Masterplan review Kendari heart special hospital-Southeast Sulawesi

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Abstract. Health problems are a serious problem for all regions in Indonesia, in this case the provision of adequate health facilities to special / specialist hospital services, which have not been evenly distributed to the districts. To overcome this problem, the Southeast Sulawesi Regional Government plans to build a special heart hospital in the city of Kendari, starting from June 2018 to January 2020 through the Southeast Sulawesi Provincial Government's Regional Budget. The aim of the construction of the Kendari Heart Special Hospital is to provide health facilities in the capital city of Southeast Sulawesi Province, namely Kendari, specifically for heart disease, which will then become a Class A special government hospital in the Southeast Sulawesi Province area. The hospital planning concept is environmentally sustainable development. A review of the hospital's master plan has been made, starting from the planning stage to land use, space utilization and resource utilization and the survival of the surrounding ecosystem. This research is intended to see the fulfilment of hospital standards that are appropriate as provincial level hospitals, as well as to assess development standards, health standards, environmental standards and review development concepts that refer to the concept of sustainable development.

1. Introduction
In form of archipelago with more than 17,000 islands, Indonesia is the largest archipelago state in the world and became a very important trading area since the 7th century. Geographically, Indonesia is formed, with series of volcanoes, and diversity of ethnic groups from Sabang to the end of Aceh to Merauke in Papua. From the map presented below, Indonesia is divided into 3, namely Western Indonesia, Central Indonesia and Eastern Indonesia according to the time zone of each region. Based on the latest census, the total population of Indonesia is 270 million, which is the fourth most populous country in the world. Health problems are an important problem for all Indonesians. Health is often neglected, because investment in this field is very expensive. Eastern Indonesia is often late in getting prime health facilities such as specialist hospitals. This is the background for my selection of objects of research.

This review of the Master plan refers to the theories, Law of the Republic of Indonesia (UU RI), Presidential Regulation (PP), Regulation of the Minister of Health, Regulation of the Minister of Environment and Forestry, Regulation of the Minister of Public Works and other regulations and standards, for example books on Master plan for Hospital Construction published by Publisher Salemba
Medika written by Dr. dr. H. Boy. S. Sabarguna, MARS. The hospital master plan guidelines from the Ministry of Health state the following standards [1]:

- External factors in hospital design include demographic data, area size, number, density and population growth rate, economic data on livelihoods, income levels of the population, local income (PAD), health includes health rates (morbidity), mortality (morability) major diseases, number and type available hospitals, data on medical personnel etc.

- Internal factors in the realm of hospitals are health data in the form of morbidity, length of hospital stay, hospital mortality, birth rates, referral patient numbers, data from outpatients, emergency services, etc., the number and types of doctors etc.

- Location data includes data on hospital land conditions, shape and area of land and building floors, expansion plans, local conditions, land location boundaries, electricity networks, drinking water, telephone, dirty / waste water, etc. Prior Study Data: Hospital feasibility study, hospital business plan and strategic plan regarding master program, function program, block plan, utility concept.

1.1. General review

The Kendari Special Heart Hospital in Southeast Sulawesi was built in 2019. The master plan was completed in 2018. Studies and reviews were carried out by examining the stages of planning work that had been carried out previously so as to produce a research product that compared existing planning work with research results. The description of the hospital area is as follows figure 1 and figure 2:

![Figure 1. Kendari Heart Hospital Map.](image1)

![Figure 2. Master plan of Kendari Heart Hospital.](image2)
The hospital grounds are located between Jalan Saranani on the East side and Jalan Dr. Sam Ratulangi on the North side and it is located lower than the two roads, at risk of becoming a rainwater passage. Picture of the Master plan of Kendari Heart Special Hospital as follows figure 2:

2. Research methods
According to Andra Tersiana the research method presented in the Study of the Master plan of the Kendari Heart Special Hospital, Southeast Sulawesi is divided into several reviews [2]. By the Observation first enters into qualitative research, there are subjects who have data and data sources that can change according to the information we receive and explore, the data collection is carried out on the phenomenological principle, namely by understanding in depth the symptoms or phenomena being faced, direct data collection and analysis during the research and at least, categorized the data as document and historical studies

3. Data collection techniques
Based on the data source, the data is divided into: Primary data, namely data obtained from respondents through direct measurements, questionnaires, panel groups or data from interviews with informants.

a. Secondary data, namely data obtained from book records, government reports, books, and so on. Data obtained from secondary data does not need to be processed anymore.

To add data to the study of the Master plan of the Kendari Heart Special Hospital, Southeast Sulawesi, the data was extracted from English and Indonesian writings that we took from the Internet or existing websites. The research location is located on Jalan Dr. Sam Ratulangi, Kemaraya, West Kendari, Kendari City, Southeast Sulawesi. The location map can be seen in the image below which was obtained from the planning report and construction management report for the construction of the Kendari Heart Hospital, Southeast Sulawesi Province in 2019:

![Site plan of Heart Special Hospital in Kendari](image)

Figure 3. Site plan of Heart Special Hospital in Kendari.

This research was started from January to April 2020, where the construction of the Kendari Special Heart Hospital in Southeast Sulawesi phase 1 has been completed where the implementation consists of preparatory work, lower structure work and upper structure up to the 4th floor, all of which have been completed in 2019. So that at the time the research is carried out, the construction work for phase 1 has been completed and the implementation of the research itself is carried out in accordance with the research work schedule:

3.1. Master program
The Master Program used to be a main program for the entire process. This overall plan includes a review of hospital types services, excellence services and superior hospital services are the types and characteristics of services provided by the hospital and the priority diseases to be handled by the hospital. If the above is divided into 2 syllables, namely the types of hospital services and superior hospital services. In the case of Kendari Heart Special Hospital, Southeast Sulawesi, its superior service is the resolution of problems with heart and blood vessel diseases.
Determination of hospital class According to the Minister of Health Regulation No.3 of 2020 the Kendari Heart Special Hospital is a special hospital that will handle diseases related to the heart and blood vessels [3]. As a special hospital, the hospital term into Class A Hospital with 100 Bed Capacity.

3.2. Function program
According to Boy Subirosa Sabarguna Hospital Development Master Plan Book, the hospital function program consists of a description of the program and services, so that the function program becomes the basis for determining the required buildings, the equipment to be used and the human resources needed [4]. The function program contains a description of work activities inside and outside the hospital. This activity forms a pattern of activities and circulation that support each other. The pattern of work activities at the hospital is divided into work activities inside and outside the hospital building, in the form of synergy between visitors, patients, medical personnel, medical support personnel, etc. The pattern of activity outside the hospital building is commonly referred to as traffic management, which regulates the inflow and outflow of various existing means of transportation. In the function program there is a functional relationship that functions as a health service in accordance with hospital standards [4]. Service description states the need for physical financing, the cost needs to carry out the construction of a hospital from the study, planning, implementation to maintenance stages.

3.2.1. Layout. The distribution of the building mass refers to the master plan of the Kendari Heart Special Hospital, Southeast Sulawesi. There are only 2 (two) building masses here, namely the main hospital building and the guest house building. This makes it very difficult to create good circulation. It is necessary to rearrange the mass of the building into areas that comply with regulations and provide adequate circulation flow.

The Risk Zone, based on the zoning of activities in the hospital, there are 3 (three) zones, namely the risk zone, the privacy zone and the service zone. This risk zone is a place that has the highest risk of disease transmission. This zone is in the main building. The following zone is the Privacy Zone. In the study of the Master plan of the Kendari Heart Special Hospital, Southeast Sulawesi, there are 3 regional groups, namely public areas, semi-public areas and private areas. This zone is also in the main building. Finally, the Service Zone, this service zone is divided into 3 groups, namely the medical and care service zone, the support and operational zone, and the general and administrative support zone.

The organizational structure of the Kendari Heart Special Hospital in Southeast Sulawesi is as follows:
3.3. Organizational structure

Hospitals must have an effective, efficient and accountable organizational structure [5], where each organization must have a vision and mission in accordance with good clinical corporate governance. The Kendari Special Heart Hospital of Southeast Sulawesi Province belongs to the Regional Government of Southeast Sulawesi Province so that all activities have a coordination channel with the Southeast Sulawesi Provincial Health Office.

Experts in various fields elements presented in the regional hospital organizational structure include the existence of a Hospital Supervisory Board. They were responsible to the hospital owner independently and formed by the minister of health [6]. The Board of Directors or the Head of the Hospital work as the coordinator of the task force, the policy maker for the implementation of the hospital's duties and functions, the hospital supervisor, and controller. The Medical Services Unit is responsible for medical services, and performs the function of compiling plans for the provision of medical services. The medical support sector held the function of compiling a plan for services in the medical support sector, coordinating and executing services in the medical support sector, implementing quality control, controlling costs etc.

There is a nursing department that is responsible for the field of nursing services and a field of General Administration and Finance responsible for administration, general affairs and finance.

3.4. Service quality

The quality of hospital medical services is related to the effectiveness and efficiency of cost use and the type of service and patient satisfaction [7]. Minimum Health Service Standards include health standards for pregnant women, maternity, newborns, toddlers, primary education age children, productive age, elderly people, people with hypertension, people with diabetes mellitus (DM), people with severe mental disorders (ODGJ), people with tuberculosis (TB) and People at Risk of HIV Infection etc.

Hospital Minimum Service Standards include types of hospital services, with indicators and standards. Special hospitals provide main services for one particular type of disease based on scientific disciplines, age groups, organs, types of disease or other specificities [3]. As a class A category, this
hospital has a minimum of 100 bed units, there is a permit to establish a hospital equipped with a Feasibility Study, Master plan, Detailed Engineering Design and fulfillment of medical device services.

3.5. Utility concept

3.5.1. The water piping. Clean water comes from PDAM, other source must be treated first. Waste water is channelled through pipelines inside and outside the building as well as outside the building. Hospitals wastewater consist of laboratory waste, health equipment washing waste, operation result waste and others must be handled specifically. Other type of water is rainwater, should be processed for further utilization. Waste Disposal Place is carried out through temporary stacking before the next disposal process is carried out and then periodically transported outside.

3.5.2. Electricity and telecommunication. Electricity is obtained by hospitals from State Electricity Company (PLN) or through a generator that has the power of solar or solar power. Telecommunication is a tool used to make a relationship between one individual and another. Telecommunication today can be in the form of telephone, facsimile, internet or telegram. Medical Gas installations used in hospitals consist of installation of Oxygen (O2), Nitrous Oxide (N2O), Nitrogen (N2), Carbon dioxide (CO2), Cyclopropana (C3H6), Helium (He), Compressed Air (Medical Breathing Air), Gas Mixture.

3.5.3. Fire department, hospitals are required to have firefighting equipment and personnel to carry out firefighting activities.

4. Conclusion and recommendation

4.1. Conclusion
Making a master plan for a special heart hospital in Kendari needs to pay attention to applicable regulations, both from the central and regional levels. Various studies that are very complex must be carried out, including through business, feasibility studies, environmental impact analysis, traffic impact analysis, building permits and hospital permits. Furthermore, the process of making and compiling a master plan which is divided into general condition analysis, master program, layout, organizational structure, service quality and utility concept will determine the form of the master plan required according to local conditions and requirements. Geographical and demographic studies, population numbers and densities, disease patterns, human resources are needed to determine the specialist doctors and hospitals required in the area. In addition, it is important to determine the concept of utility that will support the concept of sustainable development of this hospital building.

4.2. Suggestion
Suggestion for making a Master plan for Kendari Heart Special Hospital is that it should be made in accordance with applicable laws and regulations. Another suggestion is that before making the master plan, it is necessary to conduct a hospital feasibility study, taking into account all the needs for the construction of a hospital according to its standards and class, so that the construction of the Kendari Heart Special Hospital can be more focused and coordinated by taking into account efficient and effective economic principles.

References
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[7] Boy 2011 *Business Plan Rumah Sakit (Salemba Medika)*