

## The joint research project ELKE<sup>1</sup> - a contribution to the sustainable use of biomass and rural development - Biomass in Future Landscapes

The applied research project „ELKE“, supported by the German Agricultural Ministry (BMELV) and the Agency for Renewable Resources (FNR), deals with the development of "extensive land use strategies".

Within the ELKE project topics in the fields of "applied nature conservation", "biomass use", "land-use conflicts" and the "compensation of environmental impacts" are discussed. The aim is to identify different demands in the use of landscapes, to assess their common ground and to develop multi-use concepts. The derived concepts are then put into praxis. The "model projects" will be the basis for a wide research focussing on the environmental effects of "extensive land use systems" such as short rotation (or rather "mid-rotation") coppice and perennial energy grasses for biomass-heating or mixed-cropping for biogas-conversion. At the same time an economical evaluation of these systems is set up from the practical performance of the crops on field scale.

The concept of "ELKE" corresponds with environmental policy guidelines and recommendations from acknowledged reports for a sustainable land-use to a great extent. These reports demand higher awareness regarding environmental aspects in energy farming, whereas there are hardly any concepts for an economical framework to facilitate more sustainable cultivation systems. Multi-use concepts combining the interests of farmers and environmentalists in one plot of land can meet both ecological and economical requirements.

### Aim of the project and scientific approach

For a successful handling of the wide approach and its practical implementation IfaS has built up a network of several institutes from different fields of research.

The overall aim of the project is to evaluate the environmental effects of certain extensive land-use systems for the production of renewable resources. The major points of interest are effects on biodiversity and protection of abiotic resources (e.g. soil conservation and fertility, avoidance of erosion, water protection...). Furthermore economical aspects are taken into account. These are for instance "regional added value", the conservation of arable land for the farmers as the basis of their income, the efficient use of finite resources and synergetic effects in cropping systems (circular production-systems).

The major objective results in the following scientific questions:

1. How does the broad establishment of extensive cropping systems – as an increase of agro-biodiversity – affect the biodiversity and biotope network of the model regions in terms of quality and quantity?
2. Which kind of functions in the conservation of abiotic resources can these systems fulfil?
3. Is it possible to accredit positive environmental effects of these systems as compensation measures in terms of the German law?

### Scopes of Observation

As scientists and "landscape-users" are brought together in the project an inter- and transdisciplinary exchange of knowledge takes place. In order to develop satisfying solutions for all stakeholders involved different levels are being observed within the model regions as follows:

- single plots: research on flora & fauna, soil chemistry, specific site-adaptation of crops and crop systems
- farms: contribution margin and profit, spread of risks through diversification of farms
- municipalities / administrations: planning, implementation and maintenance of compensation measures, development of regional land use strategies, use of funds for the financing of compensation measures, establishment of certification systems for extensive biomass production
- companies: demand for renewable resources and energy, innovation within the compensation of environmental impacts
- regions: influence of regional land use strategies, regional added value, regional cooperation

### Regional model projects

The first – theoretical – phase of ELKE has already been finished: In the course of this the background of legal frameworks, scientific results regarding ecology as well as scopes for design were investigated and analysed.

Within the ongoing second phase the developed concepts are put into praxis in selected model regions in Germany. These regions are situated in Freising (Bayern), Marpingen (Saarland), Spelle (Niedersachsen) and Allendorf/Eder (Hessen). Furthermore there are associated regions in the Zülowniederung (Brandenburg) and Freiburg (Baden-Württemberg).

Local partners in these regions are farmers, landscape conservation alliances, competence centres, planning agencies, regional energy suppliers, scientific institutes, environmentalists, small and medium sized enterprises (SME) and many more.

### Contact

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More information about ELKE at [www.landnutzungsstrategie.de](http://www.landnutzungsstrategie.de)

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<sup>1</sup> **ELKE** - Etablierung einer extensiven Landnutzungsstrategie auf der Grundlage einer Flexibilisierung des Kompensationsinstrumentariums der Eingriffsregelung. In English: Establishment of an extensive land-use strategy based on the transition of compensation measures of the impact regulation in Germany towards new flexible ways.