



# Remediation of **Waste Dumpsites**

Technical workshop on Enhanced Landfill Mining in India. Process, Feasibility, Economy, Benefits and Limitations



28. September 2017, IFAT India 2017, Mumbai



EU Technical Cooperation for Environment in India



## Remediation of Waste Dumpsites

The accelerated growth of urban population, increasing economic activities and lack of training in modern solid waste management practices in India complicate the efforts to improve this service sector. Although the urban residents of India produce less solid waste per capita than the high-income countries, the capacity of the cities to collect, process or reuse and dispose solid waste is limited. The most prevalent way of disposing MSW in Indian cities is open dumping which is the easiest and considered to be the cheapest method of removing waste from the immediate environment. Many old landfills and dumpsites existing throughout India pose a threat for public health and environmental quality around the dumpsites.

It is well known that landfill mining reduce or eliminate closure costs and in most cases reduce the long term environmental problems. Despite its many benefits, some potential limitations exist to landfill mining. Authorities considering the establishment of a landfill reclamation program must weigh several benefits and drawbacks associated with this waste management approach before getting started.

Landfill mining is the process of excavating waste from operating or closed solid waste landfills, and sorting the unearthed materials for recycling, processing, recovery of energy or for other dispositions. Almost all major Indian cities are facing the problem of open landfill and there is an immediate need for sustainable solutions.

## Guiding Questions

- 1) What are effective techniques of waste separation and technologies for the extraction of materials and resources?

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- 2) What are some of the recirculation pathways and market policy instruments to incentivize landfill mining across Indian cities?

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- 3) What are the economic, financial and legal aspects of landfill mining in India?

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- 4) Land monetisation - Case studies from around the world.

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## Sep-28, 2017 Presentations

12.30	Introduction note <b>Brijesh Patel</b> , Managing Director, Indus Media
12.35	Greetings <b>Dr. Panagiotis Karamanos</b> , Team Leader EU Technical Cooperation for Environment in India
12.40	Welcome note – Swachh Bharat Mission initiative for Landfill mining in India. <b>Joint Secretary &amp; Mission Director</b> (Swachh Bharat Mission SBM) Ministry of Urban Development (requested)
13.00	Landfill Mining – A contribution of waste management to resource conservation. Technical interventions and process <b>Prof. Dr. -Ing. Klaus Fricke</b> , Professor Leichtweiß-Institute of hydraulic engineering and Waste management of the Technical University of Braunschweig, Germany
13.45	Technical challenges and solutions for the Indian dumpsites <b>Mr. Allan Bartholin</b> , Project Manager, Asia- Eggersmann Group
14.15	Case studies <b>(tbc)</b>
15.00	Panel Discussion <b>Brijesh Patel</b> , Managing Director, Indus Media
15.45	Question & Answer
16.30	Vote of Thanks <b>Dr. VK Verma</b> , EU Technical Cooperation for Environment in India Alternate Team Leader and Joint Director (EPD), Shriram Institute for Industrial Research



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## Speaker Profile

### **Joint Secretary & Mission Director (Swachh Bharat Mission SBM)**

Ministry of Urban Development (requested)

#### **Prof. Dr. -Ing. Klaus Fricke,**

**University of Braunschweig, Germany** Prof. Dr. -Ing. Klaus Fricke is presently professor and chair of Waste and Resource Management Department of Leichtweiß-Institute at Technical University of Braunschweig. He is also the chairman of CReED e.V. Center for Research, Education and Demonstration in Waste Management. Since 1983 active as consulting engineer in waste management with national and international project activities as a owner and CEO of Ingenieurgesellschaft Witzhausen Fricke & Turk GmbH (IGW-Germany) with around 150 employees. He is the Inventor of separate collection of bio waste and first implementation in large scale project for the city of Witzhausen (GER) in 1983. He designed the first MBT-plant in Germany. Cost and risk analysis Planning and realisation of over 120 composting and digestion and 28 MBT-plants. He works also as court expert in various legal proceedings relating to the operation of waste treatment facilities - often in disputes fermentation plants Klaus Fricke created for the Brazilian Caixa Economica risk analysis for 5 fermentation plants for MSW - all bigger than 60,000 t per year. Focus of this risk analysis was the financial risks that may arise due to technical and operational problems inclusive problems arise from the marketing of produced secondary raw materials. Since 1999 Klaus Fricke is head of the department of waste and resource management at Technical University of Braunschweig.

The focus of his activities lies in biotechnology sector particularly in the fermentation of organic waste, sewage sludge, waste from food production and residues from agriculture. Under this activity he carried out on behalf of the German Government from 2010 to 2013 an extensive analysis of fermentation: "Increasing energy efficiency in the utilization of organic residues".

A second focus is in landfill and contaminated sites sector. Since 30 years waste disposals in Germany and abroad have been rehabilitated. Just a Years of R&D projects has been completed on the topic Landfill mining.

## Key Qualifications

- Aerobic and anaerobic procedures of MSW and biomass; MBT-technologies; landfill gas collection and utilisation, materials flow management, collection systems, concept studies, design of treatment facilities, test operation, weak point analysis for facility design, building and operation, technology development and design, Planning and realisation of over 120 composting-, 32 digestion and 28 MBT-plants.
- Technology optimisation for energy efficiency improvement, technology adaption, cost and risk analysis, environmental impact assessment
- Product development and marketing
- Clean Development Mechanisms (CDM)
- Expert for weak point analysis for facility design, building and operation and also for investment and financing
- Development methodologies for technology and know-how transfer



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**Mr. Allan Bartholin****Area Sales Manager, Eggersmann GmbH**

Eggersmann GmbH is the first and only company in the recycling industry to offer a complete range of mobile and stationary machines in its repertoire. As the industry's first one-stop supplier, Eggersmann GmbH markets products from renowned brands such as BACKHUS, BRT-HARTNER, BEKON, CONVAERO, FORUS, TERRA SELECT, TEUTON and EGGERSMANN ANLAGENBAU, thereby supplying solutions for a wide variety of process areas, such as composting, metering, bunkering, opening, crushing, screening or classifying, from a single source. The company offers individual, customer-specific and technical marketing with comprehensive support – from an idea through to its implementation. This leads to an optimal flow of decades of experience and expertise held by individual companies into the globally operating Eggersmann GmbH, guaranteeing an optimal end result. The aim is to build a lasting, constructive partnership with the customer.



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