



Modul 6 - Sumatin Buk

Riniuaebol Eneji Projek Fainensiol Menismen wokbuk

BILONG PAPUA NUGINI

Halivim i kam long:

KOICA
Korea International
Cooperation Agency

Wokbung wantaim:



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Dispela "Riniuaebol Eneji Projek Fainensiol Menismen" em I wok buk bilong soim ol tinting bilong Riniuaebol eneji fainens proses.

Long pinis bilong dispela kos, ol sumatin bai kisim save long ol dispela samting:

- Painim aut ol RE projek I stap pinis o potensiol bilong niupela RE Projek insait long Kominiti
- Soim sampela klia tingting bilong fainensiol menismen insait long riniuaebol eneji projek
- Painim aut wei bilong kisim halivim bilong RE kominiti projek.
- Soim sampela klia tingting long reveniu na ol ekspens bilong riniuaebol eneji projek.
- Ol bai I save gut long wok klostu wantaim ol gavaman, ol dona, na divalopmen patna bilong halivim long riniuaebol projek.

Lesen Plen

TEBOL 2: Lesen Plen

Sapta	Ol lesen
1. Kirapim tingting	Skul Tingting na wok 1
2. Wanem em Riniuaebol Eneji Fainens	Skul Tingting
	Wok 2
	Wok 3
3. Oportuniti bilong kisim moni	Skul Tinting
4. Reveniu na Ekspens bilong Riniuaebol Eneji Projek.	Skul Tingting
	Wok 4
5. Wok wantaim ol Dona bilong kisim moni	Skul Tingting
	Wok 5

Dispela wok buk bilong ol sumatin (LW) ol I bin kisim, long treina gaid (TG) Ol samting I stap insait long dispela wok buk, I stap klia tru wantaim ol piksa na ol toktok we bai I halivim ol sumatin long lainim ol samting wantaim treina long taim

bilong skul. Sapos yu laikim moa infomesen long sampela seksen, painim aut long treina gaid.

Kava Piksa: <https://www.maxpixel.net/Home-Coin-Investment-Money-Finance-Business-Bank-2724238>

Toksave: Global Green Growth Institute I tokaut olsem ol toktok ol I mekim insait long hia, I no inap long kisim ol I go long kot, na bai yu tu i no inap long sutim tok long ol sapos ol man i yusim dispela long mekim ol samting long laik bilong ol yet, na kamapim ol birua. Olgeta toktok na piksa em bilong yu long lainim tasol, na I no bilong bagarapim yu.

Gloseri -Mining bilong ol Toktok i stap insait long dispela wokbuk

AC- Alteneit Karen, i wanpela bilong ol arapela elektriksiti we I kamap long ol bikpela jenereita bilong yusim long ol bikpela masin olsem TV o masin bilong wasim ol klos samting.

Buk Kipin- I wanpela wok bilong olim pas rekot bilong moni kam insait na moni go aut long bisinis.

Sas- long konektim waia i go long bateri long mekim voltij I go antap. Em ol I save konek i go long sola penel long sasim.

Sas Kontrola – Samting we i save kontrolim sas bilong bateri na sawe mekim bai bateri i no ken aburusim mak bilong sas.

Karen – em dispela we I save flo long ol waia long givim yumi pawa wantaim voltij

DC- Dairek Karen, em I wanpela bilong ol elektriksiti we sola penel i kamapim. DC pawa I ken mekim lait na ol liklik masin I wok.

Gren- Moni ol I givim bilong wanpela projek, tasol bai ol I no inap kisim bek.

Inveta- wanpela samting we save senisim dc elektriksiti I go long ac elektriksiti.

Lowd- ol samting we I save kisim pawa long bateri o sola penel. Em ol samting olsem lait, fen, or frij. Ol samting we save yusim elektriksiti em ol kolim lowd.

Lon- Moni ol I givim long yusim, tasol ol I mas bekim bek bihain wantem sampela moa moni.

Mauntin – Samting we I save olim ol komponens long wanpela hap – olsem yumi save yusim sampela samting long hangamapim ol piksa. Em I wankain olsem tasol long taim fiksime penel I go long ruf wantem mauntin so em ino ken palai I go.

NGO- Non- Gavaman Ogenaisesen – dispela em ol grup we I save halivim ol kominiti.

Ovasas – taim yu go yet long sasim bateri taim bateri i pulap pinis – I wankain olsem taim baket I pulap wantem wara na I kapsait I go daun – em bateri bai I bagarap.

Pawa – Em I eneji I kam long wanpela samting we I stap longpela taim.

Projek – Sampela impoten wok mipela i save mekim insait long taim ol I makim pinis long en, eksampol bildin wanpela haus em I wanpela projek.

PV Arei – Em I min planti sola penel I konek wantaim.

Sola Penel – Ol I kolim 'PV modul' or PV penel. Em ol dispela saini blu plet we I save senisim eneji bilong san I go long elektriksiti.

1

Introdaksen/
Kirapim Tingting



WOK 1

Tokaut liklik long yu yet. Toktok long wanem samting yu tingting long kisim long dispela skul na wanem ol eksperiens yu l bin gat bipo wantem riniuaebol enej fainensiol menismen.

2

Wanem em Riniuaebol
Eneji Fainensiol
Menismen _____

2.1 Riniuebol Eneji

Riniuebol eneji em eneji we I save lukautim na mekim wok na em I kam long ol riniuebol risos, we I naturoli riplenis long humen taimseil, olsem sanlait, win, rein, taid, weiv, na jiotemol hit.¹

2.2 Fainensiol Menismen

Fainensiol Menismen em plening, ogenaizing, dairektin, na kontrolim bilong ol fainensiol wok olsem, prokumen na yutalaisesen bilong ol fand bilong ol entaprais. Em I min olsem bai aplaim jeneral menismen prinsipol I go long ol fainensiol risos bilong entaprais.²

PIKSA 1: Risk bilong RE teknologi³

Typical RE risks of the different RE technologies	
RE type	Key Risk Issues
Geothermal	- Drilling expense and associated risk (e.g. blow out) - Exploration risk (e.g. unexpected temperature and flow rate) - Critical components failures such as pumps breakdowns - Long lead times (e.g. planning consents)
Solar PV	- Component breakdowns - Weather damage - Theft / vandalism
Small hydro-power	- Flooding - Seasonal / annual resource variability - Prolonged breakdowns due to offsite monitoring (long response time)
Windpower	- High upfront costs - Critical component failures - Wind resource variability - Offshore cable laying
Biomass power	- Fuel supply availability / variability - Resource price variability - Environmental liabilities associated with fuel handling and storage
Biogas power	- Resource risk - Planning opposition associated with odor problems
Tidal/wave power	- Survivability in harsh marine environments - Prototypical / technology risks, Various designs and concepts but with no clear winner at present - Small scale and long lead times
Source: UNEP - Financial Risk Management Instruments for Renewable Energy Projects, Summary Document, 2004	

Ol kain risk bilong Riniuaeabol Eneji Projek em stap long Piksa 1.

2.3 Riniuaeabol Eneji Projek Fremwok

Tredisenol Riniuaeabol eneji projek I gat ol tingting I stap em:

1. Painim Aut Projek

- Painim aut rikwaimen bilong Eneji (sais na rikwaimen)
- Ol risos bilong Riniuaeabol eneji ol I painim aut (e.g., wara we I ron stap natin) we kamap long Riniuaeabol eneji teknoloji (e.g bilong wara stim, hairdo eneji sistem we ol I ken instolim)
- Wanbel bilong olgeta man husait I bai sapot long moni o risos bilong mekim wok I kamap (stakeholders) sapos ino instol wanwan (e.g., Ples manmeri)
- Wok painim aut bilong gutpela hap graun

2. Fandin

- Painim aut man we bai kisim gutpela halivim na hamas bai I kosim
- Husait bai I givim moni (eksampel, wanwan lon o gavaman sapot)
- Wanbel bilong pawa ol I baim sampela taim, ol I ken sain bai ekses eneji I ken eksport I go long grid.

3. Bildin

- Painim aut husait bai bildim (eksampol.: manmeri bilong ples o kontrekta)
- Instolesen I komplit pinis
- Testim na komisen pinis

4. Ownim na Opereitim:

- Sapos wanpela ejensi I givim moni long projek, ol bai I ronim na sasim inap ol kisim kam bek hamas ol I bin or yusim. Ownasip I save senis taim ol I kisim bek hamas ol I bin yusim.
- Sapos ol manmeri bilong ples yet I givim moni orait ol yet bai I bosim na opereitim.
- Sapos ol I putim signesa long pawa peses agrimen, edisenol eneji bai I go out, na moni ol I kisim bai I yusim long baim dinaw ol I kisim long instolim dispela sistem.

1 PennState Extension, "What is Renewable Energy?", <https://extension.psu.edu/what-is-renewable-energy>

2 Management Study Guide, "Financial Management, Meaning, Objectives and Functions, <https://www.managementstudyguide.com/financial-management.htm>

3 UNEP- "Financial Risk management Instruments for Renewable Energy Projects Scoping", Summary Document,2004, <https://wedocs.unep.org/20.500.11822/9450>

2.4 Painim aut Riniuaebol Eneji Projek

Riniuaebol eneji projek em eni kain wok we I yunik na ol I save karim I go aut long kamapim eneji long ples we I save kamap gen.

Potensol bilong niupela Riniuaebol eneji projek I save dipen long ol dispela samting:

1. Wanem em I eneji sos?

Ol sos bilong eneji I ken min ol samting olsem sola, haidro, win bilong ol liklik kominiti projek. Dispela bai I dipen long wanem hap yu stap na wanem yu gat inap long en.

PIKSA 2: Sola Eneji⁴



PIKSA 3: Sirinumu dem long Sentrol Provins save kamapim haidro eneji⁵



2. Hamas eneji bai I nidim long mekim?

Totol sais bilong eneji wei I nidim em ol I kalkuletim antap long ol samting I tru we hamas eneji I nidim insait long wanpela haus na hamaspela haus I nidim eneji. Eksampol: liklik sola

projek I ken I gat wanwan sola sistem long wanwan haus, o wanpela sistem bilong olgeta houseline insait long ples.

3. I gat inap sos bilong mekim eneji ol I nidim?

Em I impoten long save hamas eneji dispela sos I ken produsim. Sapos I wanpela sola sistem, bai nogat hevi na wanwan haus I ken I gat wanwan sola sistem, tasol sapos em I haidro sistem, wara ron I mas inap long produsim inap eneji bilong hauslain o bilong kominiti.

4. Wanem em sistem kepesiti?

Lukluk long eneji rikwaimen insait long haus, ol I ken painim sistem kepesiti na wankain tasol yu ken painim totol pawa rikwaimen bilong hauslain o bilong kominiti. Lokol dipatmen bilong eneji bai gat ol diteil I stap long halivim kalkuletim totol sistem kepesiti.

5. Hamas bai I kostim:

Taim luksave I stap long nid bilong pawa na kain ol grup bilong sistem (eksampol; Sola o Haidro) we I painim aut, koteisen bai ol I kisim long ol lokol saplaia. Lokol dipatmen bilong eneji bai gat lis bilong ol saplaia ol I makim pinis.

6. Husait bai givim moni:

Taim ol I painim aut valu bilong projek, wok painim aut bilong moni I mas kamap. Ol ples manmeri I ken givim moni o ol I ken aplai long gavaman gren o fan, long ol dona. Lokol gavaman na dipatmen bilong eneji I ken provaidim sampela stia long ol moni I stap.

7. Wanem taim ba ol I givim pei bek?

Peibek I min olsem; insait long hamas pela yia invesmen bilong yu bai ol I peim bek moni. Eksampol, yu laik instolim sola sistem we I kostim K500 lo instolim. Taim yu instolim dispela sistem yu bai sevim K10 long wanwan mun insait long fuil. Insait long wanpela yia yu bai sevim K120. Olsem, taim bilong peim bek em bai:

$$\text{Playback Period (years)} = \frac{\text{Total installation Cost}}{\text{Yearly Cash inflow}}$$

$$\text{Playback} = \frac{K500}{K120} = 4.16 \text{ years (4 years, 1 month and 28 days)}$$

$$\text{Peibek} = K300/K120 = 4.16 \text{ yies (4 yies, 1 mun na 28 des)}$$

4 UNEP- "Financial Risk management Instruments for Renewable Energy Projects Scoping", Summary Document, 2004, <https://wedocs.unep.org/20.500.11822/9450>

5 Sirinumu Dam, TripAdvisor, https://www.tripadvisor.com/Attraction_Review-g294118-d15661829-Reviews-Sirinumu_Dam-Port_Moresby_Papua_Region.html#media-atf/15661829/365843729:p/?albumid=-160&type=0&category=-160

Tasol, sapos yu I laik boroim moni long instolim em bai total kos bai I no K500. Olsem na, sapos yu kisim lon wantem interes reit bilong 20% wanwan yia insait long 5 pela yia, em bai kos bilong dispela eksra yia em bai i:

$$\text{Interest cost per year} = \frac{\text{intrest\%}}{100} \times \text{Loan amount}$$

$$\text{Intres per year} = \frac{20}{100} \times 500 = \text{K100 per year}$$

$$\text{Interes pe yia} = 20/100 \times 500 = \text{K100 pe yia}$$

Insait long (5) paip pela yia taim, bai yu peim K500 moa (5 yies x K100). Ovarol kos bilong projek bilong yu em K500 (borrow moni) + K500 (interes) = K1000.

Pei bek insait long sotpela taim em I gutpela. Olgeta wanwan riniuebol eneji teknoloji I gat taim bilong ol long I stap laip,

olsen na, yu ino I laik bai pei bek taim bilong yu bai I stap klostu long sistem laiptai.

Dispela I min olsem sapos pei bek antap I stap 4 pela yia, 1 mun na 28 deis, na laip we sistem I ekspekim bai stap 10 pela yia moa (minim olsem bihain long 10 pela yia, dispela sistem bai I no inap wok), yu bai yusim fri eneji long 5 pela yia, 10 pela mun na 3 pela dei.

8. Wanem em ol arapela benepit?

Ol arapela benepit em bai yu I gat kiln eneji, yu bai gat sans long eneji olgeta taim, gutpela lait na ol narapela benepit tu.

2.4.1 Bajet Templet

Bajet em I wanpela fainensiol plen (ges paia bilong moni kam insait na moni go aut) bilong taim I makim long en. Ol I ken yusim templet long rekodim ol impoten infomesen bilong Riniuaebol eneji olsem:

Diskripsen	Diskripsen	Diskripsen	Diskripsen
Wanem em I eneji sos		Ges paia kos bilong instolesen (leiba)	
Painim aut pawa rikwaimen (kW)		Ges Paia long ol kos bilong meteriol na ol componen	
Wanwan o ples projek		Meintenans/ ripleismen kos	
Gren, Boro o kes		Taim, ol I givim bilong projek	
Sapos borrow, wanem kain deposit bai nidim.		Wanem em karen eneji kos	
Hamas bai I sevim long yusim dispela Riniuaebol eneji		Pei bek Taim	

2.4.2 Menesim ol Fan

Pawa peses agrimen I save provoidim gutpela sos bilong moni kam insait bilong Riniuaebol eneji projek long yutalaisim bilong stretim bihain.

- Lukim olsem olgeta moni kam insait o u makm lo em, na olgeta moni go aut o yu sepndim I mas I stap long rekot bilong wanpela tresera ol I makim pinis.
- Bungim olgeta risit na invoices olsem evidens bilong moni kam insait na moni go aut. Ol I mas lukautim gut ol dispela bai ol komiti o ol eni kain man husait I gat laik long se

insait long bisnis (stakeholder) I ken lukim ol dispela risit na invoices wanem taim ol I nidim.

- Lukim olsem ol komiti husait I lukautim dispela riniuaebol eneji projek i mas bung olgeta mun o long givim fainensiol apdet bilong projek.i.e olsem hamas moni I bin kam insait na hamas I yusim pinis.
- Wanwan yia ol komiti I mas givim ripot bilong inspeksen bilong fainens I go long ol man husait I gat laik long se insait long bisnis, na tu I ken yusim dispela sans long makim niupela komiti memba long lukautim projek sapos man husait I gat laik long se insait long bisnis na I laik pas wantem komiti

Hap bilong rait:

WOK 2

1. Nao (long namba 7 antap) borow moni bilong yu wantem interes I kamap K1000. Yusim anuol sevin bilong K120, kalkuletim hamas taim bai I nidim long kisim bek moni long dispela taim.

WOK 3

1. Sapos peles bilong yu I toktok long wanpela peles bung olsem ol I laik instolim Riniuaebol enoji sistem.

Ol rikwaimen bilong pawa em:

- I gat 10 pela hauslain insait long peles.
- Wanwan hauslain I nidim 50 wats pawa
- Wanwan hauslain bai gat DC pawa wantem lait tasol na bilong redio.

Peles I gat rot I go long hap wara I ron long en. Peles bilong yu I painim wanpela katalog long dipatmen bilong Eneji we I gat sampela toktok long Riniuaebol eneji sistem na prais bilong ol. Ol toktok I stap olsem:

- 600W piko-haidro (masin bilong kamapim na surukim pawa (turbine) na masin bilong senisim mekanikol eneji I go long elektrijsiti) (jenereita)
- Ol arapela kos long gat piko-haidro sistem (waia, bateri, ol konrola) kos bilong operesen em K1300
- Kos bilong 75W sola penel, bateri, na konrola em K180, wantem instolesen

Wanwan hauslain insait long peles bilong yu I gat kos bilong fuil olsem K5/wik long halivim lait na K2/wik bilong redio bateri.

Bikos yu bin kisim dispela skul long ples bilong yu, ol het bilong ples I laik bai yu givim gutpela tinting bilong halivim ol.

i) Hamas pawa olgeta bai peles I nidim?

ii) Wanem em bai isi pela wei long peimbek sapos peles I pasim tok long instolim piko-haidro na peles manmeri bai kontribut long baim sistem.

iii) Wanem em bai isi pela wei long peim bek sapos peles I pasim tok long instolim sola sistem na ol peles manmeri bai I boroim moni long beng antap long intres reit bilong 20% long wanwan yia bilong bekim bek insait long 5 pela yia.

3

Ol Oportuniti bilong
Fandin

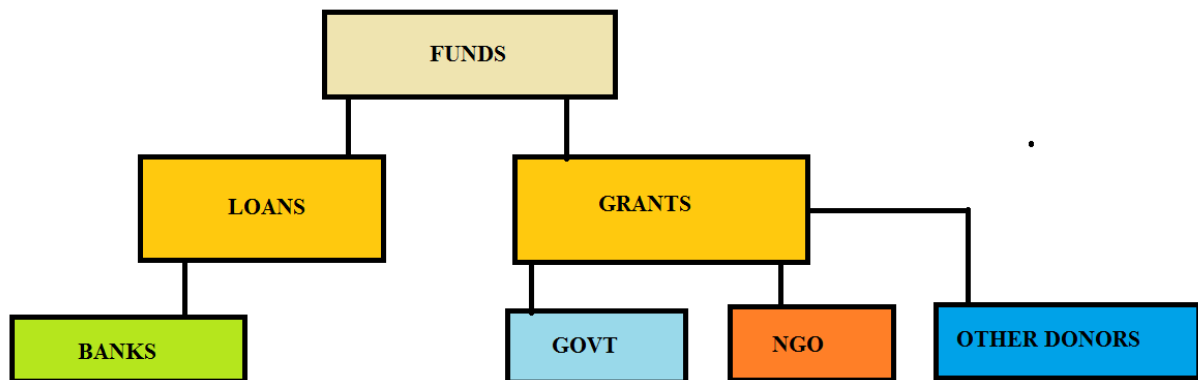
Sampela taim yumi I gat gutpela tingting long kamapim gutpela laif insait long komuniti bilang yumi. Planti ol tinting I nidim moni long mekim wok I kamap. I gat tupela rot long kisim moni bilang projek. Yu I ken reisim praivet kepitol o kisim pablik eksek fandin.

Praivet kepitol em taim wampela man I peim moni bilang projek eksampol, wampela haus sola sistem o taim wampela grup bilang ol ples manmeri I givim moni long peim projek – eksampol Piko haidro bilang komuniti.

Andanit long Pablik eksek fandin – dispela ol moni I stap aveilabol long ol pablik sapos pepa bilang ol I sakesful. Pablik eksek fan I stap aveilabol olsem loan na gren.

Loan em dinao moni we yumi I mas givim I go bek wantem sampela moa moni antap. Ol gren moni tasol bai yumi I no inap givim I go bek long bekim. Piksa daun bilow I soim sampela bilang ol sos we I save givim ol loan (dinao moni) na ol gren.

PIKSA 4: Ol Lon na Gren⁶



Yumi traim lukluk long sampela ol sos bilang kisim moni na long wanem rot bai yumi I ken toktok wantem ol long yusim ol moni insait long komuniti projek bilang yumi.

3.1 Borow Moni (Loans)

Planti bilang ol bikpela beng I save givim borrow moni long ol liklik projek. Tasol, ol komesiol beng tu i mas kisim tok orait o sekuriti long givim borrow moni. Sekuriti em eni kain samting veliabol we beng I ken lukluk long em, nogut yu I no peim bek borrow moni.

Long ol Kauntri we beng I save kisim halivim long ol kain skim, beng lon em ol sos bilang moni bilang Riniuaebol eneji projek.

PIKSA 5: Ol Kampani I ken boroim moni wankain tu long ol wanwan manmeri⁷



3.2 Sampela moni gavaman or arapela ogenaísesen I save givim (Gren)

Ol arapela sos I ken givim sampela moni. Larim yumi lukluk long sampela sos moni I save kam long en.

⁶ GGGI, Fiji.

⁷ CBS Power Solutions, May 2021, <https://www.worldbank.org/>

3.2.1 Gavaman

Ol gavaman I save kisim sampela moni autsait, o ol I ken yusim moni kam insait long sapotim Riniuaebol enejji projek. Ol gavaman I save putim klia ol dispela tingting (scheme) na toktok moa long TV na redio bilong ol manmeri long ol I ken putim askim long kisim ol gren.

3.3 Dona Ejensi

NGO's na ol Dona ejensi tu save givim ol gren bilong RE projek. Sampela bilong ol ektiv dona ejensi we yu I ken I go long ol insait long rijen em:

3.3.1 Korea International Cooperation Agency (KOICA)

KOICA save givim moni insait long rijen long ol narakain mak na bilong bikipela sais bilong fil statim long enejji I go long helt I go long edukesen. Bikipela ektiviti KOICA putim go daun long hia em:

- Establismen bilong maikro – grid sistem
- Serim bilong ol Sola haus sistem
- Serim bilong ol kiln kuk stov.
- Tok aut moa bilong ol Riniuaebol enejji risos, moa long sola na haidro
- Establismen bilong maikro – grid sistem
- Establismen bilong grid- pawa I konek pinis generesen sistem
- Developmen bilong skul bilong Riniuaebol enejji we I toktok moa long en
- Kisim gutpela na bikipela trensmisen na serim ol automesen
- Kisim gutpela na bikipela hit na temol
- Kepesiti bildin na R na D insfrastraksa sapot

Tasol, yu I mas toktok wantem Pasifik Opis I stap long Suva Fiji, long painim aut olem wanem long ol moni bilong projek insait long rijen na to painim aut sapos projek we I stap long plen pinis I I orait long bai kisim gren.⁸

PIKSA 6: KOICA Fan Kepesiti Bildin trenin long Riniuaebol Enejji Teknologi na Grin Ekonomi insait long Keapara Ples, Sentrol Provins, PNG⁹



3.3.2 Dipatmen bilong Foren Afes na Treid Ostralia (DFAT)

Gol bilong dispela em long halivim ol kauntri we I no develop olgeta long daunim pasin bilong I stap trangu na kisim sastenabol developmen. Em I save givim rul na stia na sapot I go long Minista na Palamenter Sekretari long ol hevi bilong divalopmen na wok wantem long daunim pasin bilong stap trangu insait long wokbung wantem ol kauntri I no develop olgeta.¹⁰

3.3.3 Climate Change Fund (CCF)(Asian Development Bank (ADB))

CCF, I bin stat long Mei 2008 long mekim kamap isi bikipela invesmen insait long memba bilong kauntri I no develop olgeta (DMCs) I mas tok aut long wanem samting I save kamapim na kaikai bilong klaimet senis. The CCF em I ki mekanisim bilong serim ol risos insait long ADB long tok aut long klaimet senis we I go wantem teknikal asistens (TA) na gren komponen bilong invesmen projek.¹¹

3.3.4 Globel Environmen Fasiliti (GEF)

Plantitaim, ol GEF I save givim moni long halivim gavaman projek na program. Ol gavaman I pasim tok antap long eksekutiv ejensi (eksampol., sivil sosaiti ogenaísesen, praivet sekta ol kampani, na painim aut ol grup.¹²

8 Adapted from Korea International Cooperation Agency, http://www.koica.go.kr/sites/koica_en/index.do

9 Image taken by KOICA Project team conducting Pilot capacity building trainings for Sustainable Implementation for Renewable Energy technologies for rural energy access, 02nd Oct 2020, Central Province, Papua New Guinea

10 Australian Government Department of Foreign Affairs and Trade, <https://www.dfat.gov.au/>

11 Asian Development Bank, "Climate Change Fund", <https://www.adb.org/what-we-do/funds/climate-change-fund>

12 Global Environment Facility (GEF), "Least Development Countries Funds-LDCF", <https://www.thegef.org/topics/least-developed-countries-fund-ldcf>

3.3.5 NZ AID o Ministri bilong Foren Afe na Treid (MFAT) Niu Zilen

MFAT Niu Zilen tu save halivim kominiti wantem ol wankain projek insait long Saut Pasifik. MFAT em pablik sevis dipatmen bilong Niu Zilen we I stap olsem bos bilong givim gutpela tinting long gavaman long foren na treid polisi na tok aut moa long intres bilong Niu Zilen insait long treid na intanesinol wok bung. MFAT i save wok wantem planti moa aburusim 30 arapela Gavaman ejensi long bringim divalopmen koperesen kam olsem long Pasifik.¹³

3.3.6 European Union

Ol kampani menismen fan, ol fainensiol grup, olain bilong statim projek o wanwan we I laik divalopim klin eneji invesmen fan o surukim fan I stap pinis I go long klin eneji, ol I ken salim ol plen long askim fainens. Olain bilong statim klin eneji projek I ken tu salim plen bilong invesmen fan wantem trek rekot insait long klin, eneji sekta, o long liklik wei long kisim o long wok wantem ol arapela politikal grup bilong dispela wok.¹⁴

3.3.7 Agence Française de Développement (AFD – France)

Ol lokol kontrek autoriti I putim pepa bilong askim I go long AFD opis we I save painim aut projek. Fisibiliti stadi, wantem teknikal stadi, maketin sevei, na fainensiol projeksen, ol I save karim I go aut.¹⁵

3.3.8 International Climate Initiative (Germany)

Ministri bilong Jemen I go pas long ol ektiviti bilong Envaironmen na save givim moni sapot long intanesinol projek long klaimet senis mitigesen, adaptesen, REDD+ na baiodaivesiti konsevesen. Ol fainens bai I mas traim long lukluk bai dispela invesmen I mas kirapim ol arapela grup bilong givim moni na halivim praivet sekta long stap insait wantem.¹⁶

3.3.9 Japan International Cooperation Agency (JICA)

JICA I traim long kontribut long toktok moa bilong intanesinol koperesen olsem tasol long saun divelopmen bilong Jepenis na globel ekonomi long rot bilong sapotim dispela sosioekonomi divelopmen, rikavari, o ekonomi stabiliti bilong ol kauntri we I no divelop olgeta.

3.3.10 USAID

USAID, I save go pas long intanesinol divelopmen na humanitarian efot long seivim laip, daunim pasin bilong I stap trangu, stronim demokratik gavanens, na halivim ol manmeri wok ol yet I go moa. USAID, I save wok long halivim laip, apim laip, bildim ol kominiti, na edvens demokresi. USAID wok I go pas U.S nesiol sekuriti na ekonomik prosperiti; demonstretim Ameriken jenerositi; na promotim wei I go long resipien self-rilaiens na resiliens.¹⁷

3.3.11 IUCN

Intanesinol Yunion long Konsevesen bilong Nesa (IUCN; mekim stret na klia Intanesinol Yunion long Konsevesen bilong Nesa na Naturol Risos) em I intanesinol ogenaisesen wok long fil bilong nesa konsevesen na sasteinabol yus bilong natural risos. Ol tu save stap insait long kolektim data na putim ol long rait ples (analysis), painim aut na lukluk moa long materiol o sos long kisim trupela toktok na mekim last tok (research) ol fil projek, halivim bilong pablik long tinting bilong polisi (edvokesi), na edukesen. Misin bilong IUCN em long influensim, enkarijim na asistim ol sosaiti long olgeta hap graun long lukautim nesa na long mek sua ani kain yus bilong natural risos em I mas wankain na ekolojikoli sasteinabol.

3.3.12 Australian Aid (AusAID)

Australian Aid em I bren neim ol I yusim long painim aut ol projek insait long ol kauntri we I no divelop olgeta na I save kisim long Ostrelia Gavamen. Long 2014, Dipatmen bilong Foren Afe na Treid (DFAT) I bin risponsibol long ofisiol divelopmen asistens (forein eid) bilong Ostrelia I go long kauntri we I no divelop olgeta wantem PNG na ol arapela Pasifik Ailand kauntri.¹⁸

Insait long PNG, OsEid I bin givim moni long planti ol divelopmen projek wantem insait long ol ples bilong

13 New Zealand Foreign Affairs & Trade <https://www.mfat.govt.nz/en/>

14 Global Energy Efficiency Renewable Energy Fund (GEEREF), <https://geeref.com/about/what-geeref-is.html>

15 Agence Francaise De Development, <https://www.afd.fr/en>

16 International Climate Initiative (IKI), <https://www.international-climate-initiative.com/en/about-iki/iki-funding-instrument>

17 USAID From the American People, <https://www.usaid.gov/pacific-islands>

18 Australian Government, Department of Foreign Affairs and Trade, https://en.wikipedia.org/wiki/Department_of_Foreign_Affairs_and_Trade

Riniuaebol Eneji projek olsem Ostrelien Patnasip projek Ol Kolim 'Powerim Kominiti'

I gat ol arapela ol dona husait I nogat taim long toktok, o nogut I laik kam insait long kauntri bihain. Gutpela rot long bihainim

em long toktok wantem ol lokol gavaman representativ na mitin wantem gavaman ofisiol, non-gavaman orgenaisesen na tu ol yunivesiti long kisim moa toktok long gren na ol dona.

Hap bilong rait:

4

Reveniu na Ekspens bilong
Riniuebol Eneji Projek —

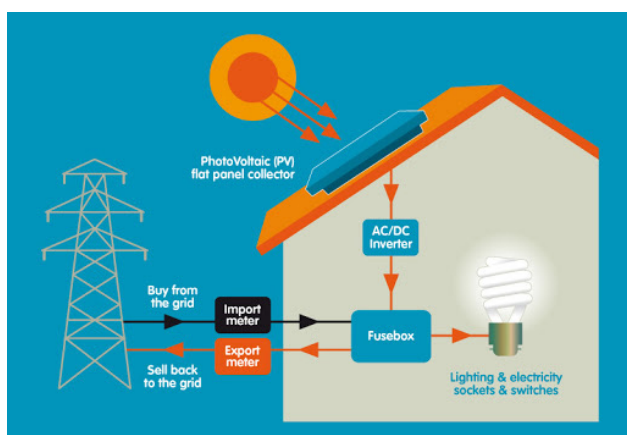
4.1 Riniuebol Eneji Projek

Insait long riniuebol eneji projek, kos bilong en I stap long tupela hap – Revenu na ol Ekspens.

4.2 Revenu insait long riniuebol eneji

Revenu em I moni we dispela projek I save kamapim o seivim. Eksampol, instolim sola I min olsem eneji bai yu kisim fri. Long ples we yu bai baim bilong elektriksiti o baim fiul we bai I stap yet bilong jenereita, nao em I fri olgeta mun bikos long ol I yusim Sola Pawa. Long dispela, ol I save seivim moni, em I revenu bilong projek. Eksampol, sapos yu seivim K50 long wanpla mun long baim disel fiul bilong jenereita o baim bilong grid elektriksiti, dispela em I moni kam insait we yu I bin kamapim.

PIKSA 7: Grid ol i konektim pinis long sola I ken alauim yu long salim I go long grid¹⁹



4.3 Ol kain grup bilong Kos

I gat planti ekspens long lukluk long em insait long Riniuaeabol eneji projek. Bikpela ekspens em kepitol ekspens bilong instolesen bilong projek. Larim yumi lukluk long sampela ekspens insait long RE projek.

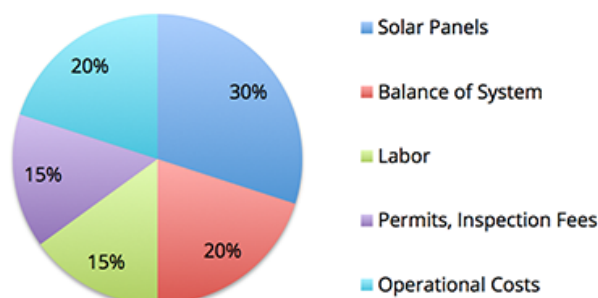
- **Kepitol Ekspens bilong instolesen:** Dispela ekspens em I gat sais I stap long taim, disain na baim bilong ol ikwipmen wantem leiba na trenspot kos. Dispela em I bikpela kos long planti projek.

PIKSA 8: Kepitol cos insait long haidro projek em I antap taim ol involvim Dam konstraksen²⁰



- **Opereitin Kos o Expens:** Em i involvim olgeta ekspens long mekim dispela Riniuaeabol eneji projek I mas kamap gutpela bihain taim, taim ol I pinisim wok bilong instolim peis. Eksampol, disil jenereita we I instol pinis long skul bai I baim fiul olsem opereitin kos. Narapela eksampol, kos o ekspens bilong simpol sola pawa projek I ken stap olsem:

PIKSA 9: Ol Kos involv long sola PV sistem²¹



¹⁹ Adapted from RJ SOLAR, "What is Solar PV and how does it work?", <http://www.rjsolar.co.uk/>

²⁰ Panasian Power, <http://panasianpower.com/>

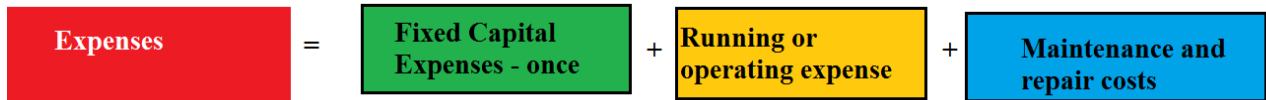
²¹ VU PHONG, "How much does a Solar Power System Cost?", <https://vuphongsolar.com/how-much-does-a-solar-power-system-cost/>

- **Meintenans kos:** Dispela em I save stap long Riniuaebol eneji projek na I gat bikipela se long opereitin kos. Eksampol, iven bihain taim sola PV sistem ol bin instolim pinis, dispela bateri nogut bai I gat nid long bai senisim insait long wanpela yia.

Olsem na, yumi I ken lukim olsem ovarol ekspens insait long projek em kam long 3 pela ekspens grup.

Yumi, I ken tok olsem olgeta ekspens ol I ken edim olsem.

PIKSA 10: Total Ekspens Kalkulesen²²



Bikipela tingting long sastainabiliti bilong projek em olsem, long stap longpela taim bihain- revenu I mas bikipela long ekspens o wankain long em.

PIKSA 11: revenu I mas wankain o bikipela long ol ekspens²³



4.4 Besik BukKipin

Bukkipin em nesesari long planti bisnis. Yu mas I gat grup bilong ol manmeri we I wanbel long wok natin wantem insait long ples we yu mas nogut stap olsem memba. Bukkipin em

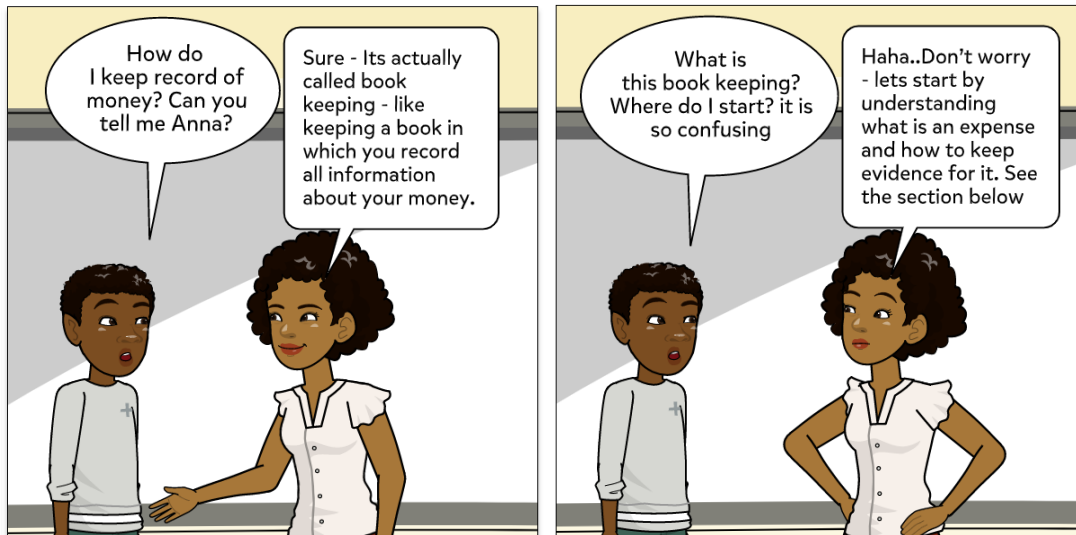
sistem bilong I gat rekot bilong bihain. Em I seif long tok olsem taim wok wantem moni – olgeta samting I mas I stap long rekot.

Larim yumi mekim wanpela isi geim – o yu I ken ritim toktok namel long Anna na Jon tamblo.



²² GGGI, Fiji.

²³ GGGI, Fiji.



4.4.1 Ekspens

Taim moni kam autsait long wallet bilong yu, yumi kolim olsem ekspens. Em I impoten long kipim rekot bilong ol ekspens. Tu I mas lukautim evidens bilong ekspens.

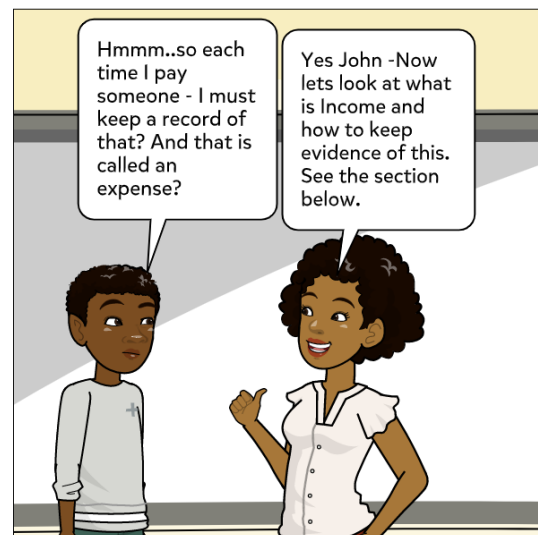
4.4.2. Evidens bilong ekspens

Eksampol, sapos yu baim 15 pela LED lait bulb long taun stua ol kolim Supa Hadwe long K40 – yu bai baim owna bilong stua na Kisim ol balb I go long peles. Bai I olsem wanem long evidens long soim olsem yu bin baim dispela balb long Supa Hadwe? Long dispela, yu I mas **OLTAIM ASKIM LONG RISIT**. Risit em wanpela liklik pepa we i tokaut olsem dispela moni I bin senis namel long tupela manmeri.

PIKSA 12: Sempol risit bai yu kisim taim yu baim samting²⁴

RECEIPT		DATE _____	NO: 1234
RECEIVED FROM		John	
ADDRESS		Rock island	
		\$ 40	
FOR 15 LED LIGHT BULBS			
ACCOUNT			
AMT. OF ACCOUNT	40	☐ cash	
AMT. PAID	\$40	☐ CHECK	
BALANCE DUE		☐ MONEY ORDER	
		BY Super Hardware	

Kes risit o risit em I gat yus long kipim rekot bilong ol samting insait long bisnis bilong yu. Na tu, sapos wanpela bilong ol aitem I no wok gut – yu I ken oltaim yusim dispela risit long soim olsem yu baim dispela aitem long dispela stua na I ken askim ol long stretim en.



4.4.3 Inkam

Taim wanpela givim yu moni na moni kam insait long bisnis dispela ol i kolim olsem income. Wankain olsem tasol long taim yu Kisim risit – yu I mas kipim risit buk long givim risit long arapela taim ol baim yu. Eksampol, sapos yu salim enikain aitem long narapela man o mekim wok bilong wanpela long Kisim moni – givim ol wanpela risit. Long dispela wei, dispela risit bai yutupela I gat rekot. Wankain tasol risit buk I save kam wantem kabon pepa wei save mekim kopi bilong risit. – givim dispela kopi long kastoma bilong yu.

PIKSA 13: Sempol risit yu ken givim long risit buk²⁵

RECEIPT

No. **0008** DATE **26/06/2021**

RECEIVED FROM **TALL TOM**

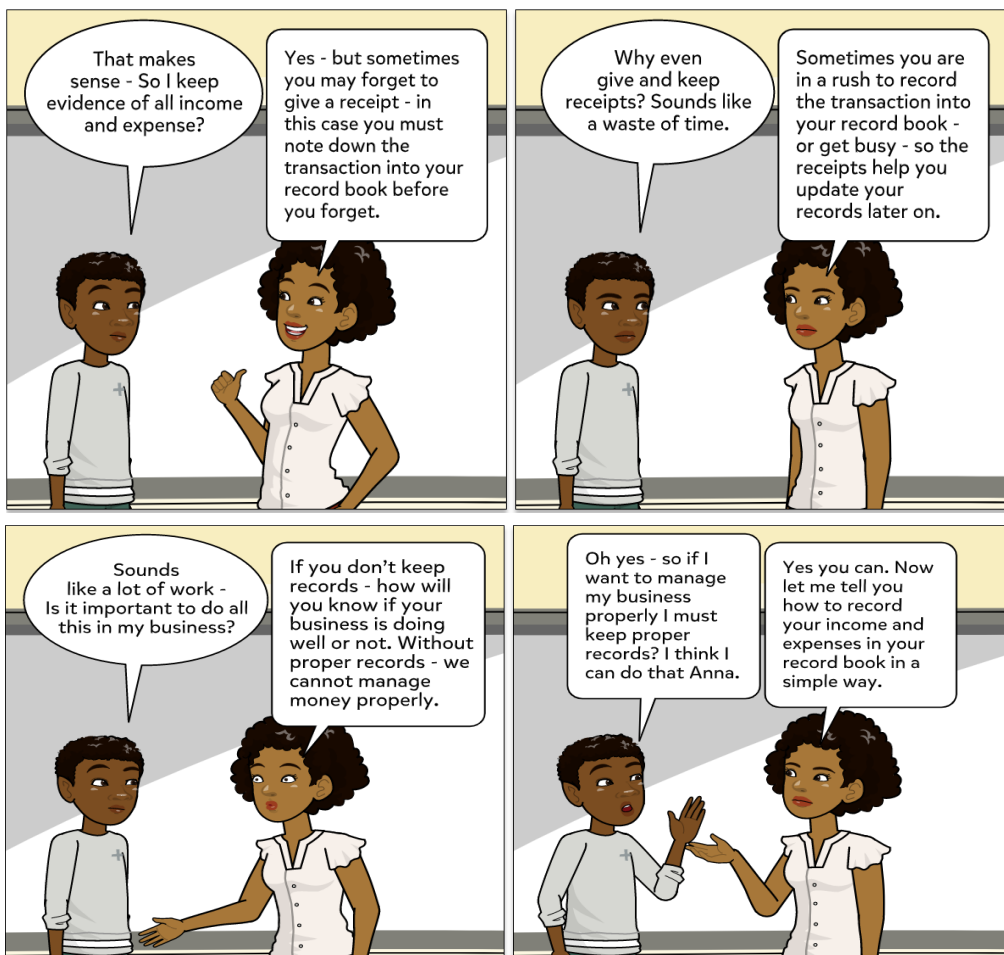
-FOR ONE 5W LIGHT BULB

THE SUM OF **\$5.00**

CHEQUE

CASH **5 - 00** **JOHN**

DISCOUNT



4.4.4 Singol Entri BukKipin

Yu mas I save olsem I gat planti wei bilong bukkipin. Tasol isipela wan em ol I kolim singol entri bukkipin. Long singol

entri yumi isi tasol rausim ol ekspens long inkam. Yu I ken droim tebol insait long buk o yu I ken baim wanpela ledja buk bilong bukkipin. Tebol bai I luk olsem long piksa daun bilow.

PIKSA 14: Sempol singol entri bukkipin tebol²⁶

DATE	DESCRIPTION	RECEIPT NUMBER	INCOME \$	EXPENSE \$	ACCOUNT BALANCE

Wanwan kolum I gat lebol wantem wanem bai ol I mas putim insait long en. Em I isi tru- sapos papa bilong Jon I givim K100 long em long statim bisnis bilong em long salim sola lating

na prodaks na mekim instolesen bilong ol manmeri – dispela moni em I inkam o ekspens long Jon? Yes, em I stret em bai inkam. Larim yumi pilim aut rekot buk.

PIKSA 15: Sempol entri bilong inkam I go long ol bisnis rekot²⁷

DATE	DESCRIPTION	RECEIPT NUMBER	INCOME \$	EXPENSE \$	ACCOUNT BALANCE
15/05/21	Cash from Dad for Business start		100		100

Nambawan entri I bin kam long inkam bilong K100 we papa bilong Jon I bin givim Jon long halivim em statim sola bisnis bilong em. Dispela em ol I kolim kepitol. Nambawan entri em I kamap olsem akaunt balens. Nao Larim yumi putim ol ekspens Jon I mekim taim em I baim 15 lait balb long K40

long Supa Hatwe. Olgeta taim tingim olsem long insait long singol entri yumi save edim inkam na rausim ekspens long akaunt balens. Long sampela ol buk, ekspens em ol I raitim wantem negativ sain.

²⁶ GGGI, Fiji.

²⁷ GGGI, Fiji.

PIKSA 16: Sempol entri bilong ekspens na painim niu pela balens²⁸

DATE	DESCRIPTION	RECEIPT NUMBER	INCOME \$	EXPENSE \$	ACCOUNT BALANCE \$
15/05/21	Cash from Dad for Business start		100		100
20/06/21	Bought 10 bulbs from Super Hardware	1234		40	60

Subtract expense from account balance

Olsen na, yumi rausim ekspens bilong K40 long akaun balens bilong K100. Dispela I mekim niupela akaun balens I stap olsem K60 na yumi raitim long sem lain andanit long akaun

balens. Yumi, I ken tingim taim Jon salim wanpela lait balb long Tol Tom. Lukluk long risit I stap antap we Jon I givim long Tol Tom long we Tol Tom I baim K5 long wanpela lait balb.

PIKSA 17: Sempol entri bilong narapela inkam na apdet bilong ol rekot²⁹

DATE	DESCRIPTION	RECEIPT NUMBER	INCOME \$	EXPENSE \$	ACCOUNT BALANCE \$
15/05/21	Cash from Dad for Business start		100		100
20/06/21	Bought 10 bulbs from Super Hardware	1234		40	60
26/06/21	Sold one 5W bulb to Tall Tom	8	5		65

Add income to account balance on above line

Yu lukim yumi edim K5 I go long akaun balens bilong K60 na niupela balens I stap olsem K65. Larim yumi lukluk long piksa

we Jon I mekim dispela long wanpela mun wantem narakain ekspens na ol inkam.

PIKSA 18: Sempol bilong olsem wanem bai klosin balens long pinis bilong mun bai ol I ken painim³⁰

DATE	DESCRIPTION	RECEIPT NUMBER	INCOME \$	EXPENSE \$	ACCOUNT BALANCE \$
15/05/21	Cash from Dad for Business start		100		100
20/06/21	Bought 10 bulbs from Super Hardware	1234		40	60
26/06/21	Sold one 5W bulb to Tall Tom	8	5		65
29/06/21	Sold six 5W bulbs to village cooperative	9	45		110
29/06/21	Paid Pita to deliver the bulbs to store			5	105
30/06/21	Balance at end of June		150	45	105

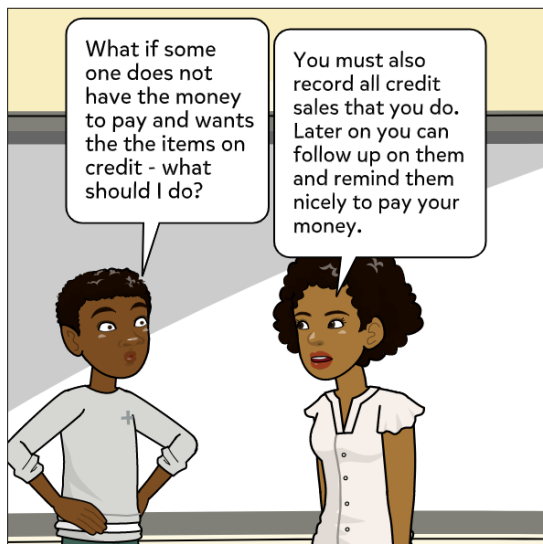
Long pinis bilong mun, yumi save lukluk long rekot buk long lukim yumi wok long go olsem wanem. Yumi edim olgeta ekspens na raitim long lain we yumi putim olsem pinis balens bilong mun. Eksampol, long Jon yumi I ken lukim olsem inap long em I mekim K150 olsem inkam na yusim K45 olsem expense. Taim yumi rausim ekspens long inkam, yumi I ken save long propit yumi mekim. Long dispela, long keis bilong Jon: K150 maines K45 em K105 propit we em I gat olsem balens bilong en.

Long sampela keis, yumi no save yusim statin kepitol olsem inkam. Olsem na, sapos yumi kisim trenseksen bilong Jun long bisnis bilong Jon na rausim K100 inkam – em bai gat K45 ekspens na K50 inkam. Olsem na bilong dispela mun propit bilong en em K5. Jon, I ken kisim propit long wanwan mun bai em I ken save em I mekim olsem wanem insait long wanwan mun.

28 GGGI, Fiji.

29 GGGI, Fiji.

Propa rekot kipin I save mekim mipela save bisnis I ron olsem wanem. Sapos yu laik baim sampela samting – yu I mas save sapos yu I gat inap moni insait long bisnis. Wantem nogat gutpela rekot kipin, yumi I no inap save bisnis I ron olsem wanem na bai yumi paul wantem olgeta inkam na ekspens.



4.4.5 Salim long Dinao (Credit)

Sampela taim ol manmeri I no gat moni long baim na promis long baim bihain ol guds o sevis – ol dispela samting ol i kisim em yumi tok olsem dinao (credit). Em I impoten long kipim gutpela rekot bilong ol manmeri husait I kisim ol samting long dinao. Wampela isipela dinao rekot I ken kam long ol dispela ol samting. Piksarim tupela manmeri long ples bilong Jon- Timoti na Bobo baim sampela ol samting tasol I no inap long baim olgeta. Olsem na, Jon I larim ol I baim na bihain ol I ken baim pul bihain. Dispela em I mas rekotim insait long dinao seils buk o buk bilong ol lain I dinao. Lukim eksampol daun bilow.

PIKSA 19: Sempol rekot tebol bilong kipim dinao (credit) seil rekot³⁰

bobo pays some money and takes item on credit

DATE	NAME	DESCRIPTION	RECEIPT NUMBER	TOTAL CREDIT \$	PAID \$	BALANCE LEFT \$
27/07/21	BOBO	2 X 5W BULBS - CREDIT	1102	10	5	5
30/07/21	TIMOTHY	20 M ELECTRICAL WIRE AND FAN	1103	50	40	10
2/8/2021	BOBO	2 x 5w bulbs second payment		5	5	0

Bobo clears the full payment of \$10 in second payment

Timothy has to pay \$10 to settle his account

KEIS STADI: simpol fainensiol komperison bilong Sola Mini-Grid sistem

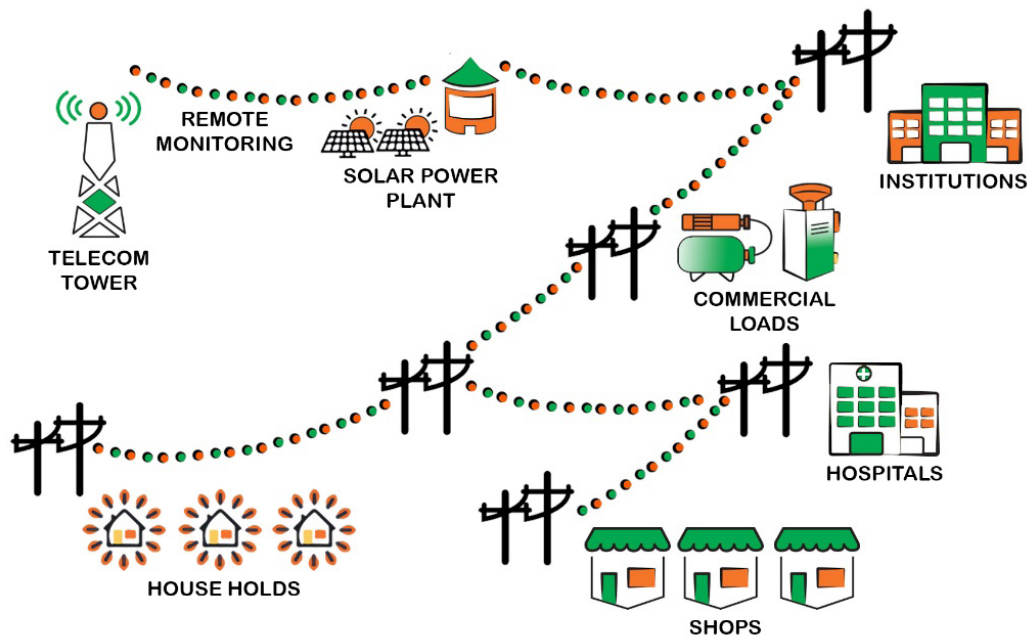
Givim pawa long ol liklik ples na rurol lokesen long wei bilong surukim yutiliti grid (power lines) em I prais I antap tumas bikos long bikpela speis, terein I hard tumas (mountains, rivers, etc) o mas nogut I hat sapos solwara I sepereitim kominiti. Bai yumi kisim klin yutiliti taip pawa olsem wanem long bikpela skeil I go long ol liklik peles? Ansa em long yusim mini-grid sistem.

Long dispela taim yumi I bin toktok long sampela mini-grid sistem we I stap pinis long sola modul, long dispela modul, yumi bai traim lo lukim wanpela isipela fainensiol sait bilong

sola mini-grid sistem. Yumi bai traim long andastendim fainensiol salens bilong putim I go antap ol kain sistem, wanem em I save mekim long kisim fainensioli lo mekim em I ron yet na moa impoten long ol lokol kominiti I ken na I mas pleim long mek sua olsem dispela sistem I wok sasteinabli bilong lonpela taim.

Sola mini-grid sistem em I bikpela AC taip sistem we ol I instolim pinis I go long pawa na olgeta kominiti, na I no long wanpela singol haus tasol.

PIKSA 20: Sola mini grid sistem³¹



Gutpela bilong pawa sistem em I wankain olsem ol narapela we I kisim long grid/pawa lain long ol taun na siti, yu I ken yusim pawa long ol dispela kain AC aplaienses, iven sapos tambu long ol ples long stopim ol manmeri long traim long putim pawa long ol bikpela ikwipmen we bai I ovalodim o bagarapim pawa sistem. Sistem I ken inkludim sampela fom bilong terif meterin sistem we I save kaunim amoun bilong eneji long wanwan hauslain we I yusim, long nao, wanwan hauslain I nid long baim bilong eneji ol I yusim.

Moni ol i kolektim pinis long meterin sistem I save mekim impoten wok, we em I save go bek long atoriti husait I save instolim mini-grid sistem o ol nomineited pawa komiti, we ol I

ken yusim long kisim bek sistem kos bilong instolesen, mekim sistem meintenans, ol pat ripleismen, o baim ol napla ekspens I stap wantem long ron bilong pawa sistem.

Larim yumi mekim komperisen na kontras eksesaiis namel long ol tupela sistem. Yumi bai kolim ol dispela olsem “**Sistem A**” na “**Sistem B**”. Yumi bai traim long lukluk long isipela fainensiol aspek, besik teknikal informesen na tu ol salens bungim lon taim bilong instolesen, operesen na meintenans taim. Yumi bai toktok long wanem kominiti I ken mekim long daunim o iven painim wai bilong stretim ol hevi bilong Halivim olgeta kominiti. Bihain long olgeta, pawa sistem I save Halivim olgeta kominiti.

31 Source: <https://www.tauria.com/mini-grid-model/>, Accessed on 4/11/2020

Paramitas	Sistem A	Sistem B	Komens
Technical Infomason			
Sola Sistem saiz	5kW	50 kW	Dispela em I total pawa bilong Sola penel instol pinis (Not: 1 kW = 1000 wats)
Bateri Kepesiti	45 kWh	200 kWh	Dispela em I total saiz bilong sola bateri instol pinis
Bekap Disil Jenereita	10 kW	60kW	Dispela I save givim bekap pawa long risasim bateri long taim bilong lonpela pua weda, taim sola PV em I no inap long sasim ol bateri olgeta.
Namba bilong ol hauslain I konek pinis	50 hauslain	50 hauslain	Dispela em I total namba bilong hauslain husait I save kisim pawa saplai long sistem.
Infomsion lo moni			
Projek Kos	K250,000 PGK	K2.0 milion PGK	Dispela em total kos bilong instolim na setim sistem.
Sos o as bilong moni	Gren	Gren	Gren I min olsem gavaman I givim fandin o sampela arapela ogenaísesen na kominiti I no inap baim sistem
Kos o prise bilong yusim elektriksiti	K2.00 PGK/ unit	K0.50 PGK/ unit	Dispela em I kos pe yunit bilong elektriksiti we wanwan hauslain I mas baim. (Not: 1 yunit 1 kWh)
Total Reveniu	K9,600 PGK/yia	K12,000 PGK/yia	Dispela em total moni ol I kolektim long wanwan yia long olgeta hauslain long yusim elektriksiti. (Not: dispela amaun em I no fix na I dipen long hamas elektriksiti kominiti I yusim.
Total Ekspens	K2,400PGK/yia	K3,000PGK/yia	Dispela em I kos bilong baim na trenspotim disil na kos bilong opereitim na meinteinim sistem(inkludim salari bilong ol manmeri husait I save meintenim, was long en, kolekim reveniu, intanet sas na trenspotesen kos in keis laik visitim ol sait.
Total Propit	K7,200 PGK/yia	K9,000 PGK/yia	Dispela em total Reveniu – Total Ekspens.

Tingim yu em akauns man bilong kominiti sola koperetiv. Taim long mekim simpol bukkipin rekot beis long ol imfomesen stap antap long pes six mun bilong projek. Yusim bukkipin rekot long disait sapos hauslain I nid long apim kontribusen bilong ol I go long koperetiv o nogat? Long peim K2 long wanwan mun bai I inap long stap lonpela taim na apkip bilong sola sistem?

[illegible]

daun wampela raf draf pes bipo ol l pilim rekot tebol insait
long wokbuk.

5

Engejim o bringm ol Dona
long kism moni helivm lo
makm projects —————

Sapta 3 I toktok pinis long ol wanwan sos bilong fans we yu I ken eksesim, tasol, I gat planti moa we bai I ken I stap fri long kauntri bilong yu. Yu ken kisim moa toktok long dispela long ol lokol gavaman representativ o Dipatmen bilong Eneji. Dispela ol gavaman bodi olsem NGO, dona, na sampela moa. I save ekspektim toktok stret long yu sekurim ol fan. Komunikesen I save pleim wanpela impoten wok long hia.

5.1 Vebol Komunikesen

Vebol komunikesen I save involvim toktok I go long gavaman ejensi o ol dona long painim moni. Komunikesen I mas fomol I go long semi-fomol bilong dona long kisim yu tru. Yu tu I mas mekim wok painim aut long projek bilong yu bai yu iken save long ekspleinim dispela projek gut. Dispela bai givim dona konfidens olsem yu save long wanem samting yu wok long mekim.

5.2 Riten Komunikesen

Riten komunikesen em I wanpela komon wei long komunikeit wanten potensiol dona espesioli ol dispela wei I stap long wei. Usful wei em long emeilim o raitim leta I go long ol. Wantem riten komunikesen, yu mas stil stap fomol na spesifik long projek. Taim yu rait I go long ol dona – askim ol wanem kain projek ol I save fandim, na sapos ol I ken fandim projek long ples bilong yu, askim ol long kraiteria ol I save usim long selektim instolesen projek. Tu, yu bai nid long rait I go long ol long sikim prosija bilong fomol aplikesen bilong ol grens o loan. Long planti keis dona o fandin ejensi I save lukluk long tupela kain riten dokumen bipo ol I givim ol gren. Projek proposal o projek konsep not.

5.3 Raitim Ol Plen

Nomoli ol dona na ejensi I gat own templet bilong ol yet wei bai gat nid long filim taim sikim asistens long Riniuaebol Eneji Projek. Larim yumi lukluk long wanpela isipela proposol templet long hia so yumi I ken prektis. Tingim olsem em I no bilong yusim long eksuol aplikesen- yu mas oltaim yusim proposol templet we ol dona na ejensi I givim.

Neim bilong Projek: Givim neim bilong projek long hia-e.g Sola Pawa bilong Viwa Peles

Projek Lida: Neim bilong man o ogenaisesen o peles lidim projek.- e.g peles hetman

Totol amaun rikwes: totol amaun bilong moni yu nidim bilong projek.- e.gK13000

Totol taimfreim bilong projek: projek bai teikim hamas taim- e.g.: 8 mun

Samari: Givim liklik samari bilong projek.Usim klostu 300 weds na tokim wanem problem yu laik solvim. Tokim wanem yu laik mekim na em bai halivim komumiti bilong yu.

Problem Stetmen: Tokim wanem kain hevi yu I laik stretim

Projek Gol: Toktok long ol jenerol gol bilong projek bilong yu.e.g.: Long givim lait long kominiti bilong mi long nait so ol pikinini I ken stadi.

Projek objektiv: Toktok long ol samting yu I laik mekim. Ol dispela samting I mas isi long mesarim eg: Instol 2000 W sola pv sistem- long hia yu mas tok aut gut saiz bilong penel long objektiv bilong yu.

Projek Autkam na benepit: Toktok long wanem em bai en bilong autkam bilong projek na husait bai benepit long dispela.

Plen bilong Wok: Long hia mipela laik toktok long wanem wok bai kamap na wanem taim bai I kamap.

Ogensaisesen Diteil: Toktok long koporetiv o peles o tim. Raitim ol ikepebiliti yu gat insait long tim bilong yu.

Bajet Brekdaun: Yu bai nid long save long olgeta ekspenses we bai kamap insait long projek.Yu bai nid long go araun na askim long prais bilong ol samting. Putim I daun olgeta ekspenses na traim long ges hamas wanwan ekspens bai I kosim yu.

Lukluk I go daun, em sempol projek plen we ol I pilim pinis bilong yu long ritim na save bipo yu I laik traim long mekim plen bilong yu yet.

Neim bilong Projek: Sola Pawa bilong Rock Island

Projek Lida: Jon Keri

Total amoun rikwes pinis: K 15,600

Total taimfreim bilong projek: 12 pela mun

Samari: Rock island nao yet I no gat ful taim elektriksiti. Dispela I min olsem ol pikinini I gat liklik taim long stadi long nait na ol manmeri I no inap harim redio o tv nius long dei taim. Olsem na, koporetiv ol kolim Rock Island Cooperative I pasim tok long instolim sola pawa sistem long gat pawa olgeta taim long Rock Island. Yumi tu laik stop long bagarapim envaironmen wantem ol simuk na lait na TV. Dispela Cooperative I kolektim pinis K4925 bilong dispela projek na askim long narapela K15,600 long pinisim projek.

Projek Gol: Long givim envaironmentali frenli sos bilong elektriksiti I go long manmeri bilong Rock Island.

Projek Objektiv:

1. Baim 30 sola pawa sistem bilong 50W wanwan bihainim wantem 3 pela lait.
2. Instolim 50W sola pawa sistem long olgeta 30 haus wantem halivim bilong teknisen.
3. Lainim ol lokol manmeri long meintenim sola pawa sistem.

Projek Autkam na ol halivim:

Autkam em bai olsem olgeta haus long Rock island bai gat elektriksiti long sola wei ol I ken yusim long nait seifli. Ol pikinini bai kisim gutpela halivim taim ol I ken seifli na kliali ritim buk bilong ol long nait. Ol manmeri I ken harim ol impoten nius na sasim pon bilong ol bai ol I ken kontek wantem meinlen.

Plen bilong Wok:

Tasks to do	Months											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Determine how much power is needed in one home												
Size the solar power system												
Make a list of components needed for the project												
Ask local companies for quotations												
Cooperative discusses and finalizes company to buy from												
Pay the company and ask them to visit the village												
Company technicians arrive and put de lights in all houses												
Technicians mount the solar panel and othe things on houses												
Commissioning of solar power systems and ceremony												

((dispela fom bilong tebol ol I save yusim - yu raitim na sedim ol mun long we ol wok bai I kamap long en- yu ken tu yusim wiks o des na I no ol mun)

Ogenaisesen Diteil: Rock Island Cooperative I save lukautim jenereita long ailan bai olgeta haus I ken I gat lait long nait. Olgeta hauslain het em ol koperetiv memba. Mr. John Keri em I het bilong koporetiv. Risenli 10 pela manmeri long koperetiv I bin skul long Sola insait long Kominiti.

Bajet Brekdaun:

Item	Cost per item \$	Quantity	Total cost \$
50W Solar PV Panel	150/item	30	4500
Charge controller 20A	90/item	30	2700
Battery 30Ah	300 each	30	9000
DC light bulb kit of 3	20 each	30	600
double core 10A wire	1.89 / meter	500	945
Boat hire cost	200 / trip	4	800
Technician cost	80/day	20	1600
Food and catering cost	300/day	1	300
Travelling cost	20/trip	4	80
Total cost			\$20,525

Hap bilong rait:

[illegible]

WOK 5

Tingting long wanpela isi pela riniuaebol eneji projek we I ken kamap insait long kominiti na bringim halivim I kam long Kominiti bilong yu. Em I ken min ol samting long sola I go long haidro instolesen o eneji sevin skul. Nao tingim wanem rot we i ken long fandim dispela projek. Long lis bilong ol dona ol I toktok pinis insait long skul, kisim wanpela na mekim wanpela plen bilong dispela projek. Dispela I ken kamap insait long ol grup. Sapos yu I no raitim I go daun plen – yu ken raitim I go daun ol bulet poin we I nid long bai toktok moa andanit long wanwan seksen bilong plen. Presentim ol dispela long toktok na toktok long dispela long fran bilong olgeta sumatin.

Ol sumatin I ken kisim sapot na confidens long pilim I go insait long templet we I stap insait long wokbuk ol I givim. Simpol plen ol givim pastaim I ken stap olsem gaid bilong dispela wok.

Nem bilong Projek:

Projek Lida:

Totol amaun I rikwes:

Totol taimfrem bilong projek:

Samari:

Problem Stetmen:

Projek Gol:

Projek Objektiv

Projek Autkam na benefit:

Plen bilang Wok:

Ogenaisesen Ditel:

Bajet Brekdaun:

EDISENOL ROL PILAI (OPSENOL)

Ol meri long rurol vilij bilong Imuagoro I kam bung long niupela bildin ol I wokim long toktok long rot bilong baim sola iquipmen bilong ol I ken yusim dispela bildin long ol avinun long wokim ol hendikraf.

Debi: Tenk yu ol meri long kam long dispela bung - yumi kam bung long toktok long wanem rot yumi I ken wok long kisim sampela moni long baim sola sistem we i ken givim lait long bildin long nait. Long lastpela bung, planti bilong yupela I bin tok yupela bai givim sampela taim long avinun long pinisim ol basket na ol fen wei ol sista bilong yumi long taun I bin putim oda long en. Olain I gat sampela tingting?

Mari: Debi, mi ting wanem bai yumi mas wokim pas, em long kisim kotesen bilong sola sistem we yumi nidim long dispela bildin. Long dispela, yumi bai I gat gutpela tinting long hamas yumi I ken wokim fandreisin long en.

Prisila: Mi wanbel wantem Meri, Debi antap long ol dispela ol nid bilong yumi, long yusim bildin olgeta nait 7 deis insait long wanpela wik, yumi nid long baim gutpela sistem. Pikinini man bilong mi nao tasol I pinisim ilekrikol enjinierin stadi, mi bai askim em long givim yumi sampela stia tok.

Debi: Tenkyu Prisila – mipela bai weit long kisim stia tok long ol kain sistem mipla nid long baim. I gat sampla lain I kilia long wanem hap mipla I ken kisim sapot long en?

Meri: Mi harim olsem AusAID I gat sampela moni long sapotim inkam jenereisen projek bilong ol meri, yumi I ken

salim askim I go long ol. Mi kisim wanpela pepa bilong pilim I kam wantem mi.

Debi: Dispela em gutpela tru Meri – dispela pepa I tok yumi I mas burukim I go daun bajet bilong yumi, I no bilong sistem tasol tu long meintenans bilong sistem. Pikinini man bilong Prisila I ken halivim long dispela tu.

Larim yumi pasim bung tode na kam bek long narapela wik wantem ol toktok bilong pikinini man bilong Priscilla.

Long narapela wik ol meri kam bung gen

Priscilla: Dispela em ol toktok bilong pikinini man bilong mipela na total kos bilong yumi long baim sola sistem na meintenans em K5000. Mipela tu I bin pilim wanpela Bajet pepa we mi wokim kopi bilong en, bilong yupela olgeta long lukim.

Debi: Dispela em I gutpela tru Prisila– nao yumi ken salim plen bilong yumi I go long AusAID na askim ol long halivim wantem moni.

Tupela mun bihain, AusAID I kam long kominiti bilong ol long givim niupela sola sistem na ol meri nao I ken isi long bung long ol abinun long mekim ol wok bilong ol yusim han bilong ol. Ol I save kisim moni long halivim femili bilong ol na mitim besik nids bilong ol.



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