

Hospital management strategy towards green hospitals in Indonesia

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ABSTRACT

Green hospital is a hospital concept that is designed by empowering natural potential as the main resource so that it is friendly to the environment and saves more on energy expenditure. The purpose of this study is to formulate and determine the priority of hospital environmental management strategies towards green hospitals in Indonesia. The type of data needed in the study of hospital environmental management strategies towards green hospitals in Indonesia is the type of primary data obtained from the results of filling out the questionnaire by respondents. The respondents are 7 experts. Data collection method in this research is survey method (questionnaire and interview). Data analysis methods include; SWOT analysis (Strength, Weakness, Opportunity, Threat) and AHP (Analytical Hierarchy Process) analysis. The results showed that the main priority of the hospital environmental management strategy towards green hospitals in Indonesia was the strategy of preparing a road map-grand design towards green hospitals.

Keywords: Green hospital, strategy, SWOT, AHP.

Introduction

The concept of green hospital was adopted from the concept of a green building, which is a building where in its design, construction, operation and maintenance take into account environmental aspects based on the rules of sustainable development (Sutoto *et al.*, 2014). In Indonesia, the concept of green hospital environmental management is still a concept that emphasizes the efficient and efficient use of water and electricity, and environmental management of waste (Risnawati, 2015). The complexity of health service activities in hospitals, directly or indirectly affects the amount and quality of waste produced. Both medical and non-medical waste due to hospital operations, if not handled properly, will pollute the surrounding environment.

This also has an impact on the health status of workers, visitors and the community around the hospital. Besides waste, the efficient use of water and energy is still the main concern of hospital managers in Indonesia.

The concept of green hospital is expected to be the answer to the demands of the service needs of hospital customers who have shifted to a plenary service based on comfort and safety of the hospital environment. Therefore, the hospital should be able to provide protection and comfort for patients and other visitors. The fulfillment of environmental comfort is one of the considerations of patients in choosing a hospital. Therefore, we need a strategy that can encourage the acceleration of the implementation of concepts and models of hospital environmental management towards green hospitals.

Materials and Methods

Data types and sources

The type of data needed in the study of hospital environmental management strategies towards green hospitals in Indonesia is the type of primary data obtained from the results of filling out the questionnaire by respondents. Primary data is data obtained directly from the field / object of research, both in the form of measurements, observations and interviews (Nazir, 2003). Meanwhile, according to Nasution (2011), primary data is data obtained directly from the source and recorded for the first time. The source of the data comes from the respondents' answers. The respondents were 7 experts who were considered to be very understanding of the hospital environmental management problems in Indonesia, namely; 1 director of the hospital, 3 chief officers of the hospital's environmental health department, 2 officials of the relevant policy makers in the Ministry of Health, 1 official from the Ministry of Environment and 1 person from university academics in Jakarta. This is in accordance with Hora (2004) which states that the number of experts who are adequate and have high precision is as much as 3 to 6 or 7 people.

Data collecting method

Data collection methods are techniques or methods used to collect data (Sugiyono, 2014). The data collection method in this study, uses survey methods with questionnaires and interviews. Interviews are intended to identify strengths, weaknesses, opportunities and threats. Meanwhile, the questionnaire is intended to obtain answers or expert opinion (judgment) related to hospital environmental management strategies towards green hospitals in Indonesia.

Data analysis method

The method of data analysis is a technique or method of processing data into information that can produce results on the problems studied (Arikunto, 2006). Data analysis methods in this study were carried out with the SWOT (Strength, Weakness, Opportunity, Threat) analysis approach and AHP (Analytical Hierarchy Process) analysis. SWOT analysis is an approach tool in strategic planning methods to evaluate strengths, weaknesses, opportunities and threats in a business or institutional

planning or study. According to Rangkuti (2015), SWOT analysis is the systematic identification of various factors to formulate a company's strategy. This analysis is based on the relationship or interaction between internal elements, namely strengths and weaknesses, to external elements, namely; opportunities and threats. This analysis is based on logic that can maximize opportunities while simultaneously minimizing deficiencies and threats. SWOT analysis is a comparison between external factors and internal factors. The SWOT analysis phase is carried out to assist experts in formulating hospital environmental management strategies towards green hospitals. The first stage is conducting in-depth interviews and field observations in order to obtain data on the strengths, weaknesses, opportunities and constraints or threats related to the management of the hospital environment towards the green hospital. Expert respondents were the Head of Section / Unit of Environmental Health and K3 (Occupational Health and Safety) of the hospital in charge of environmental management. The data is then triangulated between the results of in-depth interviews, field observation studies, and reference studies, which formulate strengths (S), weaknesses (W), opportunities (O) and constraints / threats / challenges (T), all of which are central elements in the SWOT analysis.

AHP method is one of the Decision Support System (DSS) analysis tools. AHP was first developed by Thomas L. Saaty in 1975. AHP can decompose complex multi-factor / multi-aspect problems into a hierarchy / level. According to Saaty (2008), hierarchy is defined as a representation of a complex problem in a multi-level structure where the first level is the focus (goal), which is followed by the level of criteria and alternative levels. Furthermore, it is stated that AHP is a decision making method that involves a number of criteria and alternatives are chosen based on the consideration of all related criteria in the form of a hierarchy. With a hierarchy, a complex problem can be broken down into groups, which are then arranged hierarchically, so that the problem will look more structured and systematic. According to Marimin (2004), AHP has many advantages in explaining the decision making process, because it can be described graphically, so that it is easily understood by all parties involved in decision making. The AHP method "pairwise comparison" has the ability to solve problems that are studied multi-object and multi-criteria based on the

comparison of preferences of each element in the hierarchy. So this model is a comprehensive model. The decision maker makes the choice of a simple pair of comparisons, establishing all priorities for alternative sequences. "Pairwise comparison" AHP uses existing data that are qualitative based on perception, experience, intuition so that they are perceived and observed, but the completeness of numerical data does not support quantitative modeling (Saxena, 1992). Specifically, AHP advantages include; a) The hierarchical structure as a consequence of the selected criteria up to the deepest sub-criteria, b) Calculates validity to the limit of inconcentration tolerance as criteria and alternatives chosen by decision makers, and c) Calculates the durability or resilience of the analysis output decision making sensitivity. While AHP weaknesses include; a) The dependence of the AHP model on its main inputs, the main input is the perception of an

expert / expert so that in this case it involves the subjectivity of the expert besides the model also becomes meaningless if the expert gives a wrong assessment, b) the AHP method is only a mathematical method without statistical testing, so there is no confidence limit of the truth of the model formed.

Results and Discussion

The Identification of Strategy Elements

The identification of the elements of the strategy is done by using the SWOT approach (strengths, weaknesses, opportunities, threats) based on the analysis of triangulation of data from the results of expert interviews, literature studies and observations in the field, so as to obtain elements in aspects of strengths, weaknesses, opportunities and threats as in the following table.

Table 1. Elemen SWOT

No	Element Analysis
A Strengths	
1	Leadership positive policy towards the environmental health efforts of the hospital.
2	Most hospitals have made environmental sanitation efforts based on the Republic of Indonesia Decree No. 1204 / KEP / MENKES / X / 2004 regarding hospital environmental health requirements.
3	Pre facilities for medical technology are adequate.
4	Hospital human resources realize the importance of environmental care to minimize the occurrence of nosocomial infections.
5	The mechanism of administration of goods and materials, both medical and non-medical, is quite orderly.
6	Leaders' commitment to the program's effectiveness and efficient use of resources has been underway
B Weaknesses	
1	There is no policy in the form of laws and regulations related to green hospitals.
2	Leaders' commitment is not evenly distributed and needs optimization.
3	Not a priority in budget allocation.
4	Lack of green open land.
5	Infrastructure facilities have not been used optimally
6	There is no uniform organizational and institutional structure.
7	Stakeholders' perceptions are not the same.
C Opportunities	
1	Accessibility to get information is high.
2	Global pressure on environmental conservation efforts is increasing
3	Increased levels of stakeholder awareness are increasing
4	Increasing the development of technology in the health sector.
5	Increasing technological development in the field of environmental management.
6	An increasing number of research in the field of health and the environment
7	Building a positive image of the hospital market opportunity.
D Threats	
1	The rise of the spirit of "Green" in various fields of institutional activities.
2	Erratic climate change.
3	Hospital marketing competition is getting tougher.
4	The development of non degenerative diseases is increasing and varied.

Strategy Formulation

The formulation of the strategy is carried out by combining SWOT elements obtained from the identification results. The combination of these SWOT elements will then formulate a number of strategies in managing the hospital environment towards green hospitals in Indonesia. The following are some formulated strategies that were produced.

Based on the table above, obtained strategic alternatives that need to be done in order to accelerate the implementation of hospital environmental man-

agement policies towards green hospitals are: a) the preparation of the road map grand design towards green hospitals, b) green hospital-based budget management policies, c) operationalization of Green hospital-based medical technology, d) optimizing the use of information technology and development research in promoting the concept of green hospital-based health services, e) the formation of the green team (special team) in an effort to accelerate the implementation of the concept of green hospital, f) optimizing the infrastructure resources to support the acceleration of green hospital.

Table 2. Strategy Formulation

No	Combination	Strategy
1	SO Strength-Opportunity	a. The compilation of road map grand design towards green hospital
2	STStrength-Threat	b. The formation of the green team (special team) in an effort to accelerate the implementation of the concept of green hospital
3	OWeakness-Opportunity	a. The operationalization of green hospital-based medical technology.
4	TWeakness-Threat	a. Optimizing the use of information technology and development research in promoting the concept of green hospital-based health services.

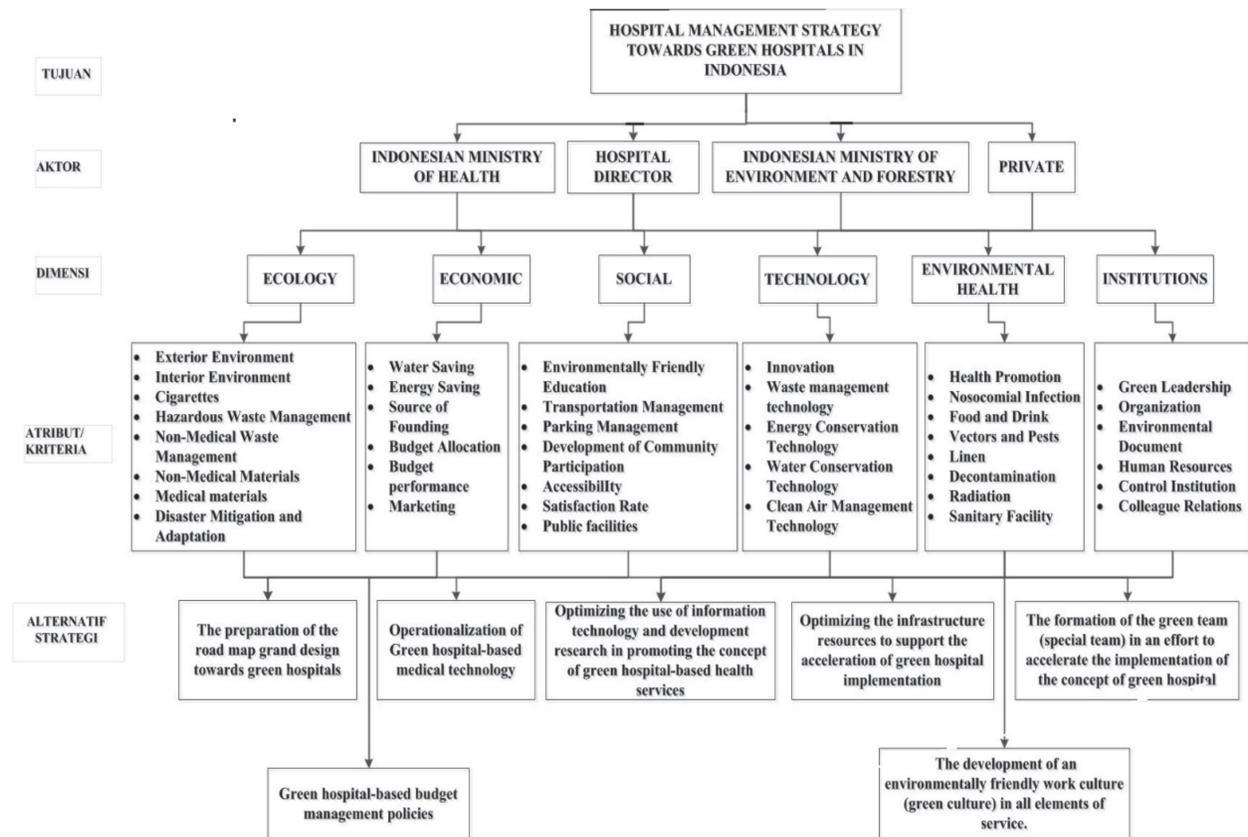


Fig. 2. The hierarchy of the hospital’s environmental management strategy towards Green Hospital

Strategy Priority

The priority of the hospital environmental management strategy towards green hospitals in Indonesia is carried out using the AHP approach. AHP is intended to obtain an alternative priority scale of strategies that have been generated in the previous SWOT analysis. This study involved 7 (seven) experts, which included practitioners, academics, policy makers and observers of hospital environmental problems, by filling out a questionnaire that had been prepared. Data collection was carried out after the development of the hospital environmental management model towards green hospitals.

The hierarchy of hospital management strategies towards green hospitals, is arranged based on objectives, actors, criteria, and alternatives. The aim in this AHP analysis is the hospital environmental management strategy towards green hospitals in Indonesia. The actor criteria are the criteria that are the main considerations in managing the hospital environment, including; Hospital Director, Ministry of Health of the Republic of Indonesia, Ministry of Environment and Forestry, and Private / Council. Furthermore, dimension factors become the next criteria that are considered in managing the hospital environment towards green hospitals in Indonesia, including; ecological, economic, social, technological, environmental health and institutional dimensions. In the criteria for the next dimension, sub-criteria of each of these dimensions are built. The following is a hierarchy of hospital management strategies towards green hospitals in Indonesia.

The arrangement of the hierarchy as in the Figure above shows that there are 5 levels consisting of 4 main levels and 1 sub level, namely; the objective level is the first level (hospital environmental management strategy towards green hospital in Indonesia), the actor level criteria are the second level (Hospital Director, Ministry of Health, Ministry of Environment and Forestry, and Council / Private), the dimension criteria level is the third level (ecology, economy, social, technology, environmental and institutional health), sub-level attribute criteria that are attributes of each management dimension. The last alternative level of strategy is the formulation of hospital environmental management strategies towards green hospitals in Indonesia.

The determination of priorities for each level, are based on expert opinion with the principle of

pairwise comparison assessment with a measurement scale referring to Saaty (2008). The following are the results of determining priorities at the actor level criteria, dimension criteria and alternative level strategies.

The results of actor priority analysis show that hospital directors are the first priority related to actors in implementing hospital environmental management strategies towards green hospitals in Indonesia. The hospital director is the highest official in a hospital, which has an enormous authority re-

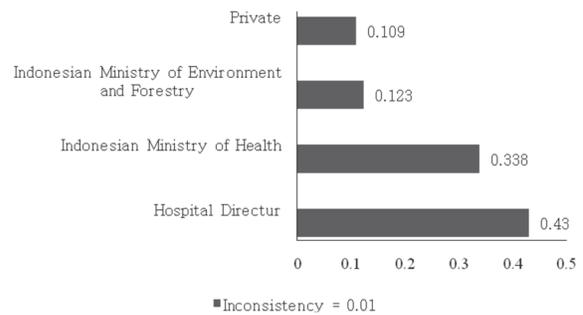


Fig. 3. The priority of actor in developing of green hospital in Indonesia

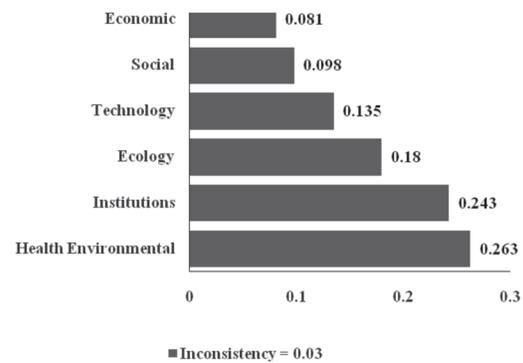


Fig. 4. The priority of dimension in developing of green hospital in Indonesia

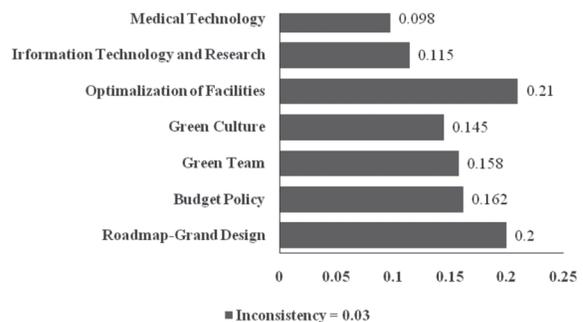


Fig. 5. The priority of strategy for each level

garding hospital management in general and the hospital environment management in particular. This is as stated in the Constitution No. 44 of 2009 concerning hospitals, that hospital directors or leaders generally have responsibilities in managing as well as leadership functions as well as carrying out planning, coordinating, guiding, supervising and controlling operational activities of hospitals. The second priority related to actors in implementing a hospital environmental management strategy towards green hospitals in Indonesia is the Ministry of Health of the Republic of Indonesia. The Ministry of Health is the leading sector in achieving the vision of Healthy Indonesia 2025. In this vision, the expected strategic health development environment is an environment that is conducive to the realization of a healthy physical, spiritual and social condition, namely an environment free from socio-cultural vulnerability and pollution, the availability of drinking water and adequate environmental sanitation facilities, healthy housing and settlements, health-oriented area planning, and the realization of community life that has social solidarity by maintaining national cultural values. Through the application of the concept of green hospital, health development in Indonesia is expected to be realized and sustainable.

In terms of the priority dimensions in the framework of implementing the hospital environmental management model towards green hospitals in Indonesia, it was found that environmental health is a top priority, namely 26.30%. The second priority is the institutional dimension with a priority value of 24.30%. The third priority is the ecological dimension (18.00%), the technological dimension (13.50%), the social dimension (9.80%) and the last priority is the economic dimension (8.1%).

Based on the priority results of the hospital environmental management strategy towards green hospitals in Indonesia, it was found that the strategy of preparing the road map-grand design towards green hospitals was the main priority in implementing the hospital environmental management strategy towards green hospitals in Indonesia. The hospital environmental management strategy towards a green hospital in Indonesia is intended as an overall approach related to the implementation of ideas, planning, and execution of an activity within a certain period of time, in this case, planning the implementation of the concept of green hospital in Indonesia. For this reason, the first

step that requires the hospital director's attention is to compile and formulate a grand design or a road map towards a hospital that is certified as a green hospital. The grand design must be comprehensive and systematic, with targets and work plans that pay attention to efficiency and effectiveness. The second priority is the budget policy strategy. Budget or funding aspects become one of the important aspects in the progress of the organization. Budget policies that favor the implementation of the green hospital concept will be very helpful in achieving goals. Budget readiness is often an obstacle in implementing a program especially in hospital development. Green-oriented budget is interpreted so that every budget policy in any field always considers the environment-friendly concept. This, directly or indirectly, will provide education to budget users so that they always consider the aspects of green hospitals in preparing hospital budget plans. The third priority is the strategy for forming the green team. The formation of the green team can be the first step after the preparation of the grand design and road map as well as budget policies that favor the green budgeting. The fourth priority is the strategy of developing an environmentally friendly work culture (green culture).

Conclusion

The main priority of alternative hospital management strategies towards green hospitals in Indonesia is the preparation of a road map-grand design strategy towards green hospitals. In order, the second and subsequent alternative strategies are; budget policy strategy, the formation of the green team strategy, the development strategy of an environmentally friendly work culture (green culture), the strategy of optimizing resources, the strategy for developing technology and R&D, and the strategy for improving medical technology.

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