

Media Release:

The 2012 WTO International Toilet Design Award

The World Toilet Organization (WTO) is pleased to announce the launch of the 2012 International Toilet Design Award with the support of Hamburg University of Technology (TUHH). The intent of this award is for WTO to collaborate with the water and sanitation industry to identify and develop an innovative and new toilet suitable for use in developing countries. Submissions are required to incorporate and develop the very promising Terra Preta Sanitation system which is detailed in the technical brief.

With 40% of the world's population currently lacking basic sanitation, the need for sustainable solutions for this issue is urgent. A Terra Preta Sanitation system would be able to not only provide sanitation for these people in need, but also convert human waste into a usable resource for agrarian use. This system will offer users the double benefit of reducing detrimental health effects from lack of sanitation, while providing them with a natural and sustainable source of soil fertilizer. The toilets must enable mass production at very low cost.

This award has been developed with the support of Hamburg University of Technology (TUHH). The award comprises of \$50,000 USD which has generously been donated by a private foundation where one of the donors has been promoting dry sanitation for over 30 years. Please note that further donations for the purpose of increasing the quantum of the award are most welcome. Please do distribute to interested parties.

The Design Award will assess entrants' designs with respect to their ability to provide low cost, well-functioning units that are also aesthetic and ergonomic.

We look forward to receiving your submissions.



Competition Stages and Deadlines

The competition will involve the following stages and dates:

Requirement	Award	Date Due
Launching of Design Award at WTS		23.11.11
Expression of interest stage	N/A	27.04.12
Announcement of shortlisted teams	N/A	21.05.12
Stage 1: Shortlisted teams will prepare concept design submissions	N/A	
<p>Concept design submission.</p> <p>Based on the quality of the initial submissions, up to 10 teams will be further shortlisted. These shortlisted teams will be announced in May 2012.</p>	N/A	27.07.12
Announcement of selected teams for stage 2	N/A	17.08.12
<p>Stage 2: These shortlisted teams further develop their design and prototype utilising the funding provided to assist in this process</p> <p>Field testing for the prototype should also be done in this time.</p>	Between 500 and 5,000 US\$ to submit detailed submission	
Official presentation: Teams can choose to present in person or through video conference	N/A	1 month prior to next summit
Final award: Based on the quality of the detailed submission 1-3 winners will be selected. The winning team(s) will be announced at the 2012 WTS and will work with WTO in an ongoing partnership to commercially develop and distribute the toilets.	Up to US\$40,000	WTS- Dec 2012

Proposal Requirements

Participants should submit their proposed designs and descriptive narratives within the stipulated deadline. The designs should be innovative, reflecting a new paradigm in low cost dry toilet designs taking hygiene, aesthetics, comfort, and potential resources recovery from the toilet into consideration. The proposal should comply with the technical brief and with all rules of the competition, which are detailed below. Ideas that have already been developed can be used for inspiration but need further development to qualify for the prize. Ideas that are known to WTO and TUHH will be listed for reference, common products are found in the internet. Out-of-the-box thinking is most welcome and shall be feasible. Beauty, function, low costs and some flexibility of operation under different circumstances are key elements for the judgments of the jury.

Proposals for each stage may include text, diagrams, tables, figures etc. but should fit a maximum of two A4 pages, using a minimum font size of 10.5. Proposal should include a product cost estimate. Company credentials can be included as a separate appendix.

A jury comprising members of WTO, Arup and TUHH will evaluate the designs submitted within the deadlines. All submission shortlisted will be awarded with US\$500 to US\$5000 to develop your prototype. The winners will be announced in the World Toilet Submit 2012. The ultimate prize for your winning design is to see your product successfully implemented, significantly changing the life of others and will contribute immensely towards solving the global sanitation crisis.

Technical Brief

The WTO/TUHH International Toilet Design Award is intended to develop a new sanitation system called Terra Preta Sanitation, which is established based on the concept of ecological sanitation where human excreta and other biowastes are transformed into pathogen-free, nutrient rich and organic matter rich humus. This new sanitation concept combines two natural biological treatment processes:

- lactic acid fermentation in the toilet during collection, and
- vermihumification of the lacto-fermented feces for further processing off-site.

This new sanitation system ensures more efficient, safe and more sustainable linkage between ecological human waste management and ecological agriculture.

Design and production of toilets, which are suitable for the lactic acid fermentation process (see below for the technical details), is the next step in the development and realisation of the new sanitation system.

So, your great design ideas - which can establish pathways for the future easy to use and smell free toilets that can help create the best black soils - are needed.

Competition Parameters

The design should take into consideration, but not limited to, the following:

Portability: Light weight, easy to transport

Maintainability: Easy to empty, easy to clean; materials used should be resistant to staining or discoloration, and scratch-resistant. Maintenance requirements are to be defined.

Durability: Long-lasting, strong enough to support large adults, resistant to UV and weather as appropriate, resistant to acidic conditions if parts are to be buried.

Parts & Dimensions: consideration needs to be taken for the following parts in reasonable dimensions with capacity to serve a family of four for a week

- Comfortable airtight sealing lid
- Access for removing collected excrement/ waste
- Additives opening as appropriate
- Manual stirrer, if proposed

Mass production possibility: the design should allow for mass production: eg. injection molding, ceramics etc.

Mass transport possibility: the various parts of the toilet should be designed in such a way that they can be transported in bulk within reasonable space.

Cost of design: Inexpensive design to be priority. An estimation of design's cost for manufacture and installation should be included.

Essential design considerations:

- The tank for the collection of excreta must get an initial load of lactobacteria
- The container for excreta storage must close air tight after usage but can have air inside.
- Holding capacity of the collection tank should be kept to a minimum of 1 week with a clear plan for emptying whether by container exchange, suction pumping or other
- There will be no gas formation in the collection with the lactic acid bacteria*.
- It is imperative to design a very low cost basic version, even if it has optional additional parts.

*Note: Experience to date indicates that no gas was formed

Additional design considerations:

- It is good to have a manual, easy to use stirring device that does not clog in the mix of excreta and toilet paper.
- The toilet should be usable for anal cleansing with water but this should only be allowed with a spray or other device that ensures little water is used. (The same sprayer can be used for cleansing of the toilet bowl.)
- Paper and wet anal cleansing may be combined by using wet cloth, which can be advantageous for both cultures and should not clog devices.*
- Design should allow for easy and clean access for emptying tank contents.
- Design should focus on minimisation of moving parts; robustness, and low cost in mass production (injection molding or ceramics) are needed.
- The product should be suitable for as wide a range of geographies and cultures as possible.
- An integrated urinal may be a good idea.
- The toilet can – but does not have to – have urine diversion. However, for lactic acid fermentation faeces can be kept together with urine, even when there is no stirring device.

*Note: Teams should consider wet cloth implications to design at their own discretion.

The winning product should aim to make owners proud of it by ensuring that beauty and comfort for all social levels are addressed.

Competition Rules/Evaluation Criteria

- 1. Dates**

Application form to be downloaded from www.worldtoilet.org, and submitted to denise@worldtoilet.org by 27th April 2012. Please also see [Competition Stages and Deadlines](#)
- 2. Entities who are not eligible to participate**

Persons related to the promoters and jury
- 3. Intellectual property rights (patents)**

WTO/ The promoters will have all the rights on the award winning designs. WTO/The promoters reserves the right to publish them in whole or in part or use them in any way they think fit without the permission of the entrants/ winners.
- 4. Disqualification**

The following may lead to disqualification for the competition:

 - copied designs
 - not complying with the technical brief and competition rules using the design for other purposes before the announcement of the results
 - design is far off any applicability and / or without any useful idea
- 5. Awarding, certificates**

Prizes will only be awarded if the proposed design is taken further for the development of low cost toilets. WTO / TUHH do not take any responsibility of eventual tax obligations; this is the responsibility of the winners. In case none of the submissions are selected by the jury the award will be extended to invited parties with specific tasks for industrial design and design for the beauty of the product. All submissions that display specific qualities as required will get a certificate from WTO / Hamburg University of Technology.
- 6. Prototyping**

Designs shortlisted will be asked to produce a prototype with financial and technical support from the promoters and will be awarded up to US\$5000 based on the decision by the jury.
- 7. Language**

The competition submission must be prepared in its entirety in English language.
- 8. Range and Method of Submission**
 - The competition submission must be made in graphic, descriptive and digital form.
 - Submission in PDF format by e-mail or on a CD carrier.
 - A written and signed letter that the sender is the originator of the idea

9. Scoring & Evaluation

Aspect	Percentage weighting (%)
1. Appropriateness of design (70%)	
a. Ease of assembly and installation	5
b. Efficiency at converting waste to terra preta (to be demonstrated via testing of the prototype)	15
c. Cost of manufacture	10
d. Ease of transportation	5
e. Operation/Maintainability	10
f. Durability	10
g. Ease of use	5
h. Applicability to different areas	10
2. Quality of submission (20%)	
a. Final submission	15
b. Presentation	5
3. Company track record	10
Total	100

Contacts:

Aww: <https://www.tuhh.de/aww>

WTO: <http://worldtoilet.org/wto/>

Further info: <http://terra-preta-sanitation.org>

Aww contacts: bulbo@tu-harburg.de **or** yemaneh@tu-harburg.de

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