

# RURAL DEVELOPMENT AND BIOENERGY: AN ALTERNATIVE APPROACH

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## 4.1 INTRODUCTION

This alternative approach is based on two perspectives: sustainable rural livelihoods and the community capitals framework. These perspectives have been disseminated by several international organizations (FAO, World Bank, DFID, CIAT) to promote strategies conducive to poverty alleviation and natural resource protection in rural areas. However, none of them has actually yet been applied to the discussion of bioenergy and rural development in the context of small landholding agricultural production. This is an attempt to do so.

In general, the literature suggests that the livelihoods to which vulnerable rural populations aspire should lead to achievable results according to their own expectations. These results include food security, less vulnerability to external threats, better health and education for families, higher income to buy what they cannot produce and a stable and productive natural resource platform (Scoones, 1998; CIAT, 2001). Bioenergy, as discussed in previous sections of this paper, could become a tool placed at the core of all these expectations.

## 4.2 DISCUSSION

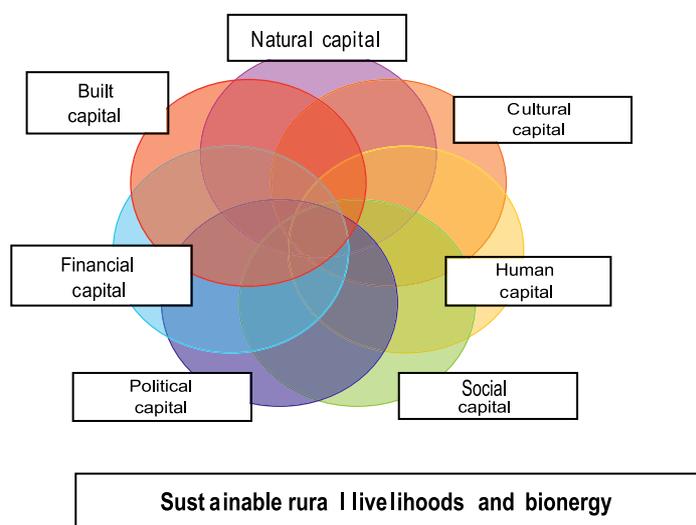
In operational terms, the sustainable rural livelihoods approach has landed in a participatory methodology that has people's resources and potential as its core. To this end, several guiding principles have been identified and agreed upon (DFID & FAO, 2000). These include the following and could be applicable to the design of bioenergy-related interventions at the local level:

- **Involving people from start.** The “starting point” of the rural sustainable livelihoods approach is the analysis people's current resources and the way these change over time. This facilitates the identification of trends that, eventually, result in strategies to face adversity. In that vein, the approach emphasizes the active participation of the target population for the entire cycle research and/or project.
- **Promoting a holistic approach.** The approach recognizes that people adopt multiple strategies rather than a single linear one. In that sense, the analysis of rural livelihoods involves different levels, geographic areas and social groups. This allows for results triangulation and validation. Additionally, the approach recognizes that multiple stakeholder interaction (i.e., the private sector, ministries, community-based organizations, international agencies) is important.

- **Generating dynamic spaces.** Far from being static, social reality is extremely complex and in permanent change. This is explained by the co-existence of a range of external and internal factors that influence its structure and processes. Taking this into account, the rural livelihoods approach attempts to grasp this complexity and dynamism and its influence on the larger society.
- **Prioritizing people’s potential.** The approach is based on the identification of the potential and opportunities that people themselves perceive rather than focusing, as many conventional approaches do, on their problems and needs. This, however, does not imply to overlook the context but to emphasize strengths over weaknesses. Thus, the approach supports and promotes the population’s own strategies and mechanisms to satisfy their current needs.
- **Articulating “micro” and “macro” levels.** The approach examines, on the one hand, the influence of policies and institutions at the macro level. The idea is to understand how they affect livelihood alternatives and stress the need for policies to be defined considering the priorities and perceptions from the “micro” level. The articulation aims at promoting a horizontal dialogue between the different levels in order to create better conditions and opportunities for all, particularly the most vulnerable.
- **Emphasizing sustainability.** Sustainability is a main challenge for most interventions at the local level. In general, it could be understood as “the extent to which people can maintain current (positive) changes generated by an intervention once it is finished” (Bobadilla et al., 1998). This is important to achieve a lasting poverty reduction process. The sustainable rural livelihoods approach is an analytical tool to understand the interaction among livelihood strategies, policies and institutions. However, this needs to be tailored according the specific contexts. In many cases, this involves readjusting several elements to reflect social, cultural, political and economic realities.

Thus, one of the tools through which the sustainable rural livelihoods approach can be operationalized is the “community capitals framework”. It analyzes community assets, as well as the way it organizes its efforts to achieve rural development. This is done through a systemic approach by combining type of capital investment, interaction among capitals and outcomes (Emery and Flora, 2006). The analysis includes seven types of capital: natural, cultural, human, social, political, financial and built. Following the approach of sustainable rural livelihoods, the community capitals framework also stresses potential rather than needs (Figure 4.1).

Figure 4.1

**Community capital Framework: Interaction among capitals**

In specific terms, each capital refers to the following issues:

- **Natural capital** refers to goods and services that characterize a particular place, including natural resources (air, water, soil and biodiversity), geography and natural beauty. Natural capital helps “connecting” the other types of capital to a specific geographic setting and facilitating the relationship among people.
- **Cultural capital** reflects the way in which people understand and experience the world, as well as their different strategies. This type of capital involves the worldview and cultural expressions such as language, food, art, clothing, etc. The cultural capital influences that people’s voices be “heard.” Additionally, this type of capital facilitates the understanding about how creativity and innovation nurture and influence each other.
- **Human capital** includes the skills and abilities people have and those that should be generated or enhanced by access to external resources. This process is aimed at increasing the potential of people, identifying effective practices and accessing information for the benefit of communities. Moreover, human capital refers to the ability to leading people to recognize their differences and focus on their assets (rather than on needs) through active inclusion and participation. Additionally, since human capital is usually identified with formal education, this approach gives priority to other types of local knowledge and the way these combine to create something different.
- **Social capital** is easily understood as the interrelationships and networks among people. These relationships can be either “bonding” (i.e., to the inside) or “bridging”

(i.e., to the outside) – meaning, working inside a community or with external entities such as government agencies and NGOs. In other words, social capital reflects the connections between people and social organizations. In some ways, social capital is the “glue” to facilitate that events will take place. Social capital promotes social cohesion.

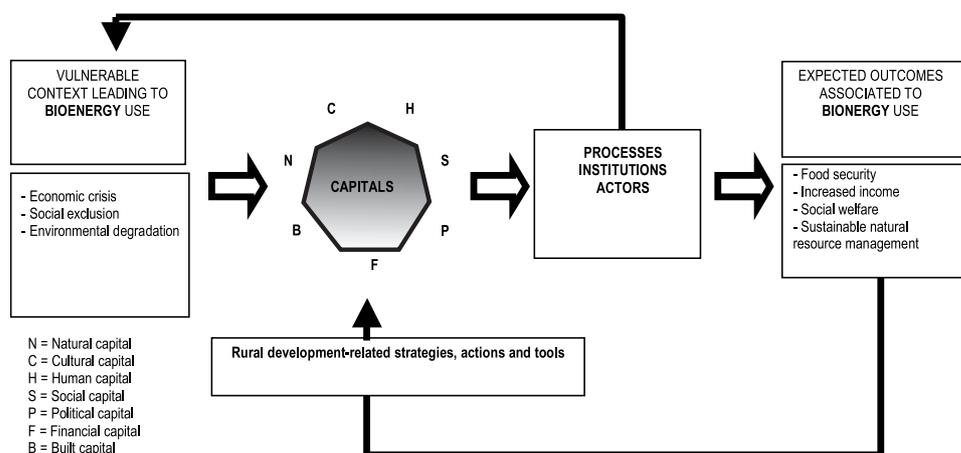
- **Political capital** mirrors access to power and organizations, particularly with regard to resources. Political capital also refers to the ability of people to find their own voice and participate in actions that promote community welfare. In other words, this type of capital is understood as the ability to influence standards, regulations and the distribution of resources and norms.
- **Financial capital** is referred to the financial resources available to invest in building community capacity, supporting the development of enterprises, facilitating civil society initiatives, promoting social responsibility and accumulating wealth for future community development. This capital comes from savings, earnings, loans and investments. It increases the capacities of all the other capital types.
- **Built capital** includes the infrastructure to support the six previous types of capital. Among others, it includes housing, transport, communal houses, soccer fields, etc. It provides a platform for the generation of human and social capitals. The built capital becomes “human-made infrastructure” for the production of the other capitals.

Methodologically, once the seven capitals are identified, it is possible to analyze which ones are the strongest and to establish interactions among them to define how to best utilize and support those that are less strong. This provides information for formulating relevant working strategies that are pertinent to the desired interventions.

The linkage between the sustainable rural livelihoods approach and the community capital framework is a conceptual alternative for understanding social change (Figure 4.2). In particular, addressing bioenergy effects on rural development might have to analyze how these seven capitals are configured and linked together to influence the various processes, institutions and actors oriented to generate outcomes such as higher incomes, greater welfare and sustainable use of natural resources. All of this needs to be framed in response to a context that is signed by a severe economic crisis, social exclusion and environmental degradation.

One of the central aspects of this approach is the generation of strategies, actions and tools. These, in contrast to conventional social theory, consider that actors are able to decide about their lives and entitle them to have a leading role in social dynamics. Thus, discussing the role of bioenergy within a rural development context could benefit from this approach in order to have communities themselves discuss the potential advantages and challenges of this alternative. Given that this approach prioritizes positive aspects, it has the added value of increasing community self-esteem.

Figure 4.2

**Bioenergy and rural development: Applying the community capitals framework****4.3 CONCLUDING REMARKS**

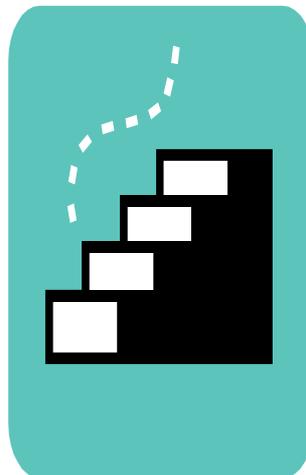
Research and policy-making play a major role in ensuring that bioenergy becomes a sustainable alternative for rural development. As such, both of them need to facilitate processes in which food security is not put at stake and guarantee that its benefits reach vulnerable small landholding agricultural workers. In short, related policies should be based on an intercultural approach, promote participatory processes and outcome-oriented interventions. To this end, the following concluding remarks could support the analysis and further implementation of sustainable bioenergy experiences within a rural development context.

- a. **Promoting sustainable bioenergy-related interventions from an intercultural approach.** Although this approach is currently part of the public discourse, some conceptual work is needed prior to its implementation. For instance, it is necessary to understand what it is and who is involved. Conceptually, inter-culturalism can be understood as a process of interaction, recognition and value of various expressions, discourses and cultural identities in a given space and time. Thus, intercultural communication refers to the set of strategies through which inter-culturalism is expressed, disseminated and communicated. It is worth noting that, generally, when speaking of the intercultural approach only target populations are prioritized. However, the approach also involves institutional staff (e.g., NGOs, Government, private sector). The approach can be operationalized into five stages: basic knowledge, recognition, tolerance, appreciation and incorporation (Figure 4.3). Attaining each of these stages implies the use of specific criteria and tools.

Figure 4.3

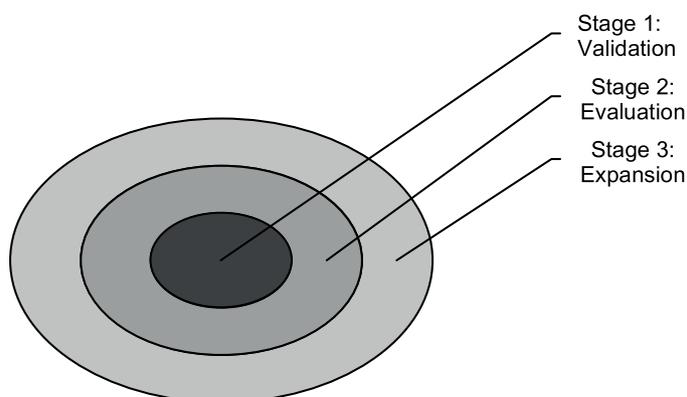
**Sustainable bioenergy-related interventions: Stages of an intercultural approach**

5. Incorporation
4. Appreciation
3. Tolerance
2. Recognition
1. Basic knowledge



- b. Implementing sustainable bioenergy-related gradual strategies.** Strategies need to be tested before being expanded. The implementation of sustainable bioenergy-related interventions will need to work at three levels: validation, evaluation and expansion (Figure 4.4). Validation involves small-scale pilot testing to identify an experience’s operational aspects in practice. Evaluation is the analysis of the validation results to identify “bottlenecks” and make the necessary adjustments. Finally, the expansion is the process of scaling-up the intervention once its assumptions and methodology have been tested and reviewed.

Figure 4.4

**Sustainable bioenergy-related interventions: Stages**

- c. **Strengthening measurement systems and indicators.** If a sustainable bioenergy-related intervention is implemented, it would be highly advisable that it be measured and monitored throughout. In that sense, indicators are a crucial tool to learn about the progress that is being made to attain goals and targets. Indicators should follow the “S.M.A.R.T.” rule. This means they should be specific, measurable, achievable, relevant and time-bound. In addition, given that results-based management is currently being promoted, it is advisable that the indicators matrix includes the “IPRI” indicators: input, output, outcome and impact (Table 4.1). We include a matrix applied to the potential implementation of a sustainable bioenergy-related intervention.

Table 4.1

**Sustainable bioenergy-related interventions: Indicators matrix**

Indicator type	Definition	Example
Input	Resources facilitated by the intervention	Number of brochures on advantages of sustainable bioenergy-related interventions
		Number of training videos about successful experiences of sustainable bioenergy-related interventions
Output	Goods and services produced by the intervention	Percentage of leaders trained in sustainable bioenergy-related interventions
		Percentage of local producers that have participated in experience exchange meetings about sustainable bioenergy-related interventions
Outcome	Changes occurred as a result of the intervention	Percentage of leaders that adopt new knowledge on sustainable bioenergy-related interventions
		Percentage of local producers that adapt sustainable bioenergy-related interventions to their context
Impact	Long-term changes	Number of validated participatory sustainable bioenergy-related interventions replicated in other communities
		Percentage of local producers that have a better quality of life due to sustainable bioenergy-related interventions

- d. **Using effective communication tools throughout the sustainable bioenergy-related interventions.** An intervention might be technically sound, however, if it does not count on adequate communication strategies, there is a high risk it might not achieve its goals. In that sense, the way in which the relationship “sender-message-receiver” is established is important during the design, implementation and monitoring stages. Fortunately, there is now a range of tools to facilitate the process. Table 4.2 summarizes some specific recommendations on that line.

Table 4.2

**Sustainable bioenergy-related interventions: Promoting intercultural communication****Design:**

- Conduct a participatory preliminary assessment.
- Identify previous experiences (both successful and unsuccessful).
- Promote dialogue and consultation with stakeholders.

**Implementation:**

- Validate assumptions before implementation.
- Ensure the use of clear and accurate messages and of audio-visual materials.
- Involve local people as "agents of development".
- Foresee the target population as "partner".

**Monitoring:**

- Emphasize the use of participatory monitoring techniques.
- Develop a minimum set of indicators under the IPRI model.
- Document the process.
- Promote experience exchange.

- e. **Involving other relevant actors.** Based on available information, it is advisable to develop a working plan that articulates the experience of other institutions that could collaborate and cooperate in the area. This strategy can contribute to implement cost-effective interventions, avoid duplicating mistakes and improve success in the area. To do this, as shown in Figure 4.5, is important to set a common goal: promoting sustainable bioenergy-related interventions.

Figure 4.5

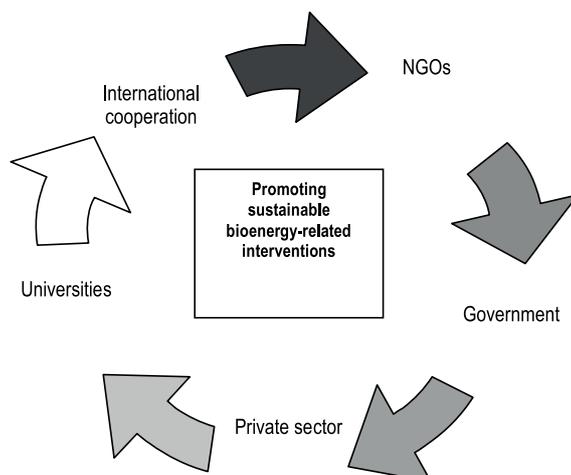
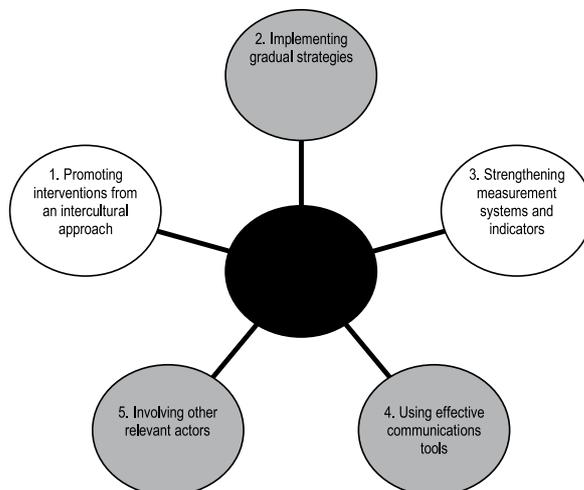
**Sustainable bioenergy-related interventions: Inter-institutional articulation**

Figura 4.6

**Sustainable bioenergy-related interventions: Synthesis of concluding remarks**

Finally, as a general summary, it is worth emphasizing that these 5 concluding remarks constitute a “system” (Figure 4.6). That is, they are interdependent. The fulfillment of one of them does not guarantee success so, as much as possible; they should be implemented in parallel.

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