

# Investigating the Water Services of Regional Development in the City Using AHP Model

Feby Milanie<sup>a</sup>, Muammar Khaddafi<sup>b</sup>, Jumadil Saputra<sup>c\*</sup>, Zikri Muhammad<sup>d</sup>, <sup>a</sup>Universitas Pembangunan Panca Budi, Medan, Indonesia, <sup>b</sup>Faculty of Economics and Business, Universitas Malikussaleh, Lhokseumawe, Indonesia, <sup>c,d</sup>Faculty of Business, Economics and Social Development, Universiti Malaysia Terengganu, 21030 Kuala Nerus, Terengganu, Malaysia, Email: <sup>a</sup>[febymil@pancabudi.ac.id](mailto:febymil@pancabudi.ac.id), <sup>b</sup>[muammar@unimal.ac.id](mailto:muammar@unimal.ac.id), <sup>c\*</sup>[jumadilsaputra@umt.edu.my](mailto:jumadilsaputra@umt.edu.my), <sup>d</sup>[zikri@umt.edu.my](mailto:zikri@umt.edu.my)

The need for clean water from year to year is increasing with population growth and increased economic activities such as industry growth, both small-scale industries, medium, or large, public facilities development, improving people's welfare, the need for clean water Medan population will increase. The purpose of this study is to formulate model management of water services to improve the optimum variety of customer needs for clean water in the city of Medan. The data used in the study was obtained from primary relevant agencies and the public in the city of Medan. A total of 30 respondents participated and results were collected using purposive sampling. The data was analyzed using the AHP model. The results showed that the water management model to front-run partnership between government and the private sector. Cooperative water management to meet consumers' needs clean water future.

**Key words:** *Regional development, water supply, water demand, private and government, AHP Model.*

## Introduction

Using the spatial planning of Medan city in the year 2011 to 2031, this city will become the business center of simulated trading economies into one of the biggest trades in Indonesia and the government of Medan creates a business environment competitive, conducive and non-discrimination. Various activities held in this city oriented to obtain economic benefits; business activity is a vast field and related to other areas. Changing conditions or policies in other areas will always affect the existing business conditions. Business activities, especially large scale, will significantly influenced the national environment, culture, law, politics, technology, defense and other macro-economic environment in particular. Conditions of interdependence is a compelling reason for the government of Medan, together with the entire community, to always strive to create a conducive climate environment for business activities in the city, suitable for local businesses, domestic and foreign. The factors that create a favorable business environment are very complex. Interdependent influences between the various factors that affect a very multi-dimensional. The economic structure of the city of Medan solid will become the motor of the economy and support local economic resilience at the same time.

The structure of the economy in Medan city is dominated by trade, hotels and restaurants. Its sectors were contributed to GDP by an average of 26.92 percent per year. Contribution of the transport and telecommunications sector average of 18.95 percent and the industrial sector amounted to 14.97 percent of processing, as well as financial and business services sector amounted to 14.27 percent per annum (BPS Medan, 2011). In the construction of the city of Medan at least five of the most prominent actors; (1) government, (2) private (business), (3) the community, (4) professional and (5) intellectual. Similarly, economic activities in addition to well known public sectors played by the government is also essentially private and public sectors. Even seen from the contribution of each industry, the private sector contributed much more substantial, reaching even 80% of the total investment there. Thus the government sector only contributes 20%. One of the crucial policies pursued by the Government of Medan is providing more significant opportunities for the private sector and the community to be involved not only in activities that are oriented for-profit, but also the overall urban development. (Spatial Plan (Spatial) 2011- Medan Year 2031) .

To encourage the participation of the private sector and the community in urban development policies pursued, one is to build a partnership between the Government of Medan, the private and public with the support of professionals and intellectuals. Various collaboration and cooperation continue to be built and developed on the basis of mutually reinforcing interdependent and mutually benefit from each other. With the Government's commitment to providing opportunities, Medan's widest possible for the private sector and the community to get involved in urban development projects (public sector), with various forms of agreements

that may implemented as a system of lease contracts and others. Responsibility for the development of the city is seen as a collective responsibility of the whole society. The need for water is an absolute necessity for all living beings, whether human, animal and plant life. Man as one of the living creatures is in desperate need of water for drinking, bathing and other necessities of life. The level of human need for clean water depends on the development of civilization. The higher growth of human civilization is increasingly complex as the need for clean water. The presence of water in urban areas is essential considering the activity of the city is a very dynamic community. To meet the water needs of the urban population water from water sources cannot be relied. For example direct surface water and rainwater as both an easily accessible source of water is mostly contaminated either directly or indirectly from human activity itself. Groundwater is one of the alternatives to meet those needs, but have limitations both in quality and quantity. Based on the description that has explained the background problems faced by the city of Medan an increasing demand for clean water needs was not met then the issues raised is how the management model of optimal water services to meet the needs of various customers in Medan.

## **Literature Review**

### ***Planning Area***

There are many definitions of planning, which look different between the textbook and other textbooks. The difference between the definitions contained in the textbooks are primarily on one branch of science. However, in any one branch of science, there is a difference between the definition of a writer with other writers. This difference is due to differing viewpoints, the focus of attention and in the extent of the field covered by planning itself. A simple definition of that planning is to set a goal and choose the steps needed to achieve those goals. Explanation is suitable for simple planning; that goals can be set up easily and there is no significant limiting factor to achieve these goals. Planning is setting a goal after observing internal dividers and external influence, which choose and sets out the steps to achieve that goal. This definition assumed that limiting both internal and external influences can be anticipated from the beginning.

However, the above definition concerns the meaning of the planning itself but has not touched the area element. The planning of the regional plan must be coupled with aspects of the region. Regional planning is knowing and analyzing current conditions, forecasting the development of various relevant factors that are not controlled, estimating the limiting factors, establishing goals and objectives are expected to be achieved, setting out the steps to achieve those goals and to determining the location of the various activities that will be implemented to achieve the goals or objectives (Tarin, 2004). According to Miraza (2005) regional planning is long-term planning, gradual and more systematics with a clear goal area. Clear objectives that are related to the overall interests of stakeholders, both public from

various layers, groups of employers and the government itself. Regional planning concerns how to use the potential of the region. Both the possibility of natural and artificial potential, must be implemented fully and efficiently to use the potential is impacted on the welfare of society as a maximum.

### **Regional Development**

Development of the region in the long term with more emphasis on the introduction of natural resources and the potential for local development areas can support (generating) economic growth and social welfare of the community, including poverty alleviation, as well as efforts to overcome the obstacles existing development in the area in order to achieve development goals . In this regard, it is in the national development plan, the development of the region with more emphasis on the preparation of integrated regional development packages to identify strategic sectors (potential) need to be developed in an area (Friedmann & Allonso, 1964). According to Walter Isard as a pioneer of the science that examines the development of the region, causal relationships of the main factors include the formation of spatial physical factors, socio-economic and cultural.

Hirschman (1958) argued that the effect is known as forwarding and backward linkage. Forward linkages encourage investment decisions in the sector or industry that utilizes a specific output for the next production process. This can lower the cost of production in the downstream industry through external economies. Backward linkages in the sector encourage investment decisions that provide input. Improved linkages between sectors or between industries which further stimulate increased investment driven demand for input is the output of a particular sector or industry that eventually boost economic growth. This is known as the theory of polarization effects and the trickling down effect with the argument that the development of an area does not occur simultaneously.

Myrdal's (1960) theories explain the relationship between the forward region of the hind region using the term backwash effects and spread effects. Friedmann (1960) which emphasizes the establishment of a hierarchy or level of development in order to facilitate the development of the system that became known as the center of new growth theory. This means that the development of the region needs to develop new growth centers and new growth centers are inter-related with the growth of existing centers within the region. Douglass (1970) introduces a model of the birth of linkages between rural and urban or rural urban linkages in a developing a region with villages and city hopes to have a mutually beneficial relationship or a win-win solution that is generative relationship, not the other way that is not mutually beneficial relationship that is parasite relationship. Science of regional development is the integration of various theories and applied science, namely, geography,

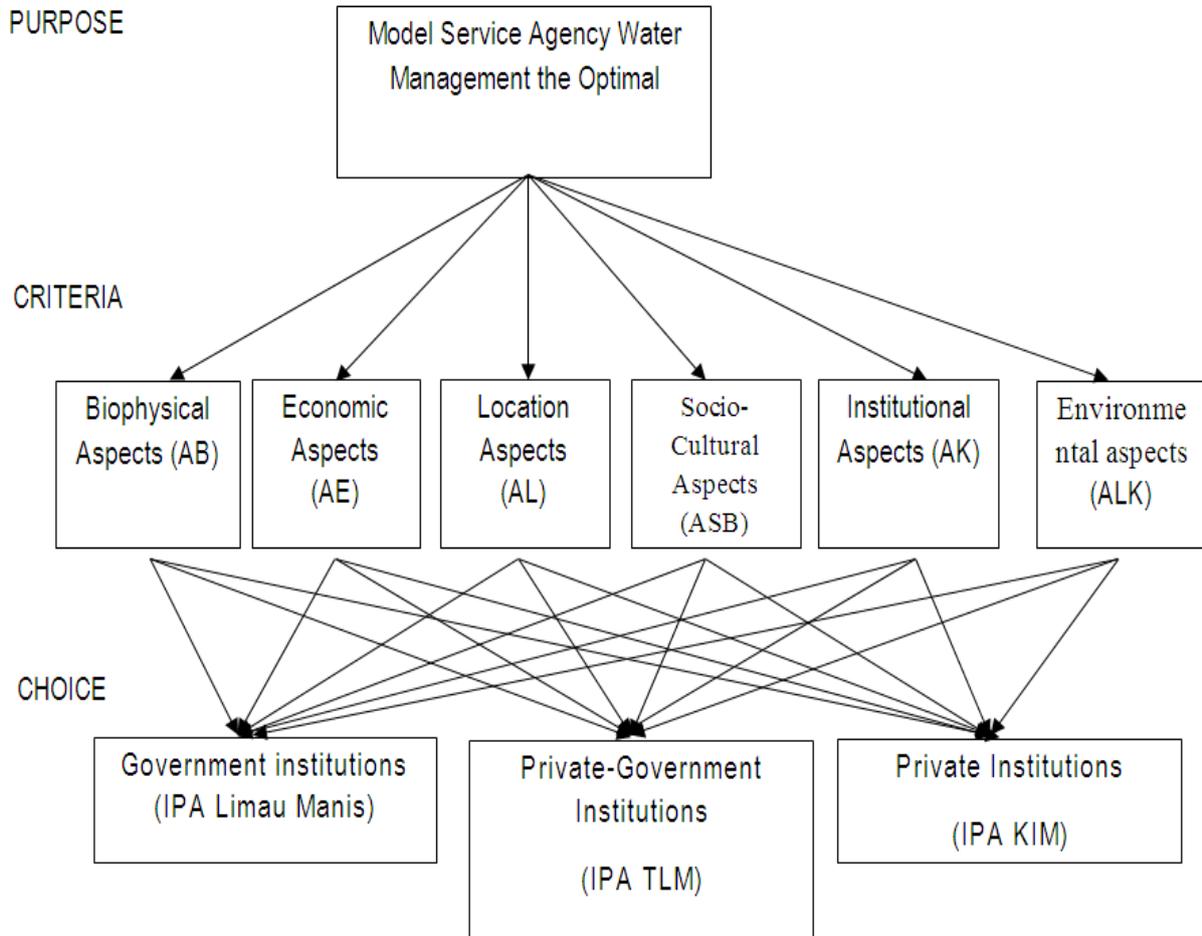
economics, sociology, mathematics, statistics, political science, regional planning, environmental science and so on (Budiharsono; 2005)

### **Methodology**

The population in this research is the customer PDAM Medan. Therefore, the preparation of the management model of optimal water services will require some populations stakeholders related to water management, where the total population of the stakeholder is unknown with certainty, the sampling technique used is nonprobability sampling as a way of purposive sampling. The amount of samples in the formulation of water management models are as many as 30 people and it is by the opinion of the Sugiyono Roscoe (2006) decent sample size in a study of at least 30 people. Model Analysis Hierarchy Process (AHP) is one of the models for decision-making that can help the human frame. AHP is a method that solves a complex problem in their groups. These groups organize into a hierarchy, enter a numeric value as a substitute in the comparison of the relative public perception and ultimately determined by a synthesis of elements which have the highest priority.

The planning model with AHP is a combination of the model projections and planning models. The projection model is intended to predict future conditions that may occur or feasible based on existing conditions or ongoing. While a planning model is designed to determine the wisdom necessary to achieve the desired goal. For achieving more effective planning, both models can be combined. First of all desirable conditions identified through subsequent projection model and the wisdom necessary to obtain specified in the planning model. The shape of the model projections and planning models are not necessarily symmetrical. Models commonly called backward planning process consists of being some level where the top level is the goal of the desired future of a problem. At level two there are desired or target scenarios possible; at level three there is a problem that is expected to hamper the achievement of the desired goal. While there is a four-level actor or actors who play a role and influence the performance of goals. At the last level and at the same time the result of a process of policy planning is necessary for these targets. This can be seen in Figure 1 below:

**Figure 1.** Hierarchy Process of Water Management Service Provider



## Results and Discussion

Analysis of the Hierarchy Process (AHP) model is one of the models for decision-making that can help the human frame. AHP is a method that solves a complex problem into their groups. These groups are organized into a hierarchy, enter a numeric value as a substitute in the comparison of the relative public perception and ultimately determined by a synthesis of aspects which have the highest priority. In general, a hierarchical model of a problem is the start of an overall goal to solve the problem, down to the criteria and finally to the alternative in which the choice made. The purpose of this study is to investigate the water services management model that is optimized to meet the needs of various customers in Medan. Then choices of the Institute include: (i) Model Clean Water Services Government Agencies (IPA Limau Manis), (ii) Model Clean Water Services Private Institutions - Government (IPA TLM), (iii) Model Private Water Service Model (IPA KIM).

A complete hierarchy of formulating the problem; management model of optimal water services to improve the water needs of different customers in the city of Medan. AHP rank third priority criteria options with a variable number of institutions included in this study; (i) Biophysical aspect (AB) is the existing water resources in the region include: water quality, water quantity and continuity of water. (ii) Economic Aspects (AE) is the economic concerns of water users, including average water rates, production costs and profitability. (iii) Location Aspects (AL) is related to the affordability of water resource network, including production technology, occupational health and safety. (iv) Socio-Cultural aspect (ASB) is related to water supply personnel, including number of employees, the effectiveness of employees and payroll systems. (v) Institutional aspects (AK) is the institutional role in the satisfaction of the needs of the community above water or water management institutions, including agency systems and reporting systems. Lastely, (vi) Environmental aspect (ALK) is related to the maintenance of water resources, including environmental impact assessment and levy to the environment.

AHP analysis using primary data by the number of members of this sample consists of: (1) PDAM Medan as many as 10 people, (2) Bappeda Medan by 4 people, (3) Bappeda North Sumatra province by 4 people, (4) Department of Industry and trade Medan by 4 people, (5) the Environment Agency in Medan as many as 4 people, (6) Department of Public Works and Irrigation Medan by 4 people, so the total sample of 30 people.

**Table 1:** Matrix of Pairwise Inversely Supporting Factors

	<b>AB</b>	<b>AE</b>	<b>AL</b>	<b>ASB</b>	<b>AK</b>	<b>ALK</b>
<b>AB</b>	1.000	1.652	1.531	2.096	2.063	1.159
<b>AE</b>	0.605	1.000	1.381	1.348	1.341	1.392
<b>AL</b>	0.653	0.724	1.000	1.272	1.229	1.033
<b>ASB</b>	0.477	0.742	0.786	1.000	0.987	0.605
<b>AK</b>	0.485	0.746	0.814	1.014	1.000	0.641
<b>ALK</b>	0.863	0.719	0.968	1.653	1.559	1.000
<b>Total</b>	<b>4.083</b>	<b>5.582</b>	<b>6.479</b>	<b>8.383</b>	<b>8.179</b>	<b>5.830</b>

Table 1 above shows the comparison between the supporting factors which biophysical aspects 0.605 times more in love than on economic aspects, in like 0.653 times more than the location aspect, 0.477 times more in love than on socio-cultural, 0.485 times more in respect of the institutional aspects and 0.863 times more in love than on environmental aspects. For pairwise comparisons between economic factors supporting 0724 times more in love than on aspects of location, 0742 times more in love than on socio-cultural aspects, 0.746 times more in love than on institutional aspects and 0719 times more in love than on environmental aspects. Also for pairwise comparisons between aspects of location factors supporting 0786 times more in love than on socio-cultural aspects, 0.814 times more in love than on

institutional aspects and 0.968 times more in love than on environmental aspects. For pairwise comparisons between the factors supporting the socio-cultural aspects 1,014 times more in love than on institutional aspects, 1,653 times more in love than on environmental aspects and for pairwise comparisons between aspects of institutional factors supporting 1,559 times more in love than on environmental aspects.

It concludes that the supporting factors for pairwise comparisons between the socio-cultural aspects in which the aspect is more important than the institutional aspect. However the institutional aspect is somewhat more important than the location aspects, economic aspects, environmental aspects and biophysical aspects. The relative importance of each factor from each row of the matrix can be expressed values and the value normalize is a relative value for each factor on each column, by comparing each with a scale value number of columns. The normalized principal eigenvector is the value average value - the overall average, which is obtained from the average normalized relative the values of each factor. This can be seen in Table 2 below:

**Table 2:** Average Line Matrix Support Factor

	<b>AB</b>	<b>AE</b>	<b>AL</b>	<b>ASB</b>	<b>AK</b>	<b>ALK</b>	<i>Main Eigenvektor</i>
<b>AB</b>	0.245	0.296	0.236	0.250	0.252	0.199	0.246
<b>AE</b>	0.148	0.179	0.213	0.161	0.164	0.239	0.184
<b>AL</b>	0.160	0.130	0.154	0.152	0.150	0.177	0.154
<b>ASB</b>	0.117	0.133	0.121	0.119	0.121	0.104	0.119
<b>AK</b>	0.119	0.134	0.126	0.121	0.122	0.110	0.122
<b>ALK</b>	0.211	0.129	0.149	0.197	0.191	0.172	0.175
<b>Total</b>							<b>1.000</b>

Major eigenvector is the value ratio of each factor on the table at the top of the respondent judge biophysical aspect factor which is the main factor following the economic aspects, environmental aspects, location aspects, institutional aspects and socio-cultural aspects. For him the biophysical aspect factor is  $0.246 / 0.184 = 1.339$  times more important than economic factors and factors of economic aspects are  $0.184 / 0.154 = 1.195$  times more important than the location aspect.

**Table 3:** Overall Ranking (Ranking Over All) Alternative Institutions

Alternative Institutions	Determinants of Institutions					
	AB	AE	AL	ASB	AK	ALK
	<b>0.246</b>	<b>0.184</b>	<b>0.154</b>	<b>0.119</b>	<b>0.122</b>	<b>0.175</b>
Government	0.305	0.316	0.302	0.309	0.342	0.321
Private - Government	0.394	0.396	0.418	0.401	0.392	0.386
Private	0.301	0.288	0.279	0.290	0.266	0.293

In Table 3, the eigenvector for each alternative explained determinants of biophysical aspects of government institutions value 0.305, while the Institution Private-Government have the value 0.394 and for the biophysical aspects of Private Institutions in value 0.301. For this aspect of Institution Private-Government higher value compare with the value in the Institute of Government and Private institutions. Excellence in Institution Private-Government can be seen from the water quality indicators in terms of turbidity and also, for the quality of treated water free production of chlorine substances, water quality volume for processed, raw water and the continuity / sustainability.

The deciding factor for the economic aspects of government institutions with a value of 0.316, while the Private - Government and the value of 0.396 and economic aspects of Private Institutions with a value of 0.288. For the economic aspect of this Institution Private-Government which is superior than the average cost of production for Institution Private-Government Rp.1,237 / m<sup>3</sup>, Private institutions Rp.1,559 / m<sup>3</sup> and Government Institutions Rp.2,425 / m<sup>3</sup>, with an average rate of Institution Private-Government than government agencies also smaller when compared to the other with the Institution Private-Government Rp.2,262 / m<sup>3</sup>, the average rates for government agencies Rp.2,474/m<sup>3</sup> and private institutions rate Rp.5,800 / m<sup>3</sup> in terms of the rate of profit Institution Private-Government is also greater with the percentage of 30% and 20% followed by the private Institute for government agencies while smaller by 2% due to bound rules.

Determinants of the location aspects for Government Agencies have the value 0.302, while the private-value 0.418. Government and aspects of the location value is 0.279 in Private Institutions. Private location aspect to the government is also a better indicator that can be seen from the technology used by the online analysis system within the production process is 30 minutes while for Government agencies ranging from the production process time of 120 minutes and time for production process fatherly private institutions 40 minutes. Another advantage of Private-Government Institutions can also be seen on the employee safety security system with fasilitas protective equipment and safety equipment is very complete. Determinants of socio-cultural aspects for Government Agencies with the value 0.309, while

for private-value 0.401 and Government and socio-cultural aspects of the value 0.290 for Private Institutions. In the socio-cultural aspects of this Private-Government is also superior where the average level of undergraduate education and skill levels of employees is also where the company is always better so that more effective training. Determinants of institutional aspects for Government Agencies with the value 0.342 while for Institution Private-Government value is 0.392 and 0.266 for Private Institutions value. Determinants of environmental aspects for Government Agencies with the value 0.321, while for Institution Private-Government value is 0.386 and environmental aspects for Private Institutions with the value 0.293. After making a comparison matrix of criteria with a further option to make the calculation priority.

**Table 4:** Determinants Vectors Preferences

Determinants of Factors	Average Classified
<b>AB</b>	0.246
<b>AE</b>	0.184
<b>AL</b>	0.154
<b>ASB</b>	0.119
<b>AK</b>	0.122
<b>ALK</b>	0.175
<b>Total</b>	<b>1.000</b>

**Table 5:** Selection of Alternative Institutions

Alternative Institutions	Score	Total
	Ranking	Percentage
<b>Government</b>	0.314	31,40
<b>Private - government</b>	0.397	39,70
<b>Private</b>	0.288	28,80
<b>Total</b>	1,000	100,00

Table 5 above explains the biophysical aspect is the most important criterion for the highest priority, followed by yaltu 0.246 0.184 economic aspects, environmental aspects 0.175, 0.154 location aspects, institutional aspects 0.122 and socio-cultural aspects are considered least important by 0.122 priorities. Based on the six criteria together, pillhan most desirable is a private institution of government with government priorities 0.397 followed by 0.314 and private priorities with the priorities

In decision-making problems, it is important to know how good consistency is, because we do not want the decision based on the consideration that has the consistency so low that it seems like a random consideration. On the other hand, is difficult to achieve perfect consistency. From the data previously tested its inconsistency ratio (CR) data less than 10% were considered consistent. To get the expected results, the sensitivity analysis performed on a priority existing alternative selection modes. Sensitivity analysis is done by trial and error on each factor. In this way it can be seen that the trend may determine its effect on the selection of alternative modes of shifting priorities. Consistency of what is said when the value is considered to meet the tolerance limits of consistency (<10%). From the table the value of consistency for all criteria and institutions has a value smaller than 10% (<10%). Furthermore, the calculation of alternative institutions consistency can be seen in Table 6 below:

**Table 6:** Consistency Alternative Institutions

Supporting Factors	Alternative Institutions	Average Line (B)	The result of the multiplication	Max	Mean	CI	CR
			Matrix (A)	(A/ B )	( $\sum \lambda_{max} / n$ )	(Mean-n)/(n-1)	(CI / RI )
<b>AB</b>	<b>Government</b>	0.305	0.861	2.824	3.059	0.030	0.051
	<b>Private government</b>	0.394	1.424	3.616			
	<b>Private</b>	0.301	0.824	2.737			
	<b>Total</b>			<b>9.177</b>			
<b>AE</b>	<b>Government</b>	0.316	0.932	2.946	3.068	0.034	0.059
	<b>Private government</b>	0.396	1.438	3.633			
	<b>Private</b>	0.288	0.756	2.626			
	<b>Total</b>			<b>9.205</b>			
<b>AL</b>	<b>Government</b>	0.302	0.846	2.802	3.093	0.046	0.080
	<b>Private government</b>	0.418	1.625	3.883			

	<b>Private</b>	0.279	0.725	2.594			
	<b>Total</b>			<b>9.278</b>			
<b>ASB</b>	<b>Government</b>	0.309	0.887	2.873	3.070	0.035	0.06 1
	<b>Private government</b>	0.401	1.479	3.688			
	<b>Private</b>	0.290	0.769	2.650			
	<b>Total</b>			<b>9.211</b>			
<b>AK</b>	<b>Government</b>	0.342	1.108	3.240	3.100	0.050	0.08 6
	<b>Private government</b>	0.392	1.416	3.609			
	<b>Private</b>	0.266	0.651	2.450			
	<b>Total</b>			<b>9.299</b>			
<b>ALK</b>	<b>Government</b>	0.321	0.967	3.017	3.083	0.041	0.07 1
	<b>Private government</b>	0.386	1.376	3.561			
	<b>Private</b>	0.293	0.782	2.670			
	<b>Total</b>			<b>9.248</b>			

## Conclusions

The water management model to front-run partnership between government and the private sector, is better than the management model by other institutions. Biophysical aspects are the most important criteria for the highest priority, followed by yaltu 0.246 0.184, economic aspects, environmental aspects 0.175, 0.154 location aspects, institutional aspects 0.122 and socio-cultural aspects are considered least important by 0.122 priorities. Based on the six criteria together, the most desirable option is a private institution of government with government priorities 0.397 followed by 0.314 and private priorities with the priorities 0,288. In general, private sector involvement in the provision of government for water service may take the form: (i) Contract Services; individual aspects of the provision of infrastructure (installation and water meter readings and pump station operation) handed over to the private sector for a certain period of time (6 months to 2 years). This category is less beneficial to the poor. Contract services are used in many places such as in Madras (India) and Santiago (Chile).

(ii) Contract Management; operate a private management company to obtain management services in whole or in part the operation. Contracts are short term (3 to 5 years) and are not directly related to the provision of services that focus on improving the quality of services rather than improving access of the poor. Management contracts held in Mexico City, Trinidad and Tobago. (iii) Contract Hire-Purchase (lease contracts); Private company leases the assets of the company and the government is responsible for operation and maintenance. Usually the lease contract term of 10-15 years. Private companies have the right of leasing revenue minus cost paid to the government. According to Panos (1998), the private company to obtain part of the revenue derived from the announcement of the bill payment. The concept of "enhanced lease" was introduced because in developing countries needed investment in the development of distribution systems, leak reduction and increase in coverage. Small improvement is the responsibility of the operator and a great investment for the processing facility is the responsibility of the government. Lease-purchase contracts are widely used in France, Spain, Czech, Guinea and Senegal.

(iv) Build Operation Transfer (Build Operate Transfer / BOT); BOT and a variety of long-term variations usually depends amortization period (25-30 years). Operators bear the risk in the design, build and operate assets. The payoff is in the form of cash collateral flow. At the end of the agreement, the private party to return all assets to the government. There are various forms of BOT. Implementation of BOT are in Australia, Malaysia and China. Under the principle of the BOT, the private sector funding will be used to construct and operate a facility or infrastructure system based on performance standards drawn up by the government. A period of time was given long enough for a private company in order to get back the costs incurred in building construction as well as the benefits to be obtained which is about 10 to 20 years. The government retains ownership of the infrastructure facilities and has two roles as users and regulators of the infrastructure services. (v) Concession-Concession term of 25 years is usually in the form of the transfer of all responsibility for capital investment and maintenance and operation to private operators.

Fixed assets owned by the government and private operators pay service use. Low rates may be made by reducing the amount of amortized capital, which could benefit the poor if they become customers. Concessions by the target coverage clearly lead to services for the whole population which can be the right tool in harnessing the ability of increasing private investment, provide good service and establish adequate rates. Through this way, the government set the rates through the regulatory system and monitor the quality of service. The concession has a long history in France, which then developed in Buenos Aires (Argentina), Macao, Manila (Philippines), Malaysia and Jakarta. In a concession, the Government gives full responsibility and management of the contractor (concessionaire) private infrastructure to provide services in certain areas things, including the operation, maintenance, collection and management.



Concessionaire is responsible for most of the investments that are used to build, increase capacity, or expand the network system, in which the concessionaire obtain financing on investment incurred derived from rates paid by consumers. While the role of the government is responsible to provide performance standards it also guarantees to the concessionaire. (vii) Divestiture; this category is the most extreme form of privatization, in the form of transfer of assets and operations to the private sector, either in whole or in part of assets. The government is only responsible for the regulation. There are not many examples of divestiture, only England and Wales have it on a large scale.



## REFERENCES

- Central Bureau of Statistics. 2011. North Sumatra in Figures 2011. Statistics Indonesia, Medan.
- Central Bureau of Statistics. 2010. Medan in Figures 2010. Statistics Indonesia, Medan City
- Budiharsono, S. 2005. Technical Analysis of Coastal and Ocean Regional Development. Second printing. Pradnya Paramita Jakarta.
- Douglass, M. 2001. Urban and Regional Policy after the Era of Naïve Globalism 'in A. Kumasa and T. McGee (ed), New Regional Development Paradigms: Globalization and the New Regional Development, Greenwood Press, Westport, Connecticut, p. 33-56.
- Friedman, J and Allonso 1964. Regional Economics Development and Planing. MT Press. London
- Hair J.F anderson R.E, Tatham R.L, William C.B, (1998). Multivativariate Data Analysis International, Inc.
- Hanafiah, T. 1982. Regional Approaches to Development Problems Rural. IPB Agriculture Faculty. Bogor.
- Hirschman 1958. The Strategy of Economics Development. Yole University Press. Sixteenth
- Isard, W. 1960. Method of Regional Analysis: An Introduction to Regional Science ', The MIT Press, Cambride, Massachusetts.
- Khaddafi Muammar, Wahyuddin, heikal Mohd, falahuddin and maulida Rahmatul (2018), "Effect of Corporate Governance Mechanism, Independence and Management of Earnings Integrity of Financial Statements" Journal of Quality Access to Success, Vol. 19, No. 164 / June 2018
- Khaddafi Muammar, Raza Hendra, Heikal Mohd (2015), "Effect Of Budgetary Participation And Adequacy Budget On Individual Performance With Job Satisfaction As An Intervening Variable" International Journal of Economics, Commerce and Management, Vol. III, Issue 2, Feb 2015
- Miraza, B.H., 2005. Regional Planning and Development. Indonesian Institute of Economics Association Bandung Branch, West Java Coordinator, Bandung.
- Myrdal, Gunnar. 1960. Economic Theory and Underdeveloped Regions of London: Gerald Duckworth & Co.



Myrdal, Gunnar. 1970. *Objectivity in Social Research* London: Gerald Duckworth & Co.  
Sugiyono 2006. *Administrative Research Methods*. Alfabeta, Bandung.

Pamungkas Davit Imang, Ghazali Imam, Ahmad Tarmizi and Khaddafi Muammar (2018),  
"Corporate Governance Mechanisms in Preventing Accounting Fraud: A Study of  
Pentagon Model Fraud", *Journal of Applied Economic Sciences* Volume XIII, Issue 2  
(56), Spring 2018

Tarigan 2004. *Regional Development Planning*. PT. Earth Aksara. Jakarta