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Utilization of Asset Management in Infrastructure Development in Denpasar City

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ABSTRACT

Important infrastructure development is carried out to improve the welfare of the people in Denpasar City in various factors. It is necessary to carry out strategic asset planning in infrastructure development so that utilization is appropriate, directed and efficient. The presentation of the results of the analysis of this research data was carried out qualitatively due to research on objects with adjustments to the conditions of events in the present. The results of this study describe that strategic planning of assets in Denpasar City is carried out starting from the stages of identifying assets, evaluating asset conditions, determining needs, strategic planning, setting policy standards, and preparing budgets. These stages are carried out so that infrastructure is built in accordance with the feasibility and needs required for certain communities and organizations.

Keywords: asset management; development; infrastructure; Denpasar City; strategy.

INTRODUCTION

Adequate infrastructure development is important to improve the average standard of living of the local community and reduce poverty (Majumder, 2012). In addition, complete infrastructure facilities can provide important potential in regional development (Kateja & Maurya, 2011). Efforts to maximize the process of managing infrastructure facilities and infrastructure from planning to maintenance so that they are maintained properly conditions that are going well need to be realized with asset management (Bertovic, et al., 2009).

Utilization of asset management related to infrastructure development in Denpasar City refers to the Law of the Republic of Indonesia Number 23 of 2014 concerning Regional Government which describes the legal framework for local governments in managing infrastructure assets in their area, including in Denpasar City. In addition to this, the implementation of the Government Regulation of the Republic of Indonesia Number 39 of 2006 concerning Procedures for the Management of State/Regional Property which explains the procedures for managing state/regional property, including infrastructure assets. All infrastructure assets in the City of Denpasar are managed to achieve optimal operational efficiency so that they are of sustainable benefit. This involves efficient use of resources, good maintenance management, use of the right technology and increased productivity. Operational efficiency can reduce operational costs and maximize the benefits derived from infrastructure assets.

Based on these considerations, the use of assets in infrastructure development in the City of Denpasar is directed not only to support the achievement of regional economic growth, but needs to be more synergized with environmental sustainability by paying attention to an area that wants to be developed. This is because infrastructure development is a trigger for the creation of new growth centers which are the beginning of the birth of new cities and settlements that can balance regional economic growth and reduce disparities between regions. With these considerations, the purpose of utilizing assets in infrastructure development in Denpasar City is appropriate, directed and efficient in accordance with a strategy that is beneficial in a sustainable manner.

Asset management and infrastructure management are important areas for ensuring that physical assets, such as roads, bridges, buildings, power grids and other public facilities, are managed effectively to support sustainable and efficient services. Asset management is the systematic process

of operating, maintaining, upgrading and disposing of assets in the most effective and efficient manner, including all costs, risks and performance involved. The goal is to maximize the value of the asset throughout its life cycle. Infrastructure management involves planning, developing, operating, and maintaining public infrastructure to ensure the availability of reliable, high-quality services. The goal is to ensure infrastructure can meet the needs of society now and in the future (Pratama SD et.al, 2024); Lutfi M, Syaifullah BN, 2020); Astoeti DR, Dwijendra NKA, 2021).

Effective asset management and infrastructure management requires a comprehensive and integrated approach. Several recommendations for achieving success in asset management and infrastructure management. By following these principles, organizations and governments can ensure that their infrastructure assets are managed in a way that delivers maximum value, improves service quality, and ensures long-term sustainability (Lutfi M, Rusandi E, 2021); (Natasasmita G et.al, 2019); (Sabariah I et.al, 2012).

RESEARCH METHODS

The presentation of the results of the analysis of this research data was carried out qualitatively due to research on objects with adjustments to the conditions of events in the present. Submission is done in verbal form using descriptive interpretive analysis techniques, meaning that the results of the analysis are presented and interpreted in accordance with generally accepted theories and frameworks with topics related to Utilization of Infrastructure Development Assets in the City of Denpasar. Obtaining data from various sources around Denpasar City by means of group discussions to obtain relevant data. The following are the boundaries of the observation area carried out according to the map of the location of Denpasar City.

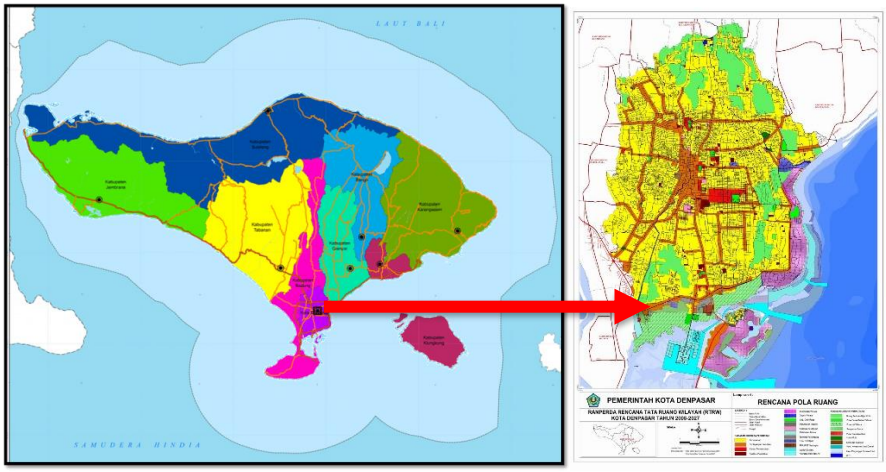

Figure 1. Location of Denpasar City Spatial Planning, accessed in 2023

RESULTS AND DISCUSSION

The approach to infrastructure development in Denpasar City by way of Infrastructure Asset Management (MAI) is a program or knowledge to manage an infrastructure so that it can carry out its functions properly continuously as long as it is still needed, economically, efficiently, effectively and fulfills green or sustainability principles. MAI must be based on good knowledge of the characteristics of the infrastructure being managed or discussed. These objectives can be implemented optimally in the cycle of planning, acquisition, utilization and elimination. (Suprayitno & Soemitro 2018).

An asset management strategy in good infrastructure development is very important to help improve the service life, efficiency and overall performance of the infrastructure. The results of the discussion in this study will describe how the process of applying the Asset Life Cycle Management (ALCM) theory to the development of infrastructure assets in the City of Denpasar.

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Asset Life Cycle Management for Infrastructure Development

ALCM is an approach taken in managing assets based on the asset life cycle. There are many benefits in the development of Asset Life Cycle Management in Infrastructure Asset Management (MAI) planning. According to Giglio, et al (2018) explains several important benefits to be gained in the asset life cycle if considered when buying assets and making management plans for infrastructure development including:

1. Longer lifespan of infrastructure assets.
2. Reduce maintenance downtime on infrastructure.
3. Improvement of infrastructure efficiency.
4. Reducing the rate of accidents and casualties caused by sub-optimal infrastructure conditions.
5. Reducing the cost of restoration cycles on infrastructure.

Evaluation of Constraints on Infrastructure Assets in Denpasar City

Based on the management of infrastructure that occurs in the City of Denpasar, there are several obstacles experienced such as:

1. Budget Limitations: One of the main challenges in infrastructure asset management in the City of Denpasar is budget constraints. Denpasar City is a very popular tourism area, but the allocation of funds for the development and maintenance of infrastructure is often limited. This can lead to constraints in the repair, maintenance and development of the infrastructure needed to support tourism growth and the needs of the local population.
2. Increased Infrastructure Burden: The rapid growth of tourism in Denpasar City has resulted in an increased burden on existing infrastructure. The number of tourists coming each year has increased significantly, which has an impact on increasing the use of roads, water and energy. Infrastructure asset management must be able to anticipate this increase in demand and ensure that the existing infrastructure is able to handle the increased load.
3. Maintenance and Maintenance: Regular maintenance and upkeep of existing infrastructure is an important factor in asset management. However, there are often delays in maintenance and repairs, especially in more remote areas. Lack of attention to routine maintenance can lead to a decrease in the quality of infrastructure and increase the risk of damage or accidents.
4. Coordination between Stakeholders: Management of infrastructure assets involves cooperation and coordination between various parties, including local government, related agencies, and the private sector. Challenges can arise when there is no effective coordination between these parties, which can hinder decision-making, project implementation and long-term planning.
5. Limited Land Use and Space: Denpasar City has limited land and space that can be used for new infrastructure development. As a popular tourism destination, Denpasar City's natural resources and environment must be maintained and preserved. Therefore, infrastructure asset management must consider sustainable development, efficient land use, and environmental protection.
6. Climate Change: Climate change can affect infrastructure in Denpasar City. Rising temperatures, increased rainfall, and threats of natural disasters such as floods or landslides can damage infrastructure and affect its functionality. Infrastructure asset management must consider climate change factors in planning, construction and maintenance

ALCM Management in Infrastructure Development in Denpasar City

The ALCM approach ensures that infrastructure asset management for the City of Denpasar is managed holistically throughout its life cycle, with a focus on efficiency, sustainability and maximizing asset value. This helps organizations optimize usage, performance, and investment in their infrastructure assets. The following is the implementation of the Asset Life Cycle Management stages in Infrastructure Asset Management in Denpasar City:

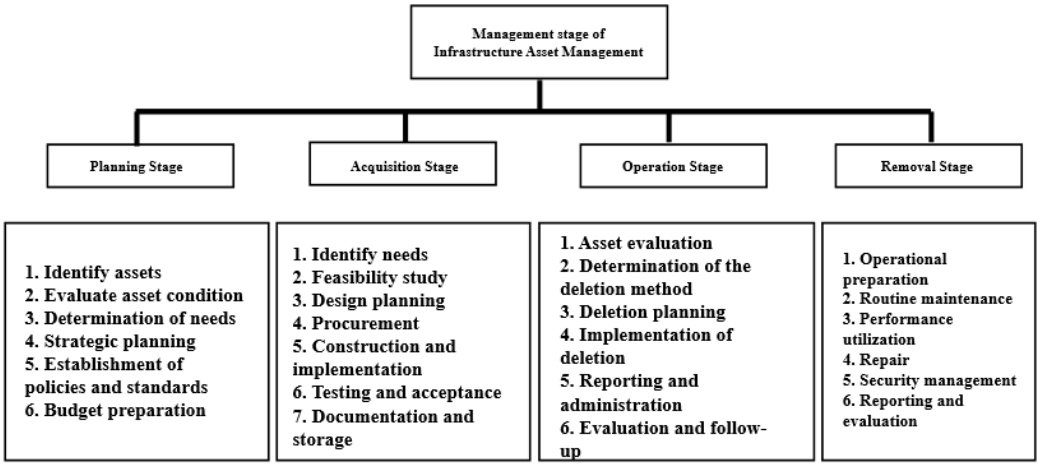

Figure 2. Management of ALCM in Denpasar City

1. **Planning Stage**

Infrastructure asset management in Denpasar City involves several important steps to identify needs, set goals, and set asset management strategies. The following are general planning stages in infrastructure asset management in the City of Denpasar:

• Asset identification

Identify all existing infrastructure assets in Denpasar City. This includes roads, bridges, waterways, drainage systems, public facilities, and so on. The regional government or related institutions must carry out a comprehensive inventory to determine the number, type and condition of assets owned.

• Evaluation of Asset Condition

Implementation of evaluation of the physical, technical and operational conditions of each asset. This assessment may involve visual inspection, structural testing, historical data analysis and performance monitoring. The purpose of this evaluation is to determine the current condition of the asset, identify weaknesses or damage, and determine the level of maintenance or repair needs.

• Determination of Needs

Determine future maintenance, repair and development needs of the asset. This involves prioritizing based on urgency, importance of assets, and available budget. At this stage, it is important to involve stakeholders and the community in understanding the required infrastructure needs.

• Strategic Planning

Strategic planning must be carried out to involve setting the vision, mission and long-term goals for the management of infrastructure assets in the City of Denpasar. The planning strategy should also include resource allocation, setting priorities, and developing specific action plans.

• Determination of Policies and Standards

This stage involves establishing the necessary policies, procedures and operational standards for asset management. This includes maintenance policies, replacement policies, risk management, performance monitoring, etc. Technical and safety standards must also be established to ensure compliance in the operation and maintenance of assets.

• Budgeting

The last stage in planning is preparing a budget which includes the allocation of funds for maintenance, repair and development of assets. The budget should reflect the priorities and strategies that have been set beforehand. It is important to ensure adequate budget allocations to maintain and improve the quality and sustainability of infrastructure assets in the City of Denpasar.

2. Acquisition Stage

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Infrastructure asset management in Denpasar City involves the process of procuring new assets or expanding existing assets. Following are the general stages in acquiring infrastructure asset management in the City of Denpasar:

• Identification of Needs

Identify new or expansion infrastructure needs needed to meet demands and growth in the City of Denpasar. This involves an analysis of community needs, stakeholders, and relevant data to determine the type of infrastructure needed, such as roads, bridges, clean water, electricity, etc.

•Feasibility study

Feasibility study to evaluate the financial, technical, social and environmental aspects of the proposed infrastructure project. This feasibility study helps in determining whether the project is feasible, whether it will provide significant benefits, and whether it can be implemented effectively.

• Design Planning

Design planning which involves drawing up technical and design plans for infrastructure projects. This includes geometric planning, technical specifications, structural analysis, capacity calculations, and determination of appropriate construction methods. At this stage, it is also important to consider aspects of sustainability and environmental impact mitigation.

• Procurement

Procurement involves the process of accepting tenders and selecting contractors or service providers to carry out infrastructure projects. This involves preparing tender documents, announcement of bids, evaluating bids, negotiating contracts, and signing contracts with the winning bidders.

• Construction and Implementation

Once the contract is signed, the construction and implementation phase can begin. The contractor will carry out the infrastructure project according to the agreed plan and design. At this stage, it is necessary to carry out project supervision and control to ensure that work is carried out in accordance with established specifications, schedules and standards.

• Testing and Acceptance

After completion, the testing phase is carried out to ensure that the newly built or expanded infrastructure meets the established requirements and standards. Testing may include structural, functional, security and operational feasibility testing. After successfully passing the test, the infrastructure will be officially accepted by the responsible party.

• Documentation and Storage

The final stage in acquiring infrastructure assets is documenting and storing related data. Comprehensive documentation by means of which all related data documents are administratively recorded and stored in the Regional Property (BMD) of Denpasar City.

3. Operation Stage

Infrastructure asset management in Denpasar City involves routine activities to maintain and operate infrastructure efficiently. Following are the general stages in the operation of infrastructure asset management in the City of Denpasar:

• Operational Preparation

Before the infrastructure can be put into operation, operational preparations must take place. This includes administrative arrangements, recruiting and training necessary staff, and procuring equipment and other support resources.

• Routine Maintenance

During the operating phase, routine maintenance should be carried out regularly. This includes activities such as cleaning, replacement of worn parts, lubrication, calibration and periodic testing. Routine maintenance aims to maintain optimal performance and prevent unnecessary damage.

• Performance Monitoring

During operation, monitoring of infrastructure performance must be carried out continuously. This involves data collection, performance analysis, and benchmarking against established standards or targets. Performance monitoring helps in detecting problems or imperfections that may arise so that they can be acted upon immediately.

• Repair

If any problems are detected during performance monitoring, corrective and corrective actions should be taken. This involves analyzing the causes of the problem, planning corrective actions, and implementing the necessary steps. It is important to ensure that the infrastructure continues to operate optimally and meet user needs.

• Security Management

During the operation stage, security management must also be taken seriously. This includes implementation of security protocols, maintenance of security systems, and training of staff regarding infrastructure security. Infrastructure security must be prioritized to protect users and prevent unwanted incidents or damage.

• Reporting and Evaluation

During operation, periodic reporting should be performed to provide information on the performance, maintenance and security of the infrastructure. Evaluations are conducted to evaluate operating effectiveness, define improvement areas, and identify improvement opportunities.

4. Elimination Stage

Infrastructure asset management in Denpasar City involves the process of discontinuing use and writing off assets that are obsolete, ineffective, or do not meet applicable standards. Following are the general stages in the elimination of infrastructure asset management in the City of Denpasar:

• Asset Evaluation

The first stage is to evaluate the assets to be written off. This evaluation involves assessing the physical, technical, operational and economic condition of the asset. The aim is to determine whether the asset still meets the needs, whether maintenance and repair costs are uneconomical, and whether there are better alternatives.

• Determination of Write-off Method

After evaluation, the removal method should be determined. This can include sale of assets, physical disposal or destruction, or transfer of ownership to another party. The determination of the write-off method must take into account applicable legal, environmental and ethical requirements.

• Deletion Planning

The planning stage involves developing a detailed write-off plan. This plan includes the necessary steps, required resources, implementation schedule, and compliance with legal and environmental requirements. The removal plan must also consider the social and security impacts that may arise.

• Execution of Deletion

After the planning is complete, the execution phase of the write-off begins. This involves carrying out the decommissioning plan that has been drawn up. For example, if an asset is to be sold, the sale process must be carried out following a set procedure. If assets are to be destroyed, safe and appropriate demolition steps must be followed.

• Reporting and Administration

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During the write-off stage, good reporting and administration is essential. This includes recording documents related to write-offs, such as sales contracts, demolition certificates, and other administrative documents. Proper reporting should also be done to provide transparency and accountability in the write-off process.

• Evaluation and Follow Up

Once deletion is complete, an evaluation phase is conducted to evaluate the effectiveness of the deletion process and to ensure that all necessary steps have been properly performed. If necessary, follow-up should be carried out, such as administrative adjustments or reporting regarding changes in asset ownership.

CONCLUSION

In an infrastructure development it is very important to consider for a long period of time so that it requires the management of infrastructure asset management, especially in the City of Denpasar to achieve the following objectives: a). efficiency in infrastructure development that can support organizational and community needs, c). in order to know the right programs and actions in infrastructure management, c). understand the review of infrastructure development aspects such as: function, structure, material capacity, environment, space, risks, management costs, improving the economy, and people's welfare.

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