

Hans-Jürgen Voigt  
CEO TECHNOLOG



Dear  
Business Partners  
and friends,

A very important emerging market for us is Asia and especially China.

Not only is the economic potential promising, but also the existing scientific expertise in maritime technology is impressive.

Therefore, a logical conclusion is the development of a joint venture company in Shanghai.

Together with the TECHNOLOG-MRM marine services (China) Ltd, we will be present at the Marintec in Shanghai. Our director, Mr. Zhun Bei, and myself are looking forward to interesting meetings and discussions.

On the next page you can see a quick impression of our stand. We hope to see you there.

With kind greetings,

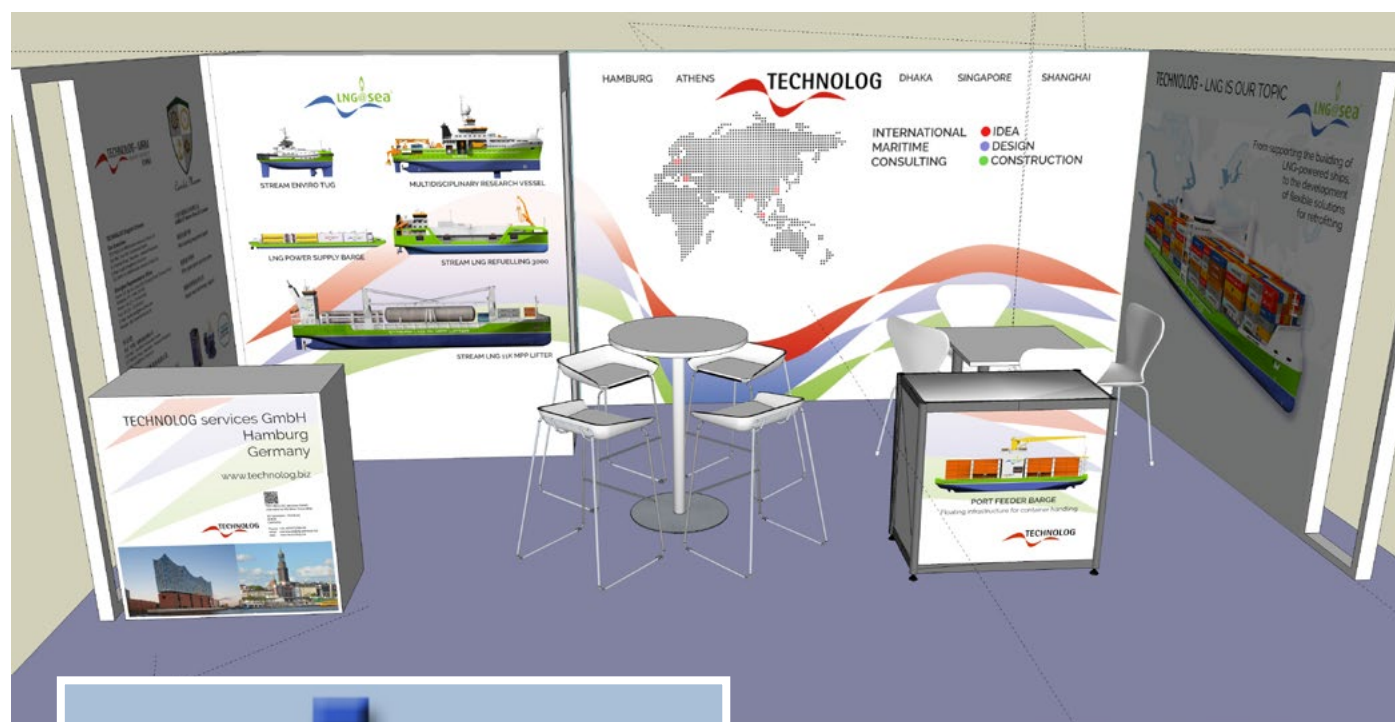
A handwritten signature in blue ink that reads "Hans-Jürgen Voigt".

▶ **MARINTEC CHINA**  
TECHNOLOG News

▶ **PORT FEEDER BARGE**  
Logistic innovation for ports

▶ **PROJECT KuWert**  
Ship supported waste recycling

▶ **SS PEKING**  
The next chapter



*Sometimes it just got to be personal, eye-to-eye. A reason why there are trade-fairs and also a very good reason why we should meet at Marintec. What we like to show you is indeed new, innovative and best explained in a dialogue. To what we are looking forward to.*

## Engineering services for large FLNG construction

TECHNOLOG has won a further contract for planning and engineering for integration of the Positioning Systems into a Floating Liquefied Natural Gas (FLNG) Unit. We will develop the special foundations for Inboard Dismountable Thrusters to be integrated into the hull of this FLNG - including most extensive analyses for strength, vibration behaviour as well as operating strength.



## TECHNOLOG NEWS

Customs Patrol Boat „Priwall“ - one of the ship class presently in use



## LNG only - a new ship for the German Customs

TECHNOLOG has been given the task to design and develop a new Customs Patrol Boat, as well as to tender the required construction services Europe-wide. Subsequently, TECHNOLOG will also provide consultancy during the contract negotiations. This vessel will be the first gas-only powered Customs ship. We are supporting the plan approvals and the entire project management, including the construction supervision at the building yard. This also includes the warranty settlement. The tendering procedures will begin in this year. In 2018 the building contract will be awarded.

The Customs Authority is also planning the acquisition of small customs boats able to sail the tidal mud flats. This acquisition project runs almost in parallel with the Customs Patrol Boat project and TECHNOLOG is also playing an active role in this together with the Engineering Company L+P Naval Consult Lasse+Passe GmbH. The same scope of services be produced for the client.



The internationally patented Port Feeder Barge concept is a self-propelled container pontoon with a capacity of 168 TEU (completely stowed on the weather deck), equipped with its own state-of-the-art heavy-duty container crane mounted on a high column. The crane is equipped with an automatic spreader, retractable from 20ft to 45ft, including a turning device.



A telescopic over height frame is carried along on board. The barge is of double-ended configuration, intended to make it extremely flexible in connection with the sideward mounted crane. Due to the wide beam of the vessel no operational restrictions (stability) shall occur. The crane has a capacity of 40 tons under the spreader, at an outreach of 27 meters (maximum outreach 29 m).

The unique vessel is equipped with 2 electrically driven rudder propellers at each end in order to achieve excellent manoeuvrability and the same speed in both directions. While half of the containers are secured by cell guides, the other half is not, enabling the vessel to carry containers in excess of 40ft as well as any over-dimensional boxes.



The vessel shall fulfil the highest environmental standards. A diesel-electric engine plant with low exhaust emissions has been chosen to supply the power either for propulsion or crane operation. The vessel could be operated by a minimum crew of three.

The Port Feeder Barge concept can be considered as an environmentally friendly logistic innovation for ports and waters that could help to ease congestion and to reduce the impact of heavy container trucking in and around many container ports.

In minor ports which suffer from a lack of sufficient shore based container facilities and/or very limited water depth such vessels could in the first place facilitate container handling. This would strengthen the potential of coastal shipping substantially.

## Port Feeder Barge

Floating infrastructure for container handling

A jointly marketed product technically supported by TECHNOLOG marine services China Ltd.

Employing Port Feeder Barges is less costly and quicker to realize than the erection of comparable shore based facilities not to mention that less parties have to be involved for approval.





## KuWert - Ship-Supported Processing of Plastics

An interview with Christoph Rasewsky, Project Lead at TECHNOLOG Services

*log: KuWert – Ship-Supported Processing of Plastics” – what does this somewhat cumbersome term mean?*

*ras:* It's about a joint project between the Institute for Energy, Recycling and Environmental Protection at the Bremen University of Applied Sciences, the internationally active waste-disposal company Nehlsen, and TECHNOLOG Services. Together, we are developing a system to collect plastics and process them in places where this is not otherwise possible due to lack of infrastructure and other factors

*log: Where might this be the case?*

*ras:* Regions where the environment is increasingly being damaged by growing accumulation of plastic waste. This is the case in most developing countries, but also in the emergent countries with fast-growing economies. Due to the lack of infrastructure, and likewise lack of incentives, plastics are not collected and recycled, but are instead thrown away.

*log: Is a closed system of recyclable material at the location itself not the best solution?*

*ras:* Taking into account the circumstances, certainly not! Such systems are not exactly glowing success stories here in Germany, so how can they work where there are hardly any roads and no guaranteed energy supply?

**Rapidly increasing accumulation of plastics – a growing problem accompanied by lack of infrastructure**

No, time is of the essence: in 2014, more than 300 million tonnes of plastics were produced worldwide. An annual growth rate of 4% is generally assumed. Having said that, use in our project's focal regions is growing disproportionately to their size. Annual growth for the region of

[Click here to visit the project's homepage](#)



West Africa alone is estimated at 15%.  
*log: In this context, what does “ship-supported processing” mean?*

*ras:* Globally speaking, it is obvious that population growth – and the commensurate growth in the use of plastics – is growing, in particular in coastal regions. That is leading to increasing pollution of the oceans with waste – and of course, this includes plastics. On the other hand, this presents the opportunity to access the origin of the problem.



*log: Afloat?*

*ras:* Exactly. Part of our project involves designing a ship-supported processing plant. Highly developed plastic-recycling technology is readily available, especially here in Germany, but at the moment only within onshore facilities. Where maritime

technology is concerned, it can be said that the installation of large technical facilities on floating vessels is, in principle,

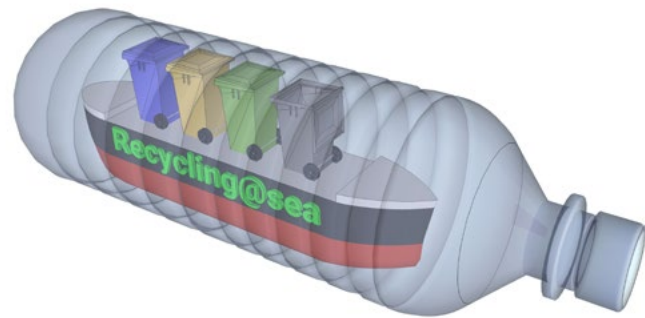
**Innovation through fusion of technologies – modern waterborne recycling technology**

le, not a big problem. The challenge is creating the conditions required for efficient recycling on a waterborne vessel.

*log: For example?*

*ras:* For recycling, plastics of different types have to be separated with precision. Weight is an important factor within this process. Sorting by weight – e.g. in a stream of air – has to work on a moving ship just as well as it does on land.





*log: So no long transport routes?*

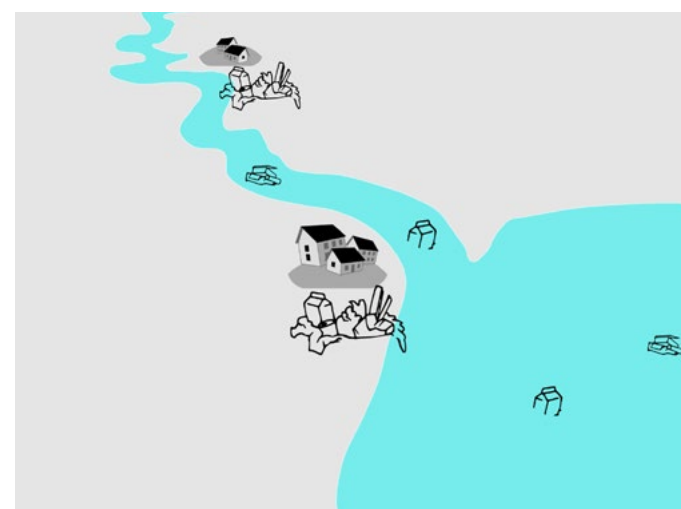
*ras:* No, for several reasons. Transport to Europe, for example, is expensive and would have a negative impact on the overall ecological footprint. And we want to cause value creation where the raw material is situated. The resulting demand will create entire chains – on the one hand, transport of waste from the surrounding areas, storage and sorting as well as shipping to the facility.

#### Recycling of plastics on location: impulse for the local economy with sustainable effects

On the other, transport and sale of the pure plastics back to the shore. And, of course, the creation of new products from the recycled plastic itself.

*log: Very interesting! So the purely technological implementation is only one aspect of the project?*

*ras:* Definitely – although not just a small part. That is why the work with the Institute for Energy, Recycling and Environmental Protection is so important. Maritime



That is why we decided on the concept of a semi-submersible platform. Here, the necessary surface area can be provided, as well as the necessary stability.

*log: And how does the plastic waste then reach the floating recycling facility?*

*ras:* To begin with, the facility goes where waste can be found. With the floating factory, we arrive wherever the waste is – or, as we see it, the raw material. Let's take, for example, a port city on the West-African coast. Here, we find refuse heaps that contain household rubbish. With our facility, the plastics are separated from each other, and processed into a form that is appropriate for each type of plastic. This leads to a demand for unsorted plastics. Onshore, people will be employed to sort the household waste and transport it to the facility.

*log: How does processing continue once it has been sorted?*

*ras:* This is a further important aspect of the project: we want to transport as much as possible back onto land. For example, in the form of granules consisting purely of one type of plastic, for further processing.

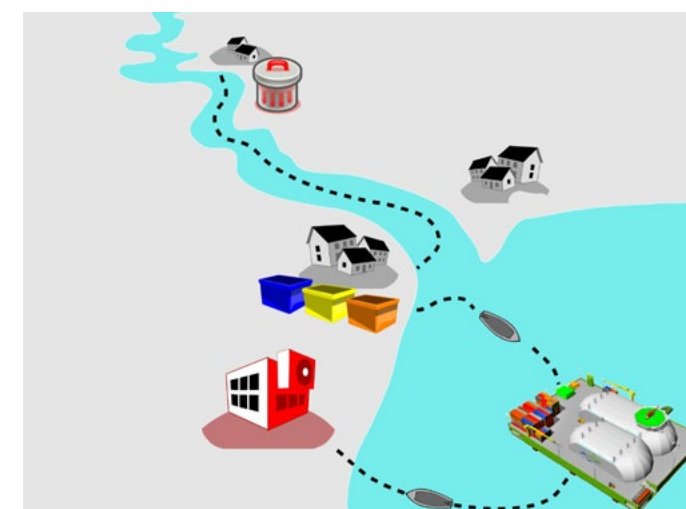
technology is our topic at TECHNOLOG Services. Nehlsen has been recycling for almost 100 years now. But where the creation of logistics concepts and analysis of socio-political issues are concerned, we are reliant on our collaboration with the academics in Bremen.

*log: What are the next steps?*

*ras:* Our project has already received support from the German Federal Ministry of Education and Research within its "Plastics in the Environment" programme. We see this as an indicator that our approach can be a trailblazer. Parallel to the technical planning and scientifically supported creation of blueprints, we will conduct field research with international partners.

*log: Who and where?*

*ras:* In co-operation with the University of Marine Biology and Oceanography in Sierra Leone and the University of Mauritius, we will investigate the conditions in both countries and thereby draw important conclusions of relevance to practical



implementation. Because one thing is clear: the project is not a mere theoretical thought experiment but will yield very concrete results.

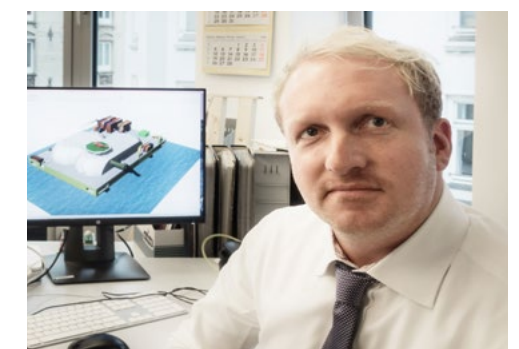


*log: That brings us to our last question: what does this all look like from a business perspective?*

*ras:* This is of course an important factor within the project as a whole. Although it is not possible to provide exact figures at the moment, one thing is certain: the processing of one tonne of plastic in one of our facilities will come at a price. Looking at the whole value-creation chain, one can assume a positive result. And compared to the effort required to collect one tonne of plastic waste on the high seas, our solution is unbeatable.

*log: Many thanks for the chat, Mr Rasewsky.*

[Christoph.Rasewsky@tlg-services.biz](mailto:Christoph.Rasewsky@tlg-services.biz)





It was a long journey back home; beginning in New York, crossing the Atlantic Ocean, reaching the North Sea, and finally traveling upriver towards Brunsbüttel. Here is where the Flying P Liner was undocked from the dock ship "Combi Dock III" and towed down the river Stör, simply floating on its keel. And now, the PEKING lies in the Shipyard Peters Werft.

## SS PEKING

### The next chapter

As routine, masts and bowsprits already drawn. The remaining furnishings has been removed and, if historically valuable, collected and professionally stored by a renovator. Even the large deck coverings needed to be removed. Some of these originating from this ship's prime sailing days.

Meanwhile, the Working Group TECHNOLOG / Engineering company Löll had opened the site office on the shipyard. Our experienced colleague Jens Marjanczik, represents the interest of the owners on-site and controls the quality, labor and appointments.

After 2 years of restorations, the Peking will return to its home harbor in Hamburg. Until then, we will surely have another to report on.

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Needless to say, we would be delighted to receive details of your colleagues or friends who would like to receive our newsletter.

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