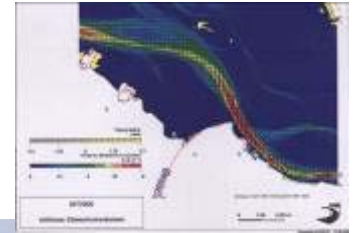


**Sellhorn**  
INGENIEURGESELLSCHAFT



**WELCOME**

**Dipl.-Ing. Norbert Peetz**



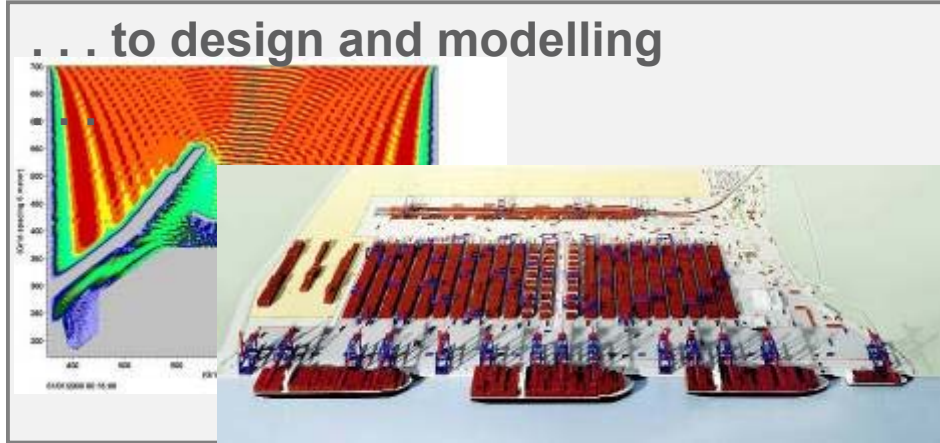


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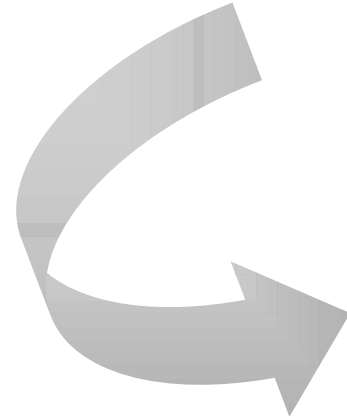
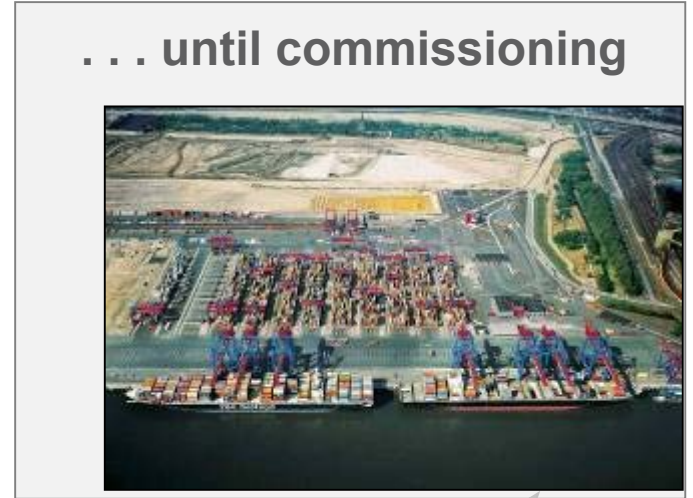


- **International Consultancy Practise of Civil and Structural Engineers**
- **Established in 1963**
- **since 1992 a *GmbH* (Ltd)**
- **Sellhorn Ing. > 50 Employees**
- **Overturn 2008 > 6 million Euro  
(9 million USD)**

From first ideas . . .



. . . until commissioning



# Our consultancy services . . .

- **Pre-investment and feasibility studies**
- **Conceptual, preliminary and developed engineering design**
- **Preparation of and application for planning permission**
- **Preparation of tender documents**
- **Tender process and tender evaluation**
- **Contracting and site supervision**
- **Project management**

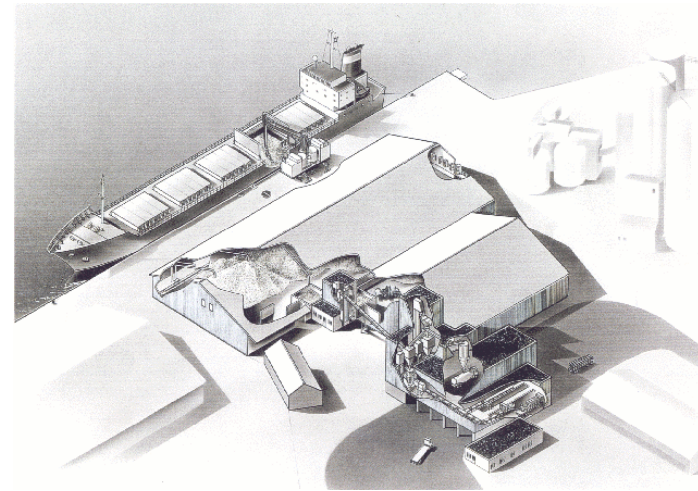
# DRY BULK TERMINALS

**Basics to be defined:**

- **import, export, or im- and export ?**
- **type(s) of commodities ?**
- **annual capacity required ?**
- **storage duration at terminal ?**
- **environmental restrictions ?**

# HANDLING OF MATERIAL

**Unloading ⇒ Conveying ⇒ Cleaning ⇒ Weighting**  
**⇒ Storage ⇒ Discharge ⇒ (Bagging) ⇒ Loading**  
**⇒ Distribution**



## Type of Bulk Commodities ?

- **Sugar**
- **Grain**
- **Iron Ore**
- **Coal**
- **Cement**
- **Fertilizer**
- **Liquids**
- **LNG/LPG**
- **...**

### Impact on

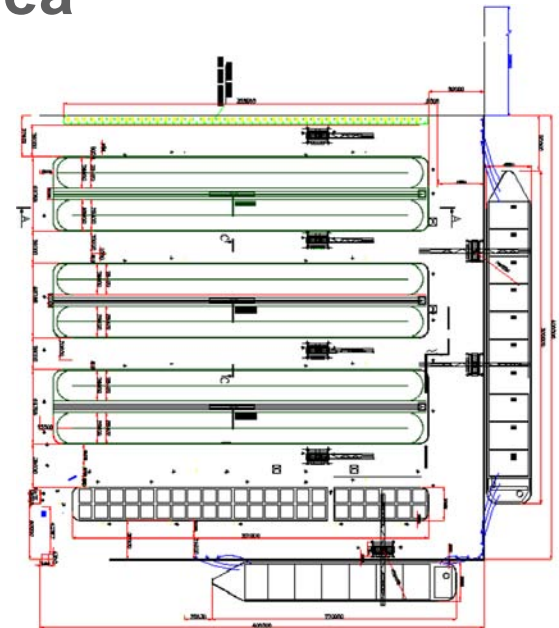
- type and size of vessels
- handling equipment
- conveyer system
- type of storage facilities (silos, flat)
- min. distance between dedicated areas
- whether dedicated or multi-purpose terminal





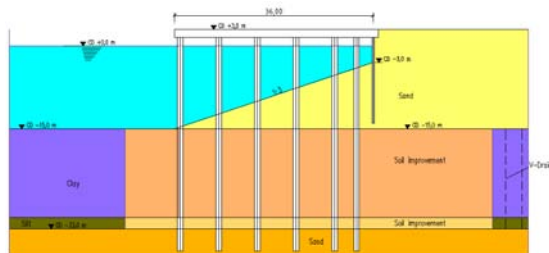
## Complex and iterative process to define required :

- draft at berth
- length of quay
- storage capacity/terminal area
- capacity of equipment
- type of equipment
- other terminal facilities



**Following the definition of all requirements,  
evaluate present situation with regard to:**

- existing infrastructure
- environmental conditions (wind, waves)
- subsoil conditions  $\Rightarrow$  impact bearing capacity, settlement
- bathymetry  $\Rightarrow$  impact on capital and maintenance costs
- earthquake situation  $\Rightarrow$  impact on invest



## **Preparation of conceptual design to derive capital cost for return of investment analyses:**

- general layout with existing infrastructure
- evaluate onshore, near-shore or off-shore terminal? (floating terminal?)
- nautical analyses (approach channel, turning basin)
- structural analyses of berthing structures
- geotechnical evaluation of settlements and evaluation of time impact
- interface to existing structures and networks (rail/road traffic, power, drainage...)

**Advance and optimise design based on**

- a) Terminal Operator's needs and operational concept**
- b) Development and phasing strategy**
- c) Tender strategy (Works designed by Employer or D&B or DBO Contract)**

## **Recent and Current Projects Bulk Terminal/Berth:**

- **Port Apapa, Lagos – sugar, but also Multi-Purpose**
- **Khalifa Port, Abu Dhabi – different commodities**
- **Shuwaikh Port, Kuwait – grain on Berth 1 and 2**
- **El Adabiya, Egypt – iron ore and steel pallets**
- **Northfleet, London – cement (fender issues)**
- **Black Sea – iron ore for steel mill (import 13 million t/a), coke (export 600,000 t/a)**
- **Aqaba, Jordan – sugar, floating terminal**

Thank you !

متشكرم



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