

# THE POLLINIFEROUSED CONTAINER

## AN OPPORTUNITY FOR THE MARITIME INDUSTRY

Technical scientists, marketers, entrepreneurs and different cultures meet each other under the direction of an artist. In the project 'The Polliniferoused Container' a sea container is equipped with new inventions to make it possible to live and work self sufficient within all climates, from the Sahara to the Pole regions.

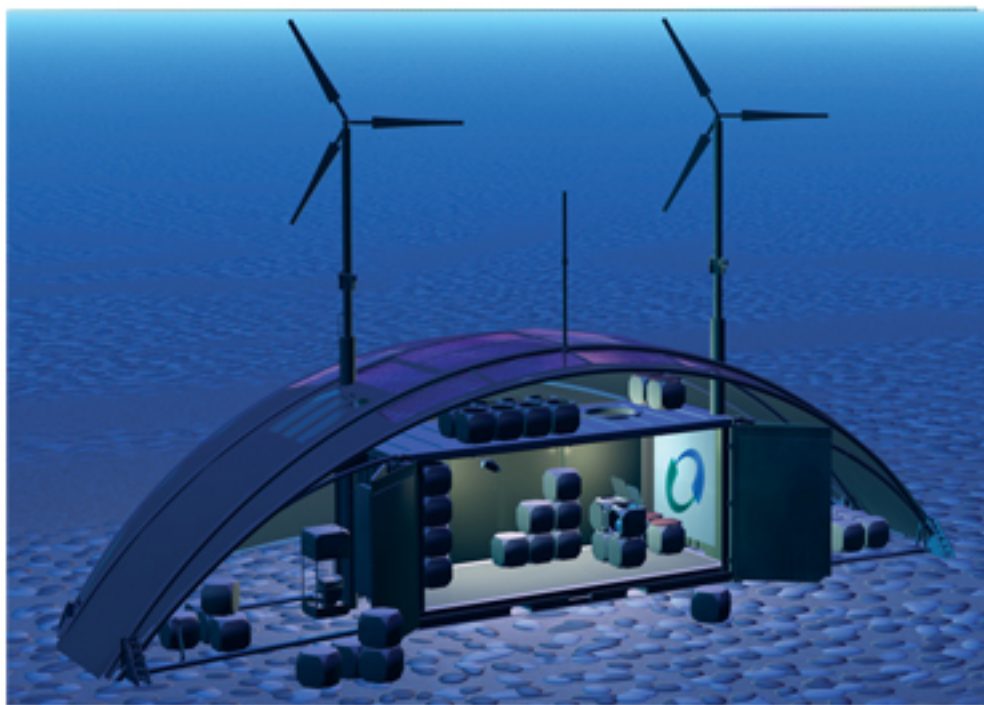
### Sustainable Cross Pollination

The project is an initiative of artist Hans Kalliwooda. The purpose of the project is to develop the world's most compact mini-grid system, a self-sufficient living and working unit able to fold out and function as an artist laboratory at 11 locations in rural environments around the world. The title of the project, Polliniferoused Container, comes from the field of biology and means producing and carrying the pollen. It is also the aim of the project to have different cultures, artists and scientists exchange and inspire each other, hence the name Polliniferoused.

### Collaboration with the TU Delft

This project was initially implemented as an artist intervention into the research system of the University of Technology at Delft (TU Delft) in 2001. The first phase both research and design resulted in creating many bridges between different university 'islands'. All faculties of the TU have been involved ranging from Aerospace engineering to Industrial Design. More than 50 students from a variety of Dutch universities and high schools completed their assignments working on many different aspects

*The container during the construction phase*



*An artist impression of the unit in operation, photo: Arno Vrijman*

of the unit in its developmental and research phase.

### A Variety of Practical Applications

This architectural unit is built as a standard sea freight container, which is designed to be totally independent and mobile, able to function in any

climatic and geographical condition. It is a high-tech, self-loading unit with an auto-generated energy system for modular living and working situations. It can be used as a research laboratory but could also be used as an office and temporary housing for offshore, dredging companies or organizations such as the Red Cross in places where there is no infrastructure or in disaster situations like the Tsunami.

The container is equipped as a complete self-sufficient living and workspace for one or more persons, the space will be heated, lighted and equipped with running water without the use of fossil energy sources. The development has resulted in a high tech low cost housing and working location that can be transported world wide by truck or vessel.

### Hybrid System

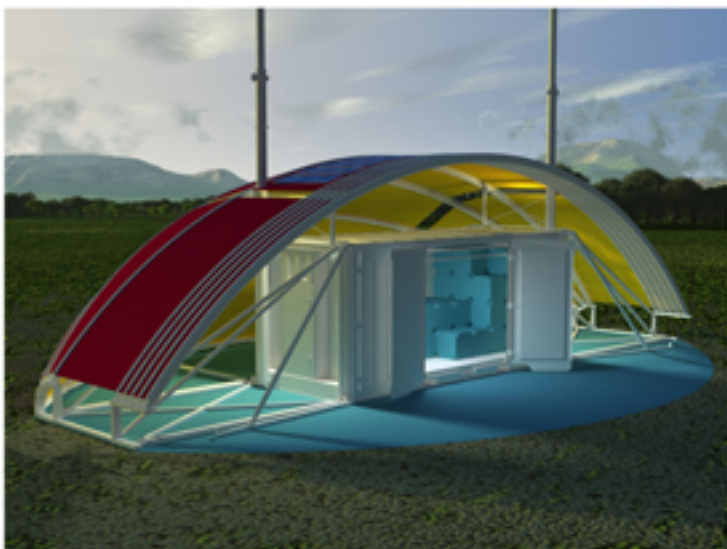
To function independently from local energy sources at the different locations, the container has a complex energy regulation. The container will be equipped with solar cells, to create an independent photovoltaic system. An expected two-third of the container's daily energy consumption will be derived from solar energy. Wind turbines will generate the remaining third of energy supply. When there is little or no sunshine, and there is not enough wind either, more than sufficient energy will still be available to perform the daily activities.

To make sure that the container will function properly, one has to make the whole system





The ingenious power management system built into the container floor



A view of the tent construction, Photo: Erik Zwart

intelligent. This system will monitor the functioning of every device, the energy balance and the weather. On the base of this information, it will make a prediction about the future energy balance and take the necessary actions. Sensors will collect this data and for evaluation purpose it will be available online.

In collaboration with Decis Lab, artificial intelligence will be further enhanced and the container's independent energy and water household will be monitored. The information coming from the integrated sensor and intelligent system will be available on the Internet and used as a case study to define whether the unit could also be efficient in disaster relief situations.

#### Protection

The container will be roofed with a tent-like construction that will protect it under various weather conditions and it will function as a guard against insects or other unwanted animals. Another function of this tent is to provide space for exhibitions and to gather groups of people, so they can meet, exchange ideas and work together. The lightweight cover tent is designed to insulate by means of incorporated inflatable chambers and it enhances the aesthetics of the container's appearance in the natural surroundings. Furthermore, solar panels will be integrated into the tent material, which also adds to the energy supply. The tent will be used to collect rain water and the hot air generated in the double membrane structure can be recycled for heating or cooling, depending on the needs. During transport, the tent can be stored in the container and on arrival it can be erected with little effort.

#### Modularity

A modular interior is designed to enhance the flexibility, functionality and space-efficiency of the working-living area. There are up to 90 modules, each performing one or more specific tasks, such as: storage, cooking, heating, cooling, computer, communications, air compression, and so on. The standardized design of these units makes storage, transportation and re-organization of the modules safe and simple. Another advantage is that the container can be filled according to the needs of the user.

As for liquid-containing or energy-dependent modules, a plug-and-play system is designed, together with an intelligent controlling method.

This system is somewhat analogical to the 'LEGO'-system combined with 'FireWire' technology. A special cable is designed to facilitate this system, carrying 220 V, 24 V, 5 V and digital data.

#### Mobility

The container will be equipped with foldable legs. These devices are attached for lifting and lowering the container, including all its components and equipment, thus enabling self generated loading (and unloading), on and from trucks anywhere in the world. Reducing transportation costs quite a lot because no cranes are necessary. The entire system will be stored, inside the container. Permanent changes to external dimensions, or structural changes with impact on stability, are avoided. The container will always fit to the ISO standard (ISO 3874) for container transport. The lifting system can be handled by one person, when using the container's own energy resource, which also supplies 380 V. It functions independent from the local kind of subsoil.

#### Showcase for Sustainability

The container has been developed into an ecologically friendly, self sufficient living-and working unit. With the growing world population and more and more environmental pollution, there is a need for new concepts on the level of living and working in compact surroundings. The research and development carried out in the container project will contribute to this, offering new solutions at a sustainable level.

The container concept has the potential of becoming a showcase for sustainability: renewable energy, efficiency of energy, water and space are a natural spin-off of this multifunctional concept. Attention for material selection, technology relevancy for visiting cultures, impact on host site and the impact of traveling will further lead to materializing its potential for sustainable innovation and education. Last but not least all the solutions on board make the use of polluting fossil fuels obsolete.

#### The Travel Itinerary

The project was presented at "Designmai Symposium 2005" in Berlin, "Blueprints of Tomorrow, Starship Earth - Designing the Environment" at the International Rotterdam Architecture Biennale and got nominated for the

'Ode aan de Techniek' Price at NEMO, the Science Museum in Amsterdam.

The project is also supported by the commission of Dutch Higher education, by Mr. Fokkema, Rector Magnificus and patron of the project at the TU Delft and by Mr. Koichiro Matsuura, General Director of UNESCO.

After completing the building phase of the unit, it will travel for a period of five years around the world and be placed at 11 UNESCO locations. It will function as an art laboratory for intercultural projects and Hans Kalliwoda will map cultural diversity around the world, which should strengthen the UNESCO Convention on Protection of Cultural Diversity. The first two locations will be Ilulissat in Greenland (400 km north of the Polar circle) and Qurna near Luxor on the edge of the Egyptian Sahara.

#### Sponsoring

At this moment, the second part of the production and practical building is about to be completed. A wide range of engineering offices and manufacturers around the world are supporting the production phase, while numerous (more than 50) sponsors and official institutions contributed significantly. Examples are companies like Ciserv (a Wartsilla company), GTI and Victron Energy, who have seen the benefits of sponsoring this project.

At this point 80% of the costs for the building phase and 100% of the development costs are covered which add up to the overall amount of 1.25 million euros. The project currently still needs 10% of the total cost to finish the building of the container. Additionally the project is looking for a transport sponsor that will ship the container to the 11 UNESCO locations around the world.

The project is an excellent opportunity for businesses to research and test their equipment, or to strengthen and support their sustainable and innovative reputation. Next to this sponsors will benefit from lots of media exposure that the project has enjoyed and will receive during its travels. Sponsor logos will be displayed on the container and website of the project.

If you want to know more about the project, sponsoring or commercial opportunities:

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Website:

[www.blindpainters.org/polliniferoused/index.htm](http://www.blindpainters.org/polliniferoused/index.htm)