

## Products

The Integrated Urban Development Program has developed different products to respond to the situation in Ulaanbaatar & Mongolia characterized by:

- Contaminated soil and ground water in the Ger areas
- High levels of air pollution in Ulaanbaatar during the winter months from November to April (PM up to 20 times higher than recommended by the WHO)
- Huge housing deficit (lack of up to 200.000 housing units in Ulaanbaatar, while contractors are able to erect a maximum of 7000 apartments/housing units per year)
- Scarcity of drinking water (in 2012 the drinking water requirements will exceed the existing reserves of drinking water in Ulaanbaatar)
- Leakages of up to 50% in the basic infrastructure system (water, waste water, heating pipelines)
- Lack of knowledge on quality construction & management
- Lack of knowledge and experience in regard to energy-efficient construction and renewable energy devices
- Scarcity of well-trained human resources in engineering skills at TVET as well as at university level
- Obsolete training equipment in TVET schools & colleges
- Obsolete curricula and IT programs in engineering studies at the Technical University
- No defined standards for building materials and work performance in construction trades
- Norms and standards in the architectural, construction & energy sectors are partially obsolete and only partially applied
- Obsolete occupational standards not reflecting the labor market requirements
- Obsolete costing system for construction projects.

### GTZ Products:

- ECOSAN dry toilet to prevent further contamination of soil & ground water
- Energy-efficient stoves to reduce air pollution through increased heat storage capacity and reduced emissions
- Import and erection of four air monitoring stations to measure PM 2,5 and 10, CO, SO<sub>2</sub>, O<sub>3</sub> and NO concentrations in Ulaanbaatar.
- Thermo-technical rehabilitation of pre-cast panel buildings to economize on heating energy consumption (up to 60%), train skills in thermal insulation composite system and improve living environment for low urban income strata
- Introduction of grey- and black water recycling system as decentralized sewerage system economizing on water consumption (up to 45%) through grey water recycling, finally gaining water for greeneries, parks etc.
- Development and introduction of decentralized environmentally friendly heating and waste water management systems for new settlements & townships.
- Advisory service for the reformulation of the existing policy framework for TVET

- Training-on-the-job for TVET teachers, trainees, construction workers and foremen
- Advisory service to selected TVET schools & colleges
- Introduction of new trades in the construction sector
- Training-on-the-job for architects, engineers & urban planners
- Advisory service in the reformulation of norms & standards
- Advisory service in the elaboration of a costing system corresponding to international standards for construction and real costs