INDONESIAN INFRASTRUCTURE DEVELOPMENT
CHALLENGES AND STRATEGIES

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Critical Roles of Infrastructure

Dispatch East - West regional disparity by developing connectivity and economic growth clusters

Create livable settlement

Develop competitive construction industry in the midst of global competitive market

MoPWH should have the capacity to develop projects of varying magnitudes, from community-scale facilities, all the way to cross-province, and large infrastructure projects.
THE STRATEGIC PLAN OF MoPWH 2015-2019

ROAD & BRIDGE
- 24 new seaports
- Ferry Ports
- Urban road networks
- Urban ring road
- 15 Prioritized Industrial Area
- 25 Tourism Centre
- 15 New Airports
- Railway system

WATER RESOURCES
- 49 dams (2018-2019: 19 dams)
- 67.52 m³/sec Raw Water [intake, networks, reservoir]
- 3,000 Km Flood controls [river normalization, spillway, flood control building, etc.]
- 3 Million Ha Rehabilitation for irrigation
- 1 million Ha New Irrigation
- Coastal erosion controls 500 Km

HUMANS SETTLEMENT
- TARGET FOR 2015-2019
  - Access to Adequate drinking water: 37.311 liter/second, 17.607 liter/second
  - Urban slums: 38.431 Ha, 31.668 Ha
  - Access to adequate sanitation (waste and waste water): 12 million households, 5 million households

HOUSING
- Construction of 550,000 flats
- Housing stimulant for 5.5 million households
- Tackling slums area: 38.431 ha
- Housing loans for low-income people: 2.5 million households
A survey of 600 construction companies in US reveals that USD 177.5 billion (approx. IDR 2,600 trillion) in labor costs are spent fixing mistakes, looking for project data and managing conflicts.

While another USD 31 billion (approx. IDR 465 trillion) was spent on reworks due to miscommunication and inaccurate data on the job site during 2018. These are to range from 3% to 23% of contract value.

How about Indonesia? the cost of rework reached almost 30%. This does not include other activities related to the rework itself, such as redesigning, testing and measurement, etc. which covers up to 50%.
Construction industry has increasingly become more mature, with the support of software. The presence of AutoCAD, SAP, Primavera, etc. in the early 1980s have shaped this industry to deliver infrastructure projects and met owners’ requirements.
IT is a must!

Super computers, high speed internet, digital platform, cloud system, and modelling software would surely bring much more efficiency as they offer more precise design, faster processing, less error, more accurate clash detection, and the most important aspect is more intense collaboration among project teams, from design stage until commissioning and operation.
- Digital representation of physical and functional characteristics of a facility.
- A shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle.
Last April, President Joko Widodo has launched the (Indonesian) Industry 4.0 Roadmap. The initiative was announced as a response to the current trend of automation and data exchange in manufacturing technologies. As BIM (with all its features) can embrace those technologies, it is the right moment to implement BIM in infrastructure development.
CURRENT CONDITION:
• "Reworks" still occur in infrastructure projects
• The utilization of IT in infrastructure development is still not widely used
• Unawareness about the importance of project documentation, from the design phase to the operation and maintenance
• Lack of collaboration between construction stakeholders

PROBLEMS:
• Until now, no Policy and Regulation available for BIM implementation in terms of infrastructures development
• Knowledge gap about "BIM" between consultant companies, contractors, and project owners
• Small-scale project affects the (relatively) high price of BIM software, therefore becomes an expense for consultant/contractors
• No coordination is made with the Ministry of Industry related to the preparation of BIM library

INSTRUMENTAL INPUT:
• Law No. 17 of 2007 National Long Term Development Plan (RPJPN) 2005 - 2025
• Law No. 2 of 2017 on Construction Services
• Presidential Regulation No. 2 of 2015 on National Medium Term Development Plan (RPJMN) 2015 - 2019
• Economic Policy Package I s/d XVI by Indonesian President Joko Widodo
• Making Indonesia 4.0
• Minister of PWH’s Direction: 5 Breakthroughs for the Acceleration of Infrastructure Development

POLICY AND STRATEGY OF BIM IMPLEMENTATION IN INFRASTRUCTURES DEVELOPMENT:
1. Legal Aspect
2. Digital Platform
3. Standardized Components
4. Software Pricing Policy

DEVELOPMENT OF STRATEGIC ENVIRONMENTS:
• BIM has been implemented in Singapore, UK, China, Malaysia, etc.
• BIM has been implemented voluntarily by State-owned Enterprise (BUMN) in their projects
• There has been a "think tank" group of BIM namely Institut BIM Indonesia (IBIMI). IBIMI is potential to become a partner for Government in implementing BIM
• Some BIM Authoring Softwares have started promoting their products with "special price". Also routinely holding BIM Conference, and collaborating with the University to organize BIM trainings for students

OUTCOME
• Implementation of BIM in every PUPR infrastructure development
• Reduced rework and waste in each project (effective and efficient)
• Increased competitiveness of the national construction industry
POLICY AND REGULATION

1. Provide digital platform that can be accessed by both, owners and the contractors. Capacity and security should be given attention.

2. Provide legal aspect for IT-based delivery and approval throughout construction processes. Bidding, permit submission, etc. should be made online.

3. Standardized construction components (library contents). This should involve the Ministry of Industry (KemenPerind).

4. No specific item will be made available at Government Spending (APBN/APBD) to purchase BIM software.
WHEN WE BUILD INFRASTRUCTURE
WE BUILD A NATION

Thank you