

## Summary of Session II

### **The economic impacts of renewable energies while taking social and ecological aspects into account**

Session II had two main objectives. First to discuss different approaches to determine economic value-added and the effects RE implementation has on local level employment. The second objective of the session was to identify methods that assess non-monetary effects (e.g. social and ecological aspects) that accompany RE implementations.

We have seen that communities play a central role in expanding the development of RE. This is demonstrated in the trend of high expansion targets. It is absolutely undisputed, that the Renewable Energy Act and other support programs have caused a sharp increase in the number of plants through its guaranteed feed-in tariff, and as of a few years, we can also observe social and political changes on local levels that go beyond national goals of providing energy from renewable sources. Aside from climate protection discussions, value-added is often used as an argument for the expansion of RE.

During the session, three different regional levels and approaches were examined in the context of value-added, employment, and non-monetary effects. One interesting point was that a general method to assess the economic impacts of RE on local level does not exist, due to the fact that heterogeneous regions require individualized analysis. In general, economic value-added can be measured via top down or bottom-up approaches. It depends on the size and existing RE structure of a community as well as the availability of a RE structure, which is one of the most important points.

The first level of investigation was the federal states of Germany with regard to the effect on employment from onshore wind energy production. Both direct and indirect employment effects were analyzed within an I-O analysis with respect to production, operation, and maintenance of wind turbines.

The second level of investigation was the bioenergy regions in Germany. The Federal Ministry for Food, Agriculture and Consumer Protection supports 25 regions across Germany for a period of three years in their efforts to establish efficient regional bioenergy networks. To extract the network-induced effects in the regions, a bottom-up material flow analysis was applied by using data that is available from all regions.

The third level of investigation was the city of Freiburg. Here the focus was on the direct effects of solar power production in the year 2009 and based on an indicator-based approach.

A final interesting point was that in order to implement sustainable development in the energy sector not only economical, but also ecological and social aspects have to be taken into account so that multi criteria decision-making is an option. For this reason, residents should be integrated in the decision-making process.

Based on the conference participants' opinions and the presented papers, it was found that it is an absolutely useful approach to answer the questions of the participants for a preferable way of restructuring their village.