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## Sustainable Agriculture: Towards a Conflict Management Based Agricultural Extension

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**Abstract:** This study aims to provide an alternative conceptual framework for agricultural extension, which can deal with environmental scarcity, conflict and challenges in sustainable way. For this purpose, a brief history of agricultural extension and conflict is introduced and then conflict management approaches are reviewed. Finally, an alternative model is proposed to use conflict management approach as a basis for agricultural extension. The implication of conflict management approach in agricultural extension is far-reaching: it requires new modes of analysis and different roles and tasks.

**Key words:** Conflict management, extension, sustainable agriculture, stakeholders, development

### INTRODUCTION

The link between sustainable agricultural development and conflict among different stakeholders has not received due attention and analysis. Environmental scarcity is the backbone of this conflict. Scarcity of natural resources such as land, water and forest can arise from depletion or degradation, increase demand or unequal distribution (Barli *et al.*, 2005). Agricultural extension as an institution of agricultural development has long been involved in promoting agricultural growth, equality (Karami, 1986) and more recently sustainability (Karami, 1995; Roling and Van den Fliert, 1994). Therefore, environmental scarcity and attempt to achieve sustainability have faced agricultural extension with unprecedented challenges. Leeuwis and Van den Ban (2004) believed that the challenges of agricultural extension come from two origins; the challenges that farmers and agriculture face with regard to their social and natural environment and the challenges that emerge within extension organizations. Therefore, these are new internal and external challenges that agricultural extension will have to meet if it wishes to play a role in future sustainable development. On the other hand, stakeholders' needs and interests, agriculture and farming practices, natural resource management, all are in the process of change (Owen *et al.*, 2000). When challenges change, the organizations that are supposed to support farmers in dealing with them, will have to change as well. These changes inevitably impact the agricultural extension and bring pressure on it to change (Rivera, 1997). For this reason, Karami (1993) argued that

dominate agricultural extension is fundamentally limited in its ability to promote sustainable agricultural development and natural resource management. Therefore, alternative agricultural extension paradigms are needed to cope with these challenges (Rezaei-Moghaddam *et al.*, 2005). The aim of this study is to provide an alternative conceptual framework for agricultural extension, which can deal with environmental scarcity, conflict and challenges. For this purpose, we introduce a brief history of agricultural extension and conflict then review conflict management approaches. The need for conflict management approaches in agricultural extension is presented followed by adapting conflict management approach in agricultural extension.

### AGRICULTURAL EXTENSION AND CONFLICT: A BRIEF HISTORY

An overview of agricultural extension history in developing countries with emphasis on the issue of conflict is shown in Fig. 1. This history can be divided into three distinctive periods of mechanistic harmony, conflict and conflict escalation.

**Period of mechanistic harmony:** The history of agricultural extension in this period starts after World War II, when this development institution was established in different developing countries (Karami, 1993). The aim was to increase productivity to feed the underfed population based on economic growth model (Rogers, 1976). Farmers were considered the only stakeholders and whatever they wanted to do with their

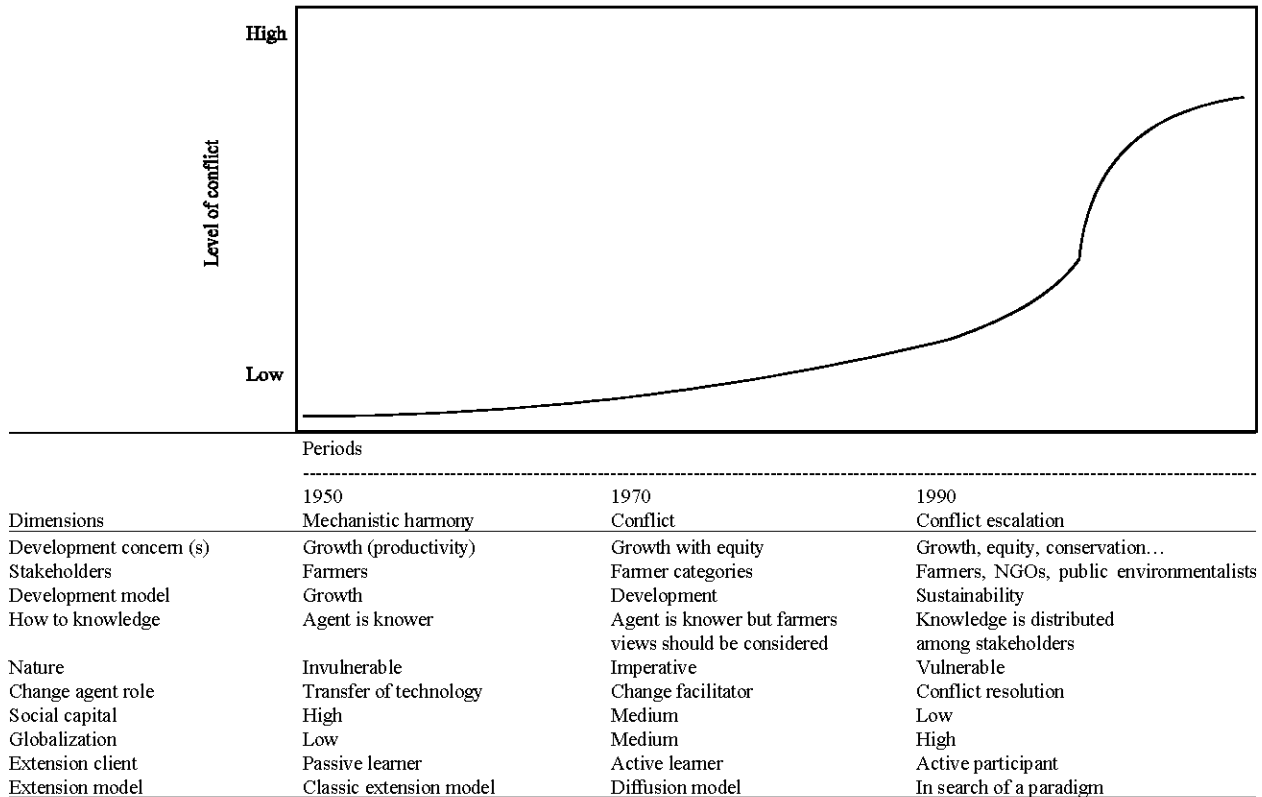


Fig. 1: Schematic representation of agricultural extension and conflict history

Note: Dates are not exact and could differ based on the historical development path of each country

farm was not of concern to other actors in the society as far as they could increase production.

The main stream of agricultural extension approach in this period is based on classical extension model (Karami, 1993). Extension agents were considered to be the knower and farmers the ignorant. Transfer of technology was the assumed role for extension agents (Blum, 1997). Farmers were thought to be passive learners whose minds to be filled with know-how by extension agents (Leeuwis and Van den Ban, 2004). Nature was considered 'invulnerable'. That is, we could take anything we want from it and return the waste without any significant harm.

From the conflict point of view, we call this a period of 'mechanistic harmony'. Peasants, under this system of production felt deprived because they had to carry out the burden of new technologies while they did not received their share of increased harvest and had no prospect for upward mobility. The homogeneous, poorly paid and mass of peasants had great incentives for class-based organization and conflict. However, these conflicts seldom had the chance to be active and, were suppressed through hierarchies of power and weakness. In fact, the observed harmony was superficial

and mechanistic in nature. The idea of agricultural extension systems dealing with conflict never raised.

**Period of conflict:** Beginning of this period was when the passing of dominant paradigm of development happened and the poor were discovered (Roling, 1982; Karami, 1995). By this time, in most developing countries, major land reforms were executed and landlords were not part of rural power structure any more (Rezaei-Moghaddam *et al.*, 2005). Growth with equity became the primary concern of development experts, at least at theoretical level (Roling *et al.*, 1976). Farmer categories were new stakeholders and diffusion theory was the basic framework of agricultural extension theory during this period (Karami, 1986). Increasing production and productivity through the transfer of relevant technology and information is still the mission of extension (Hayati and Karami, 2005); however, the equity consequences of productivity received increasing attention as alternative extension objectives (Roling, 1982; Karami, 1993). The basic situation is a prospective 'extension worker' who has the solutions and the farmers and natural resource users who have the problems (Chambers, 1997). Different extension approaches, such as

T and V (Training and Visits), FSRE (Farming System Research and Extension) and the like were employed to achieve objectives. Although, farmers were still considered 'learner', in line with the learning theories of this period a more active role was assumed for them in the learning process. Nature was considered 'imperative' that is, although vulnerable, science can help preventing any major damage.

Due to increasing awareness and more democratic socio-political environment, conflict among stakeholders (small versus large farmers) had a greater chance of emerging and absorbing attention. The prime source of conflict was about how to distribute the benefit of development. Extension identified its task to 'sell' technology to farmers while assuming technologies to be appropriate for all farmers. This uncritical acceptance by extension has resulted in considerable social (Roling *et al.*, 1976) and ecological (Stockdale, 1977; Clark and Lowe, 1992) impacts as a result of the technological change fostered by extension. The service provided by the extension agencies reached, differentially, the better educated and more economically powerful farmers. Contrary to the previous period, extension was greatly criticized not only for its inability to resolve the inequality conflict but also for creating socio-economic conflict (Karami and Hayati, 2006).

**Period of conflict escalation:** This period is marked by escalation of conflict regarding the environment impact of agriculture. Growing awareness of the possible consequences of agricultural practices has made more people aware of the limited, ephemeral and precarious character of our present environment. The environment is perceived to be highly vulnerable. It is just due to shortness of our lives and the narrowness of our perspective on the past that we are mostly unaware of changes. Until this period, human have scarcely noticed the pressures on the environment. In addition to general public, farmers, extension agents, environmentalists and NGOs are the stakeholders of agriculture in this period. But the aims and activities of these stakeholders are often in conflict. World-wide, conflict over natural resources is intensifying - between individual producers vying for local land and water, between individuals and their communities and between farmers and 'environmentalists'. The basic idea of the concept of multi-functionality of agriculture, which was developed during this period, is that agriculture is multifunctional because besides the key function of providing food and fiber, it provides many other functions or services to the whole society (Qiuzhen and Sumelius, 2006). It is important to

notice that social capital in form of empathy, goodwill, trust, communication, social connection and a sense of interdependence (Owen *et al.*, 2000) which, contributes to the number of disputes and conflicts, decreased as societies moved from traditional (period of mechanistic harmony) to more modern stages. Agricultural extension is in a period of crisis. A financial crisis in terms of reduced government funding; an effectiveness crisis in that extension does not appear to be successful in promoting adoption, particularly of environmental management practices; a legitimating crisis in that farmers do not believe that extension is relevant to them; and a theoretical or paradigmatic crisis (Vanclay and Lawrence, 1994). Rejection of traditional models of extension has left a theoretical void as there are not sufficiently well developed theories and models that are widely endorsed to take their place (Hayati and Karami, 2005; Vanclay and Lawrence, 1994). In this regard, Rezaei-Moghaddam *et al.* (2005) argued that the agricultural extension needs an approach which starts from the assumption that the agricultural stakeholders are likely to act strategically in relation to existing and emerging conflicts of interests and then finds ways of using this to solve environmental problems. On the other hand, these challenges include the need for the agricultural extension to establish effective communication and cooperation with other stakeholders in society. This is not always easy, as some of these stakeholders have come to look upon each other as 'enemies' with competing interests in a 'struggle' over land-use (Leeuwis and Van den Ban, 2004).

With environmental innovations the costs of adoption are borne by the individual farmer, while the benefits are social. Often the costs outweigh the benefits for an individual farmer, at least in commercial terms. Such adoption is, therefore, not in the farmer's economic interest and the result in large-scale non adoption and conflict with other stakeholders who promote environmental innovations. All this implies that extension needs to play a more active role in the processes of conflict resolution. For this active role, agricultural extension needs special new framework to takeover stockholder's conflicts successfully. This framework should be able to identifying, recognizing, analyzing and resolving the conflicts between agricultural stakeholders.

#### **CONFLICT MANAGEMENT APPROACHES: THEORETICAL CONSIDERATIONS**

Conflict, quite simply, is inescapable- a pervasive aspect of existence (Barli *et al.*, 2005). It can be defined as the deep underlying difference between parties whereas

+disputes are the specific differences that emerge on particular occasions (Lu, 2006). Conflict resolution or management is an up-to-date concept of particular concern in the current decade and the interest in conflict management has grown in recent years (Barli *et al.*, 2005).

According to Walker and Daniels (1997) any conflict includes three interrelated dimensions: substance, procedure and relations. The conflicts can be addressed through any of these three dimensions (Niemela *et al.*, 2005):

- Substance (how things are) composed of identifying types, conditions and characteristics of conflicts. This dimension addresses the type and status of concerned. For example, status of sustainability process, type of natural resource management and the dimensions of sustainability are identified in sustainable development.
- Procedure (how things are done) concerns legislation policies, procedures and strategies regarding the conflict issues. Furthermore, implementation, enforcement, strategy and planning are other components of interest in this dimension. It also includes the type and nature of stakeholder engagement, e.g. development legislation policy, strategies, planning and type of stakeholders' engagement are indicated in sustainable development.
- Relationships (how people behave) include how different components of a social system interact with each other. This dimension addresses the culture of individuals, organizations and society and how they influence each other. For example, interaction between stakeholders and organizations are revealed in sustainable development.

In spite of diversity, conflict theories can be divided to two groups: Those believe in conflict management and others who presume conflict resolution (Hamad, 2005). Conflict resolution theorists believe that it is possible to eliminate conflicts. Therefore, they see conflict management as a stage in the handling of conflict resolution (Hamad, 2005). Owen *et al.* (2000), in turn, distinguished between 'settlement of conflict' and 'resolution of conflict'. They define a conflict as settled if the outcome entails a loss for one side and a gain for the other, or a compromise in which all or some of the parties are losers to some degree. However, the conflict is resolved if the outcomes fully meet the needs and interests of all the parties concerned. This situation occurs where the parties agree to exploit and share a resource in such a way as to completely satisfy

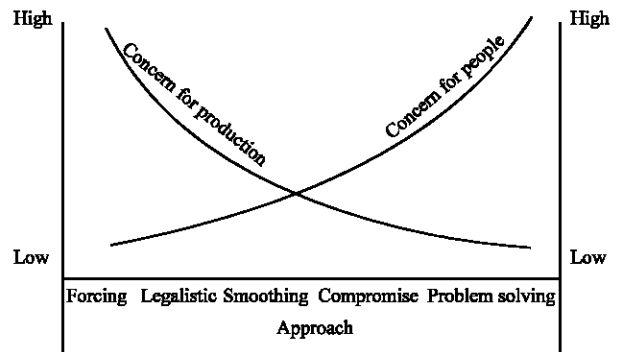


Fig. 2: Concern for people/production and conflict management approaches

everyone's values and interests. On the other hand, other theorists believe that conflicts can be managed, not be resolved. They see conflict as an ineradicable consequence of differences of values and interests within and between communities. They presume that resolving such conflicts is unrealistic: The best can be done is to manage and contain them and occasionally to reach a historic compromise in which violence may be laid aside and normal politics resumed (Hamad, 2005). We also used the term conflict 'management' rather than 'resolution', because many agricultural development conflicts are both complex and enduring and may therefore, never be completely resolved. In this regard, Blake and Mouston (1964) dual concerns theory proposed that individuals have two primary motivations with regard to interpersonal conflict: The desire to obtain one's own goals (concern for production) versus the desire to retain interpersonal relationship (concern for people). Accordingly, conflict management approaches are divided to five categories. However, despite difference between terminologies each group employed, all use the same approaches, strategies and techniques facing with conflict situations (Cheung and Chuah, 1999). The conflict resolution mode or management approaches can be placed on a continuum according to varying concern for people and/or production (Fig. 2). A description of the modes is presented as follow:

**Forcing approaches:** Forcing approaches employ one-sided efforts to dominate the process of decision-making (Lu, 2006). In these approaches, conflict can be managed through force; however, not all parties will be able to use force (Slabbert, 2004). In other words, some parties depend on the power they hold and the legal system, have the means and inclination to win regardless of whether the other party losses. Therefore, process of winning may cause damage to personal relationships.

Forcing approach means to exert one's point of view at the expense of another and often lead to a win-lose situation.

**Legalistic approaches:** Legalistic approaches refer to people tending to avoid future conflict or trying to solve present conflict through the use of a written contract or by seeking legal arbitration (Lu, 2006; Holt and De Vore, 2005). These are approaches to conflict management suited to those parties whose desire to avoid confrontation outweighs the goals they are trying to achieve (Warner and Jones, 1998). The power (either positive or negative) of withdrawal should not be underestimated, not least since it can be used as a threat to force reluctant and sometimes more powerful parties to negotiate in a more consensual fashion (Holt and De Vore, 2005).

**Smoothing approaches:** Smoothing approaches emphasize the commonalities or strong points and to de-emphasize or even suppress any differences in viewpoints among conflict parties. There are occasions when one party in a conflict situation values a strong and continuing relationship with one or more of the other parties above the attainment of its own specific goals (Gilani, 1999). In these cases, a party may elect to accommodate the other parties' goals, conceding to all or most of their demands. Although such outcomes may look as though they have been the result of force, the difference is that rather than losing outright, the accommodating party perceives itself to have gained by way of securing good relations, accompanied perhaps by an element of good will and the option to achieve some greater goal at a future date (Warner and Jones, 1998).

**Compromising approaches:** Compromise is often confused with consensus. To compromise in a negotiation may sound positive, but it means that at least one of the parties perceives that it has had to forgo something (Warner and Jones, 1998). Compromise approaches mean to determine 'acceptable' solution in which conflicting parties have some degree of satisfaction with a 'give and take' attitude. In planning projects, compromise - and in particular the notion of trade-offs- is now prevalent, based on the need to make rational resource allocation decisions.

**Problem solving approaches:** Problem solving approaches face or confront conflict directly with a problem solving attitude and generate the best solution even though the original views of either or both conflicting parties may need to be modified or discarded. Both parties set out to seek for a win-win situation. Although processes of

problem solving sometimes contain elements of compromise within the final agreement, there are some key differences between the two approaches. Problem solving explicitly sets out to avoid trade-offs altogether, seeking instead to achieve a win-win outcome (Holt and De Vore, 2005).

Despite the general agreement on the above modes, other approaches have also been presented. Owen *et al.* (2000) classified the approaches to settlement, integrative and interactive. They indicated while all three approaches are options for resolving conflicts over farming practices, the settlement approaches have been used most often and there is an increasing awareness and interest in interactive conflict resolution approaches. Niemela *et al.* (2005) suggest that means to management conflicts in relation to forest and biodiversity conservation can be separated into technical, political and cultural. They emphasized that it is often necessary to act on the three dimensions of the conflict at the same time, because any solution alone can prove to be inapplicable.

#### **PRACTICAL SHORTCOMINGS OF THE DOMINANT AGRICULTURAL EXTENSION MODELS**

We argued that the dominant agricultural extension model has conceptual shortcomings towards conflict situation. An important question is whether or not these conceptual problems necessitate a different approach towards conflict management and if so, what adaptations are necessary. In other words, is there any thing wrong with the dominant agricultural extension? We would present some cases (Kowsar, 2003; Karami and Hayati, 2006) in order to show practical shortcomings of dominant agricultural extension. These cases have been purposely and deliberately selected; to represent problems that dominate agricultural extension efforts faced in dealing with different stakeholders. However, they do give some examples of frictions in conflict management; we would argue that these are somehow related to the limited capacity of current agricultural extension to deal practically with conflict situations.

**Case 1: Conflict situation in natural resource management (Kowsar, 2003):** In arid region like Iran, development is frequently seen as the preservation and optimization of water use with training in the use and maintenance of the system. Gareh Bygone plain is a sandy desert located at the foot of the southern Zagros mountain range in south of Fars province, Iran. The ministry of Agriculture wanted to improve ground water of the plain. So, experts started the floodwater spreading project without community people participation.

Nowadays, the plain has become changed into eucalyptus forest and all natural and environmental elements improved. In other hand, farmers and community people feel they deprived the right to make decision about the land and forest. Therefore, a growing sense of dissatisfaction with the project is emerged among local people. Discussion among the farmers themselves is not just on matters relating to irrigation farming but includes topics such as 'why does some landholder obtain water and others do not?' and 'where do decisions regarding land and water distribution lie and how are they taken?' These issues are seen by the people to be social, psychological, cultural and political. Therefore, a technical approach to solve water shortage problems has grown to become source of conflict among local and outsiders. It calls for awareness-raising of the social situation, for a program of learning leading to new skills (how to deal with the local people) and new understandings (how other communities cope etc.).

This case demonstrates, first of all, the risks of developing projects in isolation from relevant stakeholders. The Ministry of Agriculture initially operates in top-down manner, a mode of behavior encouraged by formal land-use planning, which at a later stage also limit the space for settling the problems that emerge.

**Case 2: Conflict situation in water scarcity (Karami and Hayati, 2006):** Fars province is one of the main regions of Iran in agricultural production but many parts of this province have been confronted with ground water depletion and scarcity in recent years. Karami and Hayati (2006) described how the water scarcity caused conflicts among stakeholders in the province. They stated that farmers started to compete with each other in order to deplete more water from their boreholes. Meanwhile, they tried to find and access more water resources by deepening their present boreholes and digging more water boreholes when possible. For this purpose, the majority of the farmers chose the illegal way to deepening their present boreholes and digging more water boreholes. So, the farmer - farmer, farmer - extension worker and farmer - environmental conflicts occurred in order to extract more water. Extension workers believed that they must not allow farmers to dig more water boreholes because of depletion of grounded water. But farmers believed to have the right to exaggerate more water. On the other hand, conflicts among farmers were increased because of the competition to harvest more water.

In this case, the extension workers knew about the complication and struggle which resulted in the so called 'Tragedy of common', but not about how to deal with it. What we can see in this case is the debility of extension

workers to negotiate with parties toward a selected solution. Although extension workers know the situation, but they have not enough skills and ability to reform and reorganize the problems.

### **THE NEED FOR CONFLICT MANAGEMENT APPROACHES IN AGRICULTURAL EXTENSION**

Agricultural extension used different approaches that vary according to the extent that they emphasized production rather than people. Furthermore, historical view shows that most of the time, agricultural extension concern was promoting production. Then, it used top-down approaches such as forcing, legalistic and smoothing to conflict management. We believe that if agricultural extension wants to protect its vital role in agricultural development and natural resource management, it should concern people and use participatory or bottom-up approaches such as compromising and problem-solving approaches to manage conflict in achieving sustainable development. According to pervious discussions, modification of agricultural extension efforts is needed to considering the issue of social and environmental problems such as sustainable agriculture and natural resource management (Rezaei-Moghaddam *et al.*, 2005). These issues demand an open approach in developing solutions with flexibility to rapidly build on conflict management for improving the situation. So, Conflict Management Approach (CMA) has been identified as promising strategies to overcome shortcomings of dominate agricultural extension models, such as the conflicts of interests in sustainable agriculture and natural resources management (Cook and Kothari, 2001). Following this ideology, conflict management approach needs to move to compromise with many stakeholders. Furthermore, conflict management approach is mainly geared towards changing cognition, assuming that this will lead to changes in social practice. If agricultural extension is to contribute to this process, it likewise must have the capacity and flexibility to respond to its own on-going negotiation about its role in society.

Since the rise of concern for the environmental and social consequences of agriculture and increasing criticism of dominant agricultural extension, there seems to be a lack of conceptual framework for agricultural extension with respect to sustainable agriculture. The questions, which emerge are how the extension may deal with these challenges? And how agricultural extension can accommodate itself with new approach toward conflict management and sustainable development in the future? In building upon these, the following will outline some extension frameworks and tools that will support improvement.

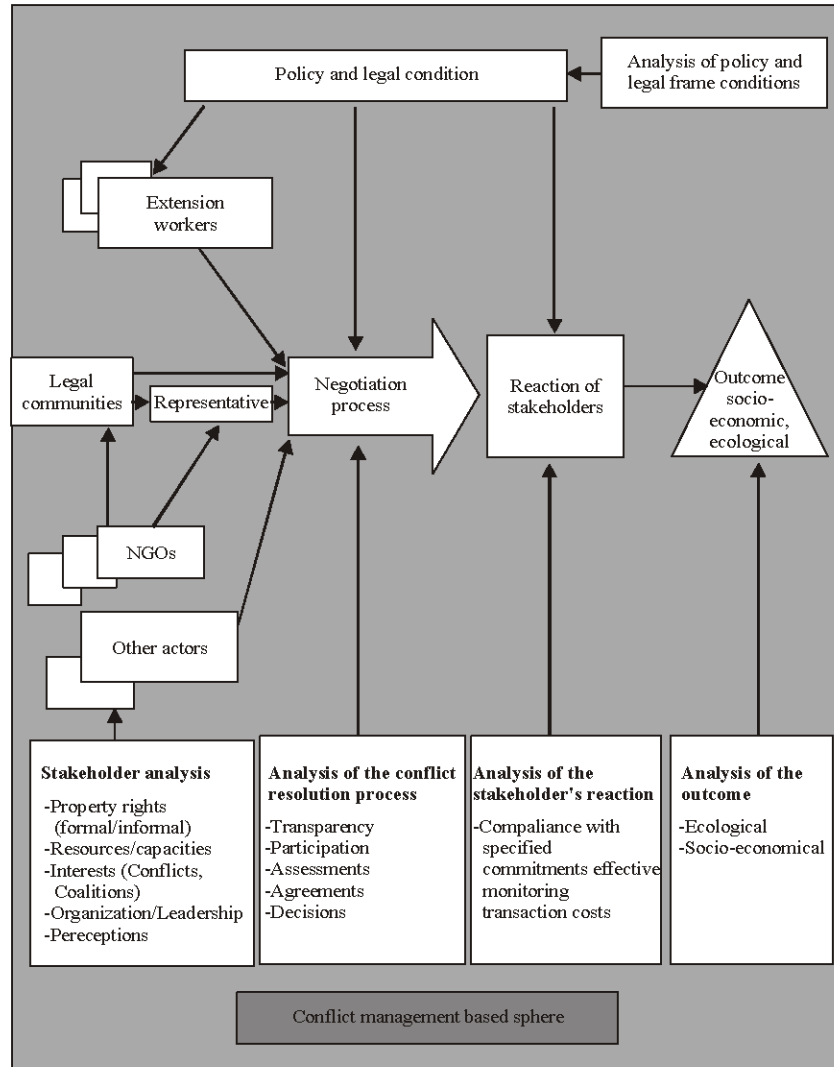


Fig. 3: Conceptual framework of conflict management based in agricultural extension

A model which illustrates the process of shift in agricultural extension was shown in Fig. 3. This Figure summarizes the framework for the analysis of conflict management on sustainable agriculture and natural resource management based on the conceptual considerations. Furthermore, the model shows how conflict management may occur. Different stakeholders such as extension workers, local people, environmental NGOs and other actors should be involved in conflict management process.

Extension workers (facilitators) analyze the policies and legal frame conditions in order to facilitate decision-making process. Other stakeholders have valuable understanding about property rights, resources, capacities, interests and perceptions. This understanding helps realistic decision-makings. So, participation in conflict management process is vital. On the other hand,

it is impossible to involve all the local people and stakeholders in conflict management process. This leads to gaining the purpose by means of choosing representatives from that large number of stakeholders. For this purpose, stakeholders (especially farmers) should select their representatives and involve them in conflict management process.

#### **ADAPTING CONFLICT MANAGEMENT APPROACHES IN AGRICULTURAL EXTENSION**

Previously, we presented a conceptual framework for conflict management based agricultural extension. But, agricultural extension sector's tasks should be explained practically with respect to conflict management process. For this purpose, the conflict management process and



**Table 1: Methodological framework for conflict management approach**

Steps of conflict resolution approach	Task of agricultural extension
<b>Step 1: Preparation</b>	<b>Task 1: Preparing</b>
✓ Exploratory analysis of conflicts, problems, relations	✓ Making conflict assessment
✓ Selecting participants	✓ Invite/select stakeholders
✓ Securing participation by stakeholders	✓ Select representative who has experience
✓ Establishing relations with the wider policy environment.	✓ Enhance interdependency between stakeholders.
<b>Step 2: Making common sense</b>	<b>Task 2: Making common sense</b>
✓ Delineation common future	✓ Explain the problems
✓ Drawing the consequences of un-suitable behavior.	✓ Enhance interdependency between different stakeholders.
<b>Step 3: Agreeing upon a process design and protocol</b>	<b>Task 3: Agreeing upon a process design and protocol</b>
✓ Creating an agreed-upon code of conduct and provisional agenda	✓ Give participants the right to withdraw from earlier proposals
✓ Reaching agreement about procedures, methodologies, etc.	✓ Give representatives clear and sufficiently mandate
✓ Process management and maintenance of process agreements	✓ Strive at jointly endorsed discussion procedures
✓ Securing new process agreements as the process unfolds.	✓ Making discussion groups.
<b>Step 4: Joint exploration and situation analysis</b>	<b>Task 4: Joint exploration and situation analysis</b>
✓ Group formation	✓ Making need assessment
✓ Exchanging perspectives, interests, goals	✓ Supply sufficient content
✓ Analyzing problems and interrelations	✓ Explore alternative problem definitions
✓ Integration of visions into new problem definitions	✓ Make people talk in terms of interests
✓ Preliminary identification of alternative solutions and 'win-win' strategies	
✓ Identification of gaps in knowledge and insight.	
<b>Step 5: Joint decision-making</b>	<b>Task 5: Joint decision-making</b>
✓ Developing and implementing action-plans to overcome conflicts	✓ Stimulate fact-finding
<b>Step 6: Outsider agreement</b>	<b>Task 6: Outsider agreement</b>
✓ Clarifying positions, making claims, use of pressure to secure concessions, create and resolve impasses	✓ Order suitable package
✓ Securing agreement on a coherent package of measures and action plans.	✓ Involving trusted outsiders for agreement.
<b>Step 7: Agree on follow-up</b>	<b>Task 7: Agree on follow-up</b>
✓ Transferring the learning process	✓ Organize interactions between stakeholders
✓ Ratification of agreement by constituencies.	✓ Make sure that compromises are presented.
<b>Step 8: Monitoring implementations</b>	<b>Task 8: Monitoring implementations</b>
✓ Implementing the agreements made	✓ Arrive clear producers for monitoring programs.
✓ Monitoring progress	
✓ Creating contexts of re-negotiation	

Source: Modified from Leeuwis and Van den Ban (2004)

agricultural extension's tasks is shown in Table 1. First a preparation step (step 1) must be included as the starting point of conflict management process in agricultural extension. During this step, the situation is analyzed and stakeholders are identified broadly. The task of agricultural extension in this step is to make conflict assessment. Furthermore, extension workers invite representatives of different stakeholders who have enough experience.

The stakeholders have different concepts and understandings regarding the conflicts. This diversification is resulted from their different ecological, agro-technical and socio-economic and cultural backgrounds. So, making common sense is necessary to enhance interdependency among stakeholders (step 2). The extension workers are supposed to be knowledgeable about supporting, negotiation and conflict management process.

Third, during this step agreeing upon a process design and protocol is made by participants for conflict management process (step 3). At this point, it may be useful to obtain consensus on these documents in order to reach homogeneity. Agricultural extension tries to gather different views for better understanding by making discussion groups. Step 4, joint exploration and situation analysis, is one of the most important problem in conflict

management. During this step, stakeholders develop new problem definitions and perceptions on the basis of a creative collective learning process, resulting in the identification of so-called 'win-win' solutions (van Meegeren and Leeuwis, 1999). Thus in this step, the problems are analyzed. Therefore, the integration of visions to find solution should be taken place. Consequently, agricultural extension at this point tries to supply sufficient content to notify stakeholders. Decision-making occurs in step 5. It seems that the stakeholders will agree with these final decisions. Transparency will occur during this step by agricultural extension. After that, the outsider agreement (step 6) likes policy-makers and politicians for the purpose of verifying and supporting. In this step, agricultural extension should prepare the package and present it to the outsiders and other stakeholders. During Step 7, the agree on follow-up, all stakeholders participate in carrying out the decisions. Furthermore, ratification of agreement will realize at this point. Similarly, agricultural extension should negotiate with representatives and try to make sure that compromises are presented. Finally, it is still useful to think of 'monitoring implementations' step (step 8) in conflict management process. Agricultural extension in this step should create a context of re-negotiation and monitoring the process.

It is important to keep in mind that a conflict management situation arises: (1) when there is a conflict of interests, (2) the stakeholders involved are motivated to search for a solution, (3) the stakeholders believe that there are some solutions and (4) the stakeholders feel they need to compromise. From the aforementioned presumptions, it is concluded that presence of these presumptions help a successful conflict management. So, lack of one or more presumptions will likely lead to an abortive conflict management process. These presumptions may be existed spontaneously or not. In the later situation, appropriate presumptions should be contextualized before conflict management process begins. For example, if stakeholders believe that there is no solution, the extension worker (facilitator) should provide necessary information and instruction to stakeholders (especially farmers) toward the solutions, before conflict management process begins. Furthermore, conflict management is not a process of linear thinking (Leeuwis and Van den Ban, 2004). So, disagreement may happen at the first cycle of process but the process should be repeated again and again to reach suitable consequences. Therefore, it is important to check presumptions before second cycle beings. Disagreement may be caused by power relations. In this situation, extension workers(facilitator) should make use of measures such as (1) a strategic selection of participants, (2) exercising pressure on certain stakeholders and (3) imposing sanctions if actors do not follow agreed rules and other procedures that are not typically found in the tool-box of conflict management approach (Leeuwis, 2000; Edmunds and Wollenberg, 2001).

However, in a context of conflict management it becomes more evident that a facilitator needs to have an active strategy, resources and a power-base in order to forge sustainable agreements (Leach and Wallwork, 2003). Finally, in terms of successful conflict management process, Lewicki *et al.* (2001) provide the following overview of important key strategies and tactics:

- Creating a free flow of information;
- Attempting to understand the other negotiators real needs and objectives;
- Emphasizing the commonalities between parties and minimizing the differences;
- Searching for solutions that meet the goals and objectives of different sides.

Lewicki *et al.* (2001) also recommend the following key targets for facilitating successful conflict management:

- Some common objective or goal - a goal that all parties share equally

- Faith in ones own problem solving ability
- A belief in the validity of one's own position and in the other's perspective
- The motivation and commitment to work together
- Trust
- Clear and accurate information
- An understanding of the dynamics of conflict management.

## CONCLUSIONS

In spite of the fact that agricultural development in developing countries has been based on modernization theory in the last few decades, analysis of development policies and agricultural extension activities show that modernization theory has produced negative impact such as uneven development, poverty and environmental degradation. Considering the issue of social and environmental problems, modification of extension efforts is needed. This article demonstrated that current agricultural extension theory with little attention to conflict management is in crisis. We argued that agricultural extension faced many shortcomings and problems in practice. So, an effort is made to introduce a framework to overcome the problems. We believe that conflict management approach could be used to reconstruct the components of agricultural extension. In other hand, challenges in agriculture and in agricultural extension in particular, have brought about much rethinking regarding the role of agricultural extension. Understanding social conflict and the social nature of farming is needed if agricultural extension is to be effective in addressing sustainability and natural resource management. We conclude that the adoption of conflict management approach by agricultural extension provides more potential to overcome contemporary agricultural problems and challenges. The implication of such a shift in agricultural extension thinking is far-reaching to attain the sustainability: it requires new modes of analysis and different roles and tasks in conflict management process.

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