2017. 1st. November
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THE GIANT SEWAGE (PROS AND CONS)

This is the latest paper, quite recently, in 2016. About the numerical simulation of nitrogen waste released by 13 rivers into the Jakarta Bay, which accumulates due to reclamation and the Giant Sea Wall Projrct between Indonesi and China Government.

Peer-reviewed journal. International. Published by Elsevier. Written by the German Caucasians and his friends, van der Wulp.

JOURNAL ARTICLES

Master Plan Jakarta, Indonesia: The Giant Seawall and the need for structural treatment of municipal waste water
Simon A. van der Wulp a, ∗, Larissa Dsikowitzky b, Karl Jürgen Hesse a, Jan Schwarzbauer

Marine Pollution Bulletin, 2016.

http://dx.doi.org/10.1016/j.marpolbul.2016.05.048

RESULT OF CALCULATION AND SIMULATION

This part is the summary of the important part of the article.

In the simulation there are 4 conditions, namely:
(a) without reclamation and GSW
(b) phase A, when reclaimed islands are built
(c) when the Giant Sea Wall is built, and the western reservoir is closed
(d) when the east reservoir is closed

Measured is the content of nitrogen, phosphorus, and DEET (N, N-diethyl-m-toluamide, a molecular tracer for municipal waste water).

The result? View your own pictures. The more red the color, the greater the content. Red, is not it? That means it's already very far above the threshold.

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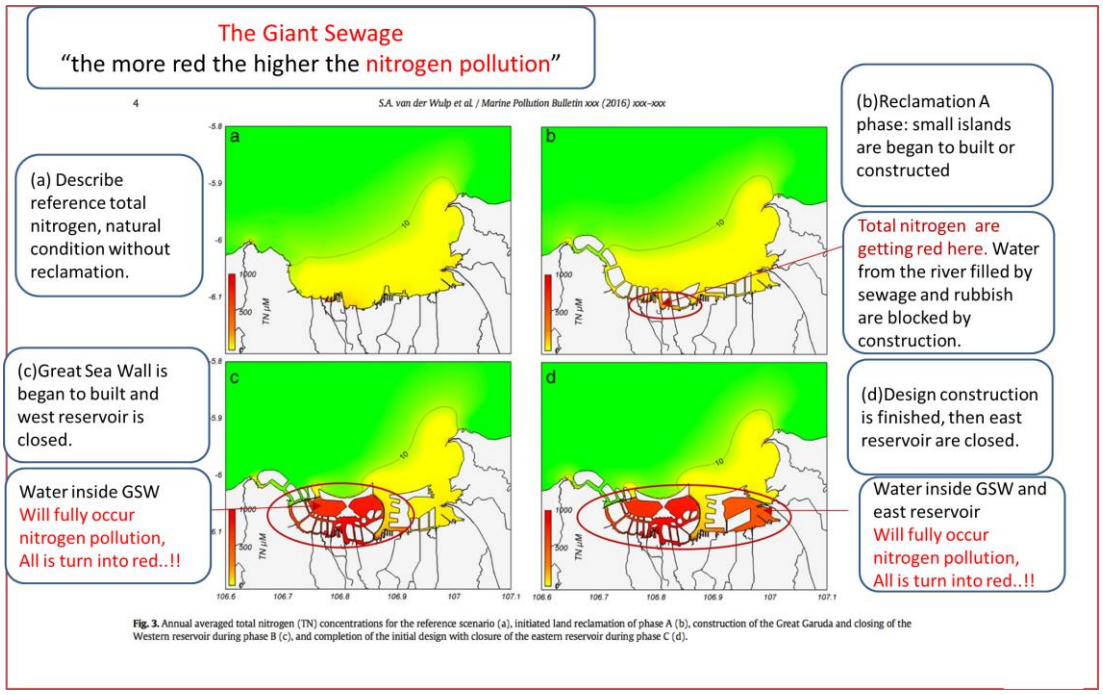

Fig. 3. Annual averaged total nitrogen (TN) concentrations for the reference scenario (a), initiated land reclamation of phase A (b), construction of the Great Garuda and closing of the Western reservoir during phase B (c), and completion of the initial design with closure of the eastern reservoir during phase C (d).

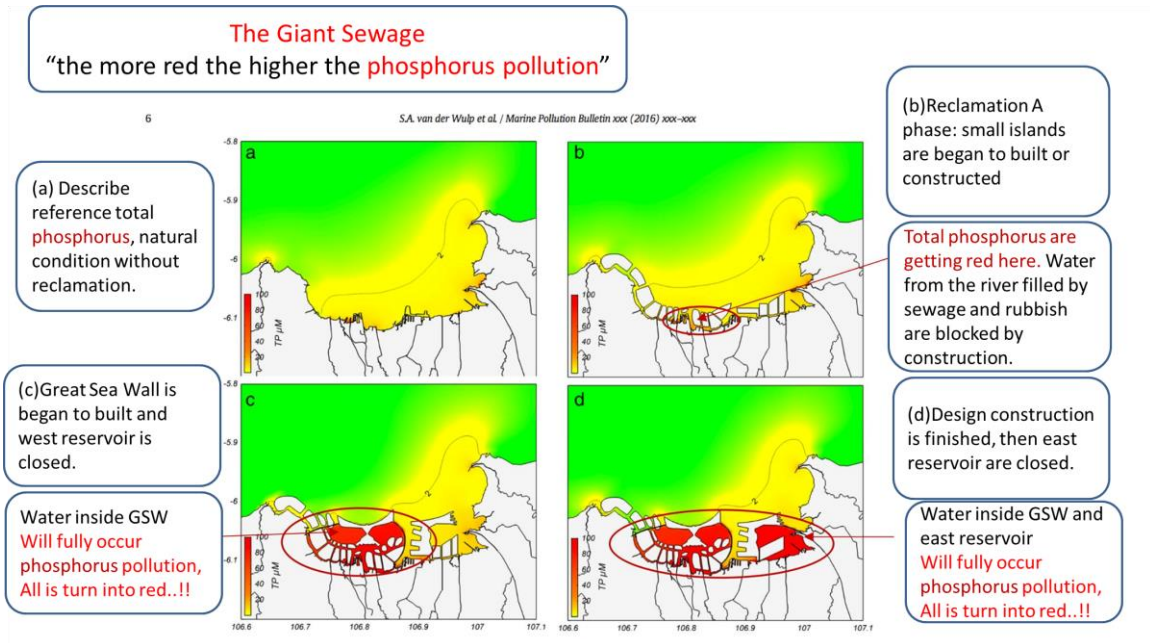

Fig. 5. Annual averaged total phosphorus (TP) concentrations for the reference scenario (a), initiated land reclamation of phase A (b), construction of the Great Garuda and closing of the Western reservoir during phase B (c), and completion of the initial design with closure of the eastern reservoir during phase C (d).

As a result?

The more waste content above, it will appear disaster ... algae blooms ... Water so green, full of algae, dead fish, odor water .. just sewage in large

quantity. But this is a giant (reservoir of sewage).

Reclamation and Great Wall Sea (GWS) impact

Construction of near-shore islands, as simulated in scenario phase A, causes a shift of nutrient gradients within Jakarta Bay. No significant shift of the nutrient gradient was observed beyond the inner confinements of Jakarta Bay due to rapid dispersion at the outer edge of Jakarta Bay. The construction of the Giant Seawall and the closing of the western and eastern reservoirs in phases B and C, lead to extraordinary high nutrient levels due to the accumulation of river water with high nutrient concentrations. A division of the reservoir volume with the adopted annual averaged river discharges yields flushing times of approximately 600 and 200 days for the western and eastern reservoir, respectively. Also, due to retarded flows, the port in between the western and eastern reservoir experiences higher levels of nutrients.

causing the levels of nitrogen and phosphorus to increase remarkably

Despite these simplifications, it can be concluded that accumulation of nitrogen and phosphorus in the western and eastern reservoirs as well as in other areas with reduced flushing will very likely cause a biological response including the formation of high biomass algae blooms and enhanced microbial decomposition of organic matter. Considering the stagnant nature of the reservoirs, this will result in anoxia and ultimately azoïc conditions which are currently found in the adjacent rivers of Jakarta Bay. By contrast, construction of the reservoirs will reduce the nutrient levels outside the Giant Seawall in the open waters of Jakarta Bay.

It happens if the waste from the river is not processed properly before. However, according to the paper, the most sophisticated waste treatment techniques are the state of the art, only 80% efficiency.

Meaning? Waste still passes to the bay, accumulates. And because it can not get out of the GSW with super big speed, it will continue to grow and continue. And will still increase the content of the objects above.

If it were so, the 170 trillion contribution to Jakarta`s Government funding is meaningless. The cost of operational, cleaning, maintenance, not including loss of ecosystem, fisherman, economy, etc .. more over big from it. (see final image, from the NCICD concept, where water should be discharged into the ocean using a giant pump, but the water inside the GSW is not washed)

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CONCLUSION

We want to take this risk? Who is the loss? Who is take benefit?

OTHER SOLUTIONS WHAT?

The least risk is condition (a), without reclamation and without GSW. But Jakarta is going down the land? What's the solution?

Condition (a) selected, by installing a dike along the coast.

THE CONCEPT OF NCICD (National Capital Integrated Coastal Development

The image 1 include at the end is from the NCICD concept.

It appears that the water inside the GSW (outer seawall), is actually dirty water from the exhaust of 13 rivers. This water is not washed. If without GSW, naturally water is washed by ocean currents, so naturally it will be clean. The dirty water grew continuously, causing the bay of Jakarta to become a giant sewage.

This is different from the concept of NCICD, which says that this water is 'fresh water', a source of drinking water for residents of Jakarta. In contrast, the above simulation results differ by 180 degrees with this NCICD claim, that this water has a remarkably high level of nitrogen , and DEET, above the safe threshold. Instead of being a source of drinking water, instead experiencing 'algae blooms', green smelly and deadly.

See also the giant pump that must throw water behind the GSW into the open sea. if the pump dead, Jakarta will sink. If pumped up, the bay of Jakarta will run out of water, so it becomes dry.

If the water is dry, Muara Karang power plant will die, lack of water, so it must be moved.

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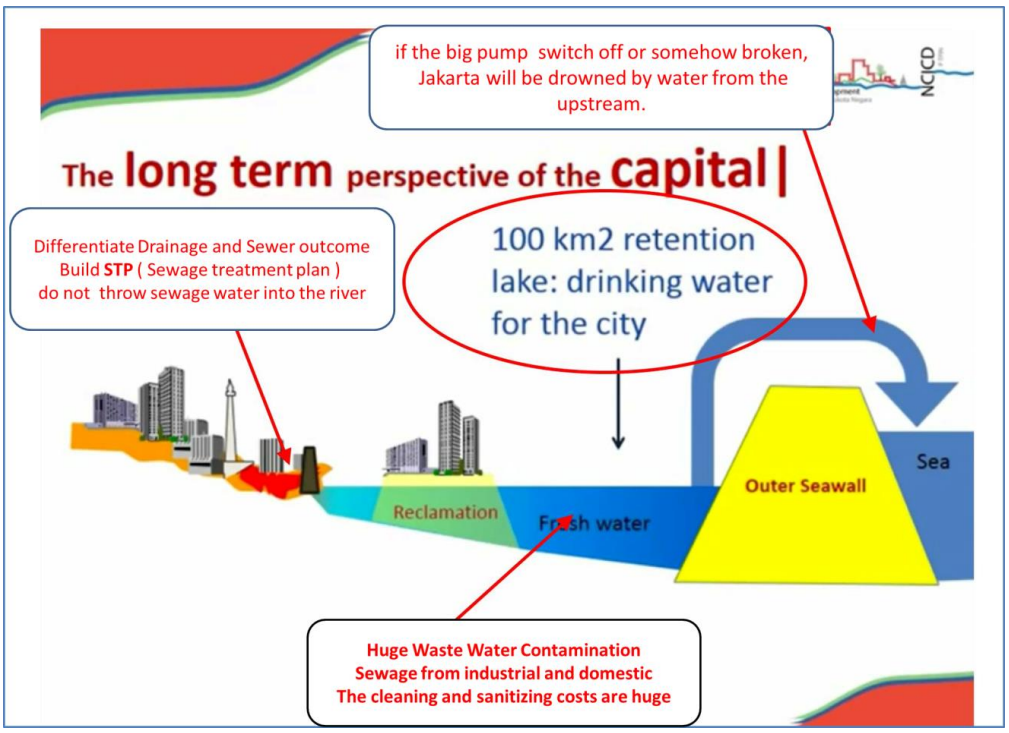

Try to calculate how much money to pay for operating this GSW, and how much is the loss caused?

CONCLUSION

A full coverage of state-of-the-art waste water treatment techniques with an assumed 80% treatment efficiency would still imply a considerable load of nutrients to the created retention lakes and cannot exclude possible eutrophication effects in the planned reservoirs.

The most sophisticated waste treatment techniques are not able to clean the nutrients, not including other effects that may appear in the near after.

5. Conclusions

The urgency for the municipalities to deal with the issues of the Jakarta Metropolitan Area is very high. The Master Plan National Capital Integrated Coastal Development offers an approach to tackle issues such as, among others, the annual floods. The accumulation of nutrients from municipal waste water in the reservoirs indicates the susceptibility of these artificial water bodies to deteriorating water quality. These findings stress that the phased construction of the master plan should prioritise a parallel development of structural treatment of municipal waste water to control the illustrated water quality deterioration. Such structural treatment should involve an improvement and maintenance of the waste water collection systems and an extension of the coverage of the centralised sewage system within all relevant catchment areas. Efficient collection of municipal waste water would provide the benefit that waste water flows can be controlled, treated, and where possible, diverted from the western and eastern reservoirs to alternative discharge locations, which provide more favorable flow and dispersion characteristics to control the environmental adverse effects of the remaining effluent.

waste treatment should be a priority and be simultaneously tracked. But this seems to be less of a concern in the study of this project who either ridden by whose interests