

Post Industrial Fleet

Marco Casagrande

Denmark is a small country in the northern Europe with a strong naval history. Being part of Scandinavia Denmark was once one of the original strongholds of the Vikings raiders and later a major north European power. Today Denmark is the base of the worlds leading container ship and logistics company Maersk and the first country with a serious try to redefine the meaning of harbor as an active part of the urban realm.

Denmark has 5.4 million inhabitants and more than 100 harbor towns and cities. Due to the modernization of the sea cargo activities with a strong trend of centralization into a few huge scale mechanized harbors 31 of these towns has already stopped or is about to stop their harbor activities.

The harbor has traditionally been the pulsating heart of these communities, a dynamic interface to the world. When the ships suddenly stop coming, the face and the character of the towns will change forever. This can either be the start of a slow death or a new possibility for the communities to expand to the harbor area.

To face this national challenge of the changing harbor fronts the Royal Danish Government's Culture Fund's Architecture Department launched an international workshop in year 2003 to scan the different possibilities what these harbors out of duty might be able to give to the communities. After a selection out of 125 proposals 48 Danish architects, landscape architects and artists were chosen to the one week intensive workshop lead by 8 international experts to further determine the possible directions of the harbor development.

Each invited international architect led a group of 6 Danish professionals assisted by architecture students to come up with a general idea how the community could best utilize the harbor area. Based on these preliminary concepts the Danish Government commissioned 8 professional teams to produce realizable designs to activate the 31 fading harbor communities.

End of the Line

Every year more than 700 ocean liners, oil tankers and cargo ships retire from their duty (war ships not included). 70 % of these ships get demolished in India and the rest mainly in Bangladesh and Mainland China. Not long ago Kaoshioung was one of the leading ship wrecking yards in the World.

Many of the older generation oil tankers get out of the business because of the new requirements of double hull and most of the cargo vessels because their engines have got run out. Nevertheless these ships still float and offer some 40 million cubic meters of space to be recycled.

Maybe the most interesting proposal of the Danish Government's harbor workshop was the design of the task group CREW*31 presenting recycling strategies to activate the potential of these industrial ships out of duty as permanent installations in the de-industrialized Danish harbors.

Consisting of an interdisciplinary body of architects, landscape architects and artists consulted by naval engineers the CREW*31 was able to work out a highly innovative and artistically strong series of designs offering feasible recycling solutions for a variety of industrial vessels from barges to general cargo ships. Later on these designs were representing Denmark in the Venice Biennale of Architecture 2004.

What is remarkable with the CREW*31's designs of the Post Industrial Fleet is the simplicity of the idea. These industrial ships that have run out of their duties can be purchased by the international kilo prize of recycled steel. The last trip of the vessel from the owner to Denmark instead of India makes no difference. The 31 Danish harbors are constructed to welcome the ships and the design respects beautifully the history of the towns.

CREW*31 introduced three main categories as the new functions of the old ships: community ship, bio-ship and club-boat each benefiting the mother community by a flexible combination of the recycled ships and barges. The ships would work either alone or as a fleet of different functions.

Democratic Waters

CREW*31 views the harbor as a new democratic surface of the city. The surrounding community has grown and is dominated mainly by economics and economy-linked politics causing the urbanism as it is while as the new access to the harbor gives a whole new range of possibilities of urban development that are not necessarily crippled by the existing urbanistic structures and networks but as a sort of a fresh start or a no-man's land to be attached to the exiting community.

All the functions that the CREW*31 is presenting are non-profit in nature, more or less democratic offerings from the city to the citizens. Apart from the Bio-Ship all the vessels are fairly open platforms for the different citizen activities to grow and evaluate gradually.

The modified barges are used for clubs, exchange centers of recycled goods, sports activities, workshops and places to take a nap or barbeque fish. Originally the open barges are structured to carry heavy loads of sand or gravel and thus make easily build floating platforms for even heavier structures.

The community-boat concept is recycling general cargo ships in various sizes. The cargo spaces and decks are modified into multifunctional halls ready for theatre, sports and community gatherings while as the top deck has been left open as a steel park for the citizen activities. The deck house with its sleeping chambers, kitchens and dining halls can be straight converted to back up the community activities.

The other way of looking at the community ship is a three dimensional platform for alternative ways of urban living. Anything from part time lodging to ecologically self sustaining urban villages could be experimented.

Bio-ship

The latest technology of treating the community waste is based on the computer controlled mechanical biological treatment (MBT) units of biological waste and mechanized separation and recycling of metals, plastic, glass, chemicals etc.

The collecting and recycling of waste is considered to be dirty, polluting and smelly. Before modernization and industrial age the urban recycling of waste was more or less 100% and a normal and

necessary part of urban life. Together with the industrialization the total amount of waste grew up rapidly and new artificial materials were introduced. The solution for the modern waste treatment was incinerators and dumps.

The de-industrialization process of the European cities raised up the question of the waste disposal again and new solutions instead of polluting incinerators and dumps were studied.

The MBT-technology is basically a modern version of a compost. The highly effective automated separation mechanism sorts out the non-biological particles and packs the rest into the composting chambers where the biological waste gets fermented by anaerobic bacteria into top soil, water and gas in one week.

CREW*31 has packed the waste treating mechanism into a container carrier (Maersk's fleet of 550 container carriers is the World's biggest). Also an oil tanker could be used for the purpose. The urban waste can come to the ship in containers or driven by waste collecting trucks and the ship will take care of the rest. The self sufficient mechanism will use 25 % of the electricity produced by the bio-gas released during the fermentation process and the rest can be sold back to the city. The ship also produces high quality top soil, fresh water and recycled materials from steel to fuel. The whole system has changed the idea of waste into the idea of valuable material.

The Bio-ship doesn't smell. The anaerobic in-vessel treatment of bio-waste is done in hermetically sealed containers and so the ship can be located into the community. In the model-ship design that was exhibited in Venice the containers on the deck were used as laboratories for new urban nature and eco-systems and the deck house for studies and research accordingly.

All the technology used in the Bio-ship is already existing, but the combination of the MBT –units and recycled ships is something new. It is noteworthy that the same system could be applied to any harbor city around the world.

Taiwanese Harbor Communities

What could Taiwan learn from the CREW*31's Post Industrial Fleet? Taiwanese history of the industrial maritime activities is a modern time miracle. Fleets like Yang-Ming or Evergreen are in effectiveness second to none and there is also still a living memory of a strong past of ship

recycling in Kaoshioung. There would be no Taiwan without these ships.

Besides the harbors of Keelung, Kaoshioung (World's 4th largest container harbor), Hualien, Anping, Taichung and Suao there would be plenty of other seashore and riverside locations for recycled ships and barges of different sizes giving new and interesting spaces for the communities and activating the poorly used Taiwanese urban waterfronts.

Especially the Bio-ship concept would suite perfectly to the Taiwanese urban situation, where most of the heavy industry has already moved to the surrounding countries and a growing demand for ecological rehabilitation is raising in the cities. The in-vessel treatment and recycling of the urban waste could be a landmark of a completely new way of ecologically sustainable urban development.

The Taiwanese waste treatment is still following the American system of incinerators and dumps polluting air, groundwater and soil. The social, economic and urban development state of Taiwan would be ready for a more sustainable solution.

The ship could also be the answer for the Taiwan Architecture Center. If the central government and the city of Taichung is seriously thinking setting up the architecture center into the old wine factory it could rather consider recycling a 160 meters long container carrier from Evergreen or Jang Ming and to do something unique in Taiwan in a World scale.

The industrial ships are the biggest units of industrial waste the human being has been able to make. They also provide the possibility of biggest mobile spatial recycling on the planet.

Credits:

CREW*31 is
Rebecca Arthy, architect
Christina Sofia Capetillo, architect
Dan Cornelius, architect
Kristine Jensen, landscape architect
Steen Bisgaard Jensen, landscape architect
Susanne Lund Jensen, architect
Marco Casagrande, architect

Assistants:

Lea Andersen, arch. Student

Elina M. Braunstein, arch. Student

Sofie Palm, arch. student

Consults:

Martin Metalgod Ross, industrial artist

Sune Oslev, architect

Laura Juvik, architect

Knud Wagner, naval engineer