The bioenergy villages on their way in Germany

Background: bioenergy villages

The core idea of the demo project is based on the existing bioenergy village Jühnde. The Jühnde model shows a complete shift of energy sources for an entire village, away from conventional (fossil) energy sources to the renewable biomass ressource. The original biomass village project - located in the southern part of Lower Saxony, Germany - (Figure 1) was developed in the years 2001-06 and consists of various biomass and district heating investments.

Figure 1: Bioenergy Village Jühnde in Lower Saxony, Germany

The project is considered successful and the regional authority, the County of Göttingen, decided to disseminate this model, aiming at replicating the Jühnde Case in at least 5 more villages in Göttingen County. Local groups of active villagers engaged in an intensive communication process with the project manager support the dissemination of the project idea. Besides the shift from fossil to renewable energy, one of the aims of the project is to support the local cultural heritage and also to strengthen community life and identity. The participatory approach proved essential for self-esteem, acceptance and credibility. Within eight villages, working groups were set up, representing an instrument of public participation. They developed village-specific dynamics, and compiled data necessary for preparing feasibility studies. Technological and economical conditions of the implementation of the project idea could thus be checked. All villages found cooperatives as operating companies. Pre-conctracts secured the implementation of the bioenergy systems further.

In addition, the methodology and human resources of the ESTEEM tool has been used starting in January 2007.

Applying ESTEEM

Through personal meetings and various telephone calls, Öko-Institut offered the project manager and active project partners concerned with the dissemination activities to test the ESTEEM tool. The original Jühnde project directly involved all relevant stakeholders with several participative tools. The dissemination project used a similar approach and tools, and most of the potential stakeholders were already known and “on board” by the time ESTEEM was started. Nonetheless, critical situations regarding the involvement of important actors came up. While the majority of these problems were externally driven, the project management started intense discussions with all relevant key actors to find specific solutions, supported by the ESTEEM process.

Consultant, project manager and stakeholders developed future scenarios and visions. The visions based on a business-as-usual scenario elaborated by the consultant were discussed and reflected upon with both the project manager and core stakeholders.

The Jühnde case was already well advanced when the ESTEM method was started. In addition, participation had been a major driver of the experimentation from the start. These specificities commanded that an additional pre-testing step, "step 0" was put in use. Step 0 contains the categorisation of different project types, because new, ongoing or follow-up projects have different needs and levels of reflection. The add-on, containing tool categories in relation to the project typology, helped design recommendations for use of ESTEEM adapted to the project particularities. This included indications about which tool element was most useful in the case of different project types, and which was less important.

The dissemination project in Göttingen County was identified as a "follow-up" project and then, was considered to have less requirements regarding identification of stakeholders, compared to a new project.

As indicated above, the dissemination project has been based on an existing stakeholder network and a well-founded participatory routine, e.g., working and planning groups, and village meetings. Nonetheless, ESTEEM helped reflecting more deeply upon the interdependencies and focused attention on critical moments.

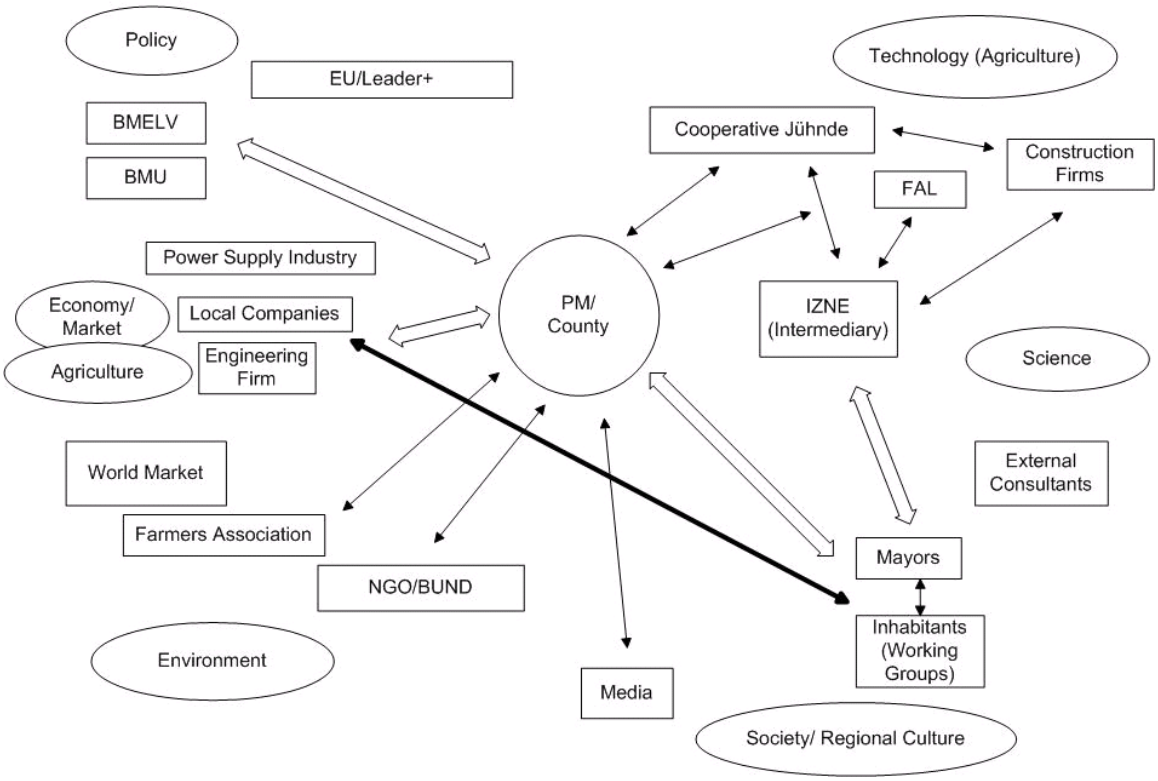

Figure 2: Existing Stakeholder Network

While working with **step 1** of ESTEEM (elaboration of a narrative to express the project history, describing context and design in an 'actors' table), the project manager had a feeling of déjà vu, and was not keen on having to start back from the start. He was already familiar with the structure of communication and relationship between the different actors and then did not find it so useful to invest more time on tools aimed at this same purpose.

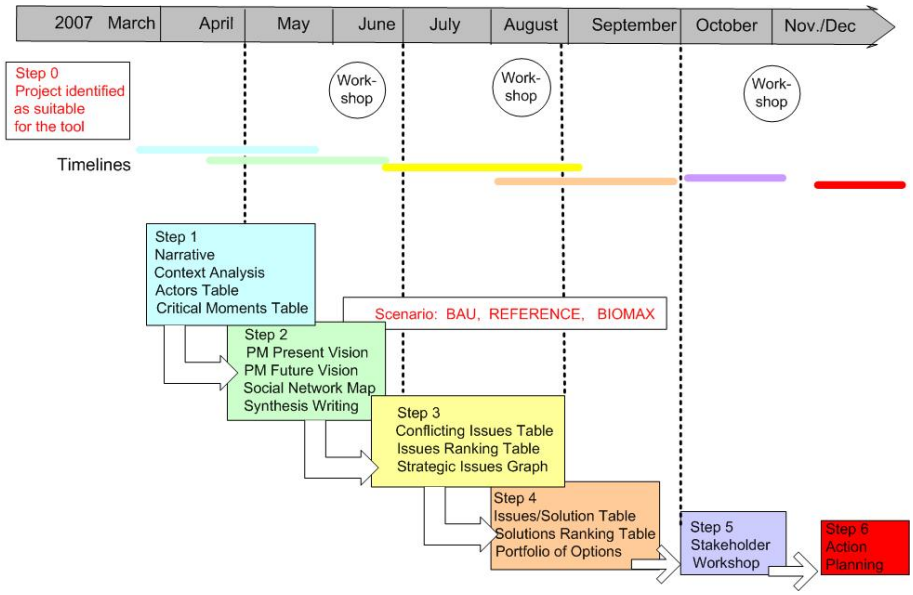

Figure 3: Timeline of all steps

In the dissemination project, the follow-up of steps 2, 3 and 4 was very close and linked to each other (Figure 3 below).

Step 2 - the vision building process - was the most important activity for the demo project. Within a first vision workshop in April 2007, the consultant, together with the project manager (PM) and core stakeholders, discussed possible visions for a renewable future. Before classifying the PM's vision, the consultant defined the context for a present and a future vision.

The present vision represents the elements relevant in the project context within the current setting of the project, and a time horizon of one to 10 years. A starting point for the PM was the general vision of the economic incentives and the societal welfare of the rural areas and the idea that local energy-independence could be gained by using biomass. Economically, a new market for farmers supplying biomass would be created. At the societal level, participation of all interested inhabitants and other stakeholders should enhance the quality of life and social cohesion.

The future vision included an energy independent county based on a mix of renewable energies, with the main focus on bioenergy for heating and electricity. The PM, inter alia, hoped for the security of supply through RES and guaranteed competitive prices for all renewable energy suppliers. As regards social issues, the PM thought about a high level of new income sources, for instance through the development of the tourism business.

The PM's visions were presented at the 1st vision's workshop to stakeholders for further discussion. The vision building process was introduced by a storyline to develop new dimensions of the future. The consultant prepared two different storylines representing the context of the two core stakeholder groups "farmers" and "customers".

Example of a "storyline":

Storyline to start the vision building
Energy farmer and operations manager Norbert Werum looks at his surroundings with a sense of satisfaction. "The machine has been operating well for 2 months without malfunction or complaint; all of the teething problems that we had with the new unit have finally been solved. The district heating customers can rely on us." Norbert W. is one of the pioneers from the early 2000s who has made the transition from farmer to energy farmer. In addition to his farm, he has built a certified biogas plant together with four other farmers in the near vicinity and inhabitants of the neighbouring village.

"Financially, it didn't seem easy at all at the beginning, but then the prices for forage maize fell dramatically, so it must have been around the end of 2009," Werum recalls. „Then it suddenly seemed like a good idea to cultivate energy crops and produce electricity from them. In the meantime we've had to upgrade our first unit." He and his colleagues have been successful energy entrepreneurs for 10 years now; as a result of fair contracts with their neighbours, they are not dependent on world market prices. "This new branch of business has also safeguarded livelihoods in agriculture," says Werum's colleague Friedbert Kaiser of the farmers' union.

The 1st vision's workshop identified two potential scenarios: the more or less "narrow" project vision, and a future project vision assuming a more general tendency towards local and regional sustainability.

The aspects of the visions and ideas were evaluated and visualized by a techno-economic network (TEN). The TEN included six poles, which the stakeholders ranked according to their respective importance. The following figure describes the future vision of core stakeholders:

Table 1 Future vision

Analytical Dimension	Future Vision
Livelihood and Work (socio-cultural pole, economic pole)	Enhanced greenhouse-gas reduction targets, increasing quality of life through diversity of new income sources; *new entrepreneurs, biomass suppliers*
Energy Supply (techno-scientific pole, economic pole)	Energy independent county on the basis of a mix of renewable energies with the main focus on bioenergy for heating and electricity, security of supply through RES; *decentralized cooperatives*
Social/Culture (socio-cultural pole)	Participation and involvement of inhabitants and other stakeholders; *new social cohesion*
Economy/Agriculture (economic pole, political regulation pole environmental pole)	Renewable Energy Law, Renewable Heating Law, Feed-in regulations with nature protection standards, guarantee of competitive prices for all renewable energy suppliers; *decentralized cooperatives*

Within the next **step 3,** the consultant identified key issues on the bases of discussions. The issues represented the main potential conflicts areas for the project. Furthermore, the issues were ranked according to their strategic importance. Nevertheless, ranking without weighting factors was deemed inadequate. Therefore, the consultant implemented a modification by implementing score descriptions and weighting factors. The ranking included the following score and factors:

- Score: 1 (low), 2 (medium), 3 (high), 4 (very high)
- Weighting factor: issues on national level (1), issues on regional level (2)

In the Jühnde case, the ranking table brought little new information to the PM. The value-added of the table depends on the project status and the existing experiences with stakeholder involvement. It would have been more supportive for a starting project (see step 0).
In the following the strategic issue graph visualises the key issues, indicating importance and urgency of different project issues.

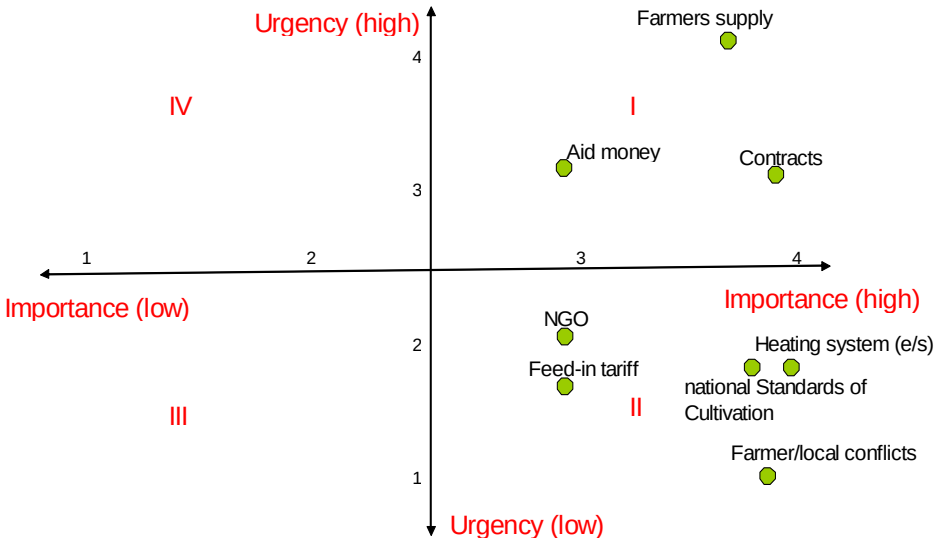

Figure 4: Issue Ranking Graph

At the end of **step 4,** the consultant pointed out possible solutions to address existing conflicts. The solutions have been ranked. Some new ideas for common process options were generated. The solution oriented way was found very useful at this difficult project phase.

Table 2: Solutions Table

Solution	Description	Rank
Strengthen role of farmers	Strengthen the role of the farmers as a part of the local society	3
More information on land use	Sore information about land use options (area of land, time horizon)	2
Feed-in tariffs	Financial incentives for biomass producer	11
Best practise model	Farmers with best practise as role model, they should not only be seen as an economical subject, but as innovative and trendsetting	9
Common goals	Development of common goals by NGO, farmers and association representatives, regional development concepts as a basis	7
Information workshop	Workshop for NGO to solve conflicts and overwhelm barriers, support of know how building	1
Economical calculation	Feed-in-tariffs has to be dealt with in the feasibility studies and the different scenarios	6
Feasibility study	Results support the preparation of investments	3
Regional agreements	Regional agreements for standards of cultivation, regional labelling for a better identification	6
Aid money	Project impulses by aid money, active acquisition	8
Economy of heating system	Technical adjustment (scale of system, alternative supply systems in the view of economy and ecology	5
Farmers conflicts	Together with local conflicts, mediation needed, social cohesion conflict has to be faced by planning group and "Stammtisch"	6
Biomass production	In comparison with animal processing	10
Contracts	Willingness to long-term contracts, adjustment of conditions, imparting pros and cons, show ris under different scenarios	4

The results of the solutions table serve as an important input for the stakeholder workshop. They gave new impulses to the PM, support the discussion and raise interest among several actors groups to participate in the upcoming discussion (workshop and other platforms).

In Step 5, we organized two different workshops: a partner's workshop and a stakeholder's workshop.

The partner's workshop was tailored towards discussing strategic matters with the project manager and to preparing the stakeholder's workshop. Several of the basic conditions and the important need for clarification were discussed. The ESTEEM six-step approach was presented. The invited partners (IZNE, engineering firm, county of Göttingen, NGO and farmers association) were also asked to discuss the implementation of additional stakeholders, especially NGO and farmer's representatives.

Finally the stakeholder's workshops aimed at the following aspects:

- Specify current and possible future conflicts.
- Obtain new information on selected problem areas.
- Find common solutions.
- Prepare for the next action steps.

The stakeholder's workshop offered an information exchange and prepared agreements on next action steps at an operational level.
Four main agreements and arrangements (action plan) were made:

- The first priority is the realisation of and increasing of the number of connections in the villages (customer density).
- It is an initiative of the district administration, together with nature conservation associations, farmers and interested villagers, to examine selected areas from the perspective of nature conservation concerns and to determine criteria.
- Dissemination of knowledge with regard to the cultivation of energy crops – starting immediately in the new villages – will be undertaken.
- Submission of a model initiative on biomass and biodiversity to the Federal German Environment Ministry will be considered.

Within **step 6,** the consultant discussed with the PM the outcomes of all steps and prioritized the developed solutions and types of action. Within this reflection, next activities and additional actors were identified. Both the general overview and the single communicative step were deemed helpful for short- and long-term strategies.

Benefits gained from the ESTEEM tool

The ESTEEM toolbox was adjusted to the demo case to reflect the already high level of communication and participation. Still, the process secured a high compatibility with local needs and the network of actors, while local competence and know-how was established. The reflection of the overall local network structure and the involvement of key stakeholders were enhanced by the ESTEEM tool application.

Nevertheless, conflicts around e.g. prices for biomass and nature protection existed. Targeted scenario building and intense discussion during workshops, and a clear commitment of the PM (and the County of Göttingen) favored the development of local solutions which will be implemented by agreements and model activities in the next months.

We thank Dr. Berndt, the project manager, and Mrs. Wemheuer, the responsible administrative leader of the county of Göttingen, for their cooperative manner within testing the ESTEEM tool.