



Treatment of tapioca processing wastewater and sustainable water pollution control management of key economic zones in South Vietnam (2009 - 2012)

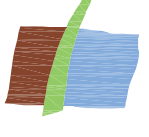
Conventional pretreatment and constructed wetlands for high strength wastewater of the tapioca industry in Vietnam




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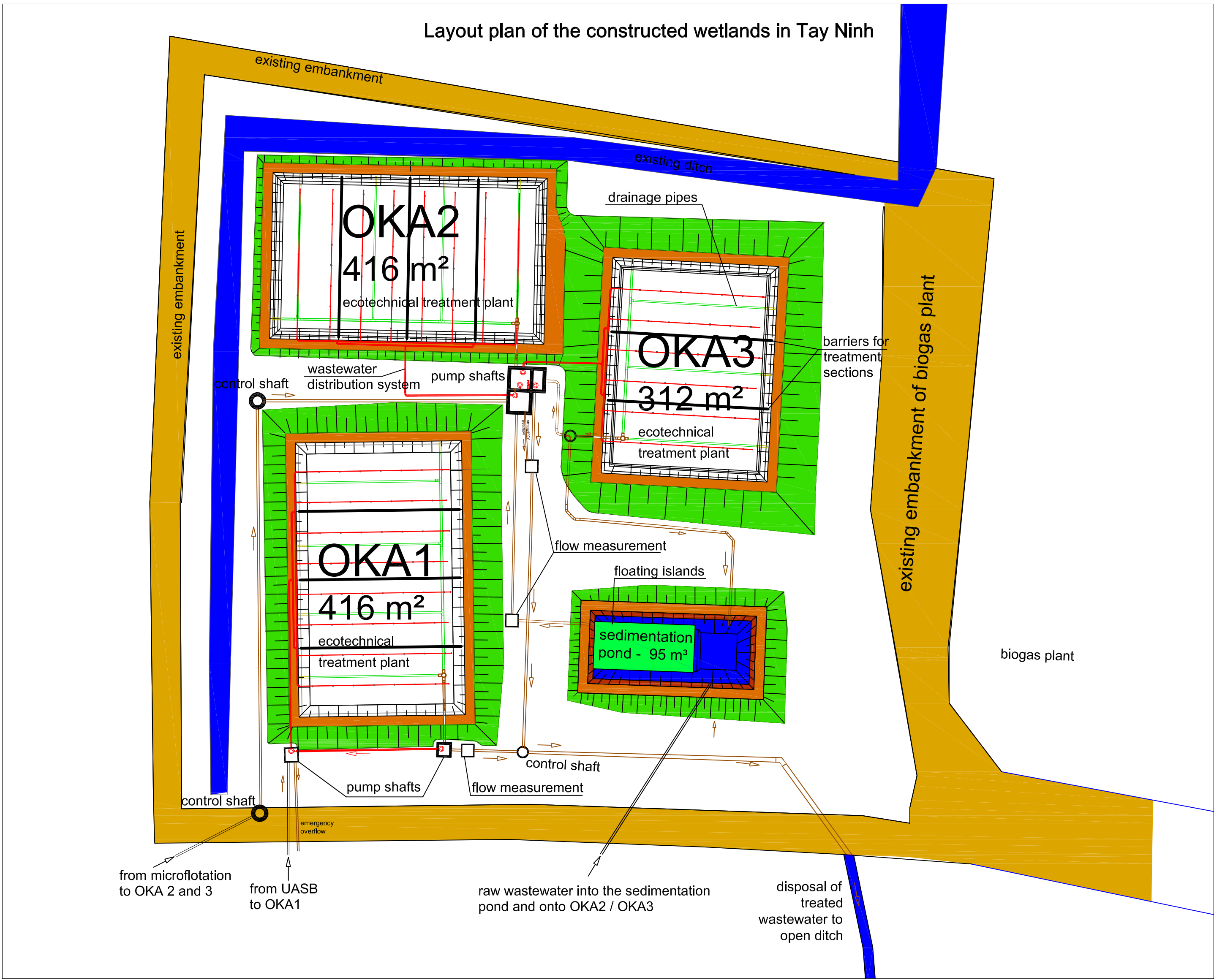
Thanh Vinh Tapioca Company

Project partners:

Project agency and sponsorship of the project:

Federal Ministry of Education and Research (www.bmbf.de), Germany

Ministry of Science and Technology (www.most.gov.vn), Vietnam

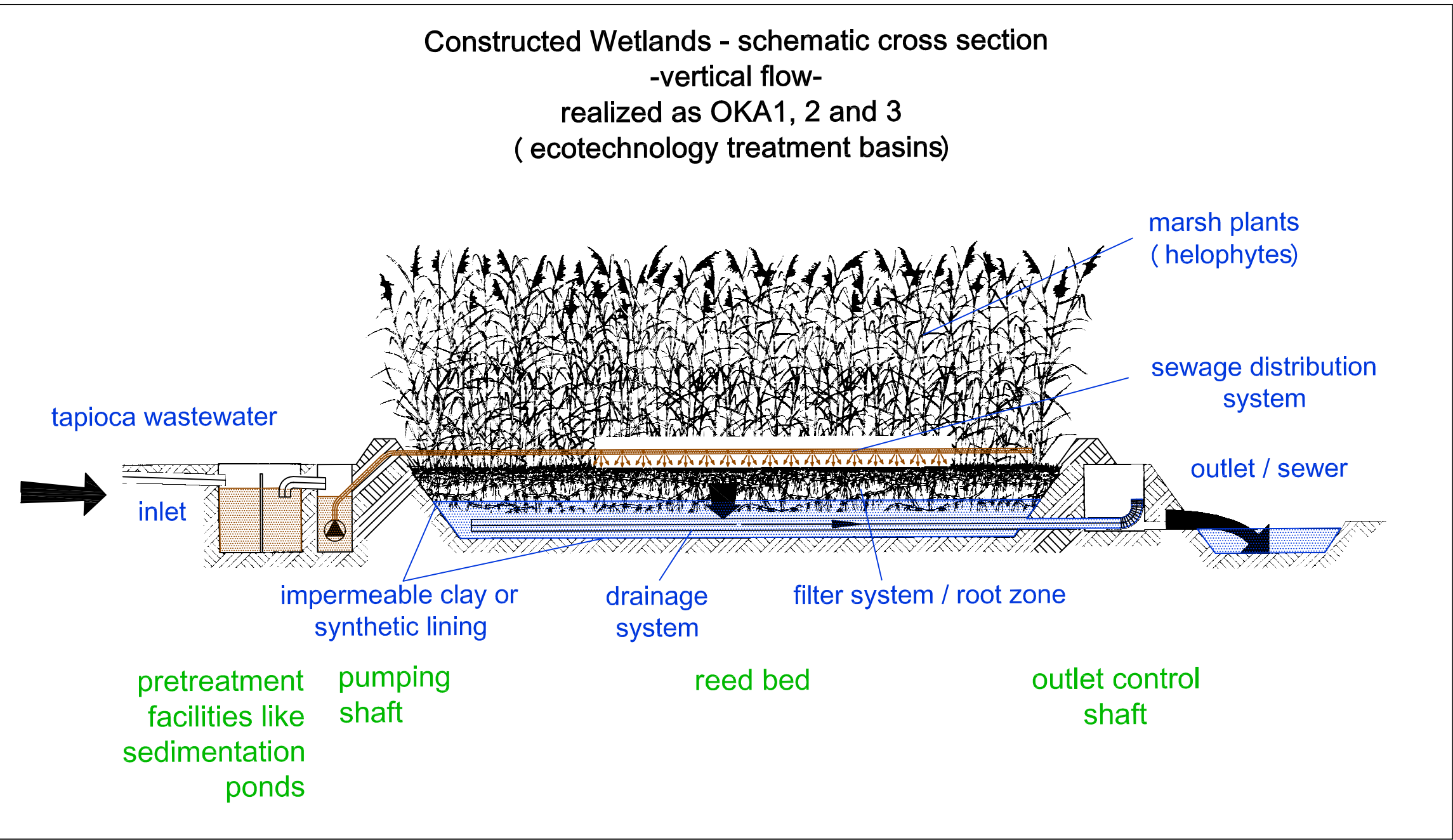


The constructed wetlands are operated with tapioca effluent either pretreated by microflotation and/or expanded granular sludge bed digestion (EGSB) or with raw wastewater, which only has passed a sedimentation pond. Variations in hydraulic and mass loading are tested. The suitability of different tropical plant species to cope with the impacts is demonstrated.



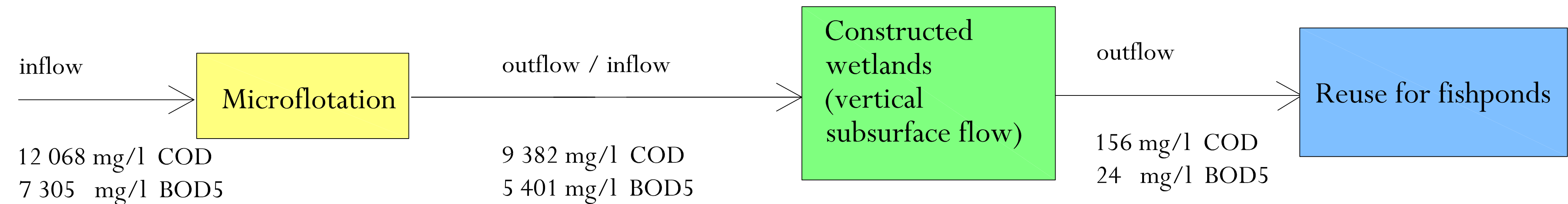
OKA 3

Vertical subsurface flow treatment wetlands



OKA 1 and OKA 2

Pilotplant for research (results of the period March to October 2011)



Special features: The raw material manioc root tubers (cassava) used for tapioca starch production in Vietnam, Thailand and India contains high concentrations of toxic natural cyanides which are detoxified in the total treatment process from 30 mg/l to 1,5 mg/l.

Results of the second mode of wastewater treatment using the following steps have been published in: DECHEMA / DWA Industrietage Wassertechnik, Management und Behandlung industrieller Roh-, Prozess- und Abwässer, Frankfurt a.M. (2011):

"Eine neue Verfahrenskombination zur Reinigung von Stärkeabwasser in Vietnam"

by Volker Pick, Joachim Fettig, Ute Austermann-Haun, Birgit Fabritius, Andreas Stein, Michael Blumberg, Nguyen Van Phuoc.

