



National Project Information System for Economic Stimulus Package (NPIS-PRE)

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Abstract: It's an irrefutable truth that the first requirement for running a project profile is paper and lots of it. This is, however, beginning to change as GIS Web services offer a more sophisticated digital cartographic environment that allows user to manage and provide up-to-date maps of a specific area at any time. In line with The Fourth Industrial Revolution (IR4.0), NPIS revolutionize the management of flood management projects from scattered information to holistic approach to allow catchment management authority to better control and understand every aspect of project. This system also allows the leveraging of instant data to promote and encourage engagement with stakeholders.

NPIS serves as an integrated web-based solution to integrate all DID's projects for the management of flood planning, response, recovery, and mitigate high-risk areas due to flood. This is a breakthrough solution in better understanding of flood risk. Interactive flood hazard information is able to highlight locations of flood mitigation projects and benefits to the public. This mapping process is important to engage stakeholders in the flood risk and specifically to inform the spatial planning process.

Keywords: National Project Information System, Economic Stimulus Package

1. Introduction

As one of the most important public sector organizations in water resource management in Malaysia, the use of geospatial technology is paramount and part of the key requirement in the Department of Irrigation and Drainage (DID), Malaysia.

Towards leading and providing world-class services in water resources management particularly in flood management, river and coastal zone require an effective of Geographic Information System (GIS) management strategies and models that include consolidation of development projects, data management and development planning.

The rapid growth of complexity in project planning and monitoring requires an integrated and comprehensive system. The evolve in development of GIS technology has created opportunities in assisting planning activities to achieve result in more rapid and precise manner. A couple GIS studies put emphasis on interactivity for the purpose of simultaneous representation of multiple information pieces via the dynamic linkage between decision aids in a spatial decision making process (Jankowski, Andrienko, & Andrienko, 2001; Andrienko & Andrienko, 2002; Markieta & Rinner, 2014; Malczewski & Rinner, 2015).

DID as the agency responsible for implementing projects under development allocation for non- technical agency. For rolling plan 4 (RP4) year 2020 of the Eleventh Malaysia Plan (RMKe-11), DID has 167 development projects with total cost of RM14.9 billion and allocation ceiling of 2020 worth RM1.002 billion. Meanwhile, for the implementation of non-technical agency project, DID will implement 98 projects from various ministries at project cost of RM983 million and allocation ceiling of RM149 million for 2020.

Following the spread of the Covid-19 pandemic, the Government has announced the Movement Control Order (MCO) from March to May 2020. At the same time, the implementation of the Economic Stimulus Package (PRE) 2020 was introduced by the former YAB Prime Minister on 27 February 2020. Hence, nine (9) Ministries has been approved for the implementation of all initiatives under the DE project to expedite economic growth in 2020.

The Ministry of Environment and Water (KASA) has been granted RM50 million for the implementation of PRE 2020 through the Department of Irrigation and Drainage, Malaysia (DID) on 1 April 2020. Based on the approved allocation, DID has allocated RM49.4 million for River Conservation and

Flood Mitigation Projects and RM600 thousand for Flood Pond Maintenance Projects throughout Malaysia.

Even with the complication of MCO, the updates and presentations of progress reports has been conducted more attentively. This Economic Stimulus Package will also provide benefits and more engagement with small contractors which expected to indirectly boost the economic cycle and continue to remain in the local construction industry. This initiative will also continue to accelerate economic growth momentum and ensuring/placing the country's economy on a sturdier track.

In the journey of technology modernization and wide ICT application in making daily tasks easier, the government sectors must also take steps in line with the current technology advancement. The application of the systems that seem able to facilitate towards improvement of quality and efficiency of services must be applied in optimum, to reflect the effective and ever-proactive working cultures of the government servants. Apart of the challenges to ensure efficiency of the latest technological application in information and data delivery, DID are also much affected with the challenges to preserve the environment particularly in paper usage as the main printing materials as the reference to the officers during attending meetings, courses and workshops.

Based on the observation, the usage of papers is becoming basic necessity for the attended or even the organized meetings. In order to appear in attractive, the information is printed on paper with various colorful infographics which contribute to the increase of printing cost which to be borne by the government department. Besides that, the officers have to consume more time for data translation into the form of power point or excel, as the detailed information searching process is also time consuming and difficult to access in short time.

The objectives of the project are to:

- Provide a project information platform implemented by DID on a GIS web-based. A platform that enhances integration and relationships between the Divisions in project planning, information sharing and monitoring;
- To geo-enable DID with location intelligence for performing end-to-end monitoring of all national projects managed by DID, leveraging DID's ArcGIS Enterprise platform;
- Empowering the Department's services and information sharing; and
- Security and data uniformity and integrated data integrity. Various project information across the Country implemented by DID should be kept in place by a system capable of providing quality, accurate and up-to-date information.

1.1 Problem statement

All tables Project planning and monitoring is now increasingly complex and requires an integrated and comprehensive system. Realizing of these challenges,

DID have taken the initiative to provide a platform which intent to monitor the execution of PRE DID physical and financial projects by creating a system using GIS technology and is updated in real-time via web-based application.

The following are the problems faced by the DID before implementing the development of this system:

- Manually compiling through Microsoft excel required repetitive task that can caused human error;
- Information is not in real-time and the visibility of crucial project status when needed;
- Information and data from different source/department that cause delayed in preparing each of the project information;
- Silo data entry across diverse platforms and sources resulted in tedious manual work and redundancies in DID workflows.

1.2 Overview of the system

In the era of Industrial Revolution 4.0, technological modernization and widespread use of ICT in facilitating daily work benefit the government sectors to operate more proactively in the digital world. The NPIS PRE system is a dynamic planning and monitoring system where information and data under Economic Stimulation Package (PRE) 2020 projects are placed and sorted based on state. The system is utilizing GIS technology and it is updated in real-time through web-based applications.



Figure 1: Landing Page NPIS-PRE

The system aims to address challenges encountered using the conventional approach using Microsoft PowerPoint or excel as a database. The manual updating and compilation of project information require repetitive tasks which may cause human error and outdated information in hand, resulting in the inaccuracy of decisions to be reported to the stakeholders in a timely manner. Moreover, silo data entry across diverse platforms and sources resulted in tedious manual work and redundancies in DID workflows.

Figure 2: Project Information Data from Microsoft Excel

The development of this system is a more effective and reliable option as compared to the conventional approach. The system can be accessed at any time in real-time, directly by respective stakeholders such as the Ministry of Finance (MoF), Economic Planning Unit (EPU, JPM), Implementation Coordination Unit (ICU, JPM), and Ministries.

This system has been developed in-house without involving any cost known as NPIS PRE, considering the complexity of the projects planning and surveillance which requires an integrated and comprehensive system. The system is a continuous planning and monitoring system that places information and data on projects Economic Stimulation Package (PRE) 2020 by state. The system adapting GIS technology and it is updated in real time through web-based applications.



Figure 3: System framework for NPIS-PRE

Prior to the development of the system, DID compiled 575 project information comprising of financial and physical progress through Microsoft excel for 15 states including Federal Territory. These set of data collection need to be compile on a monthly basis and reporting will be provided and presented through the Microsoft power point to the top management of the DID or central agency.



Figure 4: NPIS-PRE Dashboard

The development of the system is more interactive by including project information by state, district, DUN, parliament, expenditure, project status, project implementation method such as service order, requisition, quotation bid and also population benefits.



Figure 5: Project Information by District

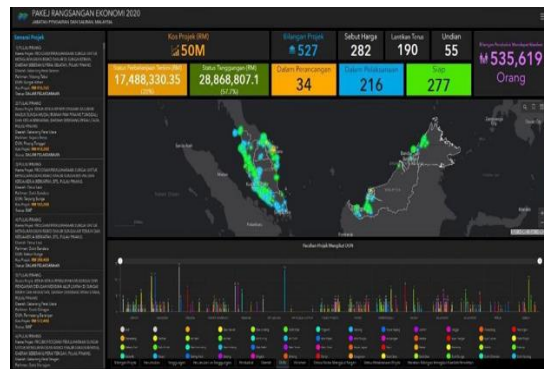


Figure 6: Project Information by DUN

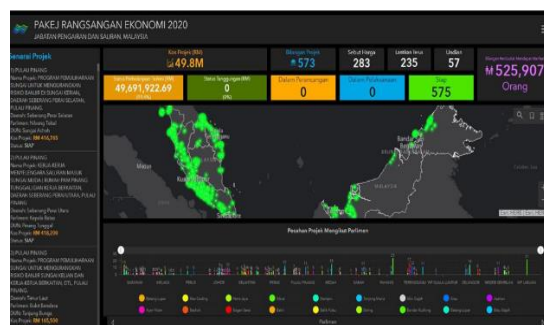


Figure 7: Project Information by Parliament



Figure 8: Total Expenditure by State



Figure 9: Project Status



Figure 10: Project Information by population benefits

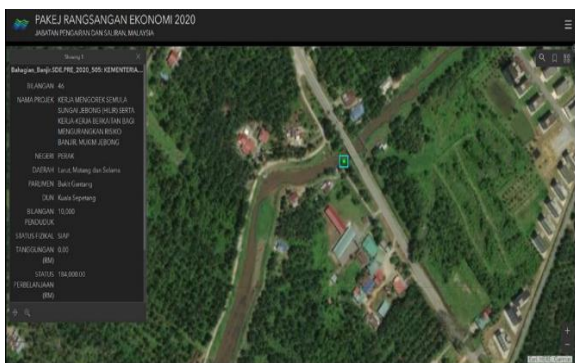


Figure 11: Project Location

DID is always focusing to improve efficiency and effectiveness of information delivery system to the directly involved agencies. The improvement in information delivery system not only focusing to the system improvement and work process only, as the attention is also concentrating to the latest technology application in order to support the reported information integrity. This NPIS PRE supports GIS data reporting in specific and in line with the current technology development and requirement, as most information circulation becomes faster and faster from time to time.

The access to the system is performed in real-time, which can be directly accessed by the related stakeholders. This system is more flexible and accessible for information search at any time and place without necessary to bring the entire documents. The development of this system is also more effective as compared to the project information storage in form of power point and excel, as it is easier to be handled by the users. In addition to that, the application of the system can indirectly contribute to the saving of time and printing cost, as well as reducing paper usage.

The application of NPIS PRE is also extended to the related stakeholders to enable access to the required information. It has contributed to the effective ICT application in various aspects of services delivery and internal operations of government and Agenda Transformasi Digital Sektor Awam in Pelan Strategik ICT Sektor Awam as the roadmap in the ICT implementation and development.

2. Conclusion

DID has always paid attention to improving the efficiency and effectiveness of the information delivery system to the related agencies. The enhancement of this information delivery system not only focuses on the enhancement of systems and work processes, but the proper attention is also given to the use of the latest technology to support the integrity of the reported information.

Project Information from the system will be reported to central agencies including the Implementation Coordination Unit (ICU JPM), the Economic Planning Unit (EPU JPM), the Ministry of Finance (MoF), the Ministries and top management for physical and financial progress monitoring in a short time. Information reporting issues with different requirements from the agency be resolved by the existence of this system. The latest project implementation information that is difficult to obtain in a short time also can be achieved by NPIS PRE.

The development of NPIS PRE is more effective as compared to the project information storage in form of Microsoft power point and excel, as it is easier to be handled by the users. In addition to that, the application of the system can indirectly contribute to the saving of time and printing cost, as well as reducing paper usage.

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