Mathematical Formulation for the AlliSya Protection Plus Integration Model

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Abstract. AlliSya Protection is a unit link sharia life insurance product that offers two benefits at once, that is the benefits of protection and investment. Some additional benefits are also offered by this product in the form of the risk of critical illness, disability, hospitalization, accidents, and premium exemption. The explanation of unit link sharia insurance product is generally presented in the form of summary illustrations that can be varied in shape and many pages. In this paper will be discussed about the integration model as an alternative presentation form of summarizing illustrations of unit link sharia insurance, namely AlliSya Protection Plus. Through the mathematical formulation written in each column of the model integration table, will be seen the premium fund management scheme of unit link sharia which is more clearly, sequentially and easily readable.

Keywords: Unit Link Sharia Life Insurance, Integration Model, Mathematical Formulation, Premium Fund Management Scheme

1 Introduction

Sharia link unit is a sharia insurance product that combines insurance with investment. If someone becomes a customer of this product, there will be two benefits at once, namely insurance and investment protection [18]. Similarly in premium payments, there is a portion of protection premium payments and a portion of investment premium payments. Payment of protection premiums is the same as payment of insurance premiums in general, while the next payment of investment premiums will be managed by the company for investment units in certain products. If the investment result is profitable and can cover the premium costs, then the customer has the option to not pay the premiums in a certain period.

AlliSya Protection Plus is one of life in insurance products combined with sharia-based investments. This insurance product offers basic benefits in the form of life insurance and additional benefits in the form of money insurance for the risk of critical illness, disability, hospitalization, accidents and premium exemptions [20]. Illustrations of AlliSya Protection Plus are presented in several sheets containing information about the amount of premiums, summary of benefits, summary of transactions, death compensation illustrations and other

ICONISTECH 2019, July 11-12, Bandung, Indonesia

DOI 10.4108/eai.11-7-2019.2298026

information. In this paper will be discussed about the integration model as an alternative illustration presentation of AlliSya Protection Plus, in the form of table.

2 Methodology

The figure 1 below is a scheme of managing premium funds for life insurance unit link sharia AlliSya Protection Plus [20]. This scheme is information that must be conveyed to customers, so that the excellence of sharia insurance in terms of transparency are well conveyed.

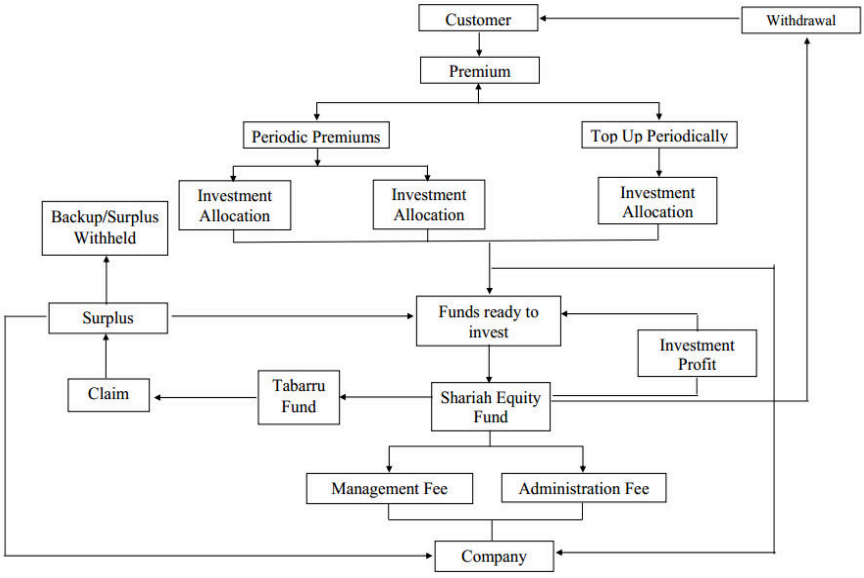

Figure 1. AlliSya Protection Plus Premium Fund Management Scheme

Figure 1 above explains the premium fund management scheme of AlliSya Protection Plus, in which the premiums paid by the customer to the company will be divided into periodic premium accounts (protection) and periodic top up accounts (investment). Periodic premiums will be re-divided into investment portions and acquisition costs. While the periodic top up will all be used as an investment portion. Each investment portion that if combined will be used as an investment fund. In this scheme, the investment instruments taken is *sharia equity fund*. Investment returns are used for management fees, administrative fees and *tabarru* funds. Furthermore, *tabarru* funds will be used for claim payments. If there is a *surplus* (residual), it will return to being an investment and reserve fund.

Some terms are written on the AlliSya Protection Plus premium fund management scheme, including: [20]

1 Premiums : The amount of money that must be paid by the customer as an obligation of the insured for his participation in insurance
2 Periodic Premiums : Premium portion for predictions

3	Periodic Top Up	:	Portion of premium for investment
4	Acquisition Cost	:	The cost of managing or operating costs to run the business of an insurance company
5	*Syariah Equity Fund*	:	An investment fund that aims to obtain optimal investment returns in the medium and long term through the placement of funds in quality stocks in accordance with sharia principles
6	*Tabarru*	:	The welfare fund that has been intended by the customer for the purpose of helping and assisting each other, is payable if a customer dies and or the agreement has expired.
7	Claim	:	An official request to an insurance company, to request payment under the terms of the agreement
8	*Surplus*	:	The difference is more/less than the total premium of the customer to the t*abarru* fund after deducting the payment of compensation/claims, reinsurance contributions, and technical reserves, in a given period.

3 Ilustration of AlliSya Protection Plus

Suppose a 37-year-old father insures his 1-year-old daughter with a premium of Rp. 5,000,000 annually, the benefits to be obtained include: [20]

1. The Basic benefits of death compensation in the amount of Rp. 125,000,000 is valid until the protection period is completed.
2. Additional benefits:
   a. CI Plus (49 critical illnesses) of Rp. 250,000,000 is valid until the protection period is complete.
   b. Allisya Hospital & Surgical Care of (hospital fees) with Plan 500 (hospital type) is valid until the insured is 80 years old.
   c. ADDB Syariah (died or disability due to an accident) of Rp. 100,000,000 applies until the insured is before 65 years old.
   d. Payor B. Basic (exemption from paying regular premiums) of Rp. 3,000,000 per year applies until the premium payer is 65 years old.
   e. Payor B. TUPR (periodic Top Up payment exemption) of Rp. 2,000,000 per year is valid until the premium payer is 65 years old.

Table 1. The Benefits of AlliSya Hospital and Surgical Care (Plan 500)

No	Compensation	Maximum Limit	Plan 500	Description
			IDR	
1	Room	Max 180 days per year	500.000	Per day
2	ICU Room	Max 30 days per year	700.000	Per day
3	Visit of the Treating Doctor	Max 180 days per year	150.000	Per day
4	Specialist Consultation	Max 180 days per year	175.000	Per day
5	Surgery			

	Complex Surgery	Per period of hospitalization	82.000.000	1 hospitalization period = 30 days
	Major Surgery	Per period of hospitalization	53.300.000	
	Moderate Surgery	Per period of hospitalization	36.900.000	
	Small Surgery	Per period of hospitalization	20.500.000	
6	Miscellaneous charges	Per period of hospitalization	8.500.000	
7	Before and After-admission fee	Per hospitalization period 30 days before and 90 days after	2.000.000	
8	Private Nurse at Home	Max 180 days per year	250.000	
9	Outpatient and Emergency Teeth due to Accidents	Per incident for 14 days	5.000.000	
10	Ambulance	Per period of hospitalization	350.000	

Complete data of the AlliSya Protection Plus can be viewed through:
https://drive.google.com/file/d/1M35A4y3A1ToFA4u2lxJKdqYr79gos5M4/view?usp=sharing

4 Mathematical Formulation of AlliSya Protection Plus Integration Model

AlliSya Protection Plus is a unit link sharia product with a protection period until the insured aged 100 years and premium payments until the insured aged 99 years. The first stage done before compiling the integration model table for AlliSya Protection Plus is to create a proposal table. This table is based on information from the illustrations of AlliSya Protection Plus. This proposal must be clear and cover all possibilities that will occur within the period of insurance contract and are generally referred to as client proposals [5].

Table 2. AlliSya Protection Plus Client Proposal

No	Item	Notation	Description
1	Premium	P	Rp. 5.000.000 per year
2	Child: Female non-smokers	k years	1 year old
3	Father	k years	37 years old
4	Contract Period	n years	100 years old
5	Periodic Premiums	Pb	Rp. 3.000.000 per year
6	Periodic Top Up	Tub	Rp. 2.000.000 per year
7	Acquisition Cost	W	75%, 40%, 15%, 7.5%, 7.5%
8	Investment Allocation	I	25%, 60%, 85%, 92.5%, 92.5%, ... ,105,26%
9	Administration Fee	Adm	Rp. 318.000 per year
10	Management Fee	Bp	2%
11	Margin (i)	r (per year)	5%
12	Surrender Value	Sv	
13	Tabarru Basic Insurance	t_1	Rp. 121.248

14	Tabarru CI Plus	t_2	Rp. 227.496
15	Tabarru Payor B. Basic	t_3	Rp. 102.000
16	Tabarru Payor B. TUPR	t_4	Rp. 68.004
17	Tabarru ADDB Sharia	t_5	Rp. 135.000
18	Tabarru Allisya Hospital & Surgical Care	t_6	Rp. 2.068.800
19	Basic Insurance		Rp. 125.000.000
20	CI Plus		Rp. 250.000.000
21	Payor B. Basic		Rp. 3.000.000 per year
22	Payor B. TUPR		Rp. 2.000.000 per year
23	ADDB Sharia		Rp. 100.000.000
24	Allisya Hospital & Surgical Care +		Plan 500

Using information from Tables 1 and 2, the mathematical equations needed to compile the AlliSya Protection Plus integration model table include:

a. Premi (P)

$P_1 = 5.000.000 * 1 = 5.000.000$
$P_2 = 5.000.000 * 2 = 10.000.000$
$P_3 = 5.000.000 * 3 = 15.000.000$
$\vdots$
$P_n = P * \mathrm{n}$
with $n = 1, 2, \ldots, 99.$

The next premium payments will be divided into 2 accounts, which is 40% for Periodic Top Up (TUb) and 60% for Periodic Premiums (Pb).

b. Periodic Top Up (TUb)

$\mathrm{TUb}_1 = 40\% * 5.000.000 = 2.000.000$
$\mathrm{TUb}_2 = 40\% * 10.000.000 = 4.000.000$
$\mathrm{TUb}_3 = 40\% * 15.000.000 = 6.000.000$
$\vdots$
$\mathrm{TUb}_\mathrm{n} = 40\% * P_n$
with $n = 1, 2, \ldots, 99.$

c. Periodic Premiums (Pb)

$\mathrm{Pb}_1 = 60\% * 5.000.000 = 3.000.000$
$\mathrm{Pb}_2 = 60\% * 10.000.000 = 6.000.000$
$\mathrm{Pb}_3 = 60\% * 15.000.000 = 9.000.000$
$\vdots$
$\mathrm{Pb}_\mathrm{n} = 60\% * P_n$
with $n = 1, 2, \ldots, 99.$

Periodic Top Up accounts are fully invested, while the Periodic Premium accounts for the first 5 years are divided into 2 accounts for acquisition and investment costs, while the 6th year and so on the Periodic Premiums is fully invested and added 5.26% of Periodic Premiums.

d. Acquisition Cost (W)

$\mathrm{W}_1 = 75\% \times 3.000.000 = 2.250.000$
$\mathrm{W}_2 = 40\% \times 3.000.000 = 1.200.000$
$\mathrm{W}_3 = 15\% \times 3.000.000 = 450.000$

$W_4 = 7{,}5\% \times 3.000.000 = 225.000$
$W_5 = 7{,}5\% \times 3.000.000 = 225.000$
$W_n = p\% \times Pb_1$
with $n = 1, \dots, 5$.

e. Investment Allocation (I)
$I_1 = 25\% \times 3.000.000 = 750.000$
$I_2 = 60\% \times 3.000.000 = 1.800.000$
$I_3 = 85\% \times 3.000.000 = 2.550.000$
$I_4 = 92{,}5\% \times 3.000.000 = 2.775.000$
$I_5 = 92{,}5\% \times 3.000.000 = 2.775.000$
$I_6 = 105{,}26\% \times 3.000.000 = 3.157.800$
$\vdots$
$I_n = q\% * Pb_1$
with $n = 1, 2, \dots, 99$.

f. Investment Funds (DI)
Calculate the investment funds, namely surrender value plus Periodic Top Up plus investment portion.
$DI_1 = 0 + 2.000.000 + 750.000 = 2.750.000$
$DI_2 = 2.743.125 + 2.000.000 + 1.800.000 = 6.543.125$
$DI_3 = 3.550.450 + 2.000.000 + 2.550.000 = 8.100.450$
$\vdots$
$DI_n = Sv_n + TUb_1 + I_n$
with $n = 1, 2, \dots, 100$.

g. *Profit* (Pr)
Calculate the profit which is 5% of investment funds
$Pr_1 = 5\% * 2.750.000 = 137.500$
$Pr_2 = 5\% * 6.543.125 = 327.156$
$Pr_3 = 5\% * 8.100.450 = 405.022$
$\vdots$
$Pr_n = 5\% * DI_n$
with $n = 1{,}2, \dots, 100$.

h. Investment Value (NI)
Calculating the value of investment is the sum of investment funds and *profits*.
$NI_1 = 2.750.000 + 137.500 = 2.887.500$
$NI_2 = 6.543.125 + 327.156 = 6.870.281$
$NI_3 = 8.100.450 + 405.022 = 8.505.4772$
$\vdots$
$NI_n = DI_n * Pr_n$
with $n = 1, 2, \dots, 100$.

i. Management Fee (Bp)
Calculating management costs is 2% of the investment value
$Bp_1 = 0$
$Bp_2 = 0$
$Bp_3 = 2\% * 6.870.281 = 137.406$
$\vdots$
$Bp_n = 2\% * NI_n$
with $n = 1{,}2, \dots, 100$.

j. Total *Tabarru* (T)
Total *tabarru* is the sum of all *tabarru* of each benefit
For example:
t_1 = Basic insurance = 121.248
t_2 = CI Plus = 227.496
t_3 = Payor B. Basic = 102.000
t_4 = Payor B. TUPR = 121.248
t_5 = ADDB Syariah = 68.004
t_6 = Allisya Hospital & Surgical Care = 2.068.800
Then:
$\mathrm{T}_1 = 121.248 + 227.496 + 102.000 + 121.248 + 68.004 + 2.068.800 = 2.722.548$
⋮
$\mathrm{T}_\mathrm{n} = t_{1_n} + t_{2_n} + t_{3_n} + t_{4_n} + t_{5_n} + t_{6_n}$

k. The Remaining Balance (S)
$\mathrm{S}_1 = 0$
$\mathrm{S}_2 = 2.887.500 - 0 - 0 - 0 = 2.887.500$
$\mathrm{S}_3 = 6.870.281 - 137.406 - 2.722.548 - 318.000 = 3.692.328$
⋮
$\mathrm{S}_\mathrm{n} = \mathrm{NI}_{\mathrm{n}-1} - \mathrm{BP}_\mathrm{n} - \mathrm{T}_\mathrm{n} - \mathrm{Adm}$
with $n = 1,2,\ldots,100$.

l. Surrender Value (Sv)
Surrender value is the remaining balance multiplied by 95%, because it assumes 5% for the difference between buying and selling shares.$\mathrm{Sv}_1 = 0$
$\mathrm{Sv}_2 = 2.887.500 * 95\% = 2.743.125$
$\mathrm{Sv}_3 = 3.692.328 * 95\% = 3.507.711$
⋮
$\mathrm{Sv}_\mathrm{n} = \mathrm{S}_\mathrm{n} * 95\%$
with $n = 1,2,\ldots,100$.

Furthermore from the mathematical equations acquired, will be compiled into Table 3 and named the mathematical equations of AlliSya Protection Plus Integration Model [3], [4], [6-12], [14-17].

Table 3. Mathematical Equations of AlliSya Protection Plus Integration Model

Year	Age of Child	Father's age	Premium	Periodic premiums	Periodic Top Up	Acquisition Cost	Investment Allocation	Investment Fund	*Profit*	Investment Value	Management Fee	Total Tabarru	Administration Fee	Remaining Balance	Surrender Value	Tabarru						Benefits Value						Maslahat Died
																Basic Insurance	CI Plus	Payor B. Basic	Payor B. TUPR	ADDB Sharia	AlliSya Hospital & Surgical Care	Basic Insurance	CI Plus	Payor B. Basic	Payor B. TUPR	ADDB Sharia	AlliSya Hospital & Surgical care	
1	1	37	P(1) = P	Pb(1) = 60%*P(1)	TUb(1) = 40%*P(1)	W(1) = 75%*Pb(1)	I (1) = 25%* Pb(1)	DI(1) = Sv(1) + TUb(1) + I(1)	Pr(1) = 5%* DI(1)	NI(1) = DI(1) + Pr(1)	Bp(1) = 0	T(1) = t1(1) + t2(1) + t3(1) + t4(1) + t5(1) + t6(1)	Adm(1) = 0	S(1) = 0	Sv(1) = 0	t1(1) = 0	t2(1) = 0	t3(1) = 0	t4(1) = 0	t5(1) = 0	t6(1) = 0			Pb*1	TUb*1			MM(1) = Ad+Sv(1)
2	2	38	P(2) = P	Pb(2) = 60%*P(2)	TUb(2) = 40%*P(2)	W(2) = 40%*Pb(2)	I (2) = 60%* Pb(2)	DI(2) = Sv(2) + TUb(2) + I(2)	Pr(2) = 5%* DI(2)	NI(2) = DI(2) + Pr(2)	Bp(2) = 0	T(2) = t1(2) + t2(2) + t3(2) + t4(2) + t5(2) + t6(2)	Adm(2) = 0	S(2) = NI(1)- Bp(2)- T(2)- Adm(2)	Sv(2) = 95%*S(2)	t1(2) = 0	t2(2) = 0	t3(2) = 0	t4(2) = 0	t5(2) = 0	t6(2) = 0			Pb*2	TUb*2			MM(2) = Ad+Sv(2)
3	3	39	P(3) = P	Pb(3) = 60%*P(3)	TUb(3) = 40%*P(3)	W(3) = 15%*Pb(3)	I (3) = 85%* Pb(3)	DI(3) = Sv(3) + TUb(3) + I(3)	Pr(3) = 5%* DI(3)	NI(3) = DI(3) + Pr(3)	Bp(3) = 2%*NI(2)	T(3) = t1(3) + t2(3) + t3(3) + t4(3) + t5(3) + t6(3)	Adm(3) = Adm	S(3) = NI(2)- Bp(3)- T(3)- Adm(3)	Sv(3) = 95%*S(3)	t1(3) = 0,04* T(3)	t2(3) = 0,08* T(3)	t3(3) = 0,04* T(3)	t4(3) = 0,02* T(3)	t5(3) = 0,05* T(3)	t6(3) = 0,76* T(3)			Pb*3	TUb*3			MM(3) = Ad+Sv(3)
4	4	40	P(4) = P	Pb(4) = 60%*P(4)	TUb(4) = 40%*P(4)	W(4) = 7,5%*Pb(4)	I (4) = 92,5%* Pb(4)	DI(4) = Sv(4) + TUb(4) + I(4)	Pr(4) = 5%* DI(4)	NI(4) = DI(4) + Pr(4)	Bp(4) = 2%*NI(3)	T(4) = t1(4) + t2(4) + t3(4) + t4(4) + t5(4) + t6(4)	Adm(4) = Adm	S(4) = NI(3)- Bp(4)- T(4)- Adm(4)	Sv(4) = 95%*S(4)	t1(4) = 0,04* T(4)	t2(4) = 0,08* T(4)	t3(4) = 0,04* T(4)	t4(4) = 0,02* T(4)	t5(4) = 0,05* T(4)	t6(4) = 0,76* T(4)	125000000	250,000,000	Pb*4	TUb*4	100,000,000	Plan 500	MM(4) = Ad+Sv(4)
5	5	41	P(5) = P	Pb(5) = 60%*P(5)	TUb(5) = 40%*P(5)	W(5) = 7,5%*Pb(5)	I (5) = 92,5%* Pb(5)	DI(5) = Sv(5) + TUb(5) + I(5)	Pr(5) = 5%* DI(5)	NI(5) = DI(5) + Pr(5)	Bp(5) = 2%*NI(4)	T(5) = t1(5) + t2(5) + t3(5) + t4(5) + t5(5) + t6(5)	Adm(5) = Adm	S(5) = NI(4)- Bp(5)- T(5)- Adm(5)	Sv(5) = 95%*S(5)	t1(5) = 0,04* T(5)	t2(5) = 0,08* T(5)	t3(5) = 0,04* T(5)	t4(5) = 0,02* T(5)	t5(5) = 0,05* T(5)	t6(5) = 0,76* T(5)			Pb*5	TUb*5			MM(5) = Ad+Sv(5)
6	6	42	P(6) = P	Pb(6) = 60%*P(6)	TUb(6) = 40%*P(6)	W(6) = 0%*Pb(6)	I (6) = 105,26%* Pb(6)	DI(6) = Sv(6) + TUb(6) + I(6)	Pr(6) = 5%* DI(6)	NI(6) = DI(6) + Pr(6)	Bp(6) = 2%*NI(5)	T(6) = t1(6) + t2(6) + t3(6) + t4(6) + t5(6) + t6(6)	Adm(6) = Adm	S(6) = NI(5)- Bp(6)- T(6)- Adm(6)	Sv(6) = 95%*S(6)	t1(6) = 0,04* T(6)	t2(6) = 0,08* T(6)	t3(6) = 0,04* T(6)	t4(6) = 0,02* T(6)	t5(6) = 0,05* T(6)	t6(6) = 0,76* T(6)			Pb*6	TUb*6			MM(6) = Ad+Sv(6)
...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...			...	...			...
100	100	136	P(99) = P	Pb(99) = 60%*P(99)	TUb(99) = 40%*P(99)	W(99) = 0%*Pb(99)	I (99) = 105,26%* Pb(99)	DI(100) = Sv(100) + TUb(100) + I(100)	Pr(100) = 5%* DI(100)	NI(100) = DI(100) + Pr(100)	Bp(100) = 2%*NI(99)	T(100) = t1(100) + t2(100) + t3(100) + t4(100) + t5(100) + t6(100)	Adm(100) = Adm	S(100) = NI(99)- Bp(100)- T(100)- Adm(100)	Sv(100) = 95%* S(100)	t1(100) = 0,04* T(100)	t2(70) = 0,08* T(70)	t3(29) = 0,04* T(29)	t4(29) = 0,02* T(29)	t5(64) = 0,05* T(64)	t6(80) = 0,76* T(80)			Pb*n	TUb*n			MM(100) = Ad+Sv(100)

Furthermore, if the premium value of Rp. 5,000,000 per year is substituted into Table 3, then the table of the AlliSya Protection Plus Integration Model is obtained as shown in Table 4 below.

Table 4. AlliSya Protection Plus Integration Model

Year	Age of Child	Father's age	Premium	Periodic premiums	Periodic Top Up	Acquisition Cost	Investment Allocation	Investment Fund	*Profit*	Investment Value	Management Fee	Total Tabarru	Administration Fee	Remaining Balance	Surrender Value	Tabarru						Benefits Value					Maslahat Died
																Basic Insurance	CI Plus	Payor B. Basic	Payor B. TUPR	ADDB Sharia	AlliSya Hospital & Surgical Care	Basic Insurance	CI Plus	Payor B. Basic	Payor B. TUPR	ADDB Syariah	AlliSya Hospital & Surgical care	
n	k	k'	P(n)	Pb(n) = 60%*P(n)	Tub(n) = 40%*P(n)	W(n) = p%*Pb	I(n) = p%*Pb	DI(n) = Tub+I(n)	Pr(n) = 5%*DI(n)	NI(n) = DI(n)+Pr(n)	Bp(n) = 2%*NI(n-1)	T(n) = t1(n) + t2(n) + t3(n) + t4(n) +t5(n)	Adm(n) = Adm	S(n) = k(n-1) - Bp(n) - T(n) - Adm(n)	Sv(n) = 95%*S(n)	t1(n) = 0,04* T(n)	t2(n) = 0,08* T(n)	t3(n) = 0,04* T(n)	t4(n) = 0,02* T(n)	t5(3) = 0,05* T(n)	t6(n) = 0,76* T(n)			Pb*n	TUb*n			MM(n) = Ad + Sv(n)
1	1	37	5,000,000	3,000,000	2,000,000	2,250,000	750,000	2,750,000	137,500	2,887,500	-	-	-	-	-	-	-	-	-	-	-			5,000,000	3,000,000			-
2	2	38	10,000,000	6,000,000	4,000,000	1,200,000	1,800,000	6,543,125	327,156	6,870,281	-	-	-	2,887,500	2,743,125	-	-	-	-	-	-			5,000,000	3,000,000			127,743,125
3	3	39	15,000,000	9,000,000	6,000,000	450,000	2,550,000	8,057,711	402,886	8,460,597	137,406	2,722,548	318,000	3,692,328	3,507,711	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			128,507,711
4	4	40	20,000,000	12,000,000	8,000,000	225,000	2,775,000	9,763,295	488,165	10,251,460	169,212	2,722,548	318,000	5,250,837	4,988,295	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			129,988,295
5	5	41	25,000,000	15,000,000	10,000,000	225,000	2,775,000	11,430,588	571,529	12,002,118	205,029	2,722,548	318,000	7,005,883	6,655,588	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			131,655,588
6	6	42	30,000,000	18,000,000	12,000,000	-	3,157,800	13,443,251	672,163	14,115,414	240,042	2,722,548	318,000	8,721,528	8,285,451	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			133,285,451
7	7	43	35,000,000	21,000,000	14,000,000	-	3,157,800	15,410,730	770,536	16,181,266	282,308	2,722,548	318,000	10,792,557	10,252,930	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			135,252,930
8	8	44	40,000,000	24,000,000	16,000,000	-	3,157,800	17,334,038	866,702	18,200,740	323,625	2,722,548	318,000	12,817,093	12,176,238	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			137,176,238
9	9	45	45,000,000	27,000,000	18,000,000	-	3,157,800	19,214,168	960,708	20,174,877	364,015	2,722,548	318,000	14,796,177	14,056,368	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			139,056,368
10	10	46	50,000,000	30,000,000	20,000,000	-	3,157,800	21,052,090	1,052,604	22,104,694	403,498	2,722,548	318,000	16,730,831	15,894,290	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			140,894,290
11	11	47	55,000,000	33,000,000	22,000,000	-	3,157,800	22,848,750	1,142,437	23,991,187	442,094	2,722,548	318,000	18,622,052	17,690,950	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			142,690,950
12	12	48	60,000,000	36,000,000	24,000,000	-	3,157,800	24,605,075	1,230,254	25,835,328	479,824	2,722,548	318,000	20,470,815	19,447,275	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			144,447,275
13	13	49	65,000,000	39,000,000	26,000,000	-	3,157,800	26,321,970	1,316,099	27,638,069	516,707	2,722,548	318,000	22,278,074	21,164,170	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			146,164,170
14	14	50	70,000,000	42,000,000	28,000,000	-	3,157,800	28,000,321	1,400,016	29,400,337	552,761	2,722,548	318,000	24,044,759	22,842,521	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			147,842,521
15	15	51	75,000,000	45,000,000	30,000,000	-	3,157,800	29,640,993	1,482,050	31,123,043	588,007	2,722,548	318,000	25,771,783	24,483,193	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			149,483,193
16	16	52	80,000,000	48,000,000	32,000,000	-	3,157,800	31,244,833	1,562,242	32,807,074	622,461	2,722,548	318,000	27,460,034	26,087,033	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			151,087,033
17	17	53	85,000,000	51,000,000	34,000,000	-	3,157,800	32,812,665	1,640,633	34,453,299	656,141	2,722,548	318,000	29,110,385	27,654,865	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			152,654,865
18	18	54	90,000,000	54,000,000	36,000,000	-	3,157,800	34,345,301	1,717,265	36,062,566	689,066	2,722,548	318,000	30,723,685	29,187,501	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			154,187,501
19	19	55	95,000,000	57,000,000	38,000,000	-	3,157,800	35,843,528	1,792,176	37,635,704	721,251	2,722,548	318,000	32,300,766	30,685,728	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			155,685,728
20	20	56	100,000,000	60,000,000	40,000,000	-	3,157,800	37,308,120	1,865,406	39,173,526	752,714	2,722,548	318,000	33,842,442	32,150,320	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			157,150,320
21	21	57	105,000,000	63,000,000	42,000,000	-	3,157,800	38,739,832	1,936,992	40,676,824	783,471	2,722,548	318,000	35,349,508	33,582,032	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			158,582,032
22	22	58	110,000,000	66,000,000	44,000,000	-	3,157,800	40,139,402	2,006,970	42,146,372	813,536	2,722,548	318,000	36,822,739	34,981,602	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			159,981,602
23	23	59	115,000,000	69,000,000	46,000,000	-	3,157,800	41,507,552	2,075,378	43,582,930	842,927	2,722,548	318,000	38,262,897	36,349,752	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			161,349,752
24	24	60	120,000,000	72,000,000	48,000,000	-	3,157,800	42,844,987	2,142,249	44,987,236	871,659	2,722,548	318,000	39,670,723	37,687,187	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			162,687,187
25	25	61	125,000,000	75,000,000	50,000,000	-	3,157,800	44,152,396	2,207,620	46,360,016	899,745	2,722,548	318,000	41,046,944	38,994,596	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			163,994,596
26	26	62	130,000,000	78,000,000	52,000,000	-	3,157,800	45,430,455	2,271,523	47,701,977	927,200	2,722,548	318,000	42,392,268	40,272,655	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			165,272,655
27	27	63	135,000,000	81,000,000	54,000,000	-	3,157,800	46,679,820	2,333,991	49,013,811	954,040	2,722,548	318,000	43,707,390	41,522,020	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			166,522,020
28	28	64	140,000,000	84,000,000	56,000,000	-	3,157,800	47,901,138	2,395,057	50,296,195	980,276	2,722,548	318,000	44,992,987	42,743,338	121,248	227,496	102,000	68,004	135,000	2,068,800	125,000,000		5,000,000	3,000,000			167,743,338
29	29	65	145,000,000	87,000,000	58,000,000	-	3,157,800	49,095,037	2,454,752	51,549,788	1,005,924	2,722,548	318,000	46,249,723	43,937,237	121,248	227,496	102,000	68,004	135,000	2,068,800			5,000,000	3,000,000			168,937,237
30	30	66	150,000,000	90,000,000	60,000,000	-	3,157,800	50,423,636	2,521,182	52,944,818	1,030,996	2,552,544	318,000	47,648,249	45,265,836	121,248	227,496			135,000	2,068,800							170,265,836
31	31	67	155,000,000	93,000,000	62,000,000	-	3,157,800	51,722,409	2,586,120	54,308,529	1,058,896	2,552,544	318,000	49,015,378	46,564,609	121,248	227,496			135,000	2,068,800							171,564,609
32	32	68	160,000,000	96,000,000	64,000,000	-	3,157,800	52,992,024	2,649,601	55,641,625	1,086,171	2,552,544	318,000	50,351,815	47,834,224	121,248	227,496			135,000	2,068,800							172,834,224
33	33	69	165,000,000	99,000,000	66,000,000	-	3,157,800	54,233,136	2,711,657	56,944,793	1,112,833	2,552,544	318,000	51,658,249	49,075,336	121,248	227,496			135,000	2,068,800							174,075,336
34	34	70	170,000,000	102,000,000	68,000,000	-	3,157,800	55,446,385	2,772,319	58,218,705	1,138,896	2,552,544	318,000	52,935,353	50,288,585	121,248	227,496			135,000	2,068,800							175,288,585
35	35	71	175,000,000	105,000,000	70,000,000	-	3,157,800	56,632,397	2,831,620	59,464,017	1,164,374	2,552,544	318,000	54,183,787	51,474,597	121,248	227,496			135,000	2,068,800							176,474,597
36	36	72	180,000,000	108,000,000	72,000,000	-	3,157,800	57,791,783	2,889,589	60,681,372	1,189,280	2,552,544	318,000	55,404,193	52,633,983	121,248	227,496			135,000	2,068,800							177,633,983
37	37	73	185,000,000	111,000,000	74,000,000	-	3,157,800	58,925,141	2,946,257	61,871,398	1,213,627	2,552,544	318,000	56,597,201	53,767,341	121,248	227,496			135,000	2,068,800							178,767,341
38	38	74	190,000,000	114,000,000	76,000,000	-	3,157,800	60,033,055	3,001,653	63,034,707	1,237,428	2,552,544	318,000	57,763,426	54,875,255	121,248	227,496			135,000	2,068,800							179,875,255
39	39	75	195,000,000	117,000,000	78,000,000	-	3,157,800	61,116,096	3,055,805	64,171,901	1,260,694	2,552,544	318,000	58,903,469	55,958,296	121,248	227,496			135,000	2,068,800							180,958,296
40	40	76	200,000,000	120,000,000	80,000,000	-	3,157,800	62,174,823	3,108,741	65,283,564	1,283,438	2,552,544	318,000	60,017,919	57,017,023	121,248	227,496			135,000	2,068,800							182,017,023
41	41	77	205,000,000	123,000,000	82,000,000	-	3,157,800	63,209,781	3,160,489	66,370,270	1,305,671	2,552,544	318,000	61,107,348	58,051,981	121,248	227,496			135,000	2,068,800							183,051,981
42	42	78	210,000,000	126,000,000	84,000,000	-	3,157,800	64,221,505	3,211,075	67,432,580	1,327,405	2,552,544	318,000	62,172,321	59,063,705	121,248	227,496			135,000	2,068,800							184,063,705
43	43	79	215,000,000	129,000,000	86,000,000	-	3,157,800	65,210,515	3,260,526	68,471,041	1,348,652	2,552,544	318,000	63,213,384	60,052,715	121,248	227,496			135,000	2,068,800							185,052,715
44	44	80	220,000,000	132,000,000	88,000,000	-	3,157,800	66,177,322	3,308,866	69,486,188	1,369,421	2,552,544	318,000	64,231,076	61,019,522	121,248	227,496			135,000	2,068,800							186,019,522
45	45	81	225,000,000	135,000,000	90,000,000	-	3,157,800	67,122,425	3,356,121	70,478,546	1,389,724	2,552,544	318,000	65,225,921	61,964,625	121,248	227,496			135,000	2,068,800							186,964,625
46	46	82	230,000,000	138,000,000	92,000,000	-	3,157,800	68,046,309	3,402,315	71,448,625	1,409,571	2,552,544	318,000	66,198,431	62,888,509	121,248	227,496			135,000	2,068,800							187,888,509
47	47	83	235,000,000	141,000,000	94,000,000	-	3,157,800	68,949,453	3,447,473	72,396,925	1,428,972	2,552,544	318,000	67,149,108	63,791,653	121,248	227,496			135,000	2,068,800							188,791,653
48	48	84	240,000,000	144,000,000	96,000,000	-	3,157,800	69,832,321	3,491,616	73,323,937	1,447,939	2,552,544	318,000	68,078,443	64,674,521	121,248	227,496			135,000	2,068,800							189,674,521
49	49	85	245,000,000	147,000,000	98,000,000	-	3,157,800	70,695,368	3,534,768	74,230,137	1,466,479	2,552,544	318,000	68,986,914	65,537,568	121,248	227,496			135,000	2,068,800							190,537,568
50	50	86	250,000,000	150,000,000	100,000,000	-	3,157,800	71,539,041	3,576,952	75,115,993	1,484,603	2,552,544	318,000	69,874,990	66,381,241	121,248	227,496			135,000	2,068,800							191,381,241
51	51	87	255,000,000	153,000,000	102,000,000	-	3,157,800	72,363,772	3,618,189	75,981,961	1,502,320	2,552,544	318,000	70,743,129	67,205,972	121,248	227,496			135,000	2,068,800							192,205,972
52	52	88	260,000,000	156,000,000	104,000,000	-	3,157,800	73,169,989	3,658,499	76,828,488	1,519,639	2,552,544	318,000	71,591,778	68,012,189	121,248	227,496			135,000	2,068,800							193,012,189
53	53	89	265,000,000	159,000,000	106,000,000	-	3,157,800	73,958,106	3,697,905	77,656,011	1,536,570	2,552,544	318,000	72,421,375	68,800,306	121,248	227,496			135,000	2,068,800							193,800,306
54	54	90	270,000,000	162,000,000	108,000,000	-	3,157,800	74,728,530	3,736,426	78,464,956	1,553,120	2,552,544	318,000	73,232,347	69,570,730	121,248	227,496			135,000	2,068,800							194,570,730
55	55	91	275,000,000	165,000,000	110,000,000	-	3,157,800	75,481,657	3,774,083	79,255,740	1,569,299	2,552,544	318,000	74,025,113	70,323,857	121,248	227,496			135,000	2,068,800							195,323,857
56	56	92	280,000,000	168,000,000	112,000,000	-	3,157,800	76,217,877	3,810,894	80,028,771	1,585,115	2,552,544	318,000	74,800,081	71,060,077	121,248	227,496			135,000	2,068,800							196,060,077
57	57	93	285,000,000	171,000,000	114,000,000	-	3,157,800	76,937,569	3,846,878	80,784,448	1,600,575	2,552,544	318,000	75,557,652	71,779,769	121,248	227,496			135,000	2,068,800							196,779,769
58	58	94	290,000,000	174,000,000	116,000,000	-	3,157,800	77,641,104	3,882,055	81,523,159	1,615,689	2,552,544	318,000	76,298,215	72,483,304	121,248	227,496			135,000	2,068,800							197,483,304
59	59	95	295,000,000	177,000,000	118,000,000	-	3,157,800	78,328,844	3,916,442	82,245,287	1,630,463	2,552,544	318,000	77,022,152	73,171,044	121,248	227,496			135,000	2,068,800							198,171,044
60	60	96	300,000,000	180,000,000	120,000,000	-	3,157,800	79,001,145	3,950,057	82,951,202	1,644,906	2,552,544	318,000	77,729,837	73,843,345	121,248	227,496			135,000	2,068,800							198,843,345
61	61	97	305,000,000	183,000,000	122,000,000	-	3,157,800	79,658,352	3,982,918	83,641,270	1,659,024	2,552,544	318,000	78,421,634	74,500,552	121,248	227,496			135,000	2,068,800							199,500,552

250,000,000

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100,000,000

Plan 500

62	62	98	310,000,000	186,000,000	124,000,000	-	3,157,800	80,300,806	4,015,040	84,315,846	1,672,825	2,552,544	318,000	79,097,901	75,143,006	121,248	227,496	135,000	2,068,800	200,143,006
63	63	99	315,000,000	189,000,000	126,000,000	-	3,157,800	80,928,836	4,046,442	84,975,278	1,686,317	2,552,544	318,000	79,758,985	75,771,036	121,248	227,496	135,000	2,068,800	200,771,036
64	64	100	320,000,000	192,000,000	128,000,000	-	3,157,800	81,542,767	4,077,138	85,619,905	1,699,506	2,552,544	318,000	80,405,228	76,384,967	121,248	227,496	135,000	2,068,800	201,384,967
65	65	101	325,000,000	195,000,000	130,000,000	-	3,157,800	82,271,165	4,113,558	86,384,723	1,712,398	2,417,544	318,000	81,171,963	77,113,365	121,248	227,496		2,068,800	202,113,365
66	66	102	330,000,000	198,000,000	132,000,000	-	3,157,800	82,983,210	4,149,161	87,132,371	1,727,694	2,417,544	318,000	81,921,484	77,825,410	121,248	227,496		2,068,800	202,825,410
67	67	103	335,000,000	201,000,000	134,000,000	-	3,157,800	83,679,270	4,183,964	87,863,234	1,742,647	2,417,544	318,000	82,654,179	78,521,470	121,248	227,496		2,068,800	203,521,470
68	68	104	340,000,000	204,000,000	136,000,000	-	3,157,800	84,359,704	4,217,985	88,577,689	1,757,265	2,417,544	318,000	83,370,425	79,201,904	121,248	227,496		2,068,800	204,201,904
69	69	105	345,000,000	207,000,000	138,000,000	-	3,157,800	85,024,862	4,251,243	89,276,105	1,771,554	2,417,544	318,000	84,070,591	79,867,062	121,248	227,496		2,068,800	204,867,062
70	70	106	350,000,000	210,000,000	140,000,000	-	3,157,800	85,675,087	4,283,754	89,958,841	1,785,522	2,417,544	318,000	84,755,039	80,517,287	121,248	227,496		2,068,800	205,517,287
71	71	107	355,000,000	213,000,000	142,000,000	-	3,157,800	86,526,836	4,326,342	90,853,177	1,799,177	2,190,048	318,000	85,651,616	81,369,036	121,248			2,068,800	206,369,036
72	72	108	360,000,000	216,000,000	144,000,000	-	3,157,800	87,359,462	4,367,973	91,727,436	1,817,064	2,190,048	318,000	86,528,066	82,201,662	121,248			2,068,800	207,201,662
73	73	109	365,000,000	219,000,000	146,000,000	-	3,157,800	88,173,397	4,408,670	92,582,067	1,834,549	2,190,048	318,000	87,384,839	83,015,597	121,248			2,068,800	208,015,597
74	74	110	370,000,000	222,000,000	148,000,000	-	3,157,800	88,969,059	4,448,453	93,417,512	1,851,641	2,190,048	318,000	88,222,377	83,811,259	121,248			2,068,800	208,811,259
75	75	111	375,000,000	225,000,000	150,000,000	-	3,157,800	89,746,858	4,487,343	94,234,200	1,868,350	2,190,048	318,000	89,041,113	84,589,058	121,248			2,068,800	209,589,058
76	76	112	380,000,000	228,000,000	152,000,000	-	3,157,800	90,507,195	4,525,360	95,032,555	1,884,684	2,190,048	318,000	89,841,468	85,349,395	121,248			2,068,800	210,349,395
77	77	113	385,000,000	231,000,000	154,000,000	-	3,157,800	91,250,463	4,562,523	95,812,986	1,900,651	2,190,048	318,000	90,623,856	86,092,663	121,248			2,068,800	211,092,663
78	78	114	390,000,000	234,000,000	156,000,000	-	3,157,800	91,977,044	4,598,852	96,575,897	1,916,260	2,190,048	318,000	91,388,678	86,819,244	121,248			2,068,800	211,819,244
79	79	115	395,000,000	237,000,000	158,000,000	-	3,157,800	92,687,314	4,634,366	97,321,680	1,931,518	2,190,048	318,000	92,136,331	87,529,514	121,248			2,068,800	212,529,514
80	80	116	400,000,000	240,000,000	160,000,000	-	3,157,800	93,381,638	4,669,082	98,050,720	1,946,434	2,190,048	318,000	92,867,198	88,223,838	121,248			2,068,800	213,223,838
81	81	117	405,000,000	243,000,000	162,000,000	-	3,157,800	96,025,735	4,801,287	100,827,022	1,961,014	121,248	318,000	95,650,458	90,867,935	121,248				215,867,935
82	82	118	410,000,000	246,000,000	164,000,000	-	3,157,800	98,610,472	4,930,524	103,540,995	2,016,540	121,248	318,000	98,371,233	93,452,672	121,248				218,452,672
83	83	119	415,000,000	249,000,000	166,000,000	-	3,157,800	101,137,181	5,056,859	106,194,040	2,070,820	121,248	318,000	101,030,927	95,979,381	121,248				220,979,381
84	84	120	420,000,000	252,000,000	168,000,000	-	3,157,800	103,607,166	5,180,358	108,787,524	2,123,881	121,248	318,000	103,630,911	98,449,366	121,248				223,449,366
85	85	121	425,000,000	255,000,000	170,000,000	-	3,157,800	106,021,699	5,301,085	111,322,784	2,175,750	121,248	318,000	106,172,525	100,863,899	121,248				225,863,899
86	86	122	430,000,000	258,000,000	172,000,000	-	3,157,800	108,382,026	5,419,101	113,801,128	2,226,456	121,248	318,000	108,657,080	103,224,226	121,248				228,224,226
87	87	123	435,000,000	261,000,000	174,000,000	-	3,157,800	110,689,364	5,534,468	116,223,833	2,276,023	121,248	318,000	111,085,857	105,531,564	121,248				230,531,564
88	88	124	440,000,000	264,000,000	176,000,000	-	3,157,800	112,944,903	5,647,245	118,592,148	2,324,477	121,248	318,000	113,460,108	107,787,103	121,248				232,787,103
89	89	125	445,000,000	267,000,000	178,000,000	-	3,157,800	115,149,804	5,757,490	120,907,294	2,371,843	121,248	318,000	115,781,057	109,992,004	121,248				234,992,004
90	90	126	450,000,000	270,000,000	180,000,000	-	3,157,800	117,305,205	5,865,260	123,170,465	2,418,146	121,248	318,000	118,049,900	112,147,405	121,248				237,147,405
91	91	127	455,000,000	273,000,000	182,000,000	-	3,157,800	119,412,218	5,970,611	125,382,829	2,463,409	121,248	318,000	120,267,808	114,254,418	121,248				239,254,418
92	92	128	460,000,000	276,000,000	184,000,000	-	3,157,800	121,471,928	6,073,596	127,545,524	2,507,657	121,248	318,000	122,435,924	116,314,128	121,248				241,314,128
93	93	129	465,000,000	279,000,000	186,000,000	-	3,157,800	123,485,397	6,174,270	129,659,667	2,550,910	121,248	318,000	124,555,366	118,327,597	121,248				243,327,597
94	94	130	470,000,000	282,000,000	188,000,000	-	3,157,800	125,453,665	6,272,683	131,726,348	2,593,193	121,248	318,000	126,627,226	120,295,865	121,248				245,295,865
95	95	131	475,000,000	285,000,000	190,000,000	-	3,157,800	127,377,744	6,368,887	133,746,632	2,634,527	121,248	318,000	128,652,573	122,219,944	121,248				247,219,944
96	96	132	480,000,000	288,000,000	192,000,000	-	3,157,800	129,258,628	6,462,931	135,721,560	2,674,933	121,248	318,000	130,632,451	124,100,828	121,248				249,100,828
97	97	133	485,000,000	291,000,000	194,000,000	-	3,157,800	131,097,287	6,554,864	137,652,151	2,714,431	121,248	318,000	132,567,881	125,939,487	121,248				250,939,487
98	98	134	490,000,000	294,000,000	196,000,000	-	3,157,800	132,894,667	6,644,733	139,539,400	2,753,043	121,248	318,000	134,459,860	127,736,867	121,248				252,736,867
99	99	135	495,000,000	297,000,000	198,000,000	-	3,157,800	134,651,696	6,732,585	141,384,281	2,790,788	121,248	318,000	136,309,364	129,493,896	121,248				254,493,896
100	100	136	-	-	-	-		133,211,480	6,660,574	139,872,054	2,827,686	121,248	318,000	138,117,347	131,211,480	121,248				256,211,480

Acknowledgements. We thank to LP2M UIN Sunan Gunung Djati Bandung, which has been providing facilities for research and publication through the BOPTN research fund. Thanks to Annisa Azizah, S.Si has helped directly in the writing of this paper. Thanks were also given to all who has helped directly or indirectly so that these paper can be resolved properly.

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