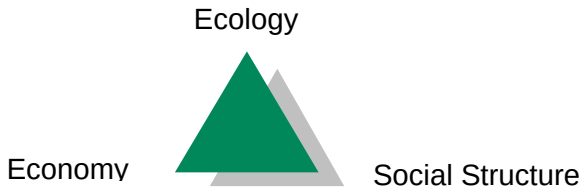
What´s new about „The Bioenergy Village”?



Ecological, Economical and Social Sustainability

All relevant aspects of sustainability – the ecological, the economical, and the social – are considered equally important during the implementation process from fossil to local bioenergy. With the active participation of community members, a new and sustainable energy supply is established. This model can then serve as an example for other villages.

Energy Consumer = Energy Supplier

Village inhabitants decide collectively on the restructuring of their energy supply and participate in the planning and management of the production process. The future supply will be based on local resources. Renewable resources are grown locally, the production of energy is self-managed and the resulting energy output is used to heat local homes.

The University in the Village

“The Bioenergy Village” is pursued as a common goal by both university faculty and the villagers. Concepts outlined by university personnel and communal experiences made during implementation can help ease the transfer process in other villages. This will ameliorate and accelerate the energy conversion phase on a broad basis.

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Bioenergy Village Jühnde Co-op

Interdisciplinary Centre for Sustainable Development

The Bioenergy Village

Self-sufficient Heating and Electricity Supply Using Biomass

Conditions and Consequences for the Agriculture, Ecology and Quality of Life in Rural Areas

Thesis and Opportunities

Göttingen and Jühnde
June 2005

What Opportunities are Related to the Realisation of the Bioenergy Village Project in the Future ?

By utilizing biomass as the primary energy source approximately 3,300 tons CO_2 will be conserved in the village per year. That means the CO_2 emission level per capita will be 60 % lower than the German average (4.3 tons/ year compared to 10.4 tons CO_2/year, basis year 2002). As a result, the objectives set for 2050 by the Scientific Advisory Board for Global Environmental Changes (WBGU) will be reached in the space of only two years. The short-term climate goals set by the federal government will be amply surpassed.

Ecology

- **CO_2 neutral energy** is gained through energy plants. These are grown in great diversity, mostly without the usage of chemicals and genetically changed varieties.
- **Local forestry** profits from the new opportunities to market wood chips (weak and waste wood), which, in turn, benefits sustainable forestry.
- The fermentation of fresh liquid manure in the biogas plant reduces **methane gas emissions** which normally occur during long storage phases. Furthermore, unpleasant smells are avoided.
- Using biogas residues decreases the demand for **mineral fertilizers** such as nitrogen, phosphates and potassium by 50 - 70 %. As mineral fertilizers necessitate a high energy input during production, much energy is conserved.
- Better ground **water protection** is attained, particularly on poor soils with high water leaching problems. Energy plants are harvested completely leaving less organic remains on the fields during winter time. This leads to less contamination of ground water with nutrients.
- **High energy efficiency** is achieved by using the "waste" heat released during the electricity generation process for home heating purposes. This "by-product" is enough to cover 60 % of the now connected houses´ heat demand. Wood chips are fuelled for the remaining demand, rendering oil and liquid gas unnecessary long-term.
- For less insulated older village houses a connection to this village heating system is an efficient and environmentally-friendly energy usage.

Economy

- Clients of the operating company in Juehnde are participating in a **crisis-free** and **cost-effective** heat supply process, totally independent of global oil prices.
- The organizational form chosen for the **operating company** in Juehnde, the **cooperative**, allows for equal participation in decision-making, regardless of the size of investment in the company.
- The **operating company** pays approximately Euro 220,000 annually to the energy source suppliers, about 90 % for agriculture and 10 % for forestry. Local income rises as these payments formerly led to money transfers out of the region. Econ**omic growth** is stimulated intrinsically on a **regional** level.
- Approximately 15 % (200 hectar) of the farmers´ arable land is used for the cultivation of energy crops. As prices are fixed, long-term **agricultural income is stabilized**.

A new area of employment will be created and present **jobs** in agriculture and forestry can be **retained.**

- Positive effects for **employment** are also generated in engineering and construction sectors during all phases of the planning and building of the plant. Operation and maintenance create long term secure jobs.
- Research, personnel training in the schools and at the universities, skill-development in all involved trades and associated companies in this promising business sector will generate a high level of **know-how and new market opportunities.**

Social Aspects

- **Collective responsibility** strengthens binding forces and enhances social skills.
- Communal achievement is fun ! Involved people are **happier** and perhaps subsequently **healthier** ?
- Self-determination and self-assurance are **assets for democracy**.
- Focusing on ecological aspects leads to a better understanding of global problems and may give rise to a stronger demand for **more equality** globally.
- Optimizing the **rural-urban relationship** can help build a basis for better problem-solving in ecological, economical and social matters.
- A **healthier environment** for all living organisms, mankind, flora and fauna, will evolve.
- The concept of a **cooperative as a democratic form** of organization will flourish.
- Working for a common goal based on sustainability ideals can be the beginning of a new innovative era during which social and cultural enhancements lead to a **more promising future**.