



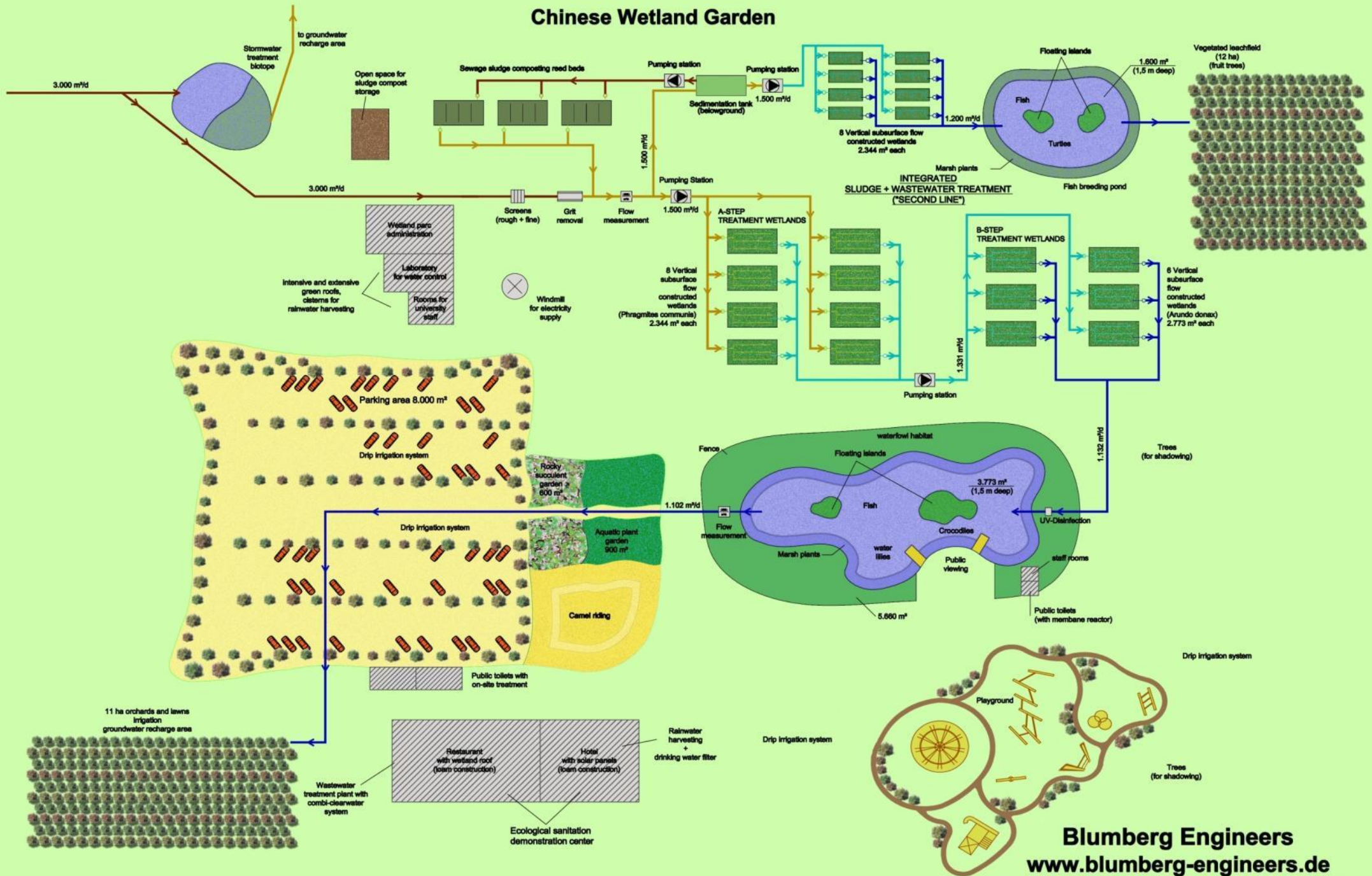
Ingenieurbüro Blumberg

Wetland Garden Concept 2015

Our vision for an innovative 'wetland garden concept' comprising the following main elements (see figure below):



Chinese Wetland Garden



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- A certain amount of wastewater e.g. 3000m³/d from urban areas will be treated exclusively by ecotechnologies, including stormwater and sewage sludge. The principal methods being used (constructed wetlands) are explained on our homepages (<http://blumberg-engineers.com/en/43> ; <http://www.constructed-wetlands.com/ecotechnologies.html> ; <http://www.constructed-wetlands.de/>). The clean effluents are partly reused for agricultural irrigation or disposed off on vegetated leachfields.
- Another part of the treated wastewater should be used inside a recreation (leisure) park feeding an **aquatic plant and animal garden** and will be used finally for irrigation of trees, meadows, lawns and agricultural crops (e.g. orchards).
- Other methods of ecological engineering (e.g. photovoltaics, windturbines, vegetated green roofs, ecological sanitation, rainwater harvesting and mudbrick buildings should be demonstrated as examples.
- Targets:
 - There will be a large-scale biotope-complex, a habitat for plants and animals
 - There will be a leisure park for the public
 - There will be an information center about sustainable green technologies
 - The presented methods of ecological engineering will be used for education of university students

This basic concept has been worked out for internal use at Blumberg-Engineers in Germany in 2010.

Some of the proposed projects we already have realized in cooperation with the German Ecological Engineering Society IÖV (<http://ioev.de/>) and with our Chinese partner company Dehua (<http://www.dehua-eco.com/en>) in the region of Suzhou and Changshu. They partly express the character of a wetland garden. They consist of cascades of vertical and horizontal subsurface flow constructed wetlands, sewage sludge treatment wetlands and polishing lagoons.

<http://blumberg-engineers.com/en/47/projekte-chinaEN>







Plants for nutrition should be part of a wetland garden. We used successfully bananas, sugarcane and vetiver-grass in one of our constructed wetlands in Vietnam treating high strength wastewater from starch producing [tapioca industry](#).



Besides functionality a wetland garden should be integrated aesthetically into given garden and landscape structures as we have realized it at a senior residence in [Mexico City](#), where the wastewater after treatment in constructed wetlands is reused for park irrigation.



In [Changshu](#) we have realized in 2012 a six hectare constructed wetland complex with several types of artificial wetlands for wastewater treatment of an industrial park effluent. In our design we combine treatment efficiency aspects with items of landscape architecture according to the basic principle 'form follows function'.

