PROJECT Accra

Quotation Nr. 050505_A0.3

Accra/Ghana 2005/wfdd
Dresden, 01. June 2005

Quotation No. 050505_A03

Your enquiry:	Via E-mail	Customer no.:	K_050505
Dd.:	05 May 2005	Our ref. / phone:	Dr. W. Falkenberg +49 351 2111290
Project:	Accra	E-mail: Telefax:	upmgroupag@wfdd.de +49 941 5992 93334

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

Contents

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

1. Technical Part

1.1 Basics

The present offer bases on preliminary agreements with the city Accra on the tasks referring the management of the waste which is produced daily. The current situation and the procedure urgently require a new and strategic orientation towards waste treatment and the establishing of a waste management. Both the mayor and the local council of the city of Accra favor complex economic solutions which ensure order and tidiness in the town as well as exploitation and reduction of the waste that is to be stored and which also helps to minimize the necessary expenses. For that reason, one orientates towards so-called “state of the art” technologies which were mainly developed in Europe and Germany and which are applied in many parts of the world. *upm group AG* is specialized on such technologies and offers a complex for the treatment of household garbage. However, the offer focuses on key technologies for the reduction, re-utilization, transformation and use of waste. In case of a successful adaptation to the local conditions coordinated components can provide best results regarding the exploitation of the waste as well as in reducing, recycling and energetic exploitation of the waste and they also guarantee a cost-effective and safe storage for even longer periods of time.

For the beginning of the project we calculate an amount of 300,000 tons of waste to be treated per year. The morphology of the waste is crucial for the quantitative determination and cooperation of the components of the device and its best possible use. Both for the use of modern technologies as well as for logistics and organization qualified staff is essential. We assume that during the first stage of this project all the necessary parameters for the adaptation of the technologies to the local conditions will be coordinated and specified by designers and technologists of both the buyer’s and the seller’s side. Therefore, best possible results can be provided within a given budget.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

1.2 Technical concept

Four basic tasks are to be fulfilled:

- waste has to be reduced
- recyclable materials are to be extracted and prepared for re-utilization
- the energetic potential has to be deactivated and to be used for power supply
- the remaining waste can be dumped as useful material(compost) and is now chemically and biologically inert

Waste can be reduced by grinding, sorting out and recycling. Coordinated treatment lines are offered which can be used on central and decentralized places as mobile units or as a properly-installed device.

Recyclable materials are taken out from the waste automatically, mechanically or by hand. The remaining constituents like sand, stone, glas, metal and plastics are upgraded and handed over for a further treatment according to the demand and the market situation. Especially for plastics like PET ore PP/PE with a high market value there are upgrading lines which produce high-quality flakes, powders and granules for the use in the home country or for export purposes.

After the sorting out of the recyclable materials and other interfering parts the **energetic potential of the waste is used**.
Gas is produced in two lines. The “Biogas”-line uses the energetic potential of the organic parts of the waste, while the “Synthesegas”-line makes use of the energetic potential of the rigid parts of the waste. Both gases are transformed into electricity and thermal energy in a thermal power station.

Waste constituents which are to be transported or planned for an interim or long-term storage are **pressed to bales and packed in a packaging line.** This ensures a reduction of the volume, stabilizes the material, avoids losses of energy and provides a clean transportation and an effective storage. An interim storage can be advantageous if the waste is used as “fuel” for the “Synthesegas”-line. Waste which is packed for final storage ensures a highly-effective utilization of a disposal site as well as a cost-effective founding and operation of safe waste disposal sites.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

1.3 Description of the procedure

The delivered waste is sifted through and sorted by crane and fed into a grinding line, then led into a sorting machine which sorts out according to the size of the grains and also takes out sand and magnetic components. Organic fractions are sorted out as well. The remaining are led via a conveyor belt to a sorting station and are taken out by hand and then prepared for a further use.

For the treatment of plastics we deliver specific devices (for PET and PP/PE). The material is split up into its different sorts and colors (only PET) and grinded in sorting cabins. Depending on the degree of pollution and the required quality of the products the washing process is carried out in several levels. Hereby the material is cleaned from any interfering materials like dust or metals and is packed and upgraded for sale or export in specific devices (Regranulator, Plastcompactor).

The remaining caloric fraction is prepared for the production of synthetic gases which are needed for a consequent generation of energy. In the device for synthetic gases (TTA or PTA) the solid remaining of waste which are rich in calories are transformed into synthetic gas. After several treatments in different levels this gas is ready for an energetic use.

The organic fraction is prepared for the generation of organic gases and is used in accordance with the BTA-technology for the generation of organic gases (BIOGAS). After a cleaning process the so-generated organic gas is available for an energetic use.

The offered technology of packaging stands for tidiness, safety and stability, which is a basis for a safe construction and cost-effective operation of waste disposal sites of any kind. Due to its ability to form stacks a high coefficient of land use is reached, which means a huge reduction of the used area of a disposal site.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

For the energetic utilization of the generated gases (BIOGAS and synthetic gas) we supply a modularly expandable system for power generation. This system works on the principle of the combination of thermal power and is driven by modern gas engines. Thus, electric energy and thermal power are provided in a standardized form and can be used for own productions or other purposes (net production).
All solid fractions which come up in the BIOGAS-line are treated for composting and are taken to suitable compost fields. Upon request, as a further option we offer an anaerobe composting and deliver organizational and logistic support for the transportation and introduction of technology and technical devices.

All necessary technologies including those for supervising and security as well as training courses according to European or German standards are provided by our company. This will ensure a proper preparation, erection and operation of a so-called “clean waste disposal site”.

We are convinced that in cooperation with the operating companies and the local representatives our offer will help to find an optimum solution. Such a joint project guarantees the correct strategic decisions with all the necessary accompanying measures for a long-lasting an efficient solution of all the tasks and problems a community is faced with.

In the following part you find a description of all the components and performances of our company which we offer together with our partners from industry, science, administration, operating organizations and financial institutions.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

1.4 Components

A Waste Treatment — SRTB
(Size Reduction Technology Basis)

- grinding
- separating
- sorting

B Processing of plastics — SRTP
With 2 main aspects — (Size Reduction Technology Plastics)

- PET (drink bottles) — PET-1 PET-3
- HPTE (PE) (polyolefin's) — PE
- As an option, further devices and components for treatment, compression, granulation or powderisation of several other kinds of plastics can be delivered

C Packaging — PP
(Packing Plant)

D Generation of gas

I. generation of BIOGAS — BTA
II. generation of synthetic gas — TTA / PTA

E Conversion into electricity

- electric energy
- thermal energy (hot steam, coldness)

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

F Composting CP (*optional)

G Waste disposal site LF

Interim disposal site, storage area for specific waste, final disposal site

I. Final disposal site **LFF**

- for 7 million cubic metres on an area of 160,000 sqm
- planning, supervision of construction work, plans for planting, certificates
- devices and equipments
- basic sealing, sealing of surfaces
- water resources layer

II. Recovery of disposal sites **LFR** (*optional)

- recovery of a disposal site with 3.3 million cubic metres
- 4 sorting machines, 40 mobile devices
- 150 of staff

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

2. Commercial Part

2.1 Performance range of *upm group AG*

Our performance range includes planning, projecting, production, delivery, putting into operation, training courses and organization of service and maintenance.

- Delivery of all items mentioned under “2.5 Prices”
- Trial run with production
- Adjusting of standard parameters
- Final inspection of the device during the trial run
- Cleaning of the device after trial run
- Preparing for shipment by road; a similar preparation for shipment by sea is only available against surcharge
- Putting into operation on site against surcharge
- Delivery of all documentations including operating manual and maintenance guide in German or English
- Training of operating and service staff on site upon request
- Providing of diesel-driven power units in case of missing power supply on site

2.2 Performance range of buyer

Performances of the buyer will be determined according to agreements and common planning of projects.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

2.3 Documentations

Delivery of documentation with the following contents:

- Operating manuals for the respective parts of the device in English or German
- Maintenance guidebooks for the respective parts in English or German

2.4 Warranty

Warranty is limited on the delivery of new devices and does not include a warranty for used devices.

- Duration of warranty:
  The warranty is valid 6 or 12 months ex- delivery and ends with a defined final performance. Details for the respective components have to be made out clearly in the contract. (see also enclosures)

- Subject of warranty:

  Warranty only covers failure of the device under proper operation, provided that all operating and maintenance instructions have been fulfilled. This warranty also includes remedy of defects and damages on the delivered device including ordering of spare parts.
  The warranty for all performances provided by us is according to our “General terms of business”. All necessary parts which have to be repaired or replaced are delivered free to the place of operation of the device. Expenses on travel and installations will be invoiced according to usual rates.
  Small parts and wearing parts are not included in the warranty.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

2.5 Prices in EURO
(Subject of contract)

A definite and binding offer of purchase cannot be made before planning of demand and checking the facilities on site.
This will be carried out by a common project group.

2.6 Fixing of prices

All prices which have to be calculated in paragraph 2.5 are fixed prices. Changes, especially regarding an improvement of the offered performances are not excluded. Invoicing in the currency EURO.

2.7 Terms of payment
(subject of contract)

2.8 Time of delivery

Depending on the components of the device, a delivery time of 3 months, 6 months or 9 months has to be taken into account. Details concerning the respective components have to be made out clearly in the contracts.

2.9 Validity of the offer

3 months

2.10 Terms of delivery

The terms of delivery are described in our “General terms of business” and are valid for this offer. All changes have to be fixed in the contracts.

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024

3. Enclosures

3.1 processing sequence of the project – enclosure 1

3.2 Information about basic technologies – enclosure 2

3.3 Photographs – included in enclosure 2

Wintergartenstr. 4
01307 Dresden
Germany

Vorstand Dr.-Ing. W. Falkenberg
HRB 23397 St.-Nr. 201/100/03243
eMail: upmgroupag@wfdd.de

Tel.: +49 351 2111290 +49 351 3748581
mobil: **+49 172 7979500** +49 176 24260723
Fax/ Voice: +49 941 5992 93334

Deutsche Bank AG
Konto Nr.: 8707200
BLZ: 87070024