



## Promotion of Bioenergy and Biogas

The energetic use of biomass is a key tool in efforts to mitigate climate change. Bioenergy is usually produced in a decentralised manner and is constantly available through the use of sewage and waste products such as agricultural waste. Biogas, liquid and solid biofuels replace fossil energy sources, leading to a reduction in greenhouse gas emissions and numerous co-benefits such as improved air quality in the relevant 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 in a number of countries, including Russia, Turkey, Ukraine, Peru, India and Vietnam. In the context of these projects, partner organisations and companies receive advice and training 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 developing technical and organisational skills in key institutions.

### IKI PROJECT EXAMPLE: Turkish-German Biogas Project

Livestock farming has caused severe environmental pollution and greenhouse gas emissions in numerous Turkish regions. Animal waste, such as liquid manure and waste water from 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 promote the climate-friendly and resource-efficient use and recycling of agricultural waste through innovative biogas technology and thus to contribute to achieving climate protection goals.

Furthermore, using fermentation residues as organic fertiliser in agriculture helps to mitigate climate change and improve soil fertility. Local, 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

Establishing an enabling environment for biogas:

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

Developing an integrated biogas concept:

- drafting a biogas operator concept for Turkey
- providing technical advice on the implementation of an operator concept at pilot sites
- introducing fermentation residues as an organic fertiliser in agriculture

Capacity development in the biogas field:

- providing biogas training seminars and advice for decision-makers, administrative officials, consultants, investors, financiers and farmers
- promoting knowledge and technology transfer
- raising public awareness on the topic of 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, has been translated into Turkish and has informed Turkish regulations. 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.

Thanks to a total of 15 biogas training seminars and information sessions at all levels, the relevant actors in Turkey now have sound knowledge on the energetic use of biogas and the subsequent use of residues as fertiliser. Moreover, the Turkish Biogas Technology and Information Center (BIC) has been 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 the scientific community. An integrated biogas blueprint has been developed, covering all aspects of the utilisation of organic residues in agriculture, as well as energy production and the use of waste heat.

The project has therefore made 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, and replicable business plans were developed. According to a study conducted in the context of this project, up to six per cent of the energy produced in Turkey could be generated solely using biogas plants running on animal waste and agro-industrial by-products.

Publications appear on webpage [www.biyogaz.web.tr](http://www.biyogaz.web.tr):



[Biogas Potential Study for Turkey](#)



[Biogas Potential Study Presentation](#)



[Biogas Case Study Suluova \(Turkey\)](#)



[Biogas Training Presentation](#)

### Imprint

**Published by:** Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB)  
Division KI II7 · 11055 Berlin  
E-Mail: [KI117@bmub.bund.de](mailto:KI117@bmub.bund.de) · Internet: [www.bmub.bund.de/en/](http://www.bmub.bund.de/en/)  
**Design:** MediaCompany – Agentur für Kommunikation GmbH  
**Photo credits:** GIZ Turkey  
**Date:** August 2017



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