



Promotion of Bioenergy and Biogas

One of the key tools for climate change mitigation is the energetic use of biogas. Biogas is usually produced in a decentralised manner and is constantly available by using sewage and waste products such as agricultural waste. Biogas replaces fossil gas, leading to a reduction of greenhouse gas emissions as well as pollution in the affected regions.

The International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB) has been supporting biogas projects inter alia in Russia, Turkey, Ukraine and Vietnam. In the context of these projects partner organizations and companies are advised and trained to enable them to plan and initiate future bioenergy projects. Moreover, local ministries are supported in improving the legal framework for renewable energies and in expanding the technical and organizational skills in key institutions.

Turkish German Biogas Project

Livestock farming caused severe environmental pollution and greenhouse gas emissions in numerous Turkish regions. Animal waste, such as liquid manure and waste water from the agro-based industries, is often improperly disposed of or discharged directly into local water bodies. The IKI project encompassed the development of an integrated biogas concept which combined environmental and climate protection by using animal waste for biogas production. The aim of the project was to improve the climate-friendly and resource-efficient use and recycling of agricultural waste through innovative biogas technology and thus contributing to climate protection goals. Moreover, fermentation residues used as organic fertilizer

in agriculture contribute to climate protection and improvement of soil fertility. Local and stable energy from biogas production has made Turkey less dependent on energy imports. Decentralised energy production creates jobs and thus furthers rural development.

Project Approach

Improvement of the framework conditions for biogas:

- advising decision-makers on improving the conditions for animal waste treatment and promoting a sustainable biogas concept;
- assistance with the establishment of a dialog between the government, private sector, science community and NGOs concerning biogas issues;
- promotion of a Turkish Biogas Technology and Information Center (BIC).

Development of an integrated biogas concept:

- drafting a biogas operator concept for Turkey;
- technical advice on the implementation of an operator concept at pilot sites;
- introduction of fermentation residues as an organic fertilizer in agriculture.

Capacity Development for biogas:

- biogas training seminars and advice for decision-makers, administration, consultants, investors, financiers and farmers;
- knowledge and technology transfer;
- public awareness raising for biogas in Turkey.



Results

The Ministry of Environment and Urbanization of the Republic of Turkey can now draw on its own resources to promote the resource-efficient and climate-friendly use of agricultural residual material. The German legislation on farm manure, biogas production and animal waste, as well as more extensive technical literature was translated into Turkish and informed the Turkish Regulation. Furthermore, a legal provision for the safe use of biodegradable waste in biogas and composting plants was drafted and entered into force in March 2015. With a total of 15 biogas training seminars and information sessions at all levels, knowledge on the energetic use of biogas and the subsequent use as fertilizer is now firmly anchored among the relevant players in Turkey. Moreover, a Turkish Biogas Technology and Information Center (BIC) was established in cooperation with the Ministry of Environment and Urbanization of the Republic of Turkey and other ministries, as well as the private sector and science. An integrated biogas blueprint was developed, covering the complete utilization of organic residues in agriculture, as well as energy production and the use of waste heat. Thus, the project provided a major contribution to improving conditions for the use of biogas technology and the reduction of environmental and climate impacts in Turkey. This integrated operator concept was implemented at two pilot sites which proved to be economically viable; subsequent-

ly replicable business plans were developed. According to a study, which was conducted in the context of this project, up to 6% of Turkey's energy production could be covered solely using biogas plants running on animal waste and by-products from the agro-industry.

Publications:

Biogas Potential Study for Turkey:

www.biyogaz.web.tr/files/docs/dbfz_turkey_biogas_analyse_en.pdf

Biogas Potential Study Presentation:

www.biyogaz.web.tr/files/docs/BC%20DBFZ%20Biogas%20Potential%20Presentation%20Short%20Version%20v0%20080212.pdf

Biogas Case Study Suluova (Turkey):

www.biyogaz.web.tr/files/docs/bc_hb_suluova_presentation_october2011_eng_v1_310112.pdf

Biogas Training Presentation:

www.biyogaz.web.tr/files/docs/1_training_ibbk_introduction_into_digester_biology.pdf

www.biyogaz.web.tr/files/docs/1_training_ibbk_digestate.pdf

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