International Journal of Economics, Commerce and Management
United Kingdom Vol. III, Issue 4, April 2015
http://ijecm.co.uk/ ISSN 2348 0386

SITE SELECTION ANALYSIS PILOT PROJECT CATNIP (CERTIFICATION FOR NETWORKING AND TRAINING IMPROVEMENT PROJECT) AT PDAM TIRTANADI (LOCAL WATER COMPANY) NORTH SUMATRA, INDONESIA

Feby Milanie
University of Pembangunan Panca Budi (UNPAB), Medan, Indonesia
feby_jurnal@yahoo.com

Abstract

This study aims to examine, analyze and Identification of factors - factors to consider in determining site selection, site selection pilot project CATNIP in PDAM Tirtanadi North Sumatra. This research was carried out by using descriptive methods. The study begins by determining the location of an alternative housing project in the region PDAM Tirtanadi of North Sumatra region on the condition that the water can drain for 24 hours. Furthermore, identifying factors - factors to consider in selecting a site for the implementation of the pilot project CATNIP on the PDAM Tirtanadi North Sumatra. Factors - these factors are divided technical factors and non-technical factors. The analysis used for the selection of pilot project CATNIP with quantitative methods, the Analytic Hierarchy Process (AHP). Research and Technical Factors which Non - Technical then factor technique consists of factors of water resources / water quality in the installation, distribution factor distribution systems, and water pressure factors, and factors of non - technical factors consist of the number of customers, and economic factors / customer water use and type of fare. Alternative site selection projects done in the area of housing in PDAM Tirtanadi the region of North Sumatra namely: Malibu Housing, Housing Complex Rivera, Mas Gading Villa Housing Estate and Housing Complex Park Setia Budi Indah. The analysis used for the selection of pilot project CATNIP Analytic Hierarchy Process Method (AHP). Based on the method of AHP, then the selection of the location of the pilot project CATNIP in PDAM Tirtanadi North Sumatra is Housing Malibu with a value of 0.348.

Keywords: Technical Factors, Non-Technical, Certification Training For Networking And Improvement Project (CATNIP), Analytic Hierarchy Process (AHP)

INTRODUCTION

The spread of water on earth amounted to 1.36 billion km3, which consists of salt water as much as 1.3226 billion km3 (97.25%) and as many as 37.4 million km3 of fresh water was again above water atmosphere consists of 13,000 km3 (0.035%), 374,000 surface water km3 (1%), 8.963 million km3 of groundwater (23.965%), snow / ice as much as 28.05 million km3 (75%). So the form of fresh water on the earth's water is 0.659% of ground water, surface water of 0.027%, 0.0001% atmospheric water and snow / ice 2,063%. In Indonesia the number and use of water sources in groundwater, surface water, and atmospheric water, which is largely determined by the availability of water is often known as the atmosphere or rain water. Indonesia needs to urgently address the project - drinking water supply project directly across Indonesia to overcome water crisis that will threaten Indonesia.

North Sumatra Province PDAM Tirtanadi strive to realize the vision and mission of the company for the supply of drinking water, by realizing that the drinking water has a direct impact on the security and safety of the human soul, therefore PDAM Tirtanadi North Sumatra oriented Quality Management System to ISO 9001.2000. Standards for drinking water set by the Indonesian Ministry of Health No.1/BIR.HUK.MAS/1/1975 on terms - terms and monitoring of drinking water. Requirements include four properties are physical properties, chemical properties, biological properties and radioactive properties. In order to increase (improvement) in water services to customers PERPAMSI (Association of Indonesian Water) has been working with several PDAM in order to implement the program CATNIP (Certification And Training For Network Improvement Project). Where the latter will be realized level of service quality drinking water to customers who may be ready to drink . PERPAMSI have chosen PDAM Tirtanadi for CATNIP Program, one of which is the PDAM Tirtanadi North Sumatra Province. Drinking water supply project directly called Project ZAMP (Prima Water Zone). Commitments that have been established to achieve this service in a pilot project to implement the drainage of water for 24 hours, residual chlorine 0.2-0.3 ppm and the residual pressure at the farthest point 1.0 - 1.5 atm.

PDAM Tirtanadi North Sumatra Province see that for existing customers in the city of North Sumatra, especially in residential areas can be selected as a pilot project CATNIP. Residential areas in the region of North Sumatra Province PDAM Tirtanadi will be chosen to meet the condition that the water flowing for 24 hours at an alternative location. Housing will be a pilot project CATNIP, is :

1. Housing Complex Malibu
2. Rivera Housing Complex
3. Mas Gading Villa Housing Complex

4 . Housing Complex Park Setia Budi Indah

Problem Formulation

CATNIP pilot project is a project to guarantee potable water directly. This project requires a substantial investment, so investment is not in vain it is necessary to do an analysis to determine site selection. Look at the problem formulation in this study, among others;

1. Identification of factors - factors to consider in determining the choice of location.
2. Analysis of site selection CATNIP pilot project in North Sumatra PDAM Tirtanadi

THEORETICAL FRAMEWORK

Decision Making

A decision is needed because of the problems and there is an alternative solution to solve these problems. Besides, the decision-making also takes place in an environment of uncertainty and the risk of the decision.

According to Mintzberg (1973), the manager has three roles (managerial roles) are interpersonal roles, Informational roles, and decisional roles. Interpersonal and informational role can be said to be a supporter of the decision-making role. Successful decision will only be obtained from the information that is complete and good support for the decision.

Planning Area

Many definitions are provided by experts on planning and grown according to the new circumstances and the particular field. In general, planning is the process management activities to determine which activities will be implemented in the future and how its implementation.

According to Stoner (Zaini Mustain, 1991), managers have to think analytically and conceptually in order to contain the uncertainties in forecasting planning can be reduced in order to produce good work guidelines. In this formulation is implicit need for guidance in the work.

Analytical Hierarchy Process (AHP)

Measures of physical form , such as the scale length (meters) , temperature (degrees) , time (seconds) and money (dollars) , is something that is actually used in everyday life to measure a variety of events. We know that such application can be accepted. Other variables such as social, economic, political and not infrequently are difficult to measure, such as how to measure a sense of security products in the absence of attacks from other countries generated because government spending on defense, how to measure the losses suffered by the community because an assortment of pollution and environmental damage caused by industrialization, how to quantify because it can enjoy the pleasures of leisure, and so on. In solving problems with

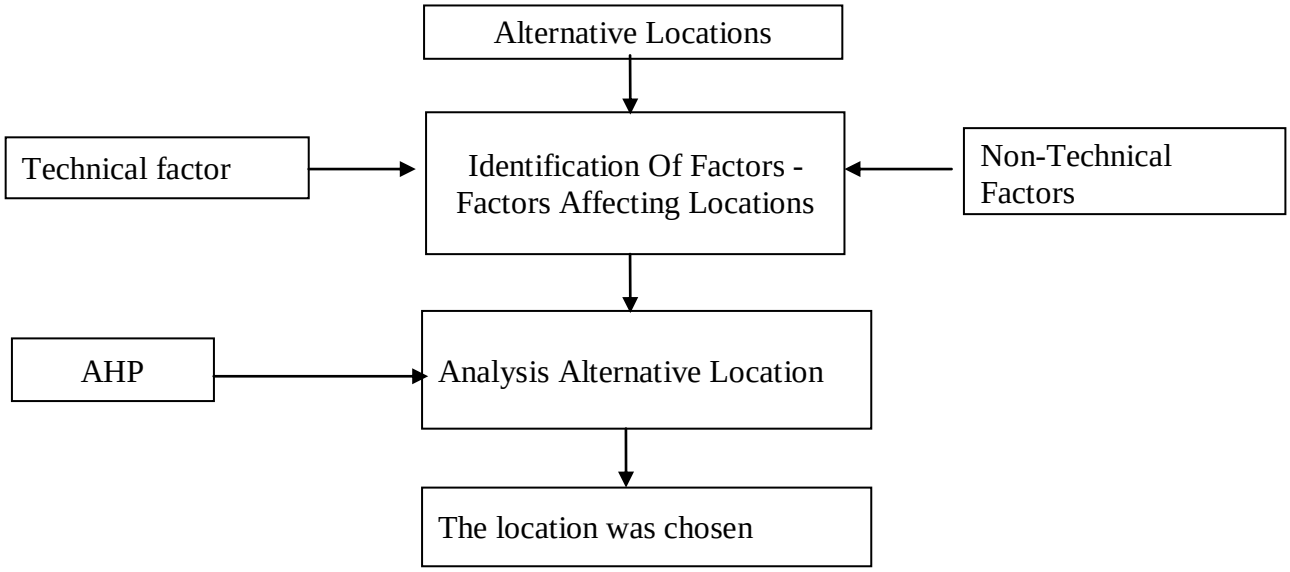
AHP there are several principles that must be understood, are: decomposition , comparative judgment , synthesis of priority , and logical consistency .

Conceptual Framework

The conceptual framework is a systematic frameworks that will direct the research process in the study. The conceptual framework in this study starts from identifying factors - factors that affect the choice of location, i.e. technical factors and non-technical factors. Conceptual framework designed to follow the following diagram:

Alternate locations can be analyzed based on the cumulative effect of the value of a particular location factors. Identifying factors - factors to consider in site selection, factor - the factor of technical factors and factors such as non - technical. This analysis is subjective, then in all cases using the Analytic Hierarchy Process (AHP) designed a system that allows each factor is given a proportionate assessment of the other factors that are being considered, as well as enabling the provision of value to a factor for each location under consideration.

Figure 1. Conceptual Framework



RESEARCH METHODS

This research was carried out by using descriptive methods. The study begins by determining the location of an alternative housing project in the region of North Sumatra region PDAM Tirtanadi on the condition that the water can drain for 24 hours. Furthermore, identifying factors - factors to consider in selecting a site for the implementation of the pilot project on the PDAM Tirtanadi CATNIP North Sumatra. Factors - these factors are divided technical factors and non-

technical factors. The analysis used for the selection of pilot project CATNIP with quantitative methods, the Analytic Hierarchy Process (AHP).

Data Collection Method

PDAM Tirtanadi North Sumatra has a structured data quite well with the composition of the data and other information will be adequate reference in this study. Data collection methods adapted to the data required, namely:

- Primary data were collected through direct observation to the object of research with interviews, namely by conducting interviews with Team CATNIP and the North Sumatera PDAM Tirtanadi directors with respect to the preferences of the factors - factors to consider in analyzing the site selection.
- Secondary data were collected by reviewing the literature, which includes reference to the decision making and the selection of the location of the relevant agencies.
  a. Analysis of the data
- Analysis of the data used in this study is a descriptive analysis method. Descriptive data analysis of the data in quantitative be done with weighted data tabulation process mathematically calculated with a quantitative system, namely the method of Analytic Hierarchy Process (AHP).

Location and Time of Research

What is done at the location of residential areas in the region of North Sumatra PDAM Tirtanadi. The period of completion of this study, from data collection to final report writing with a longitudinal approach while also cross-sectional study during the time ± 8 (eight) weeks

Step - step in establishing the project site CATNIP project using the basic stages in the Analytic Hierarchy Process (AHP).

EMPIRICAL RESULTS AND DISCUSSION

Identify Factors - Factors in Determining Project Location

Identification of factors - factors were collected through direct observation to the object of research with interviews, namely by conducting interviews with Team CATNIP and the North Sumatera PDAM Tirtanadi Directors with respect to the preferences of the factors - factors to consider in analyzing the site selection. Factors - these factors are the technical factors and non-technical factors.

1. Technical factor is where North Sumatra Province through PDAM Tirtanadi continues to improve service coverage and quality. Technical factors to consider in analyzing site selection.

2 . Non-Technical Factors are Water treated by PDAM Tirtanadi with social functions, but also as an economic commodity, then the selling rates should be adjusted to the cost - the cost of services and provision. The rapid rate of growth and development are some of the causes of non-technical factors need to be considered in analyzing the site selection CATNIP pilot project in North Sumatra PDAM Tirtanadi.

Table 1. Skema Alternatif Lokasi Pilot Project Catnip Pada Pdam Tirtanadi

	HOUSING MALIBU	HOUSING MENTENG	HOUSING VILA GADING MAS	HOUSING SETIA BUDI INDAH
NUMBER OF CUSTOMERS	294 CUSTOMER	506 CUSTOMER	270 CUSTOMER	2180 CUSTOMER
SOURCE OF WATER	SIBOLANGIT INSTALLATION	BELUMAI INSTALLATION	DELI TUA INSTALLATION	SUNGGAL INSTALLATION
DISTRIBUTION SYSTEM	PIPES CAN DIISOLIR FROM ANOTHER ZONE	PIPES CAN DIISOLIR FROM ANOTHER ZONE	PIPES CAN'T DIISOLIR FROM ANOTHER ZONE	PIPES CAN'T DIISOLIR FROM ANOTHER ZONE
WATER PRESS	1.50 KG/CM2	1.51 KG/CM2	1.90 KG/CM2	1.71 KG/CM2
RECEIVED QUALITY CUSTOMERS	PH = 7.1 CL2 = 0.20 TD = 0.47	PH = 7.1 CL2 = 0.30 TD = 0.15	PH = 7.2 CL2 = 0.15 TD = 1.11	PH = 6.9 CL2 = 0.15 TD = 0.68
APPLICATION OF WATER CUSTOMERS AVERAGES	55.06 M^3	27.52 M^3	26.13 M^3	33.02 M^3

Setting Factors Used For Selection Policy

Based on the interview then obtained factors - factors influencing location. Factor - a factor supporting the selection of project alternatives to the project site CATNIP:

Tabel 2 . Supporters Of Site Selection Factors

No	Faktor pendukung	Notasi
1	NUMBER OF CUSTOMERS	JP
2	SOURCE OF WATER	SA
3	DISTRIBUTION SYSTEM	SP
4	WATER PRESS	TA
5	RECEIVED QUALITY CUSTOMERS	KP
6	APPLICATION OF WATER CUSTOMERS AVERAGES	PA

Alternative - Alternative Location

Table 3. Alternatives - alternative locations for the proposed project site project set CATNIP:

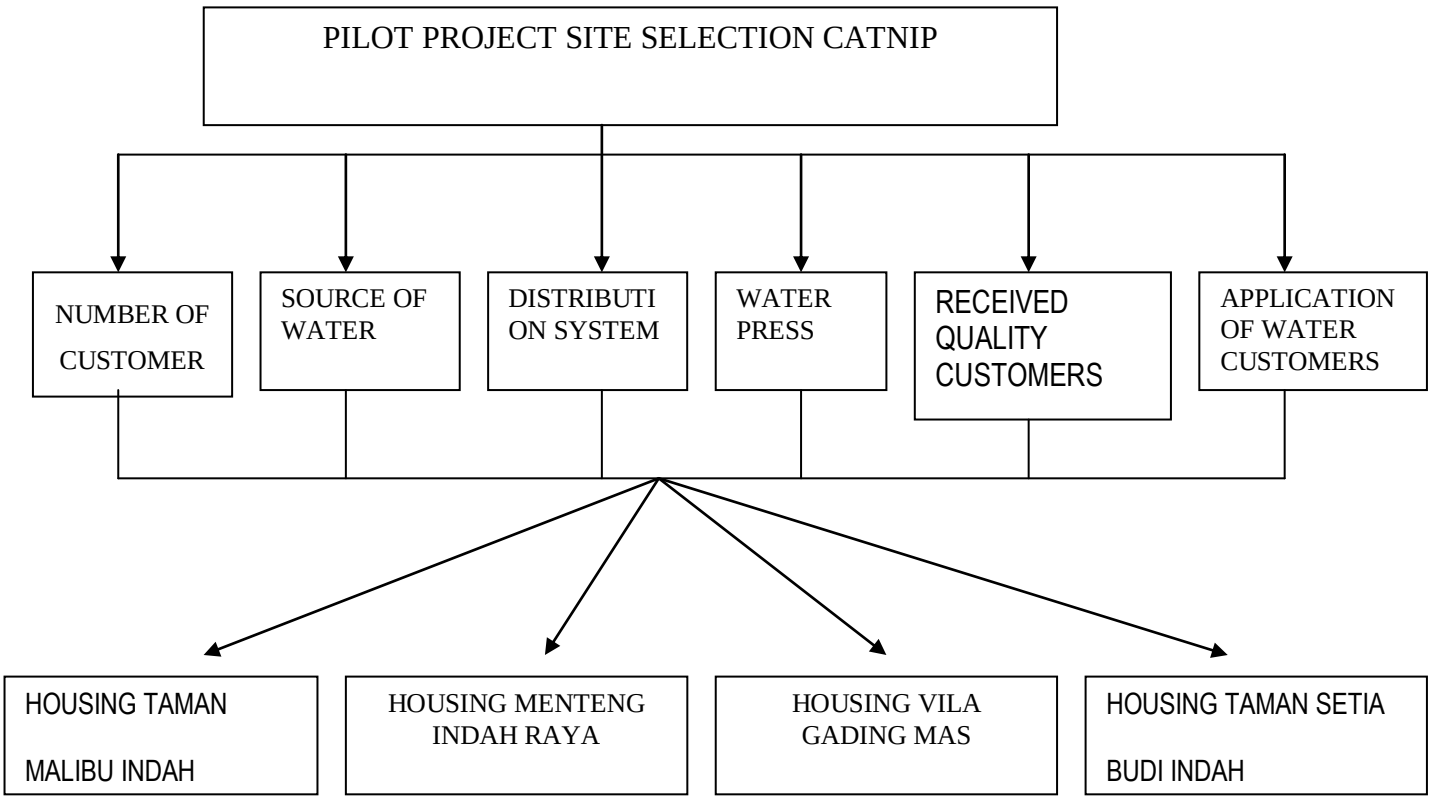
No	Alternatif perumahan	Notasi
1	Housing Malibu Indah	MALIBU
2	Housing Menteng Indah Raya	MENTENG
3	Housing Vila Gading Mas	VGM
4	Housing Taman Setia Budi Indah	TASBI

Site Selection

Complex systems can be easily understood if broken down into various elements of the principal elements, arranging the elements - these elements in the hierarchy. Compile or synthesize judgments about the relative importance of these elements at all levels of the hierarchy into a comprehensive set of priority.

In general, a hierarchical model of a problem starts from a comprehensive view to solve the problem, down to the supporting factors, and finally to the alternatives where the choice will be made for an alternative set of locations to choose from.

Figure 2. Hierarchical Selection Area Pilot Project CATNIP (Certification And Training For Network Improvement Project) at PDAM Tirtanadi in North Sumatra



Site Selection Analysis Pilot Project CATNIP (Certification For Networking And Training Improvement Project) At PDAM Tirtanadi North Sumatra Province

Drinking water is a basic human need to meet the health aspects , as well as the factors driving economic growth . PDAM Tirtanadi to increase the degree of nationwide extremely dependent ability in the provision of drinking water , thus ensuring the availability of qualified drinking water (quality and quantity).

Water service states that its purpose is to serve the community, where the water meets the requirements of quantity , quality and continuity . Problems CATNIP Pilot Project is a project to guarantee potable water directly. This project requires a substantial investment, so investment is not in vain it is necessary to do an analysis to determine site selection. PDAM Tirtanadi also needs to pay attention to operating efficiency and operating cost recovery.

In decision making, uncertainty and imperfect information is certainly difficult. Many factors that influence the choices available, the variety of selection criteria and if the decision is more than one, also one of the sources of complexity in decision making. If the source of the complexity is the diversity of criteria, the Analytical Hierarchy Process (AHP) is a technique to help resolve this issue. AHP obtained using the method of CATNIP pilot project in PDAM Tirtanadi North Sumatra, as follows :

Tabel 4. Pemilihan Alternatif Lokasi

Alternatif Lokasi	Score Rangking	Urutan Lokasi
MALIBU	0.348	1
MENTENG	0.213	3
VGM	0.231	2
TASBI	0.208	4

CONCLUSION

The conclusion must be in accordance with the formulation of the problem, objectives and results of the data analysis and discussion that has been done , the conclusions from the results of this research study can be formulated as follows :

1. Factors - factors to consider in selecting a site for the implementation of the pilot project on the PDAM Tirtanadi CATNIP North Sumatra is a non- technical factors and factors - techniques.
2. Technical Factors and Factors of Non - Technical then factor technique consists of factors of water resources / water quality in the installation , distribution factor distribution

systems , and water pressure factors , and factors of non - technical factors consist of the number of customers , and economic factors / customer water usage and type of fare .

3. Alternative site selection projects done in the area of housing in the region of North Sumatra PDAM Tirtanadi with regard to these factors the alternative location for the proposed project site establish that CATNIP project: Housing Malibu, Rivera Housing Estate, Housing Estate Villa Gading Mas and Garden Housing Estate Setia Budi Indah. The analysis used for the selection of pilot project CATNIP Analytic Hierarchy Process Method (AHP).
4. Based on the method of AHP, then the selection of the location of the pilot project CATNIP (Certification For Networking And Training Improvement Project) in North Sumatra is PDAM Tirtanadi Housing Malibu with a value of 0.348 .

SUGGESTIONS

This study is expected to provide input on the PDAM Tirtanadi North Sumatra in determining the location of the implementation of the pilot project CATNIP, then suggests the followings:

1. Factor - factor in choosing the location for drinking water providers still need to be improved, in particular for dissemination to the public; thus have a high trust society to PDAM Tirtanadi and safe to consume drinking water straight from the tap their home.
2. Needs to be improved - improved operations management side PDAM Tirtanadi, in order to have a system to guarantee the quantity, quality, and continuity of adequate drinking water and sustainable.

REFERENCES

Ichsan, Mochammad and Kusnadi, (2003), " Business Project Feasibility Study", UB Malang

Pasaribu, Sjahril Effendy, (2004), " PDAM Operator Services Water & Drinking Water " , Technical Affairs Press

Saaty, Thomas L., (1993), "Decision Making " , PT.Pustaka Binaman Pressindo

Schroeder, Roger G, (1994), "Operations Management " , Third Edition , Singapore , Mc.Graw Hill Inc.

Suharto, Faith, (1997), " Project Management " , grants, Jakarta

Supranto, Johannes, MA, (1998), " Decision Making Techniques " , PT . Rineka Citra , Jakarta

Sweeney, Denis Anderson . , And Williams , Thomas.A, (1991) " Introduction to Management Science", 6th Edition , West Publishing Company , St. Paul

_____, Regional Regulation of the Province of North Sumatra , (1999) , " Regional Water Company Tirtanadi the Province of North Sumatra 3 Year 1999 " , Medan , North Sumatra.

_____, (2002), "Corporate Plan 2001-2005", Revised Second, PDAM Tirtanadi North Sumatra

_____, (2004), An Overview of PDAM Tirtanadi North Sumatra, www.pdamtirtanadi.com