



Papua LNG Projek – Daunstrim

Envaironmentol Impek Statmen

VOLUM 1

Ekseketif Samari

ExxonMobil PNG Antelope Limited

JULY 2023



ExxonMobil



Envaironmentol Impek Statmen Ekseketif Samari



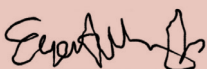
Papua LNG Projek – Daunstrim

Envaironmentol Impek Statmen – Ekseketif Samari

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Papua LNG Projek – Daunstrim Environnementol Impek Statmen
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	B	Baslain Stadi Bilong Komuniti Helt		B	Community Health Baseline
	C	Baslain Stadi Bilong Sosel Envairomen		C	Social Baseline
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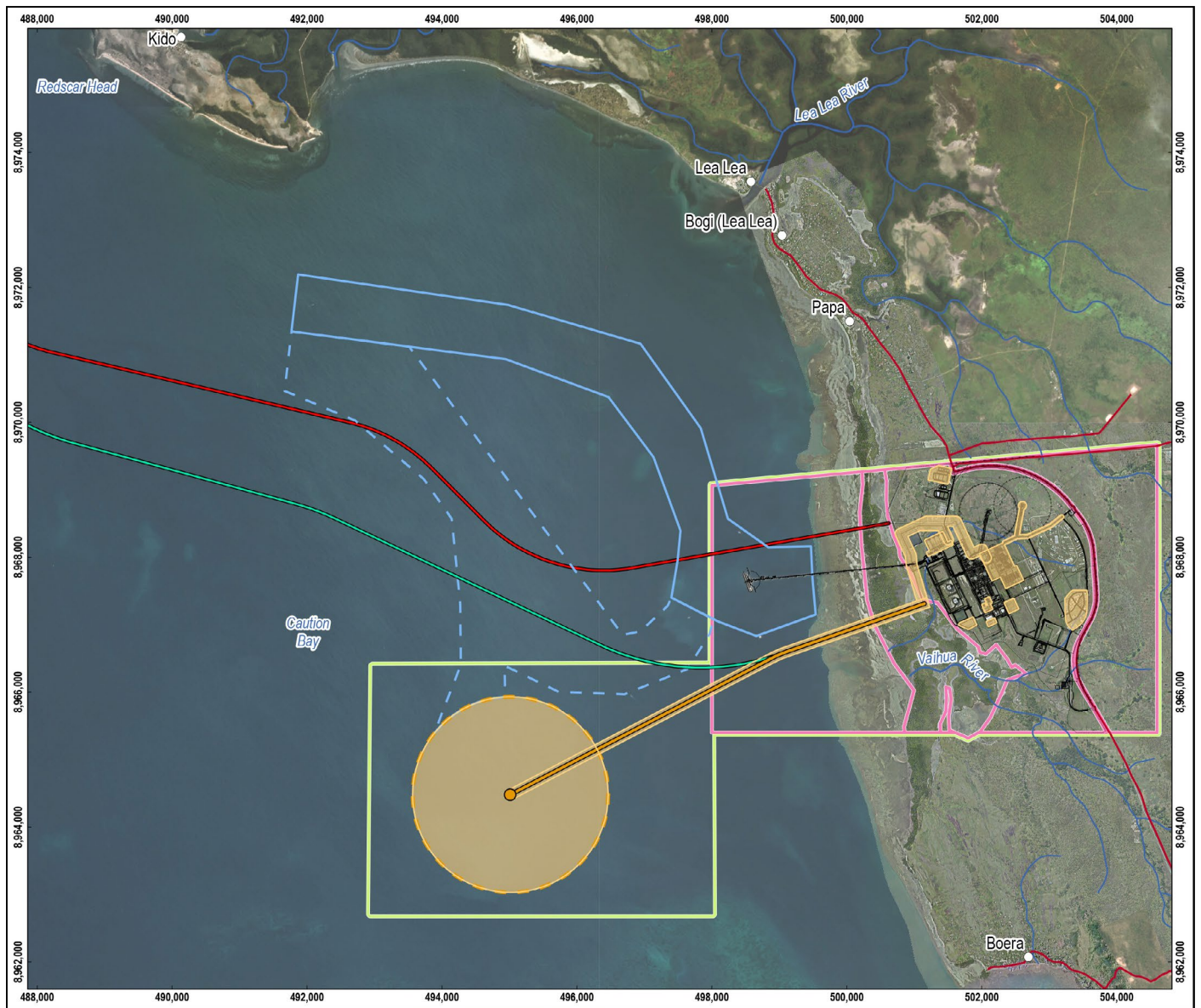
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LEGEND

- | | | |
|--------------------------------------|------------------------------------|------------------------------------|
| ○ Village | PPFL2 boundary | Proposed CALM buoy components |
| — Road | APPFL boundary | ● CALM buoy |
| — Watercourse | Current navigational channel | — Naphtha and condensate pipelines |
| — PNG LNG pipeline | Proposed navigational channel | □ CALM buoy navigational area |
| — Proposed Papua LNG pipelines route | Proposed new and upgraded facility | |
| — Existing and proposed plant layout | | |



0 1 2 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Infrastructure, roads, watercourses and lease boundary
from EMPNGA.
Imagery from EMPNGA and Planet Labs.

Piksa Figa ES 1 Papua LNG Projek – Daunstrim lokesen

1. Tok igo pas

1.1 Luksave stori

1.1.1 Bekgraun

ExxonMobil PNG Limited (EMPNG) emi opereta bilong PNG LNG Projek, we emi kisim na salim ges risoses bilong Papua Niugini. Prodaksen operesen ibin stat long yia 2014 na emi gat ol ges prodaksen na prosesin fasilitis, ol paipain we i ron long giraun na tu long aninit long solwara na ol masin bilong tanim ges igo long wara (na ol kolim "LNG"). Dispela PNG LNG Projek iken kamapim moa long 8 milion tans bilong LNG insait long wan wan yia na isave salim LNG igo long ol kastomas long Asia long ol LNG kago sip. Ol save kolim ol PNG LNG Projek fasilitis stap long Caution Bay insait long Sentral Provins, klostu 2pela-10 km not-wes long Pot Mosbi, olsem "LNG Plant" (Piksa Figa ES1).

1.1.2 Luksave bilong Papua LNG Projek

Nau igat tingting long mekim dispela "LNG Plant" igo bikpela long kisim na prosesim ges long Elk na Antelope gesfild insait long "Petroleum Retention Licence 15 (PRL 15)" long Kikori Distrik (Galf Provins). Taim yu bungim tingting bilong developim Elk na Antelope gesfild wantiaim tingting bilong mekim bikpela "LNG Plant" em dispela tupela wok em ol kolim Papua LNG Projek. **Dispela Envairementol Impek Statmen (EIS) emi lukluk na asesim dispela wok bilong mekim igo bikpela "LNG Plant" fasilitis antap long giraun na long solwara/nambis we istap pinis long Caution Bay. Kain ol mekim igo bikpela emi bilong putim niupela LNG prosesin treins long giraun na tu putim wanem ol i kolim "offshore catenary anchor leg mooring o CALM buoy" long solwara. Dispela ol wok em kam aninit long projek ol i kolim olsem Papua LNG projek – Dauntrim na yumi kolim tasol Projek long EIS ripot.**

Dispela Projek bai i lukim wok konstraksen bilong ges tritment fasilitis na ol niupla "liquefaction trains" long hap we nau "LNG Plant" istap klostu long ol PNG LNG "liquefaction Trains 1 na 2" olsem Piksa Figa ES2 soim. Dispela ol tritment fasilitis bai rausim wara, ol hevi "hydrocarbons", na ol narapela "contaminants" long apstrim fid ges, bihain long we bai i lukim trited ges bai ol salim kam long ol treins istap pinis na ol niupla treins bilong "liquefaction".

Dispela niupela LNG prosesin treins bai lukim mak bilong "LNG Plant" long prosesim ges igo antap moa klostu osem 4 milion tans per annum (mtpa) o long wan wan yia (taim operesen i stap long mak bilong em long wanwan dei), na long sem taim salim 2 mtpa igo long nau LNG treins long ripleisim we prodaksen igo daun. Dispela expensen, wantaim PNG LNG Projek prodaksen taim bungim wantaim bai emi apim prodaksen bilong "LNG Plant" igo klostu 12.8 mtpa (taim operesens i stap long mak bilong em lon wanwan dei).

Developmen bilong Elk na Antelope gesfild na ol narapela ektiviti aninit long dispela developmen em ol i kolim Papua LNG Projek – Apstrim. Igat narapela EIS we emi lukluk long ol envairementol na sosel impek bilong apstrim projek.

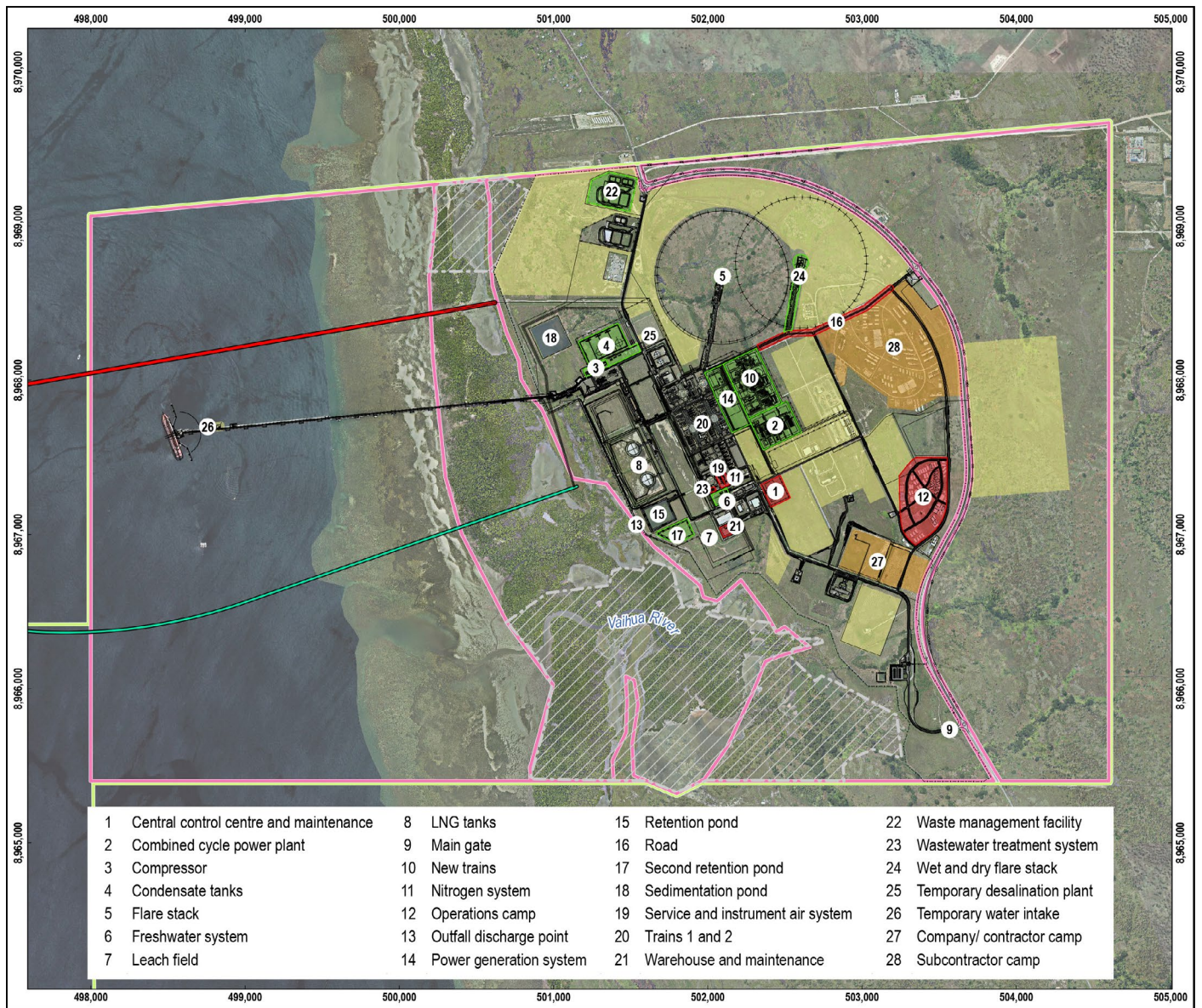
1.2 Ol kampani we ba i kamapim Projek

Long taim mipela raitim dispela EIS ol join-vensa kampani igo pas long kirapim Papua LNG Projek emi:

- TotalEnergies EP PNG Limited (TotalEnergies, afiliet bilong TotalEnergies SA)
- ExxonMobil PNG Antelope Limited (EMPNGA) and ExxonMobil PNG Elk Limited
- Pac LNG Assets Limited, Pac LNG International Limited, Pac LNG Investments Limited, Pac LNG Overseas Limited na Pac LNG Holdings Limited (ol afiliets bilong Santos Limited).
- JX Nippon Oil and Gas Exploration Pty Ltd.¹

ExxonMobil PNG Antelope Limited (EMPNGA) emi kampani we bai igo pas long kamapim wok konstraksen bilong dispela Projek. Niugini LNG Operating Company Limited (NLOC) emi afiliet bilong ExxonMobil we bai igo pas long lukautim operesen bilong Projek taim konstraksen i pinis na komisenin i kamap. Ananit long dispela EIS, nem

¹ JX Nippon Oil and Gas Exploration Pty Ltd ikamap join-vensa kampani long 6 July 2023. Sampela ol ripot mipla usim long kampaim dispeal EIS, mipla ipinisim pastaim long dispela deit. Olsem na JX Nippon Oil and Gas Exploration Pty Ltd mipla ino listim insait long dispela ol ripot.



LEGEND

- PNG LNG pipeline
- Proposed Papua LNG pipelines route
- Existing and proposed plant layout
- Proposed new facility
- Proposed expanded/upgraded facility
- Temporary construction area
- Temporary camp
- PPFL2 boundary
- APPFL boundary
- Cultural heritage restricted area



0 0.5 1
km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Infrastructure, cultural heritage and lease boundary
from EMPNGA.
Imagery from EMPNGA and Google Earth.

Piksa Figa ES 2 Projek Fasilitas istap antalp long giraun

Wok bilong mekim	Konstraksen	Operesens
Apstrim Fasilitis ▪ Welpeds, Sentrol Prosesin Fasiliti, na moa.	TotalEnergies	TotalEnergies
Midstrim o ol Fasilitis istap long namel ▪ Fid ges na fil kondenset paipains	TotalEnergies	TotalEnergies
Caution Bay Fasilitis long Solwara ▪ CALM Buoy	EMPNGA	NLOC
Caution Bay Fasilitis Long Solwara ▪ Expot kondenset paipains* na PLEM	TotalEnergies	NLOC
Mekim "LNG Plant" igo bikpela	EMPNGA	NLOC (bungim wantaim wok bilong "LNG Plant")

* Wok konstraksen bilong TotalEnergies bai ikam olgeta long wanpela mak istap long mep

"ExxonMobil" iken minim EMPNGA o NLOC, o tupla wantaim. Toktok insait long EIS ino aburusim lo bilong "corporate seperateness" namel long ol dispela kampani.

EMPNG ibin developim na operatim PNG LNG Projek long 2009 na ibin lukim nambawan sipmen bilong wara ges o LNG ilusim PNG long mun May long yia 2014.

Tebol ES1 i toksave long husait bai i mekim wok insait long Papua LNG Projek.

EMPNG na NLOC i mekim komitment long kirapim na operetim dispela Projek long mitim envairomental na sosel pefomense standads bilong dispela karent PNG LNG Projek, na Papua Niugini Gavaman, na tu ol stendet we i karamapim tu Papua LNG Projek.

1.3 Wanem tru tingting bilong dispela EIS

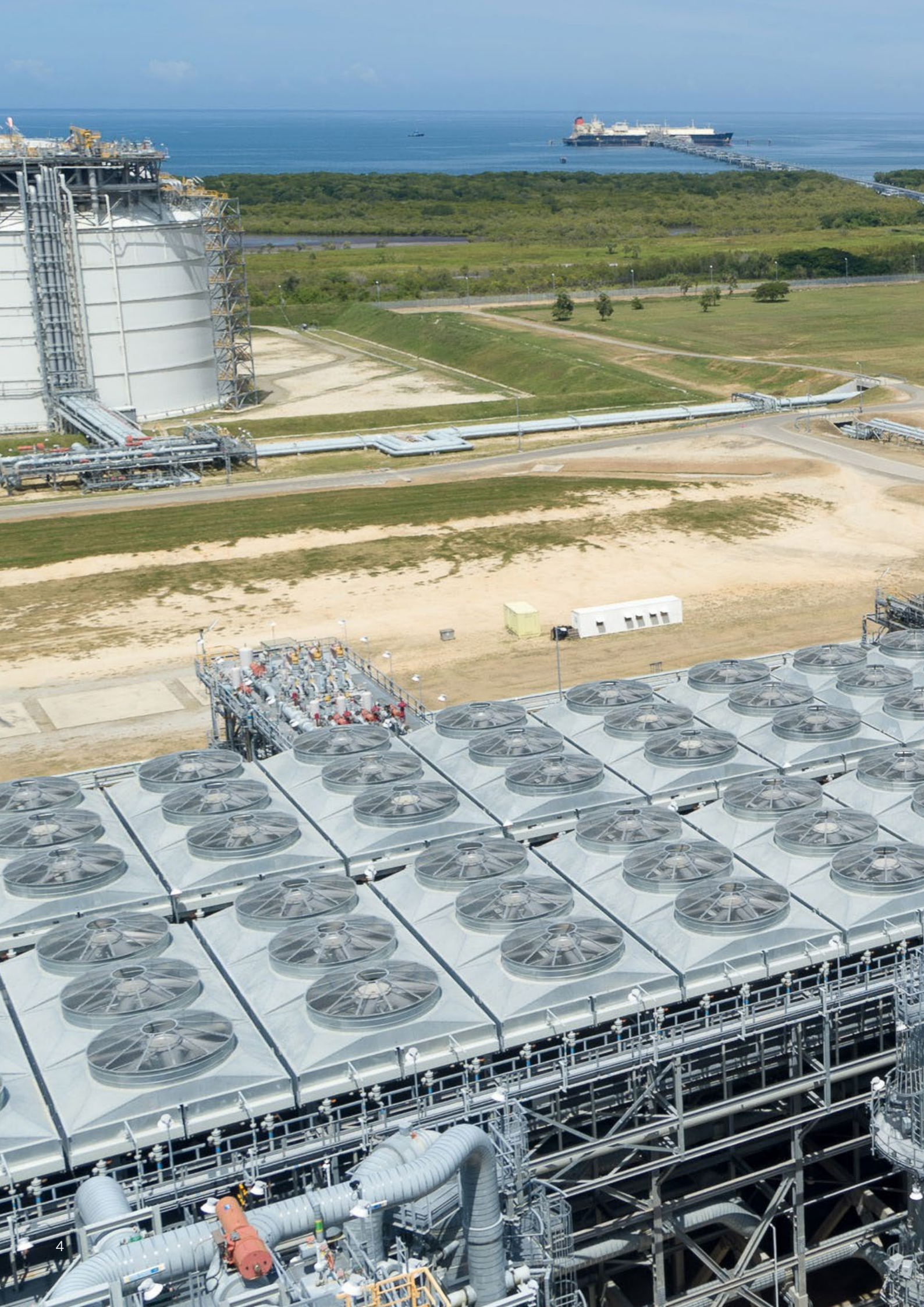
Dispela EIS ibin kamap long wanem emi wanpela bikpela wok we i mas kamap pas aninit long lo bilong gavaman bilong Papua Niugini long kamapim envairomental na sosel asesmen bilong Projek aninit long lo ol i kolim *Environment Act 2000*. Dispela EIS ba halivim Envairomen Kaunsel na tu Minista bilong Envairomen na Konsavesen long mekim disisen sapos Projek iken go het na sapos Projek igo het wanem ol samting opereta bilong Projek bai imas mekim o bihainim long daunim hevi o impek long envairomen na ol pipol. Dispela "LNG Plant" we nau yet i wok long ron istap emi operet aninit long wanpela laisens ol i kolim "petroleum processing facility licence (PPFL)" na envairomen permit EP-L3(210) we EMPNG i holim. Long wok konstraksen bilong ol niupla "liquefaction trains" we isave tanim ol ges igo kamap LNG, na ol narapela infrastraksa long kamap, Projek mas kisim wanpela niupela wankain

laisens bilong mekim wok. Projek imas kisim wanpela nuipela konstraksen na operesens envairomen permit bilong dispela "integrated LNG Plant", na tu ibai gat senis o apdet ikamap long EP-L3(210).

Dispela EIS ikam long 3-pla main pat:

- **EIS Ekseketif Samari o Sotpela Tok** (dispela ripot). Dispela pat emi sotpela stori bilong Projek, wok painim aut bilong impak asesmen, wok bung wantaim ol steikholdas na tu i lukluk long ol narapela steikholdas husait iken galasim na sigelim gut EIS.
- **EIS Mein Ripot o Bikpela Ripot Bilong EIS** (sapta 1 igo long sapta 21). Dispela saptas i givim ful stori bilong Projek, ol lo na standads we i banisim Projek, wanem ol wok painim aut ibin kamap long ol teknikal stadi long pisikol, baiologikal, sosel na kalsarol impek bilong Projek, wanem ol rot bilong halivim long daunim hevi o birua na ol liklik impek na tu lukluk long gutpela bilong Projek. Emi stori tu long ol wok bung na ol toktok we ikamap wantaim ol narapela steikholdas.
- **Teknikol stadis** na teknikal ripots (appendices A igo L). "Appendices" long EIS igat ol teknikal ripots we ol speselis stadis ibin kamap long luksave long envairomental, sosel na ol impotent samting bilong kalsa na pasin tumbuna, na tu long halivim long luksave long ol impek bilong Projek.

EIS save givim moa infomesen long Projek na ino wankain olsem sotpela infomesen we istap long Ekseketif Samari o Sotpela Tok. Dispela EIS ibin kamap bihainim tok orait bilong "Environmental Inception Report" na Dipatment bilong Envairomen na Konsevesen (nau ol i kolim CEPA) Infomesen Gaidlain (GL-Env/02/2004) long karim aut Envairomental Impek Asesmen o wok painim out na wei bilong kamapim Envairomental Impek Statmen.



2. Stori bilong Dispela Projek

2.1 Luksave long Projek

Stori karamapim wok bilong Papua LNG Projek na fasilitis insait long dispela EIS istap tambolo. Emi seperetim igo long ol “aspects” o wan wan hap we bagarap inap long kamap sapos Projek ikamap na makim tingting bilong dispela EIS. Ol narapela hap we istap wantaim Papua LNG Projek – Apstrim, istap arasait long wok mak bilong dispela EIS.

2.1.1 Papua LNG Projek – Daunstrim (dispela EIS)

Projek bai i lukluk long konstraktim “gas treatment” fasilitis na niupela “liquefaction trains” long hap we “LNG Plant” (Poto ES1) i nau sindaun long em, klostu long hap we “liquefaction Trains 1 na 2” (Poto ES2) istap long em. Dispela tritmen fasilitis bai rausim wara long ges, ol hevi “hydrocarbons”, na tu ol narapela “contaminants” long apstrim fid ges, we bihain bai dispela trited ges bai ol salim igo long nau treins na niupela ol treins bilong tanim ges igo kamap LNG.

Tupela mein prodak we bai i kamap long dispela Projek em LNG na “naphtha”. Naphtha em ol wara we long taim bilong prosesim LNG isave kamap. Taim Naphtha ikamap ol bai mixim wantaim “Papua LNG field condensate” na holim insait long ol niupela bikipela tenk.

Projek bai i disainim, konstraktim na operetim tu “catenary anchor leg mooring (CALM) buoy”. Dispela “CALM buoy” bai seperetim ol “non-LNG liquids” (naphtha and condensate) long hap bilong rausim LNG igo long ol bikipela kago sip ikam soa long “LNG Plant” wof.

Long mekim wok bilong CALM buoy, dispela bai i nidim niupela “navigation channel” o mak we sip bai ron long em na “marine exclusion zones” o hap we itambu long painim pis. Dispela CALM buoy bai nidim “pipeline end manifold (PLEM)” na klostu long sevenpla km bilong “subsea export pipeline(s)” bilong “naphtha” na kondenset. Konstraksen bilong dispela bai kam aninit long Apstrim (lukim Seksen 2.1.2), tasol dispela paipplain ba i operete aninit long Projek operesens. Long dispela tingting, dispela EIS i lukluk tu long operesen bilong PLEM



Poto ES1
“LNG Plant” fasiliti, lukluk
igo long not ist



Poto ES2
“LNG Plant” sait wantim
ol LNG tenks, lukluk igo
long not

na ol paipplains bilong karim ges. Export paipplains bai i bihainim Papua LNG paipplains na paipplain bai i silip klostu long “onshore trench”.

LNG kago sip bai loudim ol LNG, naphtha na kondenset bilong expot igo long ovasis makets, LNG bai loadim long wof istap pinis, na ol naphtha na condensate bai igo olsem long “CALM buoy” long loadim igo long sip.

Ol fasilitis na infrastraksa we istap nau na ol niupela ol bai i mekim bilong Projek bai sapotim operesen bilong ol niupela “liquefaction trains”. Ol fasilitis bilong serem bai i wankain olsem ol karent na ol niupela “liquefaction trains” na bai stil usim ol karent “LNG Plant” sistems tasol bai igat sampla wok modifikesen long apgredim ol dispela sistems long halivim operesen long taim igat nid.

Bai igat nid long mekim ol niupela fasilitis long sapotim operesen bilong ol niupela “liquefaction trains” osem “integrated fuel gas system” na “wet and dry flare systems”.

Bai igat nid tu long wokim ol fasilitis we bai sanap sotpela taim long taim bilong konstraksen tasol na dispela em ol kain samting olsem laydown erias, ol opis, woksops, fasiliti bilong rausim sol long solwara na masin bilong mekim sement. Dispela ol fasilitis bai istap insait long “LNG Plant” lis eria.

Planti bilong ol konstraksen samting na metirials bai ikam long sip long Motukea Wof we ol bikipela trak bai loadim igo long “LNG Plant” bihainim Lea Lea Rot. Dispela rot bai nidim meintenens wok long kamap, na tu wok bilong muvim ol pawa lain long mekim wei bilong ol bikipela trak na masin bilong wok. Ol bas na kar bai usim dispela rot long kisim ol wokman-meri long Pot Mosbi igo ikam long wok.

Bipo long operesen i kamap, bai igat wok komisenin long sekim na testim olgeta fasilitis bilong tupela projek wantaim na ol niupela fasilitis long “integrated LNG Plant”. Long taim bilong operesen, bai igat prosisa bilong mekim monitarin, inspeksen, na meintenens bai i wankain olsem istap pinis long dispela karent “LNG Plant”.

Ol Projek fasiliti EIS itoktok long em nogut bai igat ol senis ikamap long taim bilong “front end engineering and design” (FEED) proses we em wok long kamap stap, na tu long taim bilong “detail design” na konstraksen tu. Sapos sensis kamap toksave long CEPA bai kamap sapos dispela ol senis bai kamapim niupela impek dispela EIS ino luksave long en.

2.1.2 Papua LNG Projek – Apstrim (arasait long wok mak bilong dispela EIS)

Separet long dispela EIS, Papua LNG Projek – Apstrim developmen bai igat ol wok na fasilitis long “offshore” o long nambis na solwara na “onshore” o antap long giraun insait long Caution Bay (na sampla hap tu). Ol impeks na wei bilong daunim ol hevi o birua insait long wok mak bilong Papua LNG Projek – Apstrim EIS proses; sotpela stori istap aninit em bilong givim klia tingting tasol na em ino stap long wok mak bilong dispela EIS.

Insait long Apstrim wok mak, ol bai wokim tupela niupela “feed” ges paiplains (ol ikolim Papua LNG paiplains), wanpela bilong ges na narapela bilong kondenset. Ol Papua LNG paiplains bai istap long sauten sait bilong karent “LNG Plant” wof na stap insait long mak bilong karent “LNG Plant” “lease boundaries” or hap giraun we kampani ibin kisim tok orait pinis long gavaman long usim. Antap moa long dispela wok bilong Papua LNG paiplains, konstraksen bai kamap long tupla moa expot paiplains, same taim wantaim PLEM long dispela Apstrim wok. Ol niupela expot paiplains bai karim naphtha na kondenset long “LNG Plant” igo long CALM buoy (lukim Section 2.1.1).

Papua LNG paiplains na “export pipelines” o (expot paiplains) bai i bihainim wankain rot bilong “shore pipeline crossing”, we Apstrim EIS i luk save long em. “Current design” i soim olsem expot paiplain bai sindaun long wanpela baret na fid paiplian bai sindaun long narapela baret long stat bilong “shore crossing” igo long “landfall”. Taim ol paiplains kamap long giraun, olgeta paiplains bai igo long wanpela baret tasol. Moa toksave long Apstrim developmen istap long Papua LNG Projek – Apstrim EIS.

2.2 Wanem ol tingting bilong Projek

Ol nambawan tinging bilong Projek em lo:

- Mekim igo bikipela ol prosesin na expot fasilitis bilong “LNG Plant” long kisim ol ges risosis bilong Elk na Antelope.
- Mekim wok gut long taim bilong konstraksen na operesen long daunim ol kain hevi we Projek iken kamapim long envairomen na long ol komunitis bilong wanem wok bai ikamap insait long giraun “LNG Plant” isanap long em na em mas bihainim ol mama lo bilong gavaman, bihainim ol strepela pasin bilong kamapim wok, na tu bihainim wankain legmak EMPNG iwokim pinis long PNG long sait bilong lukautim envairomen na tu bihain ol lo bilong ol gavaman opis.
- Givim moa ekonomik na tu sosel halivim na sapot bilong “LNG Plant” igo long gavaman bilong Papua Niugini na ol papa-mama giraun tru long ol moni we Projek bai givim long halivim ikonomi bilong kantri.

Diman bilong “natural gas” i wok long go antap insait long Esia-Pasifi (na Papua Niugini) makets. Ol kantri insait long Esia-Pasifik i wok long usim moa “natural gas” long kamapim pawa na dispela LNG we bai kamap long ol niupela “liquefaction trains” bai halvim long mitim ol dispela diman. Projek bai bringim moa sapot ikam long ol pipol bilong Papua Niugini long kain rot olsem:

- Halivim ol lokol bisnis long kamap bikipela tru long saplaim ol ekwipmen na meteriols Projek i nidim long taim bilong konstraksen na operesen bilong mekim dispela “integrated LNG Plant”.
- Kamapim moa wok na trenin sans bilong ol pipol bilong Papua Niugini.

Dispela Projek bai addim planti moa benefits wankaim olsem development bilong PNG LNG Projek ibin kamapim, na tu bai lukim “LNG Plant” istap sampela taim moa.

Papua Niugini isave promotim development bilong ol minerol risoses bilong em tru long ol planti gavaman polisi long enkaragim invesen. Na gavaman isave putim fes ol benefits long halvim ol pipol bilong Papua Niugini tru long development bilong risoses bilong kantri. Development bilong Projek emi ron wantain Konstituisen na bihainim ol nesenol gols na direktivs were emi lukluk long drimman na prinsipals blong development bilong kantri.

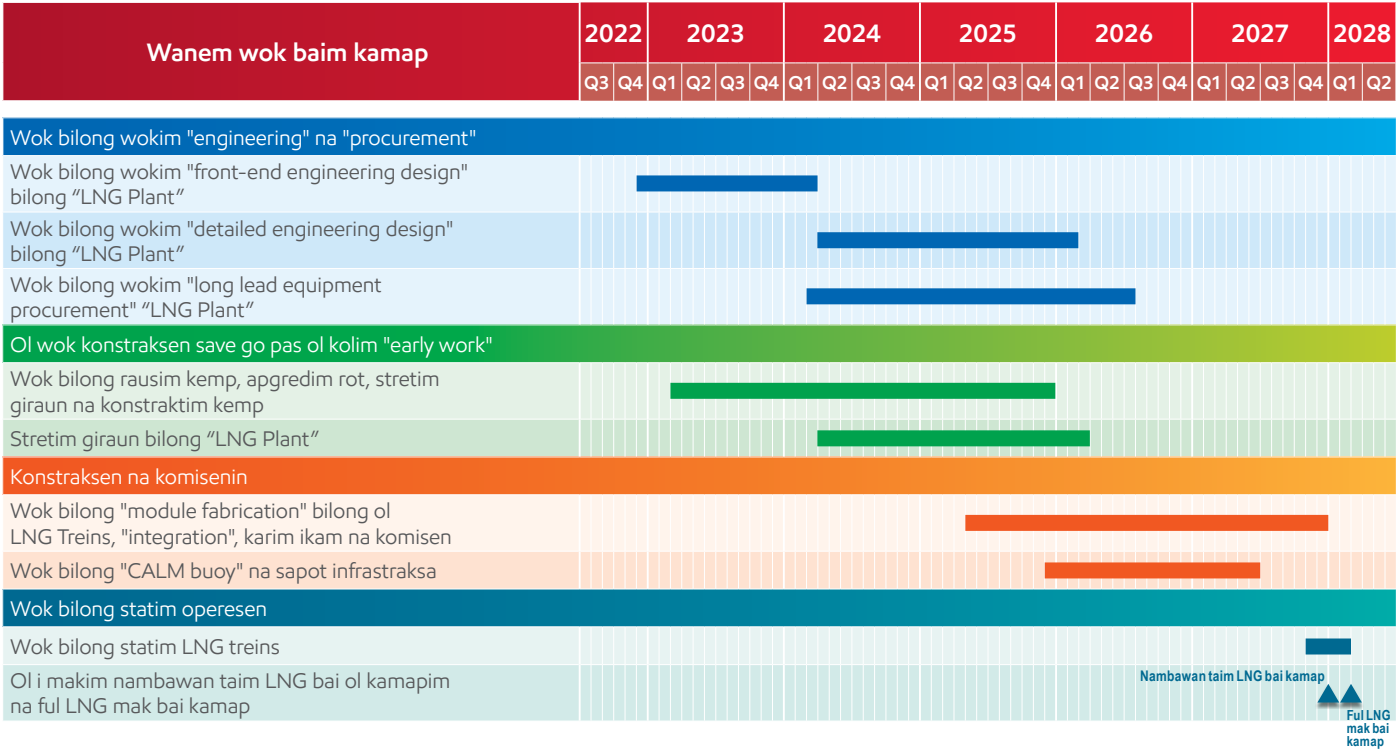
2.3 Taim lain bilong mekim wok

Konstraksen bilong Projek bai kamap namel long yia 2024 igo long 2028. Dispela taimlain istap long Piksa Figa ES3, tasol nogut em bai senis bihain long “final investment decision” (FID).

2.4 Lukluk long ol narapela wei bilong kirapim projek

Dispela Projek ibin lukluk na skelim ol rot we iken kirapim wok na long sem taim halvim “LNG Plant” long kisim moa gas we bai ikam long Elk na Antelope gesfil. Ol bikpela tingting bilong “alternative development options” Projek i lukluk long em na skelim em long usim marine fasilitas, onshore pipelines, logistics routes, LNG prosesin teknologi, “equipment optimisation” na sos bilong wara. Wok bilong lukluk na skelim narapela wei bilong mekim wok long Projek ibin kamap long luksave long ol nambawan constraints o hevi we iken impektim hau wok i kamap na tu lukluk long gutpela bilong wok. Dispela em karamapim ikeconomic, pisikol, envaironmen na sosel constraints.

Long wanem Projek ikaramapim expesen bilong karent “LNG Plant” na tu bai usim ol eria we konstraksen wok ibin kamap pinis long em, envairomental na sosel impekt bilong Projek ba i liklik na ino bikpela tumas wankain olsem we niupela development save kamap. Long bungim wok long prosesim, holim na salim ges insait long “LNG Plant” long Caution Bay em daunim ol envairomental na sosel impeks bilong Papua LNG Projek. Sapos Papua LNG Projek wokim niupela “LNG Plant” em bai kirapim moa hevi long envaironmen na long ol komuniti wantaim.



Piksa Figa ES 3 Taimlain bilong mekim wok



3. Tingting bilong Projek

Dispela Projek bai i surukim wok na sais bilong “LNG Plant” we istap nau yet klostu long Pot Mosbi. Olsem na dispela Projek em ol ikolim “brownfield” o hap we wok asesment long envairoment, sosel na kalsa, ibai gat tu ol niupela hap ol kolim “greenfield” eria long solwara we ol bai surukim ol fasiliti istap long em.

3.1 Envairomen o hap we wok bal i kamap long em: “LNG Plant”

Baslain stadis o fes wok painim aut ibin kamap bipo long konstraksen i stat long “LNG Plant” long sapotim PNG LNG Projek EIS. Dispela ol stadis o wok painim aut ibin lukluk long ol samting olsem giraun na hau giraun kamapim ol maunten samtin, giraun wara, lukluk long ron bilong wara na tu long muvmen bilong ol lus giraun na wesan, lukluk long kwaliti o gutpela bilong wara na ol lus giraun na wesan, ea, nois, bus na wel abus na binatang antap long giraun na ol samting osem pis, kindam, na ol narapela samting istap long ol han wara. Long yia 2019 na 2022, sampela moa wok panim aut long giraun wara, ron bilong han wara (na tait o solap bilong han wara long taim bilong ren), ea na nois ibin kamap long sapotim dispela Projek EIS na sapotim tu ol data we fes wok painim aut ibin kisim bilong PNG LNG Projek.

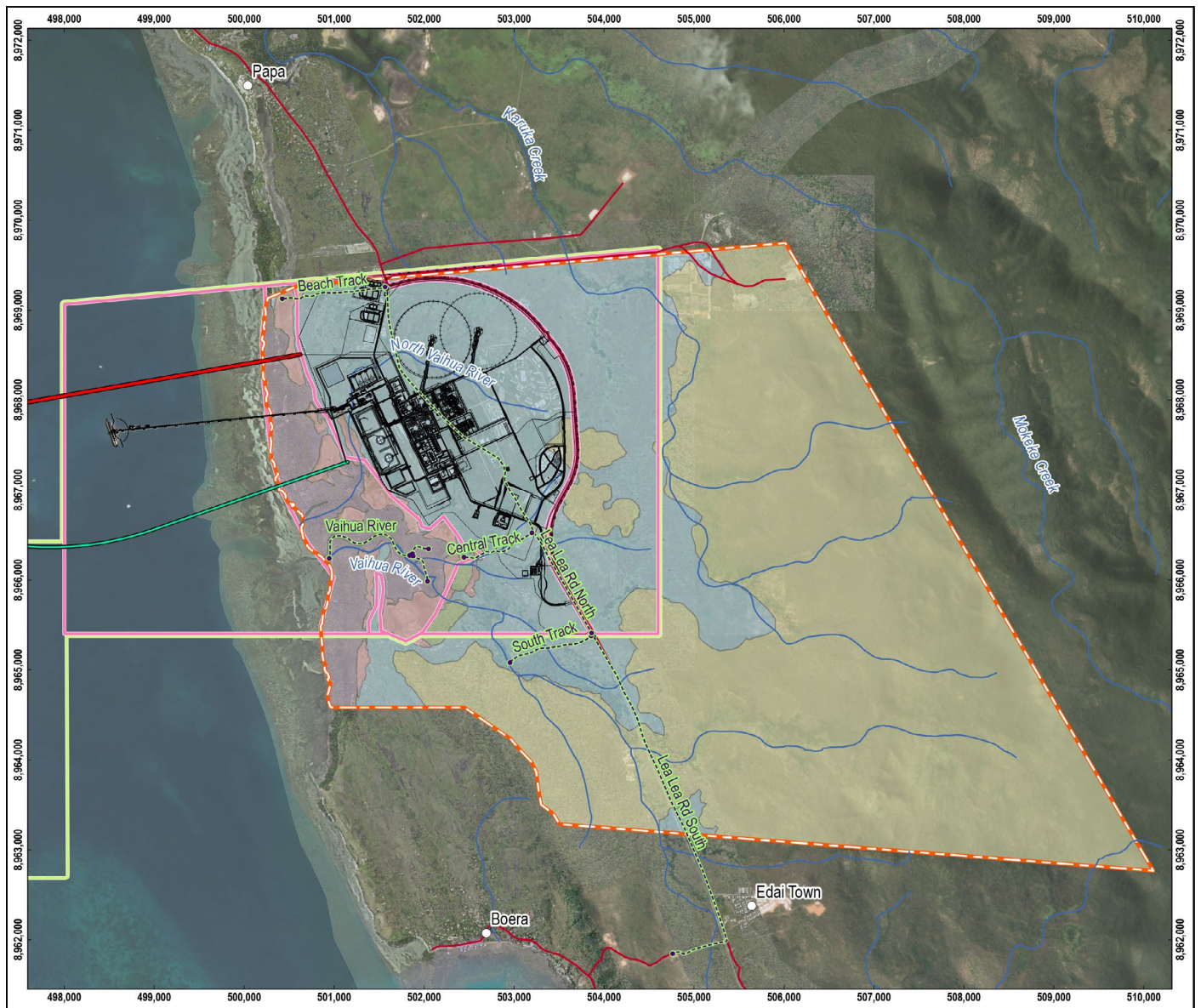
Fes wok painimaut bilong “onshore environment” o envairoment antap long giraun i luksave olsem dispela wok bai i kamap antap long ol eria o hap we planti wok ibin kamap pinis long taim bilong konstraksen na operesen bilong “LNG Plant” na ol sapotim fasilitis na ol narapela fasiliti we istap wantem. Hap we nau “LNG Plant” na ol narapela fasilitis istap long em isoim olsem dispela hap ibin disteb o wok ibin kamap pinis long em.

Hap giraun we “LNG Plant” istap long emi sidaun antap liklik long kil klostu long nambis we bikpela hap bus m gras tasol na i silip igo olsem long solwara. Insait long 20th senturi, wok agrikalsa ibin kamap long bikpela hap bilong dispela giraun. Wok

konstraksen bilong “LNG Plant” ibin pinis long yia 2014, na dispela ibin lukim tu bikpla wok bilong kliarim ol bus tu ibin kamap insait long hap mak we projek ibin kisim tok orait long em. na tu bikpela hap bilong ol hap istap klostu long “LNG Plant” i wok long senis yet long wanem igat planti bus paia isave kamap long taim bilong drai sisen we ino save malolo long gim taim tu long ol kamarere long kamap

Long nambis, igat ol mangoro we i kamap na sanap bihainim arere long nambis. Long ol hap we igat liklik kil o maunten klostu long nambis, sampla hap igat bikpela bus diwai na gras. Kam bek inlend na bihainim long ol mangoro na ol hap we bikpela bus diwai na gras istap igat ol “mud flats” or hap we wara isave sindaun long taim solwara tait (Spring Tide) i kirap bihainim Vaihua Riva na “tidal creeks”. Long taim we wara ino sindaun karapim dispela ol hap, dispela hap (mud flats) isave drai kamapim “salt flats” long wanem igat sol i sindaun lon dispela hap. Bihain long ol swamp na “mud flats” giraun istat long go antap liklik igo long ol “savana grassland” bus we igat ol “weeds” o garas nogut tu, Na igo mo inlend, bai yu painim kamarere na botol bras diwai long “low-lying hills” na hap ol “riparian forest” na long klostu long ol han wara igat planti moa garas. Klostu long maus wara, freshwara na forest long Vaihua Riva, emi hap we ol pisin bilong wara isave kamap stap long em, na tu ol pisin we isave kamap long narapela hap longwe olsem ol pisin we isave raun klostu long nambis (shorebirds). Maus wara bilong Vaihua Riva i save sapotim planti na kainkain ol samting olsem pis na kindam na i winim tru ol narapela hap insait long “LNG Plant” (Piksa Figa ES4) i soim wanem ol kain bus istap na tu we hap ol stadi bilong “terrestrial biodiversity” ibin kamap long PNG LNG Projek EIS.

“LNG Plant” eria i karamapim tripela bikpela “catchments” o wara, em Vaihua Riva, Not Vaihua Riva na Karuka Krik, na wanpela liklik “catchment” long nambis (Piksa Figa ES5) Igat wok moniterin isave kamap long sekim kwaliti bilong wara taim em i lusim “LNG Plant” na igo aut long nambis na solwara.



LEGEND

- Village
- Fauna survey transect
- Road
- Watercourse
- PNG LNG pipeline
- Proposed Papua LNG pipelines route
- Existing and proposed plant layout
- PPFL2 boundary
- APPFL boundary
- Terrestrial Biodiversity Study Area

Biodiversity habitat classification

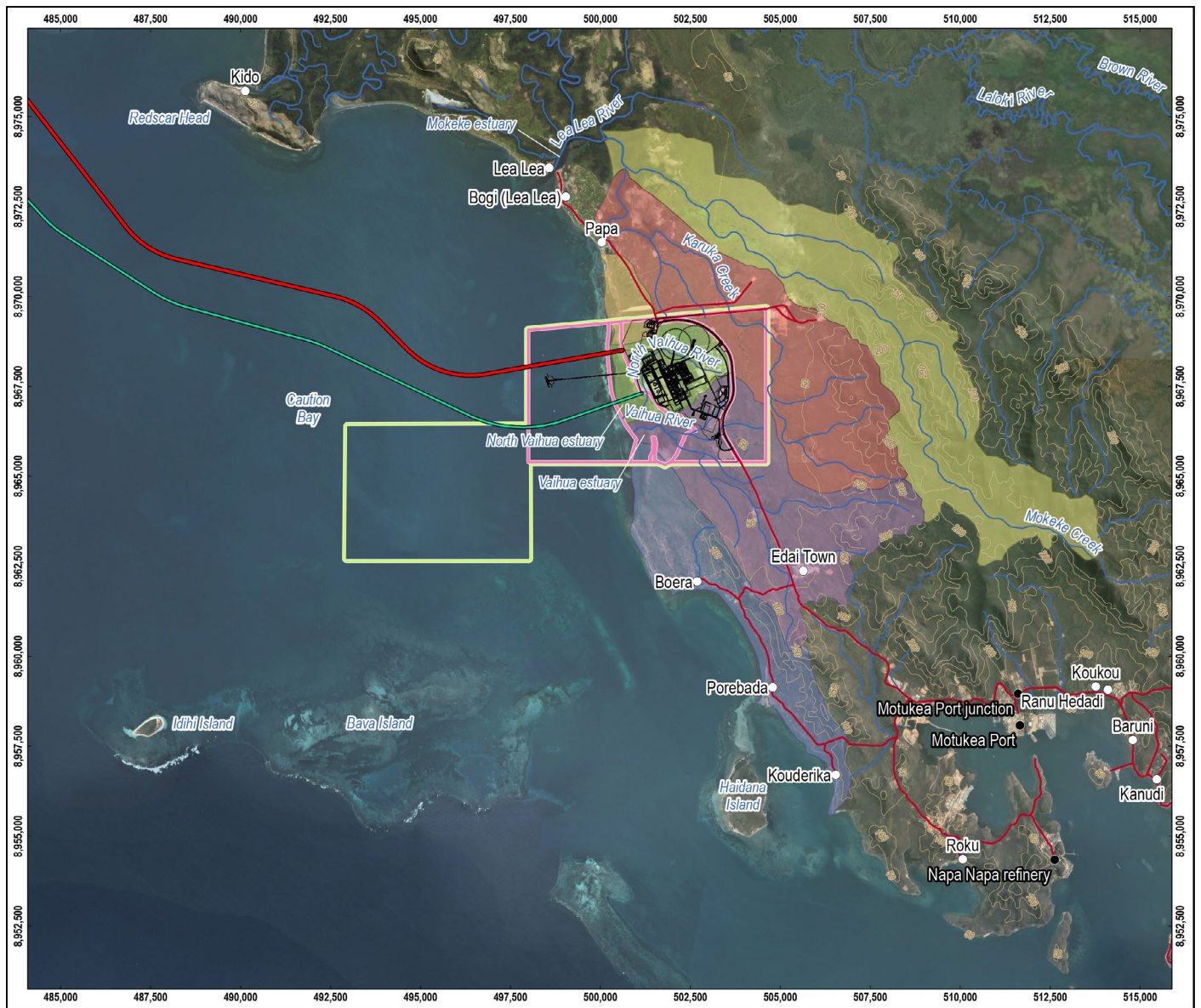
- Grassland/open woodland
- Grassland (rocky)
- Mangrove
- Mudflat/saltflat
- River
- Savanna



0 0.5 1 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Survey transects, habitat classification, study area,
infrastructure and lease boundary from EMPNGA.
Imagery from EMPNGA and Planet Labs.

Piksa Figa ES 4 Hap eria we wok painim aut ikamap long luksave long wanem ol bush,
wel abus na ol narapela samting isatap long em (mun 2008)



LEGEND

- | | |
|--------------------------------------|------------------------------------|
| ○ Village | Catchment area |
| ● Point of interest | Karuka Creek catchment |
| — Road | Moreke Creek catchment |
| — Watercourse | North Vaihua River catchment |
| — Contour (50 m interval) | Vaihua River catchment |
| — PNG LNG pipeline | Minor coastal catchment |
| — Proposed Papua LNG pipelines route | Series of minor coastal catchments |
| — Existing and proposed plant layout | |
| — PPFL2 boundary | |
| — APPFL boundary | |



0 1 2 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Catchments, contours, infrastructure, roads, watercourses and lease boundary from EMPNGA.
Imagery from ArcGIS Online and Planet Labs.

Piksa Figa ES 5 Ol bikplea wara insait long "LNG Plant" eria na arere

Wok bilong testim wara we ikam long ol fasiliti long “LNG Plant” na maus wara bilong Vaihua Riva na ol wara we isave ron long ol baret long “LNG Plant” long taim bilong operesens i soim olsem dispela ol wara we ikam long “LNG Plant” ino abrusim ol mak we istap insait long envaironmen permit.

Wok painim aut long giraun wara long “LNG Plant” i soim osem dispela ol giraun wara isave kam wantaim ol “alluvial deposit” o giraun na wesana bilong “coastal plain” o flet hap bilong nambis we igat clay (kley), ol silt (ol dust insait long wara), wesana na tu liklik ol ston. Ol dispela giraun wara we istap long ol kain wesana emi gat tiknes namel long 5 m igo 15 m na i karamap wantaim 5 m igo 10 m kley wesana we iken holim wara longpela taim long giraun.

Dispela karent “LNG Plant”, Pot Mosbi Pawa Stesen na Dirio Sentrel Provins Pawa Stesen em ol mein sos o hap we lokol “air emissions” isave kam long em. Ol narapela sos o hap bilong “air emissions” em ol “domestic na agrikalsa wok we i kamap long ol peles we i raunim “LNG Plant” (Lea Lea, Papa, Boera and Porebada), na tu long ol trak na kar we save usim ol rot.

Wok bilong sekim nois levul long ol hap klostu long “LNG Plant” long yia 2019 ino lukim wanpela hevi bilong nois long dispela nau operesens bilong “LNG Plant”. Baslain o fes wok painim aut long nois levul i soim olsem ol mein sos bilong nois o hap we nois ikam long em ino long operesens bilong “LNG Plant”. Nois i wok long kam long ol narapela samting olsem karai bilong binatang, pisin na ol man or meri i toktok.

3.2 Envaironmen o hap we wok bai i kamap long em: nambis na solwara

Nambawan wok painim aut we ibin kamap long “nearshore marine” o long nambis na solwara klostu long nambis long sapotim dispela EIS i soim olsem kondisen bilong envaironmen long Caution Bay insait long hap bilong Projek eria we ol infrastraksa bai sanap em i wankain tasol olsem long PNG LNG Projek na tu ol wanem kain “subtidal habtats” istap na long we na wanem kain ol animols istap emi depen long levul bilong wara na tu longwe bilong ol long nambis (lukim Piksa Figa ES6).

Wok painim aut bilong ol mangoro long “LNG Plant” eria na arere i soim olsem ol dispela mangoro tu i save kamap long ol narapela hap bilong Papua Niugini na long ol narapela kantris klostu long PNG. Wok painim aut i soim tu olsem ol mangoro igat gutpela helt wankain olsem ol narapela mangoro komunitis insait long “Austalasian” na saut-ist Asia tu. Tasol long “LNG Plant” eria yet, sampela mangoro i wok long dai isi isi. Displa ol hap em ol

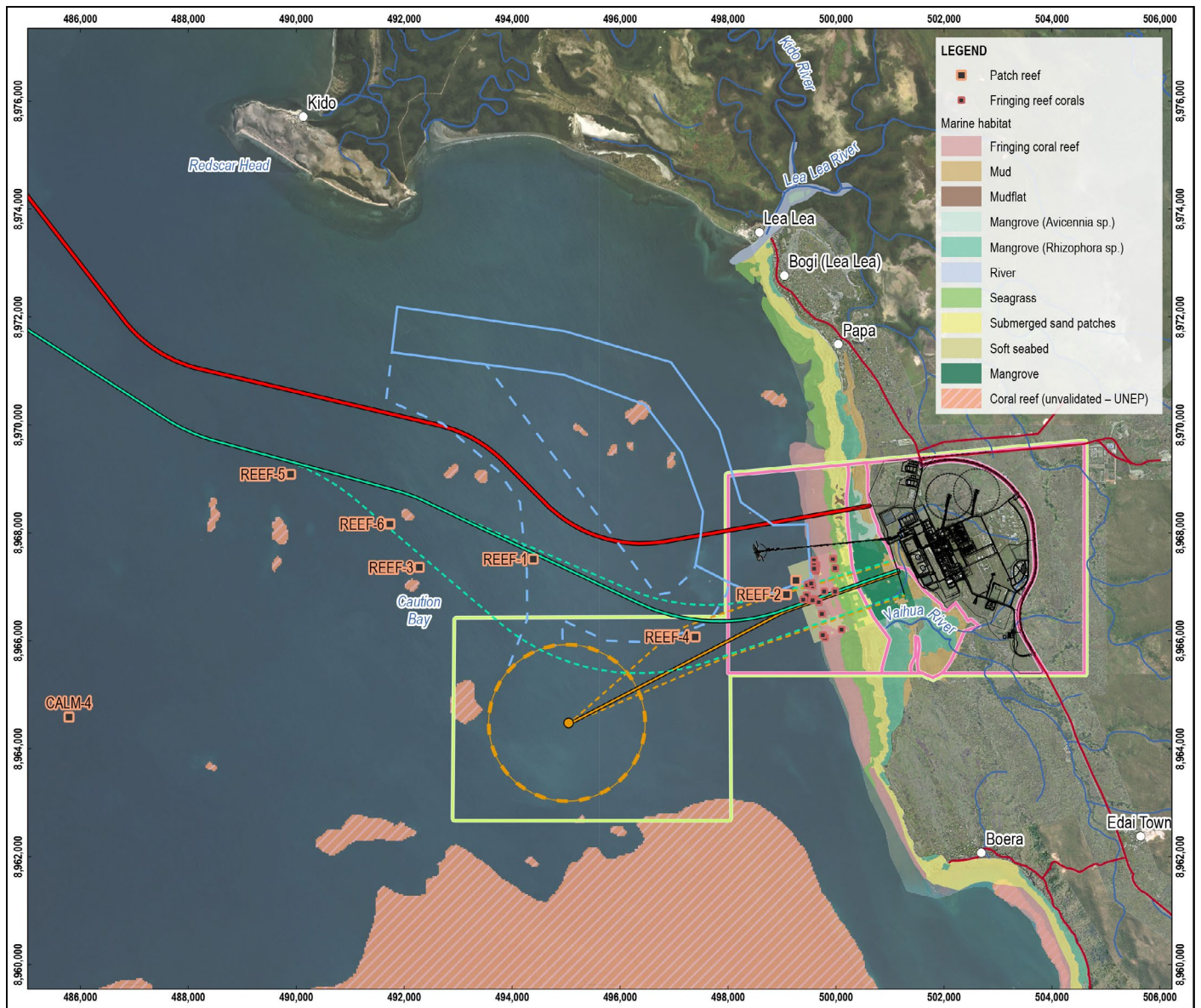
eria we istap klostu long “LNG Plant”, tambolo long hap bilong “retention pond mixing pit” na saut long “LNG Plant” wof na long hap we wok ibin kamap long taim bilong putim “LNG Plant” paipain. Wok bilong luksave long dispela i soim olsem ol mangoro *Avicennia marina* iwok long kamap gut na igo planti long wanem tide isave kisim ol na tu long wara we isave kam long “retention pond” we i halivim ol long kamap gut. Tasol ol narapela mangoro olsem yelow mangoro na Indian mangoro (*Ceriops* spp) i wok long bagarap na idai. Dispela ol mangoro isave kamap insait liklik na ino save kamap wantaim ol narapela mangoro we i save kamap klostu long nambis.

Long hap we seagrass o ol garas we isave kamap aninit long solwara, ol komunitis bilong “seagrass” i wok long kamap orait. Igat bikpela hap we *Sargassum* (braun siwid) na “turf algal” i karamapim planti hap ston na ol lilik ol ston tu klostu long rip na dispela i mas kamap longtaim bipo long wok bilong putim paipain ikamap. Nau tu namba bilong ol pis igo antap na tu kaikain pis i stap nau na ol korols wok long kamap long planti hap.

Wok painim aut bilong ol “habitat” istap long “LNG Plant” i soim olsem dispela eria ino sapotim kain kain ol korols na pis. Dispela emi go bek ken long bipo stori bilong dispela hap na tu wanem kain ol “natural” proses we ibin kamap. Ol wesana na giraun we wara ibin karim igo long mauswara bilong bikpela wara Vaihua Riva na Lea Lea Riva tu ibin igat sampela “influence” long ol rip long sampela pat eria bilong Caution Bay.

Wok painim aut long ol rip na korols we i save kamap klostu long nambis i soim olsem ol dispela rip na korols ino stap long wanpela hap tasol na tu ino kamap gut. Igat ol bikpela korols tasol ol istap ol yet long ol wanwan hap o liklik grup na ino stap olsem wanpela bikpela rip. Long sampela hap we wok konstraksen ibin kamap bipo, dispela ol hap i soim olsem ol korols i wok long kamap gut ken.

Wok painim aut long ol rip na korols we i save kamap longwe long nambis i soim olsem ol rip na korols i wok long kamap gut na igat kainkain ol pis na ol narapela samting istap. Stadi bilong ol bikpela pis i soim olsem i nogat ol bikpela pis o kain animols olsem shak na dolfin isave stap oltaim long Caution Bay. Na tu i nogat wanpela ripot istap we ibin stori olsem igat ol kain bikpela pis na narapela ol animols bilong solarwa we isave stap olgeta tiam long Caution Bay. Ol dispela ol pis isave kam raun tasol na igo long wanem ol i nogat hap bilong kaikai, malolo o bung na poroman. Data bilong wok sekim wara na wesana namel long yia 2009 ikam 2022 i soim olsem ino bin igat wanpela bagarap we i kamap long kwaliti bilong wara na giraun na data tu ino abrusim ol mak projek ibin wanbel pinis long em wantaim gavaman taim em kisim envaironmen permit.



LEGEND

- Village
- Road
- Watercourse
- PNG LNG pipeline
- Proposed Papua LNG pipelines route
- Proposed Papua LNG pipelines route alternate
- Existing and proposed plant layout
- PPFL2 boundary
- APPFL boundary
- Current navigational channel
- Proposed navigational channel
- Proposed CALM buoy components
- CALM buoy
- Naphtha and condensate pipelines
- Naphtha and condensate pipelines alternate
- CALM buoy navigational area



0 1 2 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Marine habitat from Tetra Tech Coffey (CNS, 2008 & 2023).
Unvalidated coral reef locations from UNEP-WCMC.
Infrastructure, roads, watercourses and lease boundary from EMPNGA.
Imagery from EMPNGA and Planet Labs.

Piksa Figa ES 6 Mep bilong ol solwara habitat insait long Caution Bay

3.3 Sosel envairomen

"LNG Plant" sosel stadi eria (Piksa Figa ES 7) i karamapim giraun, infrastaksa na komunitis husait bai i lukim sampela senis long taim bilong wok konstraksen na operesen. Stadi eria em i stat long not-westen baundri bilong Nesenol Kapitol Distrikt (NCD) na igo long Not insait long Sentral Provins long Lea Lea Villis. Isten baundri bilong stadi eria istap insait long giruan hap 3km long "LNG Plant" na igo long west long Caution Bay. Ol papa-mama giraun bilong "LNG Plant" em ol peles osem Porebada, Boera, Papa na Lea Lea. Stadi eria i karamapim tu Edai Taun, wanpela komuniti istap 3km ist long Boera.

Insait long PNG LNG stadi eria, wok bilong painim na usim ol samting bilong bus, giraun na solwara, na tu wok leba na ol liklik infrastraksa bilong sapotim maket em ol samting we iwok long halivim sindaun bilong ol pipol long komunitis. Planti bilong ol lain husait istap long stadi eria save lukluk long ol samting bilong bus, giraun na solawara tasol planti ol abus na samting bilong solwara iwok long stap long presa long wanem ol man-meri ino lainim gut pasin bilong menesim gut ol risoses. Haushol sevei long yia 2009 i soim olsem planti ol lain husait isave painim pis i wok long gat tingting olsem dispela ol infrastraksa we istap long solwara na nambis olsem "LNG Plant" jetty o wof i kisim olgeta pis go stap long hap we igat tok tambu long painim pis na dispela i mekim ol lain bilong painim pis long taitim bun long painim pis bilong wanem inogat moa planiti pis.

Pasin bilong planim kaikai na painim narapela samting long giraun na bus emi bikpela samting long ol pipol insait long stadi eria bilong "LNG Plant". Bikpela problem long mekim gaden na panim kaikai em olsem giraun ino gutpela long planim kaikai, nogat wara long taim bilong drai sisen, na tu planti Haushol i wok moni. Long wanem i nogat gutpela giraun bilong planim kaikai, nogat inap wara na nogat taim long mekim gaden na painim kaikai long bus na giraun, planti bilong ol Motu peles long nambis larim pasin bilong wok long giraun na lukluk moa long rot bilong wok moni na kisim pei.

Long wanem stadi eria em istap klostu long ol indastriol hap olsem "LNG Plant", Motukea Wof na Napa Napa Refinery na Pot Mosbi siti igat sans istap long painim fomol wok mani. Na tu wok bilong salim ol samting olsem pis na gaden kaikai na ol stoa samting olsem skon na simuk na buai tu em i halvim sindaun bilong ol pipol.

Kalsa o pasin tumbuna i wok long senis liklik long wanem ol lokol komunitis iwok long lukluk moa long ol niuplea pasin na wei bilong sindaun. Dispela i wok long kamap long wanem namba bilong man

na meri i wok long go antap, maret igo insait long narapela ples na komunti, pait na koros long giraun, na tu planti wok long go insait long wok moni. Ol pipol i holim yet sampela pasin bilong bipo olsem painim pis na mekim gaden tasol planti moa i wok long lukluk long wok moni na kisim pei long painim kaikai long stoa tasol na dispela iken daunim pasin bilong bipo.

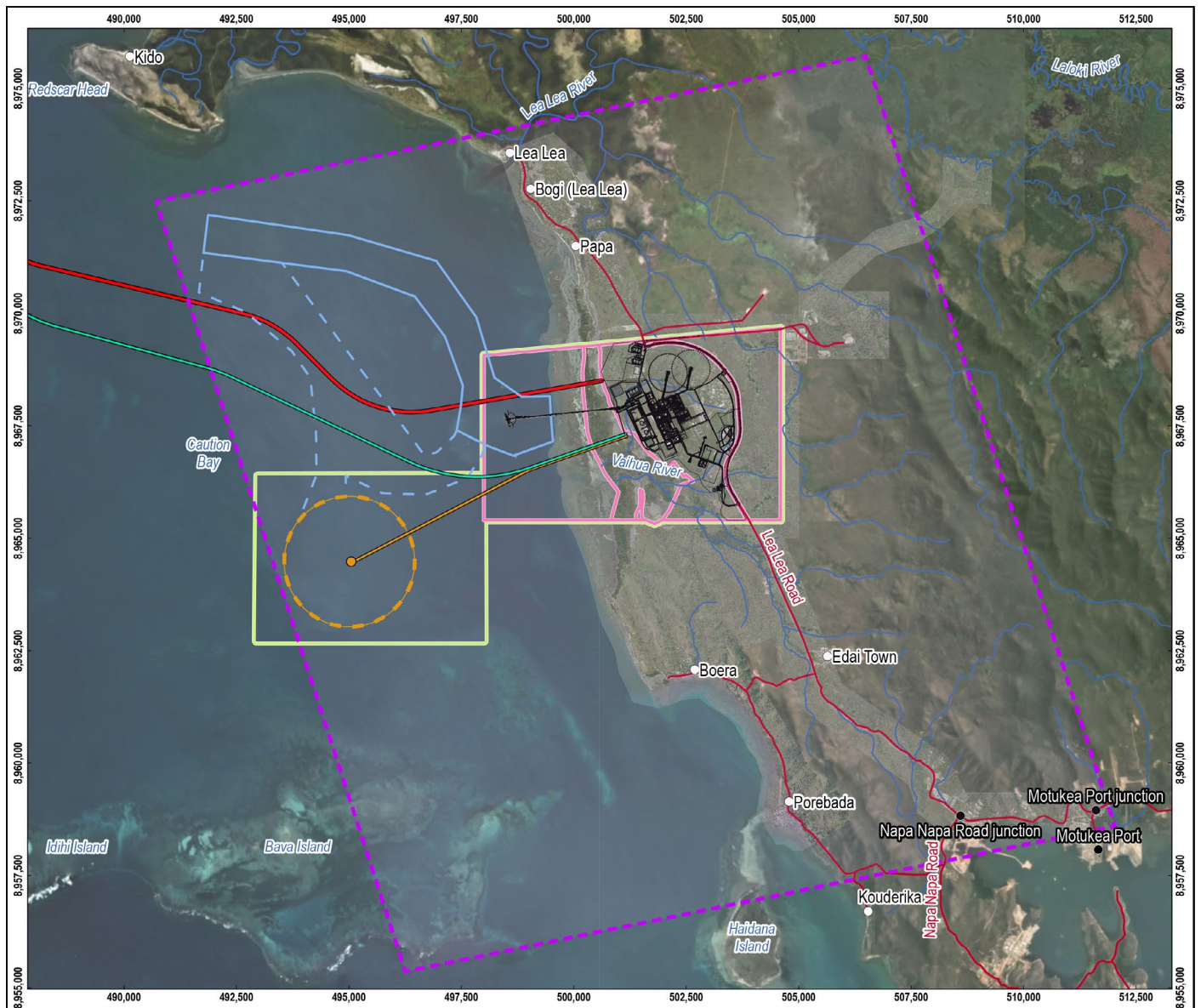
Ol infrastraksa na sevises nau istap insait long PNG LNG stadi eria em i halivim helt, seifti na sekuriti bilong wanwan man-meri na famili tasol nogat inap tingting insait long komuniti long sapotim na lukautim gut ol infrastaksa.

Kain olsem lo na oda sevises na fasilitis ino inap long "LNG Plant" stadi eria long halivim olgeta pipol na komunitis.

Edukesen sevis long "LNG Plant" stadi eria ino strong tumas long wanem ino gat gutpla ol infrastraksa na tu namba bilong ol tisa ino inap. PNG LNG Projek ino longtaim igo pinis ibin halvim long putim mani bilong wokim sampla moa niupela klasrums na stretim ken ol olupela klasrums na tu givim ol skul ol sia na desk. Igat faipela helt sevis senta long PNG LNG Projek stadi eria tasol wok bilong ol helt sentas ino kamap gut long wanem ol ino stap gut na ino gat inap marasin na ol samting bilong haus sik. Na tu ino gat ol fasilitis na wok man-meri long mekim wok long taim bilong emegensis.

Igat faipela sosel velus bilong Projek na dispela i stap aninit long tripela bikepla het tok:

- Livelihood o stap bilong wanwan:
 - Sosel velu 1: lukluk long halivim pipol na komunitis long sait bilong usim "natural resources" ol samting istap long giraun na solwara.
 - Sosel velu 2: lukluk long wanem rot we iken halivim ol pipol na komuniti long wok insait long "cash economy" kain olsem wok moni na kisim pei.
- Kalsa o pasin tumbuna:
 - Sosel velu 3: save bilong lukautim kalsa or pasin kastom na tumbuna.
- Sindaun bilong wanwan man-meri na komunitis:
 - Sosel velu 4: gutpela envairomen we iken sapotim wanwan man-meri na komunitis long sait bilong helt, seifti, sekuriti na sindaun bilong man-meri
 - Sosel velu 5: igat ol sevises na "institutions" we iken luksave na sapotim sindaun bilong ol komunitis.



LEGEND

- Village
- Point of interest
- Road
- Watercourse
- PNG LNG pipeline
- Proposed Papua LNG pipelines route
- Existing and proposed plant layout
- PPFL2 boundary
- APPFL boundary
- Current navigational channel
- Proposed navigational channel
- LNG Plant study area

- Proposed CALM buoy components
- CALM buoy
- Naphtha and condensate pipelines
- CALM buoy navigational area



0 1 2 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Study area from Tetra Tech Coffey.
Infrastructure, roads, watercourses and lease boundary
from EMPNGA.
Imagery from EMPNGA and Planet Labs.

Piksa Figa ES 7 "LNG Plant" sosel stadi eria

3.4 Kalsarol environmen

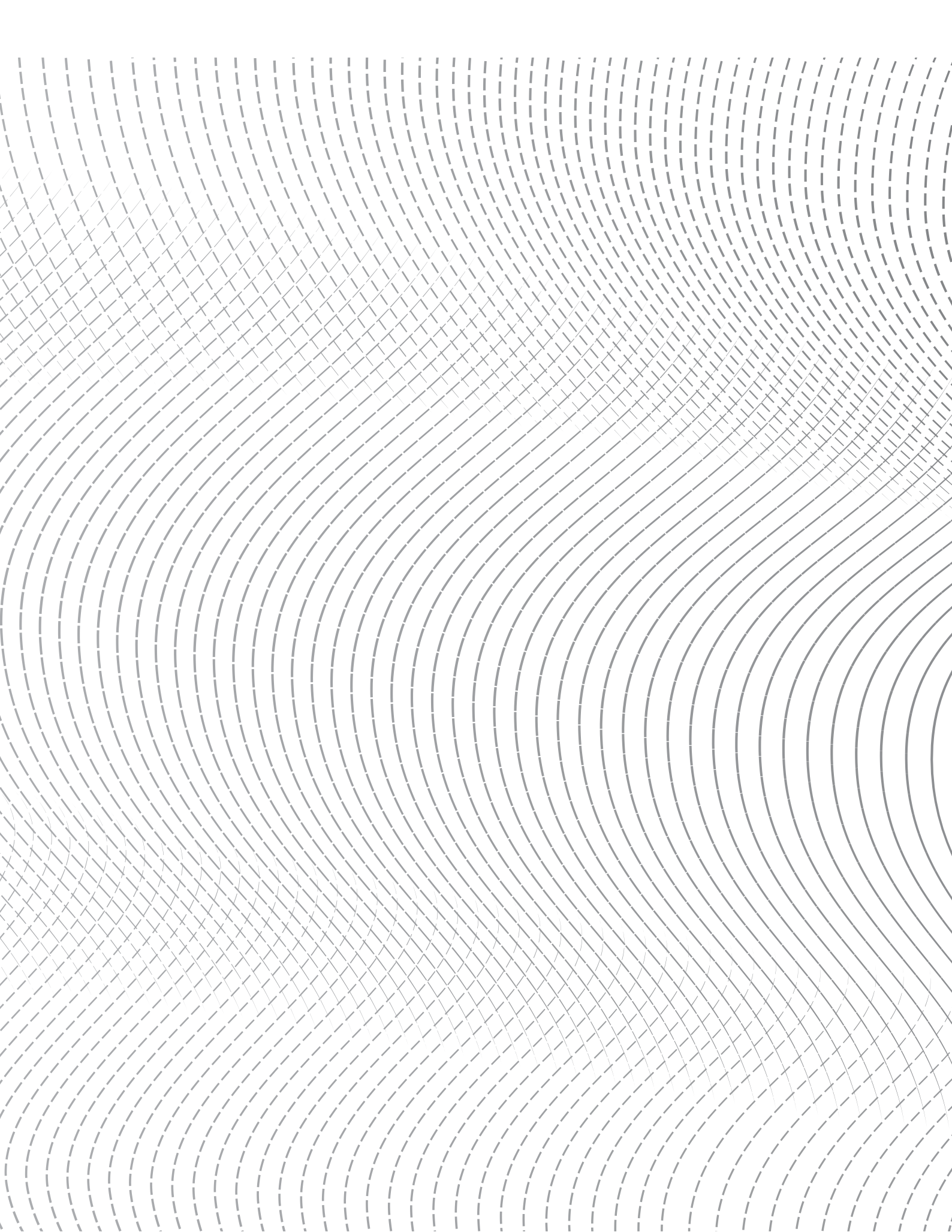
Igat tupela bikpela kalsarol grup bilong ol 4-pela ples we istap klostu long “LNG Plant”. Dispela tupela grup em Motu na Koita (ol Motu save kolim Koita osem Koitabu). Dispela tupela grup i olsem:

- Porebada: em ol Westen Motu.
- Boera: Motu (ol pas klostu moa long Westen Motu na ino tumas long Isten Motu).
- Papa: Koita.
- Lea Lea: Westen Motu.

Bikpela wok painim aut long sait bilong “cultural heritage” na “salvage investigations” ibin kamap long yia 2009 igo 2012 insait long “lease boundary” bilong “LNG Plant” na long “bypass” rot bipo long wok konstraksen bilong “LNG Plant” ibin kamap. Nambawan wok bilong PNG LNG Projek EIS em long painim aut ol wanem satim istap na wanem moa samting we iken istap long sait bilong “cultural heritage” insait o klostu long “LNG Plant” eria. Dispela em olsem ol stori tumbuna hap, na ples we bipo samting bilong ol tumbuna isave stap long em. Sevenpela bilong kain hap istap insait long “laydown” eria autsait long sekuriti banis bilong “LNG Plant”, insait long “LNG Plant” eria yet, igat rekod olsem 244 bilong ol kain hap istap na dispela ol ibin menesim long taim bilong konstraksen long 2010 igo 2012 baihinim wanpela plan ol kolim “PNG LNG Cultural Heritage Management Plan”.

Ol samting we ol tumbuna ibin usim long bipo we stadi ibin rekodim long isten “laydown” eria bilong Projek long yia 2019 em ol kain samting olsem liklik ol hap bilong clei pot, ol hap ston bilong usim long wok na ol sels bilong solwara, Stadi tu ibin painim ol kain samting wankain olsem ol ston tamiok bilong usim long sigirapim ol samting olsem bodi bilong kanu o ol diwai. Long ol sevenpela hap stadi i rekodim, igat niupela 81 hap we stadi ibin painim ken insait long stadi eria. Sais na “distribution” bilong ol niupela hap we wok painim aut i lukim insait long Projek eria em wankain olsem wanem istap insait long sauten rizen. Long ol 81 niupela hap we wok painim aut ibin rekodim long yia 2019, 74 (90%) bilong ol em ol liklik hap tasol.

Ol wok painim aut insait long stadi eria i soim ol “archaeological sites” tasol. Nogat narapela hap istap long stadi eria olsem “oral traditional sites”. Ol kalsarol hap istap insait long stadi eria gat ol ston, clei pot, sels, na kain ol samting. Planti bilong ol dispela hap i pulap wantem clei pot na sel.





4. Pasin bilong wok klostu wantaim ol Stekholdas

4.1 Bikpela piksa

Long PNG LNG Projek, ibin igat stronpela program bilong wokbung wantaim ol narapela stekholdas. Dispela luksave long wok bung wantaim ol stekholda long PNG LNG Projek i halivim na givim stia tingting long wei bilong wok bung wantaim ol narapela stekholdas long Projek. Long halivim dispela proses, Projek bai usim ol dispela stia toktok bilong PNG LNG Projek taim igat nid.

ExxonMobil bai i mekim wankain ol engesmen wok wantaim olgeta stekholda bilong Projek long painim aut na lukave long wan wan wari na painim wei bilong stretim ol dispela ol wari bilong EIS, na tu long toksave long ol stekholdas long dispela Projek long taim bilong "EIS disclosure" o toksave bilong EIS.

Projek i kamapim wanpela tim bilong wok wantaim ol stekholda ol kolim "Integrated Stakeholder Engagement Team". Ol lain husait istap insait long dispela tim em:

- Papua LNG Projek – Ol maus man-meri
- EMPNG Lands and Community Affairs (L&CA).
- Ol "specialist third-party" kontraktas.

Wok bilong dispela "Integrated Stakeholder Engagement Team" em long bungim, serim na lukluk long ol infomesen na wok painim aut long winim dispela ol impoten samting olsem:

- Long statim gupela pasin bilong wokbung wantaim, developim na lukautim gut dispela relebensip wantaim ol stekholdas.
- Wokbung wantaim ol stekholdas i mas kamap long taim, na i ron gut na nogat wari na i mitim ol nambawan taget deit bilong Projek olsem EIS ibin tok aut pinis.
- Ino gat senis long wanem ol toktok igo aut long ol stekholdas. Olgeta tok igo aut emi mas wankain tasol.

4.2 Ol lo we i kamapim projek

Papua Niugini legislesen, intanesenol standads na ExxonMobil standads i kamapim tingting bilong stekholda engesmen we em tu tatsim ol proses bilong kisim tok orait long Gavaman na kamapim Projek EIS.

Projek imas igo tru long ol asesmen o wok painim aut na imas kisim tok orait lon Gavaman aninit long *Environment Act 2000* na *Oil and Gas Act 1998*, we tupela igat ol toktok bilong mekim wok bilong stekholda engesmen.

Igat ol proses o wei bilong mekim wok bilong stekholda engesmen long sapotim dispela EIS we i bihainim tingting belong "Equator Principles IV (EPIV)" na "International Finance Corporation" Performance Standards for Environmental and Social Sustainability (2012)".

ExxonMobil igat ol ruls or gaidlains bilong seifti, helt, envaironmen na seifti bilong produkt we em i toksave long ol komitment long wei bilong ronim bisnis we i lukluk long halivim ol komunitis we emi operet long em. Kampani i karim aut dispela ol ruls o polisis insait long wanem ol i kolim "ExxonMobil Operations, Integrity Management System (OIMS)" na "Socioeconomic Management Standard", we emi gat ol as tok bilong stekholda engesmen.

4.3 Engesmen plen

Dispela Papua LNG Projek – Daunstrim Stekholda Engesmen Plen tokaut long wanem samting tru ExxonMobil bai mekim long sait bilong stekholda engesmen long taim bilong developmen na konstraksen bilong Projek. Dispela plan bai i bihainim ol intansenol standads, Papua Niugini lo na ExxonMobil polisis. Dispela plen i wankain olsem “PNG LNG Project Stakeholder Engagement Plan” we nau yet ExxonMobil i wok long bihainim long menesim engesmen long “LNG Plant” eria.

Olgeta infomesen na data Projek ikisim long taim bilong engesmen bai stap insait long wanpela kompiuta menesmen sistem we EMPNGA ibai usim. Dispela Projek bai tu i usim dispela seim infomesen menesmen sistem long taim bilong konstraksen na developmen bilong Projek.

4.4 Wok bilong stekholda engesmen

Ol wok bilong stekholda engesmen we ibin kamap inap nau em ol “Integrated Stakeholder Engagement Team” igo pas, na tu long komuniti engesmen long mekim wok awenes o tok klia long EIS. Long sotim, dipela ol wok i olsem:

- **Engesmen wantaim gavaman.** Ol “formal” mitin long toksave long ol gavaman na stekholdas long developmen na wok we iwok long kamap long Projek. “Informal” mitins na toktok tu iwok long kamap wantaim ol narapela gavaman stekholda na tu ol stekholdas we ino pat bilong gavaman o ol pravet sekta
- **Projek sevei wok.** Ol aweness toksave tu i bin kamap wantaim ol lokol komunitis long toksave long Projek. Dispela ol bung em bilong toksave long komunitis long wanem ol sevei bai ikamap, wanem taim bai ol wok karim aut bilong dispela ol sevei bai kamap na tu wanem samting bai ikamap insait long dispela ol wok painim aut.
- **Fil sevei komuniti engesmen.** Sevei o wok painim aut log fil ibin kamap long kisim ol data long kamapim gutpela envairomen, sosel, kalsarol na helt “baseline” insait long ol eria istap klostu long Projek infrastraksa long kamapim dispela EIS.

Tok ikam bek long Projek long stat ikam inap nau ino bin planti tumas.

Proses bilong tokaut long EIS long ol stekholda ba givim sans long ol “LNG Plant” komuniti na ol narapela stekholda long givim tingting bilong o long Projek, Long dispela proses CEPA bai askim ol pablik man-meri long rait igo long ol long wanem kain tingting o hevi ol igat long EIS.

Stakeholda engesmen wok bai igo het yet long laif taim bilong Projek. Wanem kain engesmen na hamas taim dispela ol engesmen bai kamap em bai ino inap wankain long wanem bai igat ol kainkain o planti narapela ol stekholdas na wanem tingting, tokok o askim i kamap bai halivim long stretim wokabout bilong Projek. Projek bai rekodim olgeta tingting na askim insait bilong olgeta stekholda long “stakeholder information management system” bilong Projek.

EMPNGA bai igo het yet long mekim ol wok bung bilong kalsarol na “gender” engesmen long ol mak we olgeta stekholdas iken klia long em. Dispela em olsem:

- Ol skul toktok bai kamap long planti kain tokples.
- Ol piksa we bai i halivim lo pipol husait ino klia tumas long rit na rait long kisim ol toktok na bekim bek tingting na askim.
- Givim inap taim long ol stekholda long lukluk na givim bek tingting bilong ol na tu putim sampela askim.

Wok bilong putim EIS ikam aut long pablik bai i bihainim rot we istap pinis insait long *Environment Act 2000*. Dispela bai i lukim wanpela EIS engesmen wok i kamap we “EMPNGA na “Tetra Tech Coffey” bai wok bung wantaim CEPA. Dispela bai i lukim tu ol wok man-meri bilong CEPA na “Department of Petroleum and Energy” tu bai kamap long dispela bung. Dispela EIS kibung bai givim laspela toksave long wanem wok painim aut istap long EIS na tu bekim ol askim we ol stekholdas ibai kamapim.

Long sait bilong makim taim bilong EIS engesmen kibung, CEPA bai igo pas wantaim ExxonMobil long makim na toksave long ol stekholdas. Dispela kibung iken kisim osem tripela igo sixpela mun bihain long taim ExxonMobil i givim EIS igo long CEPA.

4.5 Rot bilong skelim ol bel hevi

ExxonMobil ibin kamapim wanpela proses bilong PNG LNG Projek we emi rekodim na skelim na lukluk long rot bilong stretim olgeta bel hevi. Dispela Projek tu bai ibihainim na usim dispela sem proses. Dispela stekholda engesmen plen bilong Projek i toktok moa long “Grievance Management Process” or rot bilong lukluk na stretim ol belhevi we i kamap long Projek, wanwan belhevi kam long Projek bai igat rot bilong wok painim aut na tok aut long ol wei long stretim we iklia, konfidensol, ino bilong bagarapim bel bilong wanpela man-meri na dispela belhevi imas stret kwiktam. Sapos wanpela igat belhevi, i nogat tambu o tok poreit lo bai yu putim komplein, konsens o bel hevi bilong yu na tu bai yu nonap baim wanpela moni long tokaut long bel hevi bilong yu.





5. Impek asesmen o wok painim aut

5.1 Envalromen Impek asesmen

Envairomen we dispela Projek bai kamap long em igat bikpela senis i bin kamap pinis bipo bihainim sampela wok we ibin kamap pinis long rausim ol bus na diwai, na long konstraksen na operesen bilong “LNG Plant” na ol infrastraksa bilong sapotim wok we i stap long giraun na klostu long nambis na long solwara. Envairomen impek asesmen bilong dispela Projek ibin kamap bihainim ol senis we ibin kamap pinis long em.

5.1.1 “LNG Plant”

Mak bilong senis we bai kamap long dispela Projek bai ilukim ol impek go antap taim wok i kamap bikpela long envairomen we konstraksen na operesen bilong “LNG Plant” bai kamap long em. Planti hap giraun we wok bai kamap long em em ol hap we wok ibin kamap pinis, tasol igat ol sampela hap olsem niupela laydaun eria we istap insait long mak bilong “LNG Plant” na arasait long sekuriti banis we wok ino bin kamap yet.

“Residual impacts” em ol impek we isave kamap taim olgeta rot bilong daunim hevi o birua i stap pinis. Ol bikpela kain impak we bai ikamap long “onshore” o giraun em long “air” o win na nois. Ol kain impak long wara istap insait long giraun, wara we i ron antap long giraun, ol laip we istap antap long giraun na laip we istap insait long wara, dispela senis we bai kamap long konstraksen na operesen bilong dispela Projek bai lukim ol liklik impek o senis tasol. Dispela em long wanem ol impek bai iwankain olsem bilong “LNG Plant” long wanem wok bai kamap long hap eria we wok konstraksen ibin kamap pinis long em na long sotpela taim tasol senis bai kamap. Mak bilong senis bai i wankain olsem ol senis we ibin kamap nau long “LNG Plant”, na gutpela wok iken kamap wantaim halivim bilong gutpela ol menesmen. Man or meri husait i ritim dispela i ken ritmoa long mein EIS ripot long kisim moa sawe long dispela ol samting.

5.1.1.1 Kwailiti bilong win

Sotpela taim tasol das bai kamap bikpela long ol hap we wok konstraksen bai i kamap long em. Dispela bai kamap long taim bilong katim na rausim

ol bush na diwai na wok bilong digim giraun i kamap, na long ron bilong ol kar na masin. Igat strongpela tingting olsem ol dispela samting bai i kamap namel long fopela yia we wok konstraksen bai kamap, na igat strongpela tingting olsem nogat bikpela senis bai kamap long gutpela win bilong pulim long bihain taim. Wok bilong kamapim ken gutpela envairomen bihain long ol senis i kamap na ol wok bilong stopim das olsem putim wara long rot bai kamap.

Long kamapim gutpela rot bilong menesim kwalati bilong “air” igat ol wok bilong mekim istap insait long Envairement na Sosel Menesmen Plan (ESMP), senis bilong kwalati bilong “air” long konstraksen wok bai kamap long liklik hap tasol na ino inap go out long bikpela hap, em ibai kamap sotpela taim na iken igat gutpela menesmen long stopim das, kain olsem ol kar bilong karim wara na ol arapela samting bilong stopim das.

Long taim bilong operesen, ibai igat ol ges igo aut lo speis we ibai kam long ol ges “turbine” bilong kamapim pawa na long ol “compressor”, na tu long ol samting iken kamapim paia na lait. “LNG Plant” na ol fasilitis tu bai kamapim liklik “volatile organic compound (VOCs)” we iken go aut tu long speis.

Antap long “model” bilong kwalati bilong “air”, ol ges we iken kamapim bagarap long kwalati bilong “air” kain olsem “nitrous oxides (NO_x)”, “carbon monoxide (CO)”, “sulphur dioxide (SO₂)”, “particulate matter (PM₁₀)” na benzene long ol hap we igat bagarap iken kamap hariap na isoim olsem mak bilong bagarap long nomel operesen na operesen long taim bilong sampela hevi istap aninit long “air quality criteria”.

Long luksawe long sampela mak bilong bagarap long ol eria istap arasait long Projek eria, na long mak bilong bagarap ibikpela na stap outside long Projek eria, dispela bai ino inap kamapim bagarap long ol hap we bagarap iken kamap hariap. Igat luksawe olsem bai inogat senis bai ikamap long kwalati bilong “air” long ol dispela hap.

5.1.1.2 Nois

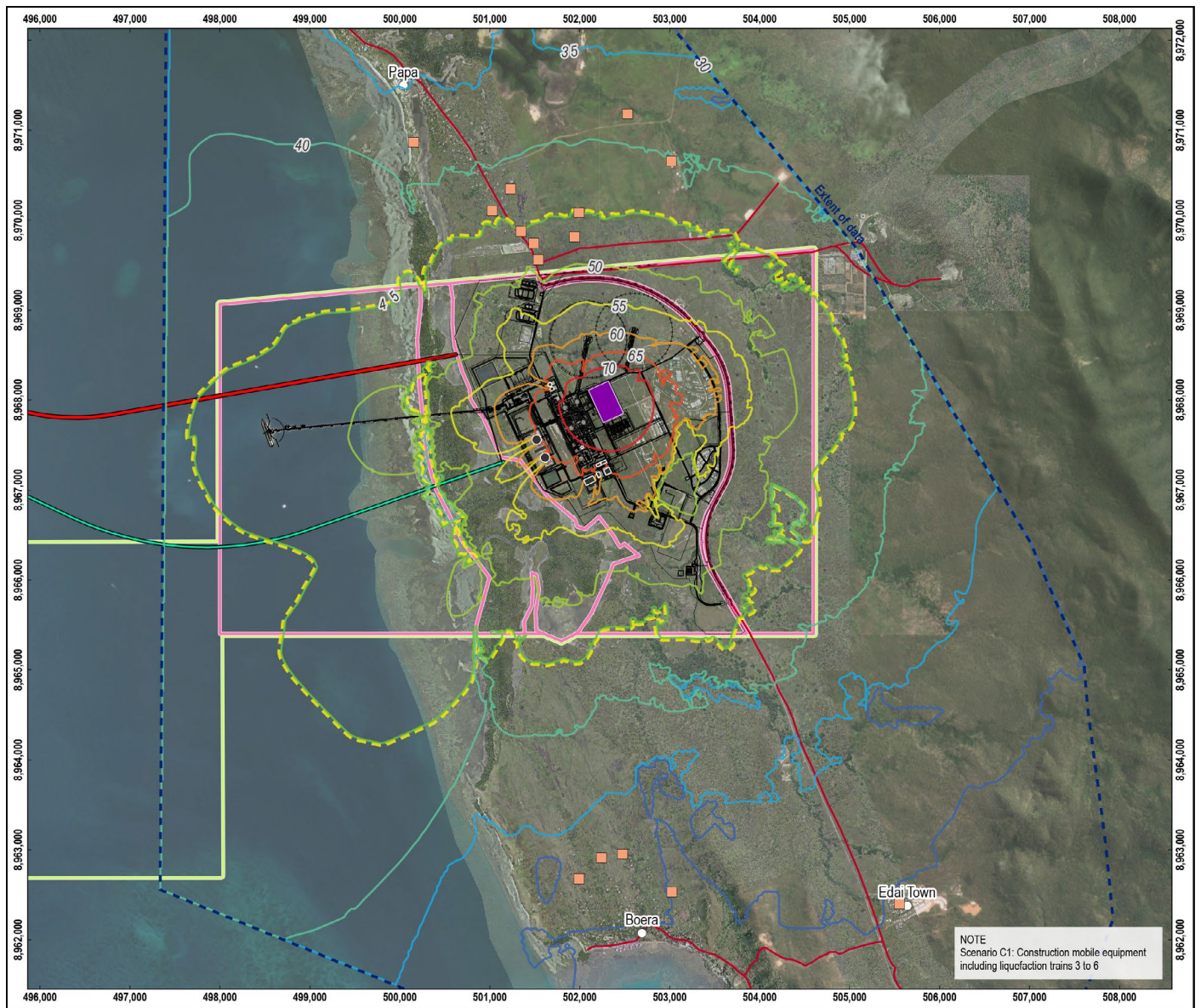
Senis long saun o nois inap 3 dBA em hat tru long ol pipol long save, 3 dBA igo long 5 dBA senis bai ol pipol iken luksave liklik tasol na 10 dB(A) senis iken soim bikpela senis bilong saun o nois.

Long taim bilong Projek konstraksen, mak bilong nois bilong PNG LNG Project EP-L3(210) we stap nau yet (45 dBA LAeq (long 10pm igo inap 7am)) bai aburusim long 3 dBA long nait taim na bai i aburusim mak we istap long tok orait pepa bilong mekim wok long environment, igat strongpela tingting olsem dispela bai kamap long tripela hap long not (N) bilong "LNG Plant" long "(Residence 1 (NSR 12) Residence 2 (NSR 13)" na "Residence 4 (NSR 15))" kain olsem Piksa Figa ES8 isoim. Igat strongpela tingting tu olsem mak bilong nait taim nois bai iaburusim mak bilong em klostu long banis; tasol, inogat bagarap bai kamap bihain long luksawe olsem inogat ol hap we iken igat bagarap or senis iken kamap hariap istap klostu long banis.

Bihainim luksawe bilong wok lukaut ikam long risalt bilong "modelling" na long mak bilong nois we bai kamapim liklik senis na long putim gutpela indastri praktis long menesmen bilong nois, levul bilong nois bai i bihainim tok orait istap insait long PNG LNG Project EP-L3(210) we stap nau yet (pepa we igivim tok orait long wok long environment). Dispela iken givim tok orait long konstraksen wok iken kamap long 2pla-ten-4-haua long wanpela dei na ino inap mekim nois we iken kamapim bagarap long ol hap we iken igat bagarap hariap.

Long taim bilong nomol operesen, igat strongpela tingting olsem mak bilong nois ibai igo antap long ol hap we iken igat bagarap hariap bilong wanem ibai igat niupela treins bihain long ol trein istap pinis long nomol operesen ibai lukim mak bilong nois istap olsem long 2 go inap long 5 dBA, dispela iken soim sampela liklik senis ikamap long nois o saun. Igat strongpela tingting olsem igat nois long niupela "trains", olupela "train 1 na 2", na 58 MW NiuPower pawa plant ibai istap long mak we ol imakim long em long PNG LNG Project EP-L3(210) we stap nau yet na ol narapela mak bilong nois long ol hap we iken igat bagarap hariap tu bai istap long mak bilong em long taim bilong nomol operesen.

Tasol nois long "Residence 1 (NSR12)", we igat strongpela tingting olsem mak bilong nois bai aburusim mak (wantaim 1 dBA) long 45 dBA LAeq (10pm go inap 7am) mak ol imakim long em. As bilong dispela nois we ibai aburusim mak bilong em bai kam long ol masin bilong kamapim na givim kol, na sapos igat kontrol bilong nois, ibai nogat noise iaburusim mak bilong em long NSR12. Long taim bilong nomol operesen na operesen long taim bilong ol hevi, igat strongpela tingting olsem senis long mak bilong nois ibai aburusim mak bilong PNG LNG Project EP-L3(210) we stap nau yet sapos ino gat kontrol mesa we em sapos long stap long em; tasol, inogat strongpela tingting olsem dispela bai ikamapim sampela bikpela senis antap long luksawe olsem inogat ol hap we iken igat bagarap long ol hap istap klostu long banis wantaim ol tingting bilong putim ol kontrol samting bilong daunim nois.



LEGEND

- Village
 - Noise sensitive receptor
 - Road
 - PNG LNG pipeline
 - Proposed Papua LNG pipelines route
 - Existing and proposed plant layout
 - PPFL2 boundary
 - APPFL boundary
 - Area source
 - Building
 - Extent of data
- Scenario C1 noise contour (dBA)
- 30
 - 35
 - 40
 - 45
 - 50
 - 55
 - 60
 - 65
 - 70
 - 45 dBA criteria line



0 0.5 1 km
PROJECTION: WGS 1984 UTM Zone 55S

SOURCE
Noise contours from SLR.
Monitoring locations, infrastructure, roads,
watercourses and lease boundary from EMPNGA.
Imagery from ArcGIS Online and Planet Labs.

Piksa Figa ES 8 Konstraksen nois level na weta

5.1.2 Nambis na solwara

Bai igat ol niupela fasilitas we Projek bai i wokim antap long nambis na tu long solwara we bai halivim long kisim na holim ges na kondenset. Dispela bai apim volum bilong prodaksen na bai lukim namba bilong ol vesel o sip tu bai igo antap. Bai igat kainkain wok ikamap taim Projek i statim konstraksen na igo long operesen, dispela bai kamapim wankain senis we ibin kamap na istap pinis long taim bilong PNG LNG Projek, na dispela iken kamapim birua or bagarapim tu nambis na ol envairomental velus or gupela samting long nambis olsem:

- Bai igat distebens lon siflo bilong solwara long taim bilong putim "CALM buoy" na long taim bilong operesen
- Bai igat moa weiswara long rausim long fasilitas. Dispela ol weiswara em bai addim lon wara wer isave lusim "LNG Plant" retention ponds (long faundesen na expensen) na ol narapela fasilitas we isave kamapim weiswara. Dispela iken kamapim birua or hevi long kwaliti bilong nambis na solwara. Ol dispela weiswara iken kam long taim bilong mekim "hydrotesting", "surface water run-off", weiswara, na "brine concentrate" long taim bilong "desalination" or rausim sol long solwara
- Bai igat moa lait long insait long "LNG Plant", CALM buoy, long ol vessels or sip, na ol narapela infrastraksa istap long nambis na long solwara
- Namba bilong sip bai igo antap.

Ol dispela kain wok we bai ikamap long dispela Projek iken kamapim ol kain ifekt olsem:

- Dairek impekt wer iken kamapim birua long nambis na ol kain samting olsem mangoro na korol rif long solwara
- Iken apim namba bilong ol wesana na giraun wer igo insait long ol freswara na solwara
- Ol bagarap we ikamap long wesana na giraun iken kamapim bagarap tu long wara na daunim gupela kwaliti bilong wara
- Wok bai iken kamapim lait na nois aninit long freswara na tu solwara
- Iken karim ol niupela ol bintatang, bush or gras nogut na ol kain samting wer iken bagarapim o kilim idai ol narapela animol, bagarpim bush na wara.

Ol dispela ifekt we ikamap tru long wok bilong dispela Projek iken kamapim birua long ol samting we istap long nambis na solawara:

- Nambis na hap bilong solwara wantaim ol kain samting olsem korol rif, sigras, algi na mangoro
- Ol pis, kindam, kuka, selpis na ol narapela abus bilong nambis na solwara.

Projek bai i lukluk long ol rot bilong kamapim gupela wok na bihainim ol lo na stretpela pasin bilong mekim wok ikamap gut na ino ken igat bikepla envairomen impekt o birua o bagarap long nambis na long solwara. Dispela i minim olsem Projek mas lukluk long ol wei o rot bilong daunim hevi or birua wankain olsem ibin kamap long PNG LNG Projek aninit long wanpela plen ol kolim "Ecological Management Plan".

Bai igat sampla darek impek ikamap long ol "habitat" long solwara long taim bilong konstraksen na long taim bilong operesen bilong CALM buoy long wanem dispela iken distebim ol wesana na malomalo giraun aninit long solwara. CALM buoy bai i sidaun olsem sixpela km longwei long nambis na tupela ten mita mak klostu long antap bilong solwara, long hap we planti malomalo giraun or wesana we isave sapotim ol kain samting olsem "benthic infauna" na sampela "epifauna" (kain olsem ol "sea whips" na "sea fans"), em ol wankain samting we istap pinis long narapela hap bilong Caution Bay. Ol "habitats": we istap pinis long hap we bai Projek i putim CALM buoy infrastraksa bai i lus. Planti bilong ol dispela em ol animol wr is stap pinis long kain hap tasol ino inap long muf aut igo long narapela hap. Tasol wok bilong putim CALM buoy bai ino inap bagarapim bikpela hap bilong siflo, na i makim aninit long 0.010% bilong ol "unconsolidated" o ino bung bung malomalo giraun "habitat" wer wankain "habitat" i stap pinis long planti hap bilong Caution Bay. Projek i luksave tu olsem impekt wer i kamap long dairek distebens long wesana na nois wantaim wok bilong CALM buoy konstraksen emi liklik, ino inap kisim longpela taim na tu ino inap karamapim bikpela eria na ino inap wankain olsem wok wersave kamap antap long wara olsem "low intensity pile-driving activity" we bai kamap long siflo. Long dispela, bai ino gat kain wok bilong putim trap bilong holim ol wesana na malomalo giraun.

Ol weiswara long kainkain hap insait lo "LNG Plant" isave go insait long wanpela bikpela "retention pond" we ol imas sidaun sampla taim na mix gut na bihain go long wanpela mixsin pit long wara imas mix gut long kamap long mak we emi mitim gupela kwaliti bipo long Kampani iken rausim dispela wara igo long Caution Bay. Long wanem dispela ol weiswara save gat ol kain samting save stap long ol freswara olsem "brine", "nutrients" na bai gat kemikol tu long ol olsem na emi moa gupela long mixim pastaim long rausim igo. Long wanem dispela iken bagarapim helt na kamapim sik long ol mangoro we luksave istap pinis olsem ol magoro i wok long idai. Bai igat senis long komuniti bilong ol mangoro long wanem bai wara long "retention pond" i still ron igo aut long ol sem hap.

Ol “residual” impek bilong ol weiswara em bai olsem:

- Lukluk bilong em bai soim olsem wara ikam aut long “retention pond” igat impek long ol mangoro istap klostu long hap wara i ron long em tasol em ino bagarapim bikpela hap bilong mangoro insait long Caution Bay
- Igat lukluk olsem weiswara we bai kamap long dispela Projek bai i wankain tasol olsem wanem i kamap long PNG LNG Projek.

Lait bilong ol LNG fasilitis bai isave stap on olgeta taim long taim bilong opersen bikos long sefti na sikiriti bilong fasilitis na ol wokman na wok meri. Ibai gat liklik lait tasol ol bai i nidim long sefti, long lukautim ron bilong ol sip, na long mekim wok mentenens long CALM buoy. Igat tingting olsem CALM buoy bai igat lait long nait long wanem ol fasilitis long solwara i bai wok long 2pla-ten-4-haua opersen long ol sip long kam sua na kisim kago. Igat strongpela tingting olsem level bilong lait long taim bilong dispela Projek wok bai ino inap abrusim level weem istap long em. Lait we man ikamapim iken kamapim kainkain senis long ol abus bilong solwara, kain olsem painim kaikai, abrusim ol yet, na kam bung wantaim. Lait ino bin kamapim sampela senis long ol pis bilong solwara taim wok ibin kamap long PNG LNG Projek na inogat ripot isoim olsem torosel isawe putim kiau klostu long ol Projek fasilitis istap long solwara. Projek disain bai kamapim ol wok bilong mekim na ol samting bilong putim long daunim lait man ikamapim antap long solwara long taim bilong mekim wok na opersen bilong CALM buoy. Wantaim ol dispela tingting na toktok, igat strongpela tingting olsem senis bilong lait antap long solwara em bai low o ino bikpela.

Dispela wok bilong surukim “LNG Plant” igo bikpela bai lukim tu ol namba bilong ol sip igo antap long sixpela-ten (60) o sevenpela-ten (70) sip bilong karim LNG na tenpela (10) igo tenpela-two (12) kondenset kago long wanwan yia. Kain hevi olsem ol torosel na ol narapela ol bikpela pis bilong solwara olsem dolpin bamim ol sip bai ino inap long kamap long wanem:

- Ol bikpela pis bilong solwara ino sawe stap olgeta taim long ol hap bilong Caution Bay we paipains bai ron long em o insait long hap eria we CALM buoy bai istap long em. Ol torosel na dolpin ino sawe stap long wanpela hap tasol na ol sawe kamap wanwan taim tasol na ino olgeta taim.
- Ol nois we bai kamap long solwara long taim ol sip i ron na wok konstraksen long nambis na solwara bai insait long sotpela taim mekim ol bikpela ol pis bilong solwara olsem ol torosel long stap longwei long ol hap we wok bai ikamap long em.

- Ol liklik bot na sip bilong sapotim wok bai ron igo-ikam wantem spid abrusim ol sip bilong karim ol LNG kago sip tasol ron bilong ol bai ino inap long abrusim tenpela “knots” na nois bilong ol bai mekim ol bikpela pis bilong solwara olsem ol dolpin na torosel long abrusim ol, wankain olsem long ron bilong ol sip iwok long kamap nau yet.

Ol nois aninit long solwara bai kamap long taim bilong wok konstraksen na tu long opersen. Ol sip we bai i ron em olsem ol “lay barges”, “tugs”, “LNG carriers”, na “naphtha/condensate carriers”. Long taim bilong konstraksen, nois long solwara bai ikamap tasol long taim bilong putim CALM buoy. Long taim bilong operesens nois bai kamap tasol bihainim ron bilong ol ship. Namba bilong ol sip bai igo antap tasol nois we bai ikamap aninit long solawara long taim ol sip i ron long dispela Papua LNG Projek bai wankain olsem ron bilong ol sip long PNG LNG Projek istap nau yet na dispela ino inap long kamapim birua. Tasol sapos ol pis bilong solwara ikam klostu tru long sip dispela iken kamapim birua long ol.

Long daunim bagarap we nois iken kamapim long ol pis we istap klostu, Projek bai ibihainim “soft start” wei bilong wok long taim bilong konstraksen (dispela bai lukim wok i stat wantaim liklik nois na igo antap isi isi long bikpela nois). Dispela rot bilong mekim wok em long halvim ol pis istap klostu long go longwei bihain long bikepla nois iken kamap we em iken kamapim birua long ol.

5.2 Sosel impek asesmen

Sosel impak isave kamap taim ol pipol na komuniti i lukim sampela senis iwok long kamap. Ol sosel impek we bai ikamap long Projek em long luksave na skelim wanem ol wok insait long Projek iken kamapim senis insait long sosel envaironmen we ol pipol isave laikim tumas. Ol teknikal stadis o wok painim aut bilong EIS isoim olsem igat sans bilong Projek long kamapim gutpela na ino gutpela sosel impeks.

5.2.1 Ol impeks we i gutpela

Papua LNG Projek em inap long kamapim kainkain gutpela sosel senis. Projek bai kamapim ol wei long kisim wok, developim ol skil na kisim moni ikam long ol haushol bilong ol wokman-meri bilong Projek.

Projek i luksave olsem bai igat namel long 5,000 na 7,000 wokman na meri husait bai iwok fultaim long Projek insait long fopela yias namel long 2024 na 2027. Ol wokman na meri husait bai iwok fultaim long operesen bai lukim narapela moa 50 teknikal lain man na meri. Dispela bai apim namba bilong ol wok man na meri long “LNG Plant” igo olsem 400 olgeta long taim bilong operesen. Wok konstraksen bai apim namba bilong ol lain wok moni igo antap insait long “LNG Plant” komunitis, long provins na long NCD tu. Projek iluksave tu olsem long taim bilong operesen, namba bilong ol wokman na meri bai igo daun tasol igat ol planti “opportunities” istap long longpela taim.

Insait long Papua Niugini, igat pinis ol kontrakta kampanis we isave givim sevis na sapotim wok bilong main na oil na ges. Wok konstraksen bilong dispela Projek bai i givim sans tu long dispel ol kampani long mekim wok bilong sapotim Projek. ExxonMobil iluksave long mekim wok bisnis wantaim ol kampanis na bai i traim long wok bung wantaim ol tasol lukluk bai igo moa long ol kampani bilong ol papa na mama giraun.

Dispela Projek bai ihalvim planti man na meri long mekim wok bilong kisim moni long “direct, indirect or induced employment” o wok moni we bai lukim lokol ekonomi bilong ol komunitis bilong “LNG Plant” bai senis. Dispela tu bai i lukim olsem diman bilong “informal sector” insait long “LNG Plant” komunitas bai igo antap moa.

5.2.2 Ol impeks we ino gutpela

Wok luksave long ol dairek na indairek impeks long ol “LNG Plant” komunitis ikamap pinis. Projek iluk olsem em bai apim moni mak bilong ol haushol insiat long dispela ol komuniti, na namba bilong man-meri o populesen bai igo antap tu na em bai gat ol kain kain senis long waida sosel na fisikal envaironmen. Dispela ol senis nogut bai kamapim ol impek na dispela ol impek mipela igrupim long wanem ol pipol ilaikim olsem:

- Ol risoses bilong giraun: Taim ol narapela arasait ol man na meri igo insait long ol komunitis bilong “LNG Plant”, dispela bai iputim moa presa long ol “subsistence” na “natural resources”. Dispela impek bai nonap wankain long olgeta haushol. Ol lain husait i stap long peles na ino gat rot bilong painim moni ol lukluk long bus, wara na giraun tasol olsem rot bilong mekim moni. Long narapela sait tu, populesen o namba bilong ol pipol i wok long igo antap na dispela tu iwok long putim moa presa long ol risoses.
- Usim ol dingi, umben na huk long painim pis: Ol lain husait isave painim abus long solwara na nambis bai imas stap arasait long dispela eria ol kolim “500-m radius marine exclusion zone” or peles tambu we CALM buoy bai istap long em. Dispela iken igat sampela impek long ol lain husait igat kastomeri raits long wanem ol bai ino inap moa painim pis o narapela ol abus bilong solwara insait long dispela eria.
- Komuniti na haushol helt: long taim bilong konstraksen, bai igat planti hevi long sait bilong helt long wanem bai igat planti moni iraun. Dispela impek bai ikamap long sait bilong kaikai planti stoa kaikai, pasin bilong dirink bia na simukim spak brus, pasin pamuk na pait insait long femili. Ol narapela impek bilong helt em ol kain sik olsem COVID-19, sik TB, sik STI, sik ikamap long wara na pekpek, moskito na tu hevi we bai ikamap long ol kar na trak bam. Igat evidens long ol narapela bikpela konstraksen projek insait long PNG na ol narapela kantri tu olsem pasin pamuk save bikpela namel long ol wok man na meri save go kam long wokples.
- Wok bung insait long komuniti: luksave istap olsem bai igat sampela bel hevi namel long ol komunitis long sait bilong ronim papa-mama giraun kampanis na serim ol “benefits” we ikam long Projek olsem wok moni na bisnis kontrak. Dispela hevi long ino serim ol “benefit” gut bai impektim sindaun bilong ol komuniti na dispela hevi nogut suruk igo taim konstraksen ipinis.

Long ol dispela fopela impek we Projek i luksave, igat ol “management and mitigation measures” o rot bilong daunim ol dispela ol impeks we ino gutpela na kirapim na strongim ol impek we i gutpela na Projek igat kontrol na tok long em. Long mekim dispela, Projek bai pasim ol kemp bilong ol long ol wok man na meri save slip autsait na kam wok na tu kamapim fopela sosel menesmen plen long tok klia long ol “management measures”, em:

- “Project Induced In-Migration Management Plan”
- “Community Development Support Plan”
- “Workforce Relations and Working Conditions Management Plan”
- “Community Health, Safety and Security Management Plan”.

5.3 Impek asesmen lon kalsa

Igat ol hap we Projek i luksave pinis olsem igat long samting bilong bipo o ol tumbuna istap long em we Projek iken inap bagarapim long ol kain wok olsem:

- Bagarap ikamap long ol hap we masin irausim ol samting bilong tumbuna o bipo istap long em long wok konstraksen istat long rausim bus na diwai, na taim ol bikpela masin idigim giraun
- Taim ol wokman na wokmeri igo ikam long kar antap long hap eria we ol tumbuna samting istap long em
- Stopim ol komunitis long go insait long ol hap we igat ol tumbunan samting o samting bilong bipo i stap long en long hap we wok bilong Projek iwok long kamap.

Dairek impek iken bagarapim ol peles tumbuna o samting bilong bipo istap long em:

- Ol pipol bai i nogat moa ol tumbuna peles o hap we ol tumbuna samting istap long en long wanem ol dispela hap ibai bagarap pinis.
- Ol infomesen bai lus nating we wok painim aut ino bin ikamap
- Wok painim aut long bihain taim long ol hap bilong tumbuna o we tumbuna samting ibin stap bipo long em we wokpainim aut na ol askim ino wankain olsem bilong nau
- Ol samting i lus olgeta.

Wok painim aut bilong PNG LNG Projek EIS ibin soim olsem moa long 251 “archaeological sites” istap long wes bilong “LNG Plant” banis we long taim konstraksen i kamap long 2010 igo 2012 menesmen bilong ol dispela hap ibin bihainin dispela plan “Cultural Heritage Management Plan (CHMP).” Long wanem wok menesmen ibin kamap pinis, iluk olsem wok konstraksen na operesen bilong dispela Projek bai ino inap long gat impek o kamapim bagarap long 244 sem kain hap we itsap insait long Projek hap wes long sekuriti banis. Long dispela luksave, ol dispela 244 hap ino stap insait long displea impek asesmen.

Long taim wok painim aut ibin kamap, impek asesmen ibin soim olsem insait long 88 hap, igat wanpela “archaeological site” wantaim namba DS021 we impek long ol tumbuna hap emi bai “Major” o bikpela tumas. Ol narapela hap impek istap olsem “Moderate” o namel tasol.

Projek CHMP bai putim igo insait ol niupela ol tumbuna hap we wok painim aut bilong Projek ibin luksave long em na dispela bai i bihainim ol menesmen rot we istap pinis. Ol liklik impek we Projek iluksave long em we bai istap insait long impek asesmen em:

- Levul bilong impek long 87 hap (makim 89%) emi stap olsem “No Action”. Dispela em olsem ol dispela hap igat tenpela o tambolo long tenpela ol “artefacts” o samting bilong ol tumbuna we planti em ol kain samting olsem haphap cleipot we inogat bilas bilong ol na tu ol i bagarap liklik. Impek em istap olsem “Moderate” o namel tasol.
- Levul bilong impek long ol narapela nainpela hap (makim 10%) we ibin istap olsem “Moderate” inau igo daun long “Minor” o liklik impek tasol.
- Levul bilong impek long DS201 we ibin stap olsem “Major” i nau igo daun long “Nil” o bai nogat birua long wanem wok konstraksen na operesen bai abrusim na ino inap bagarapim dispela hap.

5.4 Impek asesmen bilong olgeta wok

“Cumulative impact assessment” emi lukluk long olgeta impek taim bungim olgeta hevi we iken kamap long wanwan ol wok bilong Projek long envairomen, sosel na kalsa. Dispela kain impek long envairomen, sosel na kalsa we iken kamap long wanpela projek we igat sampela koneksen long dispela projek na Papua LNG Projek. Piksa Figa ES9 i soim ol projek we istap insait long lukluk na skelim bilong dispela “cumulative impact assessment”.

Dispela “cumulative impact assessment” ipainim aut olsem long olgeta wok we bai ikamap long Projek we iken kamapim “cumulative impacts”, igat ol sampela we yumi mas lukluk na save long em. Dispela em olsem:

- Planti sip bai ron long solwara na lait long halvim ron bilong sip na tu wok we bai ikamap long Sentrol Sement na Laim Projek bai igat impek long pis na narapela ol bikpela abus bilong solwara long Caution Bay.
- Bai igat planti dilei long wokabaut bilong ol lain husait isave usim Lea Lea rot long wanem bai igat planti ron bilong ol kar, trak na masin long taim Projek istat na tu long taim wok bilong Sentrol Sement na Laim Projek ikamap. Displa tu bai gat impek long ol lain istap long Edai Taun.
- Sip bai pulap long Motukea long wanem planti sip bai kam insait na lusim Motukea Wof.
- Namba bilong ol man na meri ikam insait long “LNG Plant” komunitis bai igo antap long wanem bai igat planti wok ikamap na bai igat planti rot bilong mekim moni long dispela Projek na Sentrol Sement na Laim Projek. Projek bai lukluk long daunim ol dispela “cumulative impacts” bihainim ol rot na wei we istap pinis insait long wanpla plen ol ikolim Projek ESMP.

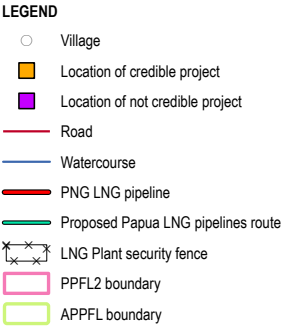
Ol kontrakta o kampani husait bai isapotim o givim servis long Projek imas bihainim olgeta seifti, envairomen, na sosel “standards” na dispela bai idaunim igo daun ol “cumulative impacts”.

“Cumulative impacts” bai igo daun sapos olgeta ol narapela ol operetas bilong ol projek i menesim ol impeks insait long dispela asesmen.

Ol rot bilong menesim ol “cumulative impacts” em olsem:

- Mekim gut wok bilong trafik menesmen na kamapim gut komuniti awenes long daunim ol “cumulative impacts”.
- Wokbung wantaim “PNG Ports Corporation” long plenim gut ron bilong ol sip bai karim kago bilong dispela Projek na ol narapela projek tu.
- Wok wantaim ol gavaman bilong provins na tu PNG gavavan long lukluk long ol rot bilong menesim ol hevi we iken ikamap taim igat planti ol save lain bilong mekim wok istap long komuniti.

Projek bai i wok bung wantaim ol narapela ol JV kampanis na ol gavaman opis long lukluk long ol dispela rot.



Piksa Figa ES 9 Lokesen bilong ol narapela projek

5.5 Grinhaus ges na senis long klaimet

5.5.1 Grinhaus Ges “emissions”

Dispela Projek bai tu kontribuit igo long prodaksen bilong PNG LNG Projek “LNG Plant”. Hamas Grinhaus Ges (GHG) we bai igo olsem win long envaironmen long taim bilong konstraksen, komisonin na operesen bilong Projek bai i toksave moa long hama GHG Papua Niugini i kontribuitim.

Bikpela hap we GHG bai ikamap long em em long taim bilong “flaring” o kukim ol weis ges na tu kukim ges bilong kamapim pawa na tu long tanim ges igo kamap wara long taim komisonin na operesen. Tebol ES2 i toksave long Skop 1 o namaba wan Skop bilong GHG “emissions” we bai ikamap long ol wok bilong Projek. GHG bai kamap tu long taim ol kar na trak i ron, taim pawa i on na long taim bilong konstraksen.

Igat lukluk igo pas long taim bilong operesen long daunim GHG long mak olsem “1.6 tonnes CO₂-equivalent per 100 tonnes” bilong ol prodak we stap nau long maket (dispela iolsem long 18.7 bai igo daun long 17.1 tonnes CO₂-equivalent per 100 tonnes bilong prodak istap long maket).

Ol estimet bilong Skop 1 “emissions” long yia 2022 long “LNG Plant” we i sanap olsem “742 kt CO₂-equivalent” emi mekim tasol 20% bilong olgeta enezi sekta “emissions” long Papua Niugini long yia 2017. Taim operesen bilong Projek i stat ron long yia 2029, Skop 1 “emissions” bilong PNG LNG Projek na Papua LNG Projek long “LNG Plant” bai ikamap

olsem 27% igo antap moa long Skop 1 “emissions” long yia 2022 bilong “LNG Plant”. Dispela bai ilukim “emissions” insait long enezi sekta long Papua Niugini igo antap long 5% na Papua Niugini “national emissions” (long yia 2017) ba go antap long 4%.

5.5.2 Rot bilong daunim igo daun Grinhaus ges

EMPNG igat wanpela envaironmen menesmen plen ol i kolim “Environmental Management Plan: “LNG Plant and Marine Facilities”. Dispela plen i luksave long ol wanem GHG na wanem ol samting o wok we iken kamapim ol GHG long taim bilong “engineering, design and procurement” long kisim ol “equipment” o ol samting bilong “LNG Plant” we i sanap nau. Projek tu i nau lukluk long ol “design” o rot bilong wok we ol imas usim gut ol enezi long daunim igo daun GHG “emissions”. Ol bikpela tingting Projek i luksave we iken daunim GHG “emissions” igo daun em:

- Luksave itsap long lukluk gut long ol disain we iken halvim daunim “GHG emissions” bilong nau “LNG Plant” wantem ol narapela disains we iken halvim menesim “GHG emissions” igo 5 kt CO₂-e long wan yia. Sapos dispela namba bai igo antap moa liklik orait toksave mas igo long menesmen long mekim moa wok painim aut.
- Kamapim disain bilong plant we ino inap long mekim igo hat liklik long ol narapela projeks long daunim igo daun “GHG emissions”.

Lukluk na skelim rot bilong usim gut ol enezi na daunim igo daun “GHG emissions” bai stap olsem wanpela bikpela samting insait long wok bilong skelim gut disain bilong Projek.

Tebol ES2 Lukluk bilong hama Skop 1 GHG “emissions”

Fais	Hap we “emissions” bai kam long em	GHG emissions (kt CO ₂ -equivalents long wan wan yia)
Konstraksen (fopla yias)	• Taim ol masin na ikwipmen i usim disel • Ol kar, bas na traks we save kisim ol wok man na meri igo ikam long wok na karim ol kago bilong mekim wok • Ol genereta bilong kamapim pawa • Ol hap bilong kukim ol strongpela rabis	124 (peak) 57 (average)
Komisonin (wanpela yia)	• Ol masin na ikwipmen i usim disel • Ol ges we ikam long ol “gas turbines” • Stat long taim bilong kukim weis ges o “Start up flaring”	650
Operesens	• Taim bilong saplaim ges we ikam stret long wel na kondenset • Taim masin wok na usim “Fuel gas” • Kukim ol weis ges • Ol liklik ol narapela ol ges we i kam aut long taim masin i wok • Ol kar, bas na traks we save kisim ol wok man na meri igo ikam long wok na karim ol kago bilong mekim wok • Menesmen bilong ol strongpela rabis o weis	1,067
Nau “LNG Plant” (2022)	• Taim bilong saplaim ges we ikap stret long wel na kondenset • Taim masin wok na usim “Fuel gas” • Kukim ol weis ges • Ol liklik ol narapela ol ges we i kam aut long taim masin i wok • Ol kar, bas na traks we save kisim ol wok man na meri igo ikam long wok na karim ol kago bilong mekim wok • Menesmen bilong ol strongpela rabis o weis	1,742
Bungim wok bilong “LNG Plant”	• Nau “LNG Plant” • Taim “fuel gas” ipaia insait long “Combined Cycle Power Plant” long givim pawa igo long Projek na tu “LNG Plant” “turbines” • Ol treins 1 na 2 we i prosesim ges bilong Projek	2,212

5.5.3 Senis long klaimet

Ol hevi o birua we bai kamap wantaim klaimet senis iken igo bikpela na strongpela taim mun na yia i wok long suruk yet. Ol birua we senis bilong klaimet iken kamapim long Projek em olsem:

- Bikpela rein iken kamapim tait wara na rausim ol giraun
- Wara iken solap long taim bilong rein na karampim giraun na nambis
- Kol win bai ikamap hot tumas long planti time
- Solwara iken go insait long hap we freswara istap long taim levul bilong solwara i go antap
- Pasin bilong wok long giraun bai senis long wanem bai igat longpela taim bilong san, wara bai i solap na karamapim ol giraun.
- Dispela iken kamapim gutpela hap o kondisen we iken kamapim na mekim go bikpela ol kain sik olsem typhoid na malaria, na tu bringim ol nuipela sik long ol kaikai na niupela ol bus na animols we iken bagarapim envairomen.

Projek emi luksave long ol hevi na bagarap we iken ikamap wantaim senis long klaimet na itingim ol dispela long taim bilong kamapim ol disain bilong projek infrastraksa.

Bikpela tingting bilong menesim weis long Projek em long:

- Bihainim olgeta polisi we ExxonMobil i putim long em
- Abrusim o menesim envairoment, seifti na helt bilong pipol we weis iken kamapim birua
- Bihainim olgeta lo bilong Papua Niugini long sait bilong menesim gut ol weis
- Kamapim tingting bilong daunim weis igo liklik long taim bilong disainim Projek
- Sekim ol weis we bai ino inap long klinim na toromoi long "landfill" na usim ken o klinim gut o givim igo long ol kampani we igat laisens o tok orait long gavaman long kisim ol kain rabis.
- Rul o gaid bilong menesim ol weis:
 - Noken kamapim weis
 - Daunim hamas weis i bai kamap
 - Usim ken ol weis
 - Bungim ol weis samting na givim igo lon lain husait iken usim ken
 - Toromoi olgeta igo osem pipia

5.6 Weis menesmen

PNG "LNG Plant" igat pinis weis menesmen fasilitis na ibin kamapim pinis ol wei bilong lukautim, seperetim na kolektim ol rabis o weis. Dispela weis menesmen fasiliti em igat tu "landfill" o hap bilong toromoi olgeta rabis we ino gat kemikol long em. Igat levul istap pinis we i toksave long rot bilong menesim ol kainkain weis na dispela istap insait long Envairomen na Sosel Menesmen Plen bilong PNG LNG Projek. Ol ripot bilong weis isave go long gavaman na ol narapela stekholda long soim olsem wok i ron gut long sait bilong weis menesmen.

"LNG Plant" igat pinis "landfill" o hap bilong toromoi ol rabis tasol Projek bai i lukluk tu long kamapim niupela "landfill" we iken halivim long kisim ol planti moa rabis we ba Projek i kamapim. Na tu EMPNGA bai lukluk sapos em iken usim ol narapela "thirdparty" weis menesmen fasilitis.



6. Environmen na sosel menesmen na monitarin

6.1 Tok igo pas

Menesmen bilon Projek environmen na sosel wok na impeks, na disain bilong ol fasilitas na ol narapela ikwipmen bai kam aninit lo Papua Niugini gavaman mama lo, polisi bilong ExxonMobil, na ol arapela stended na regulesens we i luksave tu long ol stendeds bilong ol lain husait i givim moni long kamapim Projek o ol kolim "International Financial Corporation".

"Environmental and Social Management System (ESMS)" bilong Papua LNG Projek bai lukautim envairomentol na sosel menesmen na monitarin blo projek, wantaim "Project Construction Environmental and Social Management Plan (Construction ESMP)". ESMS fremwok stap lo Piksa Figa ES10.

EMPNGA bai lukautim envairomentol na sosel menesmen lo taim bliong wok konstraksen na NLOC bai mekim olgeta wok bilong Projek long "LNG Plant" na bai lukautim envairomentol na sosel menesmen lo taim bilong operesens.

Projek bai mentenim wok straksa bilong ol wokman na meri na bai givim inap risoses bilong mekim wok bilong sapotim "Construction ESMP". Wok straksa na wei bilong mekim na monitarim konstraksen na operesen blo Projek bai kamap wankain olsem wanem ibin kamap aninit lo PNG LNG Projek na bai dispela bai istap tu long Projek "Construction ESMP".

6.2 Environmen na sosel menesmen plen

Projek "Construction ESMP" bai kamap lo wanpela mein ripot we i luksave long olgeta proses bilong envairomentol na sosel menesmen wok bilong Projek na tu sampela moa ol arapela plens we i karamapim wanwan ol het tok istap insait long mein ripot.

Projek "Construction ESMP" bai igat ol EIS komitmen na ol kondisen bilong tok orait we ikam long Papua Niugini Gavaman na tu ol kondisen bilong ol lain husait ibin givim moni long kamapim Projek. Dispela "Construction ESMP" tu bai toksave long fremwok we ol kontrakta mas bihainim taim ol kamapim ol "Contractor Implementation Plans" bilong ol. Ol kontraktas we bai wok long Projek mas bihainim olgeta toktok we istap insait long Projek ESMP we emi stap long wanwan wok skop bilong ol.

EMPNGA bai kamapim wanpela Prodaksen ESMP bipo long operesens i stat.

ENVAIRONMEN NA SOSEL MENESMEN SISTEM

Mama 'system' plen							
Ol menesmen plen karamapim ol bikpela eria							Ol menesmen plen lukluk long wanwan ektiviti tasol
Wei bilong daunim "pollution"	Risos bilong bus giraun	"Biodiversity"	Komuniti	Woksait	Helt, sefti na sikiriti	Kwiktaim sapot long ol hevi na birua	Ol ektiviti
• Kwaliti bilong win, grinhaus ges na usim enezi gut • Nois • Weis o pipia • Poisen weis o pipia • Wei bilong daunim na rispon long ol "spill"	• Usim na tromoi wara gut • Usim ol samting bilong bus gut • Esid giraun long wesana • Daunim lus giraun na wesana	• "Biodiversity" • Ol gras na binatang nogut	• Stekholda engesmen • Nesinol kontent • Kominiti developmen • Kominiti helt, sefti na sikiriti • Menesmen bilong kalsa na pasin tumbuna • Menesmen bilong muvmen bilong ol autsait man-meri painim wok na opotuniti ikam long projek eria • Sapot bilong ol pipol na asples insait long stadi eria	• Stretim sindaun na kondisen bilong ol wok man-meri	• SIMOPS menesmen fremwok • Tokorait bilong wok menesmen fremwok	• Kwiktaim sapot long ol hevi na birua	• Stretim giraun na planim diwai • Testim ol LNG paip wantaim wara • Ol operesen bilong solwara • Trefik na muvmen bilong man-meri na kago • Ol polisi bilong kemp na ples bilong wok man-meri long slip • Wok bilong brukim giraun na putim paip

LEGEND

	Environmen
	Sosel na ekonomik
	OHSS
	Olgeta wantaim

Piksa Figa ES 10 Projek Environmen na Sosel Menesmen Sistem fremwok

6.3 Monitarin o sekim gut wok

ExxonMobil na ol kontraktas bilong em bai bihainim olgeta samting we istap insait long plen ol kolim “Environmental Monitoring Plan (EMP)” bilong Projek we bai i wankain olsem PNG LNG Projek ESMP.

Ol impotent samting bilong EMP em long:

- Toksave long ol wanem ol wok long mekim long sekim envaironmen
- Burukim igo daun wanem samting ExxonMobil bai i mekim long sekim na luksave long ol menesmen komitmen emi mekim long skelim na lukluk long ol envaironmen programs
- Burukim igo daun wanem wok ExxonMobil bai i mekim long ripot igo long CEPA na ol arapela gavaman opis long sait bilong wok monitarin, odit na ol asesmen wok.

ExxonMobil bai kamapim ol monitarin program taim Projek igo insait long “detailed design” we emi lukluk tu long ol samting we “Environment Act 2000” i laikim we iken kamap insait long dispela EIS tok orait proses. Ol wanem samting long sekim na wanem metod o wei bilong sekim na skelim tingting bai stap insait long ol tok orait bilong gavaman olsem permit na laisens.

Bai igat taim we wok sekim bilong ol monitarin “requirements” imas kamap long lukluk ken long ol “key performance indicators” na ol lokesen bilong monitarim insait long Projek na kontraktas EMP. Dispela bai ikamap long wan wan steiz bilong Projek (konstraksen, operesen na klosa) taim Projek ikamap wantaim lastpela disain na lokesen bilong ol Projek facilities.

ExxonMobil na ol kontrakta bai kamapim na kipim ol rekod long soim olsem envaironmen menesmen sistem istap na iwok long ron gut.

6.4 Givim ripot

6.4.1 Insait long Projek yet

Ol risalt bilong wok monitarin o sigelim sapos wok ikamap gut o nogat bihainin EMP, wantaim ol “non-conformance” o ol asua ibin kamap bai i mas igo long ExxonMobil.

Ol kontraktas tu bai i kamapim ol envaironmen na sosel ripot long olgeta mun we emi toktok long ol wok bilong ol na wanem ol impek bilong ol dispela wok insait long Projek. Dispela ripot bai i karamapim wok bilong kontrakta na tu ol liklik kontrakta bilong em.

6.4.2 Igo long Gavaman na ol arapela

Projek bai bihainim olgeta “requirements” long sait bilong toksave na givim ripot na bihainim wanem istap insait long ol tok orait bilong gavaman olsem ol permits na laisens na ol narapel ol lo we Projek ikam aninit long em.

“Annual environmental reports” o ol ripot bilong envaironmen long wan wan yia bilong PNG LNG Projek save igo long CEPA. Dispela Projek tu bai mekim olsem na givim wankain ripot tu long CEPA. CEPA bai givim tokorait long straksa bilong ripot tasol luk olsem bai ripot em bai bihainim wankain straksa olsem bilong PNG LNG Projek.

6.5 Asesmen na odit

Bai igat ol wok asesmen na odits i kamap long sigelim sapos wok bilong Projek long envaironmen na sosel ektivitis, monitarin programs na ol wok hap iwok long ron gut o nogat. Dispela ol asesmen na odits bai i kamap bihainim wanem ol “protocol” we wanbel ibin kamap pinis long em. Taim wok bilong asesmen na odit i pinis, bai igat draf asesmen na odit ripot we bai igat ol lain imas ritim na sigelim bipo fainol ripot igo aut.



7. Kisim moa toksave na givim bekim

Ol pepa kopis bilong dispela EIS bai istap long
tupela hap we pablik iken lukim:

- Conservation and Environment Protection
Authority (CEPA), Pot Mosbi
- Department of the Petroleum and Energy (DPE),
Pot Mosbi

Long hapwok bilong asesmen bilong dispela EIS,
“Conservation and Environment Protection
Authority (CEPA)” bai askim ol pablik long raitim
tingting bilong ol long dispela EIS na givim
igo long CEPA.

Yu ken kisim halivim long raitim ol pas
bilong yupela long:

Menesin Darekta
Conservation and Environment Protection
Authority
Stratos Avenue, Savannah Heights
PO Box 6601
Waigani, National Capital District
Papua New Guinea



ExxonMobil

Papua LNG Project – Downstream
Environmental Impact Statement
Executive Summary