valid N (listwise)	40				

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
66. How many cattle do you have now?	40	1	200	37,43	46,352
67. How many cattle do you have one year ago?	40	,00	100,00	33,4250	33,48853
68. How much kg fertilizer do you need /ha?	40	,00	500,00	100,0000	135,87324
69. How much kg additional fodder do you need for each head of cattle?	40	,00	10,00	5,5250	2,18371
70. How many new calves were born/year?	40	,00	20,00	1,8750	3,46549
71. How many cattle died/year?	40	,00	3,00	,1250	,51578
72. How many cattle do you sold this year?	40	,00	100,00	20,1000	27,72835
73. How many cattle do you buy this year?	40	,00	200,00	20,5750	39,82776
74. At what age when you sell your cattle?	40	,00	3,00	1,1000	1,08131
75. At what weight when you sell your cattle?	40	,00	800,00	267,5250	246,36933
76. How much price/kg life cattle do?	40	,00	3,00	2,6250	1,00480
77. How much average of weigt growth/beef/month does?	40	,00	75,00	29,1250	14,13704
Valid N (listwise)	40				

3.   Summary, ANOVA, Coefficient, Correlation (All)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,888[a]	,788	,721	9,05231

a. Predictors: (Constant), fs19_ext network, fs18_ext network, fs3 int_network, fs5_trust, fs1 int_network, fs17_norms, fs14_rules, fs13_rules, fs11_rules, fs10_rules, fs8_rules, fs12_rules, fs16_norms, fs4_trust, fs7_trust, fs6_ trust, fs2 int_network, fs9_rules, fs15_norms

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18327,145	19	964,587	11,771	,000[a]
	Residual	4916,655	60	81,944		
	Total	23243,800	79			

a. Predictors: (Constant), fs19_ext network, fs18_ext network, fs3 int_network, fs5_trust, fs1 int_network, fs17_norms, fs14_rules, fs13_rules, fs11_rules, fs10_rules, fs8_rules, fs12_rules, fs16_norms, fs4_trust, fs7_trust, fs6_ trust, fs2 int_network, fs9_rules, fs15_norms

b. Dependent Variable: 77. average of weigt growth/beef/month

Coefficie ^a

Mod		Unstandar Coefficie		Standardi Coefficie	t	Sig	95% Confidence		Correlati			Collinea Statisti	
		B	Std.	Bet			Lower	Upper	Zero-	Parti	Par	Toleran	VI
1	(Consta	15,4	1,01		15,2	,00	13,4	17,4					
	fs1	3,38	1,40	,19	2,41	,01	,57	6,20	,26	,29	,14	,52	1,90
	fs2	5,71	1,54	,33	3,70	,00	2,63	8,79	,62	,43	,22	,43	2,29
	fs3	3,03	1,41	,17	2,13	,03	,19	5,86	,33	,26	,12	,51	1,94
	fs4_tr	2,29	1,70	,13	1,34	,18	-	5,70	,33	,17	,08	,35	2,80
	fs5_tr	,20	1,19	,01	,17	,86	-	2,59	-	,02	,01	,72	1,37
	fs6_	3,99	1,49	,23	2,66	,01	1,00	6,99	,58	,32	,15	,46	2,16
	fs7_tr	-	1,47	-	-	,92	-	2,80	-	-	-	,47	2,09
	fs8_rul	-	1,50	-	-	,24	-	1,23	-	-	-	,45	2,17
	fs9_rul	1,47	1,55	,08	,95	,34	-	4,58	,34	,12	,05	,43	2,32
	fs10_ru	2,84	1,21	,16	2,34	,02	,41	5,26	,24	,29	,13	,70	1,41
	fs11_ru	-	1,29	-	-	,19	-	,90	-	-	-	,61	1,61
	fs12_ru	,36	1,28	,02	,28	,77	-	2,94	-	,03	,01	,62	1,60
	fs13_ru	-	1,35	-	-	,83	-	2,41	,06	-	-	,56	1,75
	fs14_ru	-	1,11	-	-	,80	-	1,94	,05	-	-	,83	1,19
	fs15_no	-	1,76	-	-	,20	-	1,25	,07	-	-	,33	3,00
	fs16_no	-	1,44	-	-	,75	-	2,43	-	-	-	,49	2,01
	fs17_no	-	1,31	-	-	,34	-	1,36	-	-	-	,60	1,65
	fs18_ext	-	1,46	-	-	,07	-	,23	-	-	-	,48	2,05
	fs19_ext	3,11	1,59	,18	1,95	,05	-	6,29	,47	,24	,11	,40	2,44

a. Dependent Variable: 77. average of

4.   Summary, ANOVA, Coefficient, Correlation (X, Y, Z)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,913[a]	,833	,776	8,11092

a. Predictors: (Constant), fs19_ext network, fs18_ext network, fs3 int_network, fs5_trust, fs1 int_network, fs17_norms, fs14_rules, fs13_rules, fs11_rules, fs10_rules, fs8_rules, fs12_rules, fs16_norms, fs4_trust, fs7_trust, fs6_ trust, fs2 int_network, fs9_rules, fs15_norms, 0. group performace

ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	19362,370	20	968,118	14,716	,000[a]
	Residual	3881,430	59	65,787		
	Total	23243,800	79			

a. Predictors: (Constant), fs19_ext network, fs18_ext network, fs3 int_network, fs5_trust, fs1 int_network, fs17_norms, fs14_rules, fs13_rules, fs11_rules, fs10_rules, fs8_rules, fs12_rules, fs16_norms, fs4_trust, fs7_trust, fs6_ trust, fs2 int_network, fs9_rules, fs15_norms, 0. group performace

b. Dependent Variable: 77. average of weigt growth/beef/month

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	6,824	2,356		2,896	,005	2,109	11,538					
	0. group performace	17,252	4,349	,506	3,967	,000	8,550	25,955	,802	,459	,211	,174	5,750
	fs1 int_network	1,999	1,307	,117	1,529	,132	-,617	4,614	,262	,195	,081	,487	2,052
	fs2 int_network	4,590	1,410	,268	3,256	,002	1,769	7,411	,625	,390	,173	,419	2,387
	fs3 int_network	1,578	1,323	,092	1,193	,238	-1,069	4,225	,332	,153	,063	,476	2,102
	fs4_trust	1,244	1,550	,073	,803	,425	-1,857	4,346	,339	,104	,043	,347	2,885
	fs5_trust	-,189	1,074	-,011	-,176	,861	-2,339	1,960	-,136	-,023	-,009	,722	1,385
	fs6_ trust	2,160	1,419	,126	1,522	,133	-,679	5,000	,588	,194	,081	,414	2,418
	fs7_trust	,131	1,322	,008	,099	,921	-2,515	2,777	-,026	,013	,005	,476	2,100
	fs8_rules	1,290	1,552	,075	,831	,409	-1,815	4,395	-,483	,108	,044	,346	2,892
	fs9_rules	-1,635	1,597	-,095	-1,023	,310	-4,832	1,562	,348	-,132	-,054	,326	3,064
	fs10_rules	2,478	1,088	,144	2,277	,026	,300	4,656	,240	,284	,121	,703	1,422
	fs11_rules	-,699	1,187	-,041	-,589	,558	-3,075	1,677	-,057	-,076	-,031	,591	1,693
	fs12_rules	1,524	1,191	,089	1,280	,205	-,858	3,907	-,207	,164	,068	,587	1,702
	fs13_rules	-,575	1,212	-,034	-,475	,637	-3,000	1,849	,061	-,062	-,025	,567	1,763
	fs14_rules	1,121	1,057	,065	1,060	,294	-,995	3,237	,054	,137	,056	,745	1,343
	fs15_norms	-2,723	1,587	-,159	-1,716	,091	-5,898	,452	,075	-,218	-,091	,331	3,023
	fs16_norms	-,117	1,297	-,007	-,091	,928	-2,712	2,477	-,167	-,012	-,005	,495	2,019
	fs17_norms	-2,072	1,191	-,121	-1,739	,087	-4,456	,312	-,330	-,221	-,093	,587	1,704
	fs18_ext network	-2,400	1,311	-,140	-1,830	,072	-5,024	,224	-,422	-,232	-,097	,484	2,065
	fs19_ext network	2,192	1,445	,128	1,517	,135	-,700	5,083	,471	,194	,081	,399	2,508

a. Dependent Variable: 77. average of weigt growth/beef/month

Annexes 4. QUESTIONS FOR CATTLE BREEDERS WHO ARE INCLUSIVE AS MEMBERS OF GROUP IN SEGOROYOSO AND BAWURAN VILLAGE, BANTUL REGENCY

A. CLOSE QUESTION OF SOCIAL CAPITAL VARIABLE (FOR BREEDERS)
B. CLOSE QUESTIONS OF LINKING SOCIAL CAPITAL VARIABLE 9FOR BREEDERS)
C. OPEN QUESTION FOR SOCIAL CAPITAL VARIABLE (FOR INSTUTIONS)
D. OPEN QUESTION FOR PRODUCTIVITY (FOR BREEDERS)
E. DIAGRAMMING, MAPPING, GENOGRAM (FOR REPRESENTATIVES OF COMMUNITY AND INSTITUTIONS)

A. CLOSE QUESTION OF SOCIAL CAPITAL DIMENSIONS
1. NETWORK (Group, Network, Information & Communication)

GROUP
1. Group and organization network

1. Type of organization or group	2. Name of organization or group	3. Code of most active household member	4. How actively does this person participate in the breeder's meeting decision making 1 = Leader 2 = Very active 3 = Somewhat active 4 = Does not participate in decision making 5 = Does not know
A. Farmer group or cooperation			
B. Other production group			
C. Trader or Business association			
D. Neighborhood or village committee			
E. Religious group			
F. Cultural group			
G. Finance, credit or saving group			
H. Education group (School committee)			
I. Sports group			
J. Youth group			
K. Other group			

5. Compare to five years ago*, do members of your household participate in more or fewer groups or organizations?

        1   More

        2   Same number

        3   Fewer

6. Of all the groups to which members of your household belong, which two are the most important to your household?

Group 1 _____

Group 2 _____

7. How many times in the past 12 months did anyone in this household participate in this group's activities, e.g. by attending meetings or doing group work?

Group 1   Group 2

8. How much money or goods did your household contribute to this group in the past 12 month?

Group 1   Group 2

9. How does one become a member of this group?

        1   Born into the group

        2   Required to join

        3   Invited

        4   Voluntary choice

        5   Other specific   _____

Group 1   Group 2

10. What kinds of issues discussed in the meetings are?

    1   Training for breeder

    2   Market access

    3   Credit access

    4   Problems of breeder

    5   Does not know

11. What is the main benefit from joining this group?

    1   Improves my breeder's current livelihood or access to services

    2   Network

    3   Breeder problem solving

    4   Training

    5   Other (specify) _____

Group 1   Group 2

12.   Does group help your household get access to any of the following services?
            1   Yes
            2   No

	Group 1	Group 2
A. Education or training		
B. Market access		
C. Agricultural input or technology		
D. Credit or Savings		
E. Information		
F. Irrigation		
G. Other (specify)		

NETWORK

13.   Does this group work with or interact with group outside the village/neighbourhood?

        1   No
        2   Yes, occasionally
        3   Yes, frequently

14.   If you suddenly needed to borrow a small amount of money that enough to pay for expenses for your household for one week), are there people beyond your immediate household and close relatives to whom you could turn and who would be willing and able to provide this money?
            1   Definitely
            2   Probably
            3   Unsure
            4   Probably not
            5   Definitely not

INFORMATION AND COMMUNICATION

15.   In the past month, how many times have you made or received invitations?

16.   What are your main sources of information about what the government is doing (such as agricultural extension, workfare, family planning, etc)?
        1.   Relatives, friends and neighbors
        2.   Community bulletin board/newspapers
        3.   Local market
        4.   Traders
        5.   Groups or associations
        6.   Television/radio
        7.   Agent of government

2. Trust and Solidarity

Statement	1 = Agree strongly 2 = Agree somewhat 3 = Neither agree nor disagree 4 = Disagree somewhat 5 = Disagree strongly
17. Most people in this village are willing to help when you need it	
18. In this village one has to be alert or someone is likely to take advantage of you	
19. If I have to go away, I ask my neighbors/fellow stockbreeders to watch my cattle	
20. When I have to solve a problem it is difficult to find fellow stockbreeders to watch my cattle	
21. I never can go away , or my cattle will be stolen	
22. If I discuss cattle matters with my neighbors, they will take advantage of my knowledge	
23. If the breeders association is given the opportunity to take a loan under the condition that the breeders guarantee each other loan, I am willing to join this initiative	
24. It is important to discuss cattle matters, we will all learn from it	
25. If I were offered to take a bank loan that I guarantee with my cattle, I will take that opportunity	
26. The stock breeders in this village can generally be trusted	

3. Norms and Rules

1. What are your practices on the reproduction of the herd?:

	1 = yes 2 = no 3 = I don't know
27. I select the future bull from the bull calves of the best cows I my herd	
28. I do not pay much attention to the selection of the future bulls	
29. I discuss with the fellow stock breeders about who has the best cows and bull calves	
30. I eventually buy a bull from someone else if I expect this to give better results	
31. I just keep any heifer calves from my best cows to replace the mother cows in the future	
32. I select heifer calves from my best cows to replace the mother cows in due time	
33. I am interested in buying good cows and heifer calves from my fellow stock breeders	
34. Other ……………	

35. Do you think that your way of dealing with the reproduction of the herd is the most ideal way there is?
    1   It is the best way
    2   I think I should improve to reach the ideal practice
    3   I know the practice is not ideal but it is difficult to improve it
    4   I have no idea what you mean

36. What do you feed your herd?

	1 = yes 2 = no 3 = I don't know
36. They can graze in the field whatever they want	
37. They are turned out on fertilized grassland	
38. I grow and feed them additional fodder crops (alfalfa, etc).	
39. I feed them additional concentrates	
40. Other, ………………	

41. Do you think your way of feeding is the most ideal?
    1   It is the best way
    2   I think I should improve to reach the ideal practice
    3   I know the practice is not ideal but it is difficult to improve it
    4   I have no idea what you mean

42. What is your general treatment of the cattle?

	1 = yes 2 = no 3 = I don't know
42. I only see them when I want to sell some of them	
43. I check them on a regular basis	
44. I sell some of them when I need the cash	
45. I only sell them when they reach a optimum age/weight	
46. I treat them preventively for common diseases (mineral deficiencies, tick diseases, etc).	
47. When they get ill they will die	
48. I always try to treat them for illness	
49. I would like to treat them when they are ill, but the vet and the medicines are too expensive	

50. Do you think that you generally deal with the cattle in the most ideal way?
    1   It is the best way
    2   I think I should improve to reach the ideal practice
    3   I know the practice is not ideal but it is difficult to improve it
    4   I have no idea what you mean

51. Ideas on stock breeding that exist in the village?

	1 = Agree strongly 2 = Agree somewhat 3 = Neither agree nor disagree 4 = Disagree somewhat 5 = Disagree strongly
51. I have very strong opinions on how stockbreeding should take place	
52. Most of my fellow stockbreeders have the same opinions on stockbreeding as I have	
53. We often discuss about what the best way of stockbreeding is	
54. It is of no importance that other breeders have different opinions	
55. It is important for the members of the breeders association to have the same standards for stock breeding	
56. Breeders that have low standards in stockbreeding should be excluded from the breeder association	
57. Breeders that have low standards of stockbreeding bring shame upon the village	
58. Every stockbreeder is welcome to the breeders association no matter his ideas on and results in stockbreeding	
59. I will never ask help or advice from a stockbreeder with different ideas	
60. To keep the standards of stockbreeding high, we should discuss and learn from each other	

When I really have a problem with my cattle, I always ask advice from …………………………, because he/she really knows about cattle

B. LINKING QUESTIONS

61. *There is support from local government (regency, sub regency, village institutions or local government department) to organize the breeder association:*
   1. Strongly agree
   2. Agree
   3. Neither agree nor disagree
   4. Disagree
   5. Strongly disagree
   6. *Don.t know*
   7. *I prefer not to respond*

62. *Local government provide many methods and aids to build your capacity:*
   1. Strongly agree
   2. Agree
   3. Neither agree nor disagree
   4. Disagree
   5. Strongly disagree
   6. *Don.t know*
   7. *I prefer not to respond*

63. *Banks and Informal Financial Services lend money to businesses in your breeder community:*
   1. Strongly agree
   2. Agree
   3. Neither agree nor disagree
   4. Disagree
   5. Strongly disagree
   6. *Don.t know*
   7. *I prefer not to respond*

64. *The institutions (Banks and or government) help you when you need them to solve the cattle problems:*
   1. Strongly agree
   2. Agree
   3. Neither agree nor disagree
   4. Disagree
   5. Strongly disagree
   6. *Don.t know*
   7. *I prefer not to respond*

65. *The government's rules for cattle development and general treatment give benefit and the most ideal away for you?*
   1. Strongly agree
   2. Agree
   3. Neither agree nor disagree
   4. Disagree
   5. Strongly disagree
   6. *Don.t know*
   7. *I prefer not to respond*

C. OPEN QUESTION FOR SOCIAL CAPITAL VARIABLE (FOR INSTITUTIONS)

1. The history of community business in cattle breeding

2. The "process " of cattle breeding

3. Interactions among breeders and between breeders and institutions

4. The level and form of trust based on those interactions (Quest. 3)

5. The most important capital for cattle breeding:
    1. Human capital
    2. Financial capital
    3. Natural capital
    4. Social capital

6. The benefit of social capital for breeder's productivity

D. QUESTIONERS OF COMMUNITY'S PRODUCTIVITY

INPUT

66. How many cattle do you have now?

67. How many cattle do you have one year ago?

68. How much kg fertilizer do you need /ha?

69. How much kg additional fodder do you need for each head of cattle?

70. How many new calves were born / year?

71. How many cattle died / year?

OUTPUT

72. How many cattle do you sold this year?

73. How many cattle do you buy this year?

74. At what age when you sell your cattle?

75. At what weight when you sell your cattle?

76. How much the price / kg life cattle do?

77. How much the average of weight growth per beef / month does?

E. OPEN QUESTIONS (QUALITATIVE)
Community Profile and Asset Mapping

Community map, indicating location of community assets and services

Bring large sheets of paper and several color markers. Ask the group to draw a map of their village or neighborhood that shows the settlement pattern, sites for productive activities, and locations of various assets and services in the community. A second group may be asked to make modifications to the map developed by the first group or, if they prefer, draw their own. The map is a key reference point for the discussion and should be used throughout the interview process to stimulate discussion, identify critical issues, clarify discussion points and so on.

Institutional diagrams (Venn) of relative impact and accessibility

Venn Diagram: Cut out (ahead of time) paper circles of three different sizes and lay them out. Ask the group to place the largest circles next to the most important organizations, the middle-sized circles next to the less important organizations, and the smallest circles next to the least important organizations. Write the name of the organizations in each circle. Observers should record the group's reasoning as to why organizations are categorized as more or less important.

Institutional diagrams (Web) of institutional network relationship

Flowchart diagram: Have ready a sheet of flip-chart-sized paper and markers. Facilitate discussions among the group regarding the relationship among the identified organizations, community leaders, and the community. Probe on local government institutions, nongovernmental organizations, base organizations, and other civil society actors. Ask the group to draw each actor and, using arrows or other appropriate symbols, indicate the relationship among them. Probe link among all organizations.

Genogram

Using symbols, record here family composition, household composition, organizational affiliation, and level of involvement.