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Feasibility Study Economic Development of Divari Medical Center (DMC) Hospital

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Abstract

The general purpose of this Feasibility Study is to conduct a physical and economic feasibility study on the plan to upgrade the status of the Divari Medical Center (DMC) Clinic to a Class D Primary Hospital in West Manokwari District, Manokwari Regency, West Papua Province. Specifically, it aims to analyze the economic feasibility of the plan to upgrade the status of the Divari Medical Center (DMC) Clinic to a Class D Primary Hospital. Data was collected through field research to obtain primary and secondary data. Data analysis and processing is carried out in stages (a) structuring, classifying, compiling, and tabulating data referring to the results of literature studies, field surveys and interviews conducted, (b) analyzing economic feasibility studies including investment plans and sources of funds, projections income and costs, Cash Flow projections, Break Event Point (BEP) values, Internal Rate of Return (IRR) values, and Net Present Value (NPV) values, (c) formulating study results in the form of economically feasible or not. Based on the results of financial analysis through NPV, PP, IRR and BCR as well as BEP, that the investment plan for the development of the Divari Medical Center (DMC) Clinic into a Class D Pratama Hospital is economically feasible.

Keywords: Feasibility Study, Hospital, Eligible

1. INTRODUCTION

Health is a human right and one of the elements of welfare that must be realized in accordance with the ideals of the Indonesian nation as referred to in Pancasila and the 1945 Constitution. As an integral part of national development, health development aims to increase awareness, ability and willingness to healthy life for everyone so as to realize the highest degree of public health. Health development carried out by the government and the private sector has succeeded in significantly increasing health status, although it has not been able to be enjoyed equally by all levels of society in Indonesia, especially people who live in remote locations, including in coastal areas, small islands. and expansion areas. In Law Number 36 of 2009 concerning Health, it expressly mandates the government to be responsible for planning, regulating, organizing, fostering, and supervising the implementation of health efforts that are equitable and affordable by the community.

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The problem of limited access and equitable distribution of hospital service facilities is currently not only dominated by disadvantaged areas, borders and islands, but is also found in urban areas where the capacity of hospital care is not proportional to the number of residents around it. This condition often creates unhealthy competition for hospital service users in getting priority service opportunities, which ultimately makes it difficult for the community to get health services with all their limitations. In line with the demands of the community's needs for health services in accordance with the provisions of the legislation, it is hoped that the development of the Divari Medical Center (DMC) Clinic into a Class D Pratama Hospital in Manokwari Regency can make a positive contribution to the fulfillment of treatment capacity while still prioritizing health services. quality and affordable by all levels of society. However, the plan to develop the Divari Medical Center (DMC) Clinic into a Class D Pratama Hospital in Manokwari Regency and taking into account the applicable provisions and regulations, a feasibility study is first carried out with reference to the guidelines for preparing a feasibility study. Hospitals issued by the Directorate of Medical Support Services and Health Facilities, Directorate of Health Efforts, Ministry of Health 2012. This feasibility study is a comprehensive study or analysis of the various components of the infrastructure and facilities development plan, both technically and economically. However, this paper only presents related aspects of economic feasibility.

One element of the object that is felt to be still having problems is in terms of service standardization which of course refers to the availability of facilities/facilities. Judging from the social aspect of the population, the condition of the community in the vicinity of the location and the people of the city of Manokwari in general are people with a religious environment and uphold religious values. This is one of the foundations and foundations for planning an area so that the resulting development does not reduce or violate social values and norms in the Manokwari Regency area. The location of the hospital designation is a potential land that has the potential to be developed, but in the development of an area it cannot be separated from various factors as considerations that support this development. The factors include, (1) environmental factors; (2) socio-economic factors; (3) population factor; (4) infrastructure factors; (5) the factor of carrying capacity and land capacity; and (6) institutional and financing factors. Another thing that is considered for the development of a land is the aspirations of the community towards development planning and the ability of the location to absorb and attract the community, also pay attention to the possibility of problems that will arise and have a negative impact on population development in the future. However, what needs to be observed is that planning is created to make an area better, more efficient and effective that can be used for the wider community. Given the complexity of the components that must be studied, the problems that will be discussed in this study will be limited to the technical and economic aspects of the planned development of the Divari Medical Center (DMC) Clinic into a Class D Primary Hospital. This is expected to be able to answer the question, whether technically and economically the hospital is indeed feasible or not to be developed.

The general objective of this feasibility study is to conduct a feasibility study on the planned construction of the Divari Medical Center (DMC) Clinic into a Class D Primary Hospital. Specifically, it aims to determine the feasibility of the economic aspect. While the benefits obtained are being able to determine the economic feasibility related to investment plans and sources of funds, projected income and costs, cash flow projections, break event point (BEP) values, internal rate of return (IRR) and net present value (NPV) values.

2. RESEARCH METHOD

The research location is located in Wosi Village, West Manokwari District, Manokwari Regency. Implementation time starts from December 2018 to February 2019. This study was designed as a study using quantitative methods. Quantitative research is based on the philosophy of positivism which emphasizes objective phenomena and is studied quantitatively. The objectivity of

this research design was maximized by using numbers and statistical processing. Primary and secondary data collection methods in this study were carried out through:

- Literature study of the understanding of health, health facilities, laws and regulations on health and hospitals, policies of the West Papua Provincial Government and Manokwari Regency Government related to the development of the health sector, methods of calculating the economic feasibility of a hospital, and things that are correlated with the hospital development plan from various sources/libraries.
- Field survey (observation) to get the latest conditions
- Interviews (interviews) with stakeholders, namely related technical officials, health actors, and the community.

Data analysis and processing is carried out in stages (a) structuring, classifying, compiling, and tabulating data referring to the results of literature studies, field surveys and interviews conducted, (b) analyzing economic feasibility studies including investment plans and sources of funds, projections income and costs, Cash Flow projections, Break Event Point (BEP) values, Internal Rate of Return (IRR), and Net Present Value (NPV) values (Arifal Hidayat, 2014 and Anna Mathofani, 2015), (c) formulating results a study in the form of economically feasible or not the plan for the construction of the Class D Primary Divari Medical Center (DMC) Hospital in West Manokwari District, Manokwari Regency as a basis for determining next steps.

3. RESULT AND DISCUSSION

Financial Overview

The Divari Medical Center Clinic, which will be developed into a Class D Pratama Hospital, is a private hospital, so its operational financing is sourced from the income obtained from the hospital and is carried out independently. The financial analysis study conducted is part of one of the requirements regarding hospital development. Financial studies were conducted to obtain an overview of future revenue projections after the operation of the hospital. The analysis carried out includes the calculation of investment costs (total investment) and funding sources, income projections and expenditure projections.

Hospital Investment

An overview of the investment projections for the development of the Divari Medical Center Clinic into a Class D Pratama Hospital is presented in table 1 below.

Table 1. Total Investment

No.	Description	Volume	Investment Value
1.	Furniture	1 lot	171.875.000
2.	Medical devices	1 package	862.012.999
3.	WWTP	1 unit	250.000.000
4.	Design and Supervision (Assumptions)	1 lot	1.705.000.000
5.	Land	513 M2	513.000.000
6.	Network And Utilities 25% Of Structure Fee	lot	426.250.000
Total Investment			**3.928.137.999**

From table 1 above, it can be seen that the total investment required in the development of the Divari Medical Center Clinic into a Class D Primary Hospital is Rp. 3,928,137,999. The source of total investment capital is sourced from equity or own capital.

Revenue Source Projection Assumption

Based on the assumptions taken in 2017 and the projected financial analysis, in detail the projected operating income consists of inpatient revenue, laboratory income, and radiology revenue.

Assumption of Projected Inpatient Income

Inpatient revenue projection assumptions are calculated based on the number of beds and the number of patients accommodated for each type of room.

- Projected annual rate increase of 5%
- The number of hospitalized patients is assumed to increase by 10% per year

From the assumptions above, the projected income for inpatient 2019-2028 can be seen in table 2.

Table 2. Projected Income 2019 - 2028 from Hospitalization

No.	Year	Total Income
1	2019	900.033.750
2	2020	1.039.486.613
3	2021	1.200.591.410
4	2022	1.260.620.980
5	2023	1.323.652.029
6	2024	1.389.834.630
7	2025	1.459.326.362
8	2026	1.532.292.680
9	2027	1.608.907.314
10	2028	1.689.352.680

Laboratory Revenue Projection Assumption

Assumption of income projection from laboratory operational results using the following indicators:

a. Number of patients who check themselves per year.

b. Projected increase in income by 10% per year.

Revenue projections from the laboratory for the period 2019 to 2028 are presented in table 3.

Table 3. Revenue Projection 2019-2028 Laboratory

No.	Year	Income
1.	2019	56.278.821
2.	2020	61.906.703
3.	2021	68.097.373
4.	2022	74.907.110
5.	2023	82.397.821
6.	2024	90.637.604
7.	2025	99.701.364

No.	Year	Income
8.	2026	109.671.500
9.	2027	120.638.650
10.	2028	132.702.515

Radiological Income Projection Assumption

Assumptions of opinion projections sourced from radiology using the following indicators:
a. Number of patients who check themselves per year.
b. Projected increase in income by 10% per year.

Table 4. Projected Revenue 2019-2028 from Radiology

No.	Year	Income
1.	2019	59.687.100
2.	2020	65.655.810
3.	2021	72.221.391
4.	2022	79.443.530
5.	2023	87.387.883
6.	2024	96.126.671
7.	2025	105.739.339
8.	2026	116.313.272
9.	2027	127.944.600
10.	2028	140.739.060

Business Cost Projection

Business costs are costs that are directly related to hospital operations and are a priority cost element. These costs include general administrative costs, salary costs, doctor services fees, food costs, maintenance costs, medicines, medical equipment, office stationery (ATK). The projected cost of this business is assumed to increase annually by 10%. The following is a table of projected business costs for 2019-2028.

Table 5. Projected Business Costs for the 2019-2028 Period

No.	Year	Cost
1.	2019	384.375.375
2.	2020	422.812.913
3.	2021	465.094.204
4.	2022	511.603.625
5.	2023	562.763.987
6.	2024	619.040.386
7.	2025	680.944.425
8.	2026	749.038.867
9.	2027	823.942.754
10.	2028	906.337.029

Projected Operating Results (Cash Flow Projected)

Projected operating results are projections generated from operating income deducted by operating costs. Projected results of this business is a picture of the business obtained after deducting taxes and generates net cash flow. The following is an illustration of projected operating results for 2019 - 2028.

Table 6. Projected Business Costs for the Year 2019-2028

No.	Year	Income	Cost	Net Cash Flow
1	2019	1.015.999.671	384.375.375	505.299.436
2	2020	1.167.049.125	422.812.913	595.388.970
3	2021	1.340.910.174	465.094.204	700.652.775
4	2022	1.414.971.620	511.603.625	722.694.397
5	2023	1.493.437.734	562.763.987	744.538.997
6	2024	1.576.598.905	619.040.386	766.046.816
7	2025	1.664.767.064	680.944.425	787.058.112
8	2026	1.758.277.453	749.038.867	807.390.869
9	2027	1.857.490.564	823.942.754	826.838.248
10	2028	1.962.794.255	906.337.029	845.165.781

Project Feasibility Analysis

Net Present Value (NPV)

Net Present Value is used to analyze the feasibility of an investment whether the investment is feasible or not. An investment is declared feasible and profitable if the NPV shows a positive value. The following is a table that describes the NPV value. The assumption used is the interest rate is 10%.

Table 7. DMC Hospital Net Present Value 2019-2028

Interest	10,00%	
YEAR	**CF**	**PRESENT VALUE**
0	-3.932.637.999	-3.932.637.999
1	505.299.436	459.363.124
2	595.388.970	492.057.000
3	700.652.775	526.410.800
4	722.694.397	493.609.997
5	744.538.997	462.300.139
6	766.046.816	432.413.457
7	787.058.112	403.885.260
8	807.390.869	376.653.799
9	826.838.248	350.660.132
10	845.165.781	325.847.995
TOTAL PV		**4.323.201.702**
NPV		**390.563.703**

Table 7 above illustrates that the NPV value up to the 10th year shows positive results. Even if it is observed up to the 9th year, it shows a positive NPV. These results indicate that the investment is declared feasible.

Calculation of Internal Rate of Return

Internal Rate of Return is the rate of return of an investment which at the time NPV = 0. An investment is declared feasible if the IRR value is greater than the assumed interest rate. Based on the tests conducted, the IRR value is 12.08% or greater than the assumed interest rate of 10%. Thus, the investment invested is declared feasible to continue.

Table 8. DMC Hospital Internal Rate of Return 2019-2028

Interest	**10,00%**	
YEAR	**CF**	**PRESENT VALUE**
0	-3.932.637.999	-3.932.637.999
1	505.299.436	459.363.124
2	595.388.970	492.057.000
3	700.652.775	526.410.800
4	722.694.397	493.609.997
5	744.538.997	462.300.139
6	766.046.816	432.413.457
7	787.058.112	403.885.260
8	807.390.869	376.653.799
9	826.838.248	350.660.132
10	845.165.781	325.847.995
	TOTAL PV	4.323.201.702
	NPV	**390.563.703**
	IRR	**12,08%**

Payback Period (PP)

Analysis of the payback period is the period of time needed to return the capital funds that have been issued by investors. In Indonesian, the payback period in the business world is more often referred to as the payback period. By using the payback period, it turns out that this hospital construction investment, if assumed under the conditions above, has been able to return all investment costs after 6 years and 2 months. Complete calculation results can be seen in table 9.

Table 9. Financial Analysis

Interest	**10%**			**Interest**		
YEAR	**CF**	**PRESENT VALUE**	**PP**	**YEAR**	**CF**	
0	-3.932.637.999	-3.932.637.999	-3.932.637.999	0	-3.932.637.999	-3.932.637.999
1	505.299.436	459.363.124	-3.427.338.563	1	505299436,2	447.167.643
2	595.388.970	492.057.000	-2.831.949.593	2	595388969,8	466.276.897
3	700.652.775	526.410.800	-2.131.296.818	3	700652775,4	485.587.520

4	722.694.397	493.609.997	-1.408.602.421	4	722694396,6	443.242.008
5	744.538.997	462.300.139	-664.063.424	5	744538997	404.105.938
6	766.046.816	432.413.457	**101.983.392**	6	766046815,6	367.946.478
7	787.058.112	403.885.260		7	787058111,9	334.547.428
8	807.390.869	376.653.799		8	807390868,6	303.708.037
9	826.838.248	350.660.132		9	826838248,3	275.241.913
10	845.165.781	325.847.995		10	845165780,5	248.975.991
	TOTAL Pv	**4.323.201.702**			**TOTAL Pv**	**3.776.799.853**
	NPV	**390.563.703**			**NPV**	**-155.838.146**
	IRR	**12,0807%**				
	Interpolasi	**4.323.201.702**				
		3.776.799.853	**12,14%**			
		546.401.849				
	PP	**2**				
		6,2 TAHUN				
	BCR	**1,86**				

Calculation of Benefit Cost Ratio (BCR)

Benefit to Cost Ratio analysis is a comparison between a series of future revenues after being assessed at this time (using a discount factor) with expenses (investments) made at this time. An investment is said to be feasible and profitable to run if the BCR shows a number more than 1 (one). Based on the tests carried out on the BCR indicator, the resulting value is 1.86. The BCR value is greater than 1 so that the investment in hospital development is declared feasible.

Break Event Points

In this BEP calculation, the number of hospitalizations in each class, the number of days of treatment and the rate of hospitalization are taken into account to obtain the totality of income in each room. Next, the sales mix or income is calculated in each room. This sales mix will be used to obtain BEP in rupiah and in units. Based on the calculation, the BEP rate for each room in rupiah is Rp. 318,857,613 a year and the BEP in units (days) is 672 days. Based on the results of the financial analysis above, namely NPV, PP, IRR and BCR as well as BEP, simultaneously investing in the development of the Divari Medical Center (DMC) Clinic into a Class D Pratama Hospital is economically declared "FEASIBLE".

4. CONCLUSION

Based on the results of the feasibility study, it can be concluded that the results of the analysis through the Net Present Value (NPN) with the assumption of an interest rate of 10% that in the 10th year shows a positive NPN which means that the investment is declared feasible. The results of the Internal Rate of Return (IRR) analysis show a value of 12.08% or greater than the assumed interest rate of 10%, which means that the investment invested is declared feasible to continue. The results of the Payback Period (PP) analysis show that this hospital construction investment will be able to return all investment costs after 6 years and 2 months. The results of the analysis of the Benefit to Cost Ratio (BCR) indicator turned out to be 1.86. A BCR value greater than 1 indicates that the hospital development investment is eligible. The results of the analysis of the Break Event Point (BEP) level for each room in rupiah are IDR 318,857,613 per year and the BEP in units (days) is 672 days. Based

on the results of the financial analysis through the NPV, PP, IRR, BCR and BEP simultaneously, it illustrates that the investment in the development of the Divari Medical Center (DMC) Clinic into a Class D Pratama Hospital is economically declared "FEASIBLE".

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