Seminar on Resilient Urban Delta Development

Setting The Knowledge Agenda for Water Security in the Urbanizing Ayeyarwady Delta

Ministry of Transport and Communications

Directorate of Water Resources and Improvement of River Systems

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Mandate and Vision of DWIR for Delta

DWIR's Mandate

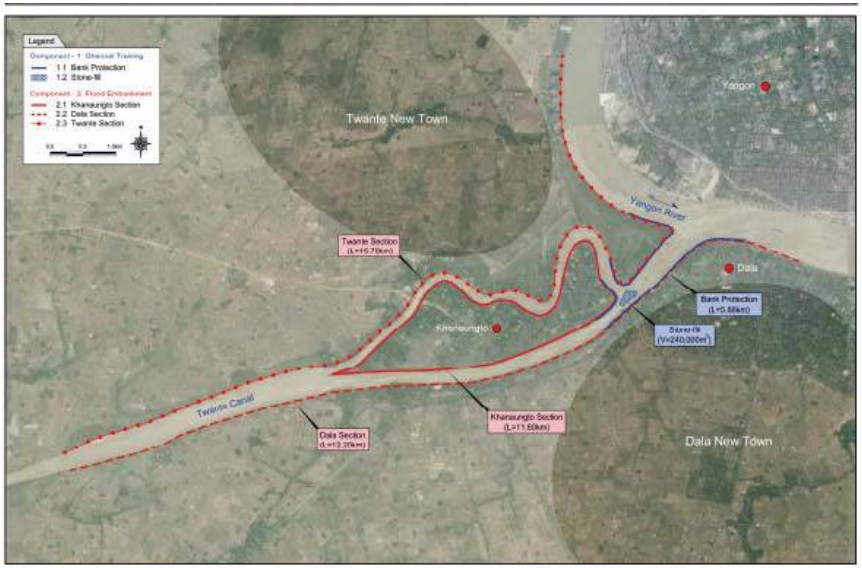
- ❑ Safe navigation in the delta rivers
- ❑ River bank erosion protection
- ❑ Monitoring of suspended sediment
- ❑ Environmental management
- ❑ Channel surveying

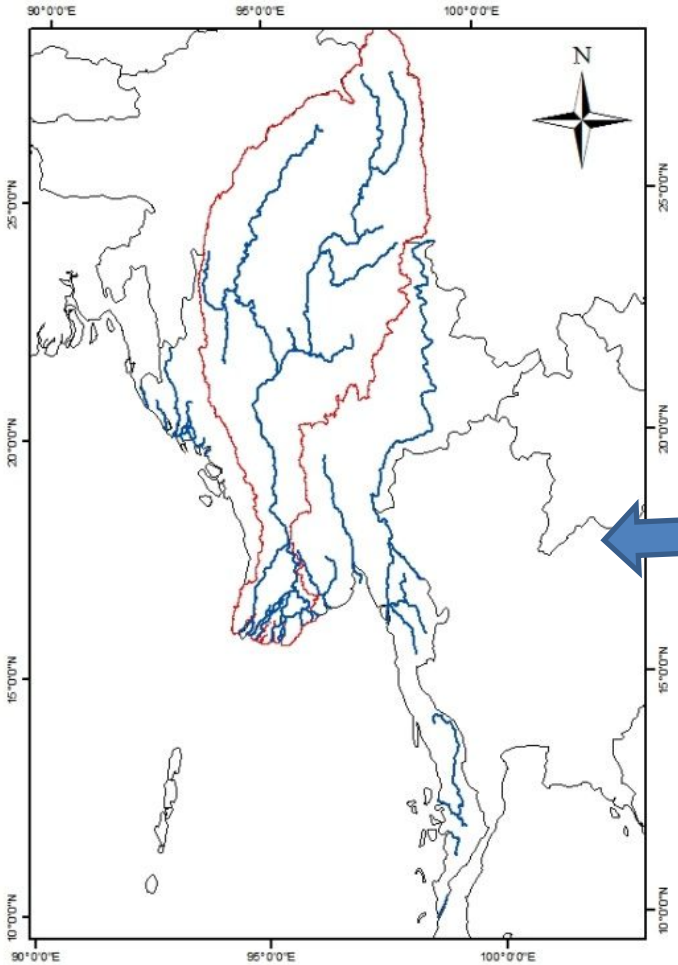
Vision

- ❖ to conserve and protect the water resources and rivers system for beneficial utilization by the public;
- ❖ to smooth and safety waterways navigation along rivers and creeks;
- ❖ to contribute to the development of State economy through improving water resources and river system;
- ❖ to protect environmental impact.

Plans and Projects

- DWIR will implement Twante canal development project (Korea EXIM Loan)
- Bank erosion protection works
- Flood protection
- Safe Navigation in Twante Canal





AIRBM Project (World Bank)

- 100 million USD (5 years)
- 3 Components
- (1.10.2015) to (30.9.2020)
- Hydroinformatics Center
- River Basin Master Plan
- Monitoring stations
- Safe navigation Yangon to Mandalay

Key Issues and Water Security Challenges in Urban delta

- ❑ Freshwater supply to Urban in the Delta area
- ❑ Urban flood during the monsoon season
- ❑ River bank erosion problems along the rivers
- ❑ Environmental issues in the rivers systems
- ❑ Groundwater depletion & Seawater intrusion
- ❑ Tidal bore, tide effect & sediment transport
- ❑ Infrastructure development for seawa
- ❑ Climate change & sea level rise

- ❑ Water resources & water supply system
- ❑ Extend the Rainwater Harvesting
- ❑ Good drainage systems for cities & towns
- ❑ Awareness / knowledge of living near the rivers
- ❑ Wastewater treatment Systems
- ❑ Recharging of freshwater in the delta area
- ❑ Consider the possibilities of hydropower production with tide & wind

Knowledge Gaps

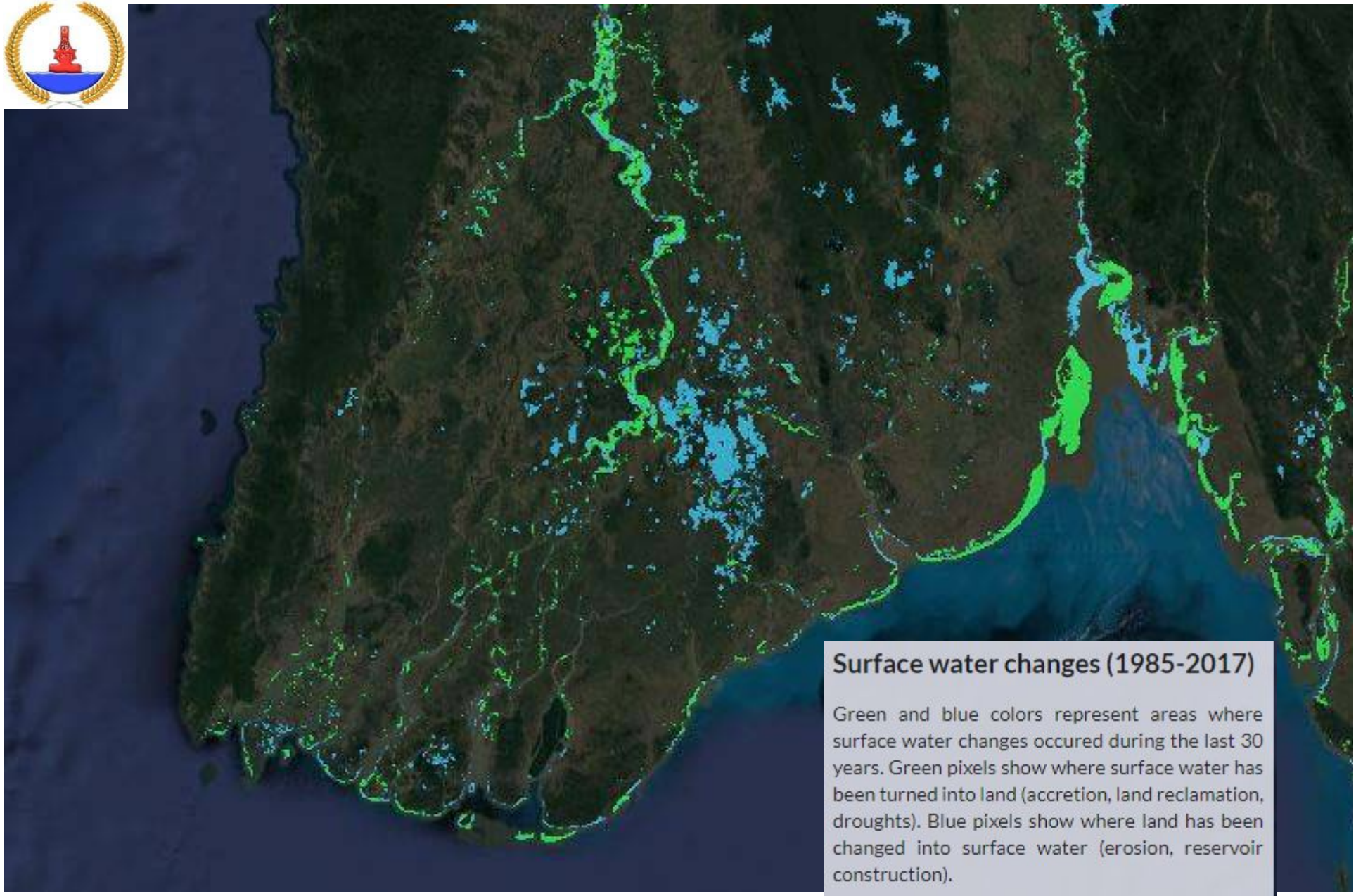
- Little or small amount of data source available in the delta area (Topo, hydro, --)
- Limited amount of Research available for Delta
- Experts for Hydrologic & Hydraulic Modeling
- Environmental flow, Tidal effect, Sedimentation, Seawater intrusion,
- Technical workshops / Technical seminars / Capacity Buildings
- Job opportunity in water-related sectors
- Research center / consultant company for water environment
- Need to develop RS & GIS technology
- Climate change and its impacts

Proposal to close the Knowledge Gap

- Expansion of monitoring stations in the delta area
- Encourage for many researches in water environment
- Available of Software and Lab for water resources management
- Invite experts from other Universities and train the young engineers
- Budget allocation for Capacity building in every department
- Coordination with Universities and Departments
- Government Investment in water related sector
- Incentive for researchers

Conclusions

- ✓ Delta area is the relatively flat, outlet of every river, tidal effect
- ✓ Water resources management (water supply, wastewater treatment, flood, sediment, erosion, ---, etc) is very important
- ✓ Need to control groundwater extraction and groundwater quality issues
- ✓ Encourage rainwater harvesting and recharging of freshwater
- ✓ Flood management system
- ✓ Monitoring of all tidal rivers (hydro, topo, sediment, --- etc)
- ✓ Capacity building and awareness
- ✓ Investment for water related issues



Surface water changes (1985-2017)

Green and blue colors represent areas where surface water changes occured during the last 30 years. Green pixels show where surface water has been turned into land (accretion, land reclamation, droughts). Blue pixels show where land has been changed into surface water (erosion, reservoir construction).

The results of the analysis are published in:

Donchyts et.al, 2016, Nature Climate Change

Thank you!