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Acronyms and Abbreviations

CA	Contribution Agreement
CSM	Construction Site Monitoring
DAL	Department of Agriculture and Livestock
DG DEVCO	Directorate Geeral for Development Cooperation
DNPM	Department of National Planning and Monitoring
DoWH	Department of Works and Highways
DSIP/PSIP/LLGSIP	District/Provincial/Local Level Government Support Improvement Programs
EDF	European Development Fund
EQ	Evaluation Question
ESP	East Sepik Province
EU	European Union
FA	Financial Agreement
FAO	Food and Agriculture Organisation
FinTech	Financial Technology
GDP	Gross Domestic Product
GIS	Geographical Information System
GoPNG	Government of Papua New Guinea
IA	Implementation Arrangement
ICT	Information and Communication Technology
IGIS	Integrated Government Information System
ILO	International Labour Organization
IMS	Information Management System
ITU	International Telecommunications Union
LLG	Local Level Government
M&E	Monitoring and Evaluation
MSME	Medium, Small, and Micro Enterprises
NAO	National Authorising Officer
NARI	National Agriculture Research Institute
NFA	National Fisheries Authority
NGO	Non-Governmental Organisation
NICTA	National Information and Communication Authority
PGK	Kina
PNG	Papua, New Guinea
PSC	Programme Steering Committee
RAA	Rural Airstrip Agency
RMG	Road Maintenance Group
ROAP	Regional Office for Asia and Pacific (ILO)
RuTIMS	Rural Transport Information System
STREIT	Support to Rural Entrepreneurship, Investment and Trade
ToR	Terms of Reference
UN	United Nations
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
WMBL	Women' Micro Bank Limited
WSP	West Sepik Province

Executive summary

To be added in the finalisation (Eval Module format)

1. Introduction

1.1 Background

Papua New Guinea (PNG) has a remarkable diversity of geographic and natural resources. With a population of more than 9 million and an annual Gross Domestic Product (GDP) of over USD 20 billion, PNG has by far the largest economy in the Pacific region. Two sectors dominate the country's economy:

- the agricultural, forestry, and fishing sectors that engage most of PNG's labour force (the majority informally); and
- the minerals and energy extraction sector that accounts for most export earnings and GDP.

This country is ranked as the tenth most vulnerable to the risk of climate change. The country's highlands region is susceptible to extreme weather such as heavy rainfall. The coastal regions, the islands and the low-lying atoll areas are mostly vulnerable to extreme weather events, storm surge, seal-level rise, and coastal inundation. With such a highly dispersed and remote population, the risk of exposure to natural hazards is very high. Most of rural populations are subsistence farmers that rely on subsistence farming for their livelihoods, with limited capacity to protect themselves from climate-induced natural disasters.

1.2 The STREIT programme

FAO has elaborated the *Support to Rural Entrepreneurship, Investment and Trade in Papua New Guinea* (STREIT PNG) programme in consultation with the Department of National Planning and Monitoring (DNPM), Department of Agriculture and Livestock (DAL), other line ministries of the Government of PNG (GoPNG), semi-state/autonomous bodies such as the Cocoa Board, National Fisheries Authority (NFA), National Information and Communication Technology Agency (NICTA), and decentralised administrations.
The Directorate of Development Cooperation (DG DEVCO) of the European Union (EU) and the Ministry of Planning and Monitoring of the Independent State of PNG have signed the Financing agreement (FA) FED/2018/039-995) on 7/2 and 4/6/2019 to fund this action for a duration of 60 months and a budget of euro 85.6 million of which euro 85.3 million provided by the 11th European Development Fund (EDF). The procurement of services is implemented along the Direct management modality and the operations along the *Indirect management modalities with International Organisations*.
The Delegation of the EU to PNG and the Food and Agriculture Organisation (FAO) and its partners (ILO, UNCDF, UNDP, ITU[1]) have signed the Contribution agreement (CA) FED/2019/410-934 on 5-6/12/2019 for the implementation of this action for a duration of 53 months and a budget of euro 81.6 million including FAO euro 0.3 million co-financing.
The setup of the operational agreements between FAO (the administrative agent) and the other United Nations (UN) agencies (the Convening agents) and the hiring of programme staff took about a year. The programme Inception phase started on 1/1/2020 and preliminary activities and the full-fledge delivery of field work over one year later, on 19/4/2021, to be completed by 31/5/2024.
The Overall objective of the programme is to increase sustainable and inclusive economic development of rural areas. This will be achieved through a combination of two integrated outcomes:

- increasing the economic returns and opportunities from three selected value chains (cocoa, vanilla, fishery) while in parallel:
- strengthening and improving the efficiency of value chain enablers including the business environment and supporting sustainable, climate proof transport and energy infrastructure development.

1.3 The evaluation

The Mid-term evaluation objective is to provide relevant EU services and interested stakeholders with:

- an overall independent assessment of the past performance of the "STREIT PNG", paying particular

[1] International Labour Organisation (ILO), International Telecommunication Union (ITU), United Nations Capital Development Fund (UNCDF), United Nations Development Programme (UNDP)

attention to its results measured against expected objectives; and reasons underpinning such results;
- the key lessons learned, conclusions and related recommendations in order to improve the last 18 months of implementation to achieve sustainability and to the design of future programs.

The Evaluation team (see Annex 2) analyzed the performance of this action, its enabling factors and those hampering a proper delivery of results. The lessons learnt, conclusions and recommendation from this evaluation of programme will serve for future EU actions.

Methodology. The evaluation is centred on the answers to the Evaluation questions (EQ) elaborated in the Inception report (Annex 4 presents the Evaluation matrix) that have been slightly revised with respect to their formulation in the Terms of Reference (ToR), see Annex 1. The Mid Term Evaluation (MTE) combines the analysis of the documents with an extensive survey of intervention sites, focus group discussion with beneficiaries and interview of stakeholders. Annex 5 presents the documents reviewed.

Timeline. The field survey was split in two phases: 11-16/12/2022 and 7-25/2023. The collection of primary information in the field was completed by interviews held in Port Moresby / remotely during the inception and desk phase (28/11-9/12/2022) and at the beginning of the second phase (7-8/2/2022). Debriefings were conducted with the EU Delegation at the end of each survey phase, remotely on 12/1/2023 and in Port Moresby on 23/2/2022 to validate the preliminary findings of the survey. Road interruption and landslides severely affected the field trip performance in the final days of the second phase of the survey (20-22/2/2023) conducted in the Aitape-Nuku and Vanimo - Green River districts. As several localities and districts of West Sepik province had already been surveyed, this is a minor limitation for its coverage.

Itinerary. The Evaluation team has visited 34 sites and 35 activities including a not-project community in 9 out of the 10 assisted districts. They include 6 East Sepik districts (Ambunti-Drekiker, Angoram, Maprik, Wewak, Wosera Gawi, Yangori Saussia) and 3 West Sepik districts (Nuku, Aitape-Lumi, Vanimo-Green River)[2], concerning 38 activities as some sites include several activities.

Table 1. Sites and activities visited during the survey

Component	*East Sepik*		*West Sepik*		*Total*	
	Sites	*Activities*	*Sites*	*Activities*	*Sites*	*Activities*
Cocoa value chain	12	5	5	2	17	7
Vanilla value chain		5		2		7
Fishery / aquaculture value chains		2				2
Road rehabilitation and maintenance	4	4	2	2	6	6
Fintech	4	4	1	1	5	5
Solar energy	4	4			6	4
ICT	2	4				4
Total	26	28	8	7	34	35

Annex 6 present the itinerary of the survey and Annex 7 lists the informants met.

Table 2. Informants interviewed by category

Category	*People*
Donor	3
National public institutions and technical agencies	18
Local authorities and technical agencies	12
Implementing partners	36
Private sector partners	13
Total	82

Data limitations. Changes of itinerary have mostly affected the visits of the coastal areas of the West Sepik province. As similar activities have been surveyed in East Sepik, such limitation is more quantitative than qualitative and little impacts to the analysis.

[2] East Sepik includes 6 districts and West Sepik 4 districts (Telefomin is the remotest one).

2. Answered questions / findings

2.1 Relevance

EQ1 How much has the STREIT programme been consistent with, and supportive of the EU-PNG Multiannual Indicative Programme and the PNG Government's development policies, provincial plans and sector policies?

The STREIT programme is fully inscribed in the strategy of cooperation between the EU and GoPNG. Its commitment to inclusive development, local governance of development, and protection of natural resources – by fostering rural development through the transition from subsistence to input intensive, market-driven agricultural production - is consistent with the priorities of the *EU-PNG Multiannual Indicative Programme 2014-2020* (11th EDF) that indicates that the EU supports country reforms in areas that have a strong multiplier effect, specifically by promoting the socio-economic inclusivity of rural areas. Its strategy bridging the gap between the smallholder farmers and the market by promoting innovation and aggregating the offer of agricultural products strengthens the competitiveness of the rural economy.

Linkages to national planning. The overachieving development strategy framework of the programme is the *PNG Vision 2050* that maps out the country future direction. This vision is financed through the *Medium-Term Revenue Strategy* (MTRS) framework and implemented through the *Medium-Term Development Plan* (MTDP) framework, linking the Sector Development Plans, Provincial Development Plans, District Development Plans, Local Level Government Development Plans and Wards Plans. The programme multi-sector approach established multiple links with the actions of the *Medium-Term Development Plan III 2018-2022* along the service investment programmes that support the action of the Provincial, District and Local governments in nutrition, trade, electricity and digital development, roads / transport employment, and financial inclusion.

Regional focus. The programme strategy tackles the economic constraints to the productivity of the rural economy of the Sepik region by linking the transfer of technology to the producers to their access to improved Information and communication technology (ICT), electricity and road and transport facilities that raise their competitiveness and access to export trade. The concentration of activities in a circumscribed geographic region, the Sepik provinces, is expected to link the strengthening of the selected value chains to other programmes that support local development. However, the programme design doesn't establish a comprehensive integration of its support to roads rehabilitation and maintenance (one of its main components) at the different geographical levels or in priority areas or corridors with a high potential of joint development. In practice, by spreading such support across the whole intervention areas, misses the opportunity of linking agricultural to local development at large.

Value chains relaunching. The programme analysis of the crisis of the cocoa and vanilla production has properly identified their multiple causes but not the implications of weakness of the public bodies for the project strategy. The shrinking of cocoa and vanilla production in the last decades, as confirmed by the farmers met, is deeper than assumed at the time of the programme identification, requiring the adoption of innovative technical solutions to tackle environmental threats and cope with the market exigencies. The research centres of the Cocoa board and of the National Agricultural Research Institute (NARI) have developed improved varieties and innovative practices that can be easily applied by large scale, commercial producers but whose adaptation to the context of the Momase region requires the organic collaboration between public and private actors catalysed by the programme.

Institutional challenges. So far, the project lacks a component that strengthens the planning and management capacities of the local administrations and beneficiary communities that would ensure that its multiple components be effectively locally driven and produce mutually reinforcing effects with the local development plans activities. Indeed, its strategy prompts the mobilisation of local capacities but at the same time side-lines their role in leading and financing development actions. Such design challenges the achievement of the program long-term goal. In fact, the capacities of the local actors (also in partnership with national institutions) may be insufficient to ensure the use (and to replicate at a larger scale) of the new technologies by the farmers, agri-preneurs, services providers. Notably, it doesn't ensure their coherence and integration with cost-recovery modalities of coordination of the development actions and

delivery of training and technical assistance services. Thus, the programme externally driven technology transfer mechanism makes unlikely the replication of its results in other two provinces of Momase region.

JC 1.1 Multiagency approach modality of contribution to the addressing of beneficiaries' problems and needs

The FAO-led programme unit[3] integrates the technical skills mobilised by UN agencies in the roads and infrastructure field (ILO), access to finance (UNCDF), renewable energies (UNDP), ICT and telecom services (ITU) in the strengthening of the agricultural value chains (outcome 1). This multiagency approach is essential for addressing the multiple themes that contribute to the competitiveness of the value chains, notably the establishment of the enabling services (outcome 2).


Cocoa seedling

The challenge to the success of such design consists in the fact that the programme doesn't strengthen the local governance of the development processes as it focuses on the promotion of technology and market access. Thus, the commitment of its national and local partners is punctual rather than strategic. It lacks a comprehensive vision of the contribution of the different components of the programme to the solution of development problems by underestimating the importance of the integration of development planning at the different geographical levels to maximise the collaboration of authorities, farmers' communities and the private sector

Value chains. The selected value chains are highly relevant to raising the welfare of the rural households. They link the household economy (self-consumption oriented) to the market thus making possible the generation of income that can be reinvested in other family's economic activities. This approach faces a big challenge in relation to the fact that farmers, especially the most remote and less endowed, balance investment in production with short-term family and community needs that distract human and material resources from purely economic goals and deplete their natural resources basis. The strengthening of the value chains may be insufficient to solve such problem, notwithstanding its strong links with local actors and adoption of inclusiveness tools, due to the lack of an overarching local development component[4].

Almost fifty thousand households in the Sepik region are involved in cocoa production supplying their harvest to the fermentaries, according to the survey conducted by the Cocoa board[5], each owning sixty plants producing cocoa of commercial grade in small plots. Such values make room for the substitution of three million seedlings produced in about two hundred seed nurseries. In perspective, these numbers may be exceeded is the producers' groups develop their own multiplication plans to intensify cocoa production and run the seed nurseries as businesses to supply their neighbours and near-by communities.

The target value of three million cocoa saplings is decidedly lower than that of the originally planted trees but realistic and consistent with the STREIT cascade approach. The programme assists farmers already committed to this production by improving their practices and renovating their plantations at the same time. A larger target would face the same problems of weak commitment of the beneficiaries already encountered in assisting remote, low endower committed farmers – where drop out have already been recorded – and hence require much more inputs, training, technical assistance and follow up. In practice, the programme strategy points to the creation of farmers' skills and physical endowments that produce sustainable economic results and that the beneficiary can upscale along a cascade approach through the

[3] FAO, the lead agency, coordinate the implementation of the activities of ILO, ITU, UNCDF, UNDP. The UN Resident coordinator supervises the action of the UN agencies.

[4] The programme has formulated a Gender and Youth Inclusion Strategy and Action Plan that is systematically mainstreamed across its activities.

[5] See the *Cocoa fermentary assessment report* that has censed 1,000 fermentaries in the Sepik region between 2020 and 2021.

expansion of the seed nurseries and assistance to other farmers and communities. It should be noted that the introduction of improved clones, adaptation of technology is a trial and error approach. This requires intensive follow up assistance and that hence the build-up of producers' capacities has to be accompanied by the strengthening of the extension services, partnership with other actors of the value chain, in practice the deployment of a local development approach customised to the needs of each producers' group / community. For such reason, the achievement of a broader target would encompass the mobilisation of resources along a longer timespan than that of the programme.

Rural transport. The rural transport component rehabilitates and upgrades Farm to market roads and feeder roads, in short, rural roads. This action should link the rural roads to the ring roads under the District and Provincial Support Improvement Projects (DSIP/PSIP) and eventually to the national highways under the Department of Works and Highways (DoWH). ILO collaborates with the FAO and Provincial administration in selecting the roads based on their contribution to farmers' access to markets. Other actions under this component concern the rehabilitation/creation of fishers' river jetties and landing sites and rural airstrips to enhance vanilla trade. Engaging community-based maintenance is in line with DoWH recent guidelines and ILO trains communities on routine maintenance with high level involvement of youth and women including capacity building for local contractors for labour-based intensive infrastructure works.

Enabling services. The programme design supports the improvement of the regulatory framework and assets that expand the access to financial, ICT services and renewable energy. Such enabling services are complementary to the build-up of the technical capacities of the farmers, fishers and agri-preneurs. Their improvement facilitates the access to and exploitation of innovation and the integration of the action of the stakeholders of the value chains. for example, the programme has supported the Department of ICT in elaborating the following documents: the Digital Transformation Policy (2020), the Digital Government Masterplan Framework draft (2022), the National Cyber Security Policy (2021), the Digital Government Act (2022), and Digital Government Plan 2023-2027.

JC 1.2 Logical framework indicators SMARTness

The programme Logframe is properly articulated although incomplete in some key respects. Its design links the investments in infrastructure and enabling services to the adoption of the innovative production techniques in the three selected value chains. The action of the provincial dialogue platforms is critical for the effectiveness of the programme strategy. They ensure the convergence of the actions of the UN agencies around the value chains and their compatibility with the other local development priorities. The insufficient elaboration of the outputs expected from such dialogue is the main weakness of the Logframe, as it limits the linkage between the value chains and the overall local development processes.

The organisation of groups and clusters of producers, the training of five lead farmers in each group that train their neighbours, are expected to spread the innovation among the beneficiaries. This mechanical, technology-driven approach is not necessarily consistent with the creation of scale economies in homogeneous development areas. Thus, the assistance provided to the less endowed farmers and communities may not enough to commit them to properly use the inputs and learning provided by the programme. The measuring of the output indicators based on the direct results of the delivery of inputs and creation of capacities is quantitatively correct but could be insufficient to steer the programme strategy, as doesn't consider qualitative aspects such at the beneficiaries' engagement.

Output indicators represent the direct effects of the planned actions of each component and link them to the programme outcomes along a coordinated, cascade approach. The indicators values usually but not assuredly concern the same target beneficiaries. Indeed, the association of the staff of the UN agencies jointly performing field work results in a high level of correlation of the beneficiaries of different components. However, the greatest problem consists in the fact that by directly addressing the needs of the beneficiaries across the whole intervention area at once. The programme design doesn't create the development mechanisms that facilitate their progressive expansion thus missing the opportunity of building the value chains around economic aggregation areas or corridors.

Information management. The programme has established a dedicated Information management system (IMS) that ensures the systematic reporting of activities and results, their geographical referencing and

traceability along with their visual illustration. This system properly records the programme events and effects through a multi-entry data collection, processing, storing and reporting platform developed by the programme itself by using a free-ware application. The information produced by the programme IMS is fundamental for the creation of the content of the communication actions. This approach ensures the dissemination of best practices among an audience larger than its direct targets.
The critical aspect for the success of this approach consists in the fact that the IMS platform, although based on free-ware software, is produced internally to the programme. Its continuation after the programme end depends on the empowerment of the corresponding staff in the local administrations and technical agencies to maintain and update such software, perform the data entry and critically, the quality assurance / production of feedback for the continuous improvement of the IMS.

JC 1.3 Target groups and institutional contribution to strategy and activities design
The consultations held during the programme identification and the organisation of the validation workshop have capitalised on the experience and acquaintance of the national stakeholders of the PNG agricultural, development policies and on the capacities of the technical agencies in charge of their execution. The FAO acquaintance with the DAL, Cocoa and vanilla board, and NFA and collaboration with the UN agencies has properly scaled up the programme stakeholders across a broad set of development fields.
Coordination. The institutional contribution to the programme strategy and activities design has insufficiently exploited the role of DNPM in consolidating the participation of national institutions and in coordinating their action at the policy level. The programme struggles to ensure the unity of vision needed to mainstream harmonised national decisions at the provincial level. Such situation means that the progress made by a programme component may be challenged by the fact that its lessons be not exploited by the policy makers in charge of development.
Local participation. The planning documents and funding agreements properly involve the national and local partners in the identification of the field activities although – mostly through contractual agreements, as in the case of the Cocoa and vanilla boards, NFA and NARI but not in the steering of its strategy. This situation presents two critical aspects: that the local authorities link the proposed actions to their development priorities to make them compatible with other initiatives and that each producer accesses to the infrastructure and services supported under the different components.

2.2 Effectiveness

EQ2 Have the communities and most vulnerable groups received the planned benefits (number of seedlings distributed, beneficiaries trained, reached by improved road and communication)?
The progress made until now is remarkable but uneven across components due to their different start dates, sizes and operational modalities. The programme has extensively strengthened the technical capacities of its partners and final beneficiaries and is in the process of delivering works, equipment and materials across the Sepik region. The supply chain bottlenecks and complex logistics of the intervention – weather conditions and transport services being unreliable in the rural areas - areas negatively impact on the delivery of equipment, construction of infrastructure and performance of training, thus disrupting the timing and sequence of field activities. The rhythm of delivery of the proposed technical solutions has been growing since the removal of the pandemic restrictions in 2021, thus recovering some delays originated by the incomplete and contradictory programme design. Since then, this action is steadily progressing in terms of quantitative results / number of beneficiaries reached. Discussions and collaborations with province, district administrations have been intensified through their collaboration in the performance of training, technical assistance and coordination of the communities / producers' groups. The trainings and delivery of production inputs have been satisfactory in the Cocoa value chain where the coordination of the seed nurseries, producers and fermentaries is complicated by their extreme fragmentation across the region. Although less ramified, the assistance to vanilla producers – that sometimes are also the cocoa producers or members of the same communities / producers' groups – is approaching the programme target (the programme calculates that 5% of farmers are assisted in both crops production). The later start and dependence on imported equipment of the fishery and aquaculture

value chain has delayed the progress in this sector where training / demonstrations and establishment of production assets are in their early stages. Indeed, it should be noted that the difficulties encountered in assisting the producers depend on the fact that their assistance is made of several activities whose timing is very variable due to the mentioned context factors.

Development challenges. The lack of a capillary network of local partners active in supporting community development (notably, the NGOs active in agriculture are very few in the Sepik region where their action concentrates on health, education and social issues) and of public / private technical services that mainstream innovation obliges the programme staff to directly act at the community level. This approach means that the programme has to deal with the growing number of side effects produced by the adoption of innovation that challenge its continuation. The main problems issuing from the intensification and expansion of new technologies is that the integration of the outputs of the different programme components are loosely integrated into local development actions. This situation has produced uneven results that combine (a) the drop out of beneficiaries in the more remote surveyed communities with (b) the expansion of the reach of the successful producers' groups beyond their initial targets by assisting neighbouring communities, with positive effects, as least quantitatively, on the achievement of the stated results.


Vanilla vine creeping on

Value chains. According to the Achievements by Outcome and Output (Annex II) of the 2022 Annual report, the training of about 8,000 lead farmers and fishers has produced multiplicatory effects through the training of about 22,000 farmers and fishers organised in about 250 groups / clusters, having learnt resilient and sustainable production practices[6]. About 200 cocoa seed nurseries have been established and 400 cocoa fermentary owners trained. According to FAO staff, about 1 million clones of cocoa had been planted by February 2023[7] The first delivery of 41,640 of 18 certified cocoa clones to 200 cluster groups and training of 11,346 farmers were performed in May and November 2020. Another 210,877 seedlings were distributed to 27,216 farmers in 2021 and 589,128 seedlings to 6,800 farmers in the first nine months of 2022 and another 196,704 to 3,287 beneficiaries by the end of the year, by grafting the farmers' bud-stocks with improved selections supplied by the Cocoa board. Another 1.4 million clones have been contracted and should be distributed by the end of 2023 and 0.6 million clones could be produced to achieve the programme target of 3 million cocoa plants substitution or improvement by the programme end in 2024 (but the setup of latter batch has still to be planned). The distribution of vanilla vines is in an early stage. According to FAO, 42,920 healthy vanilla vines had been delivered to 739 farmers by the end of 2022 out of a target being of 500,000. The training of fishers and aquaculturalists is still in its early stages with 4,390 fingerlings distributed, 1,121 fishers trained and their groups being established, while 287 riverine fishers have been trained. Procurement of boats, gears, cooler boxes, fingerlings, etc. is ongoing.

Rural roads. The rehabilitation and maintenance of the rural access roads to farmers' fields is strictly linked to the improvement of the district, provincial and national ones.

[6] The programme promotes a mix of integrated pest management, smart climate agriculture, conservation agriculture, good agricultural practices (they are mentioned haphazardly in its documents). Such blended approach to technology transfer is the result of the collaboration with the PNG research centers that are the main source of technology and of the fact that the programme adapts its interventions to the local context where each of such approach presents different advantages. Some concerns exist in relation to the fact that land and water management is marginal in the promoted technology packages. The proper addressing of such production factor implies larger – including water basin level or coastal spatial planning - interventions that overcome the programme scope. During the survey, farmers showed their interest in targeted land and water solutions that reduce the impact of the dry season on crops and aquaculture and that greatly contribute to the sustainability of their production.

[7] According to the Third annual progress report, the clones produced until 30/9/2022 were 837,210 and those distributed 650,000, greatly improving on the about 150,000 recorded in the first two years of programme implementation.

The overall target under the rural transport infrastructure is about improving 312.90 km of roads until end of project composed of 15 road sections of 257.16 km for Rehabilitation and Specific Maintenance and all 312.90 km of 18 road sections (15 at 257.16 km for rehabilitation and 3 at 55.74 km for routine maintenance) will be subject to Routine Maintenance. This total road of 312.9 km are undergoing maintenance by 161 Routine Maintenance Groups (RMG) composed of members of communities that host an about 112,058 farmers and fishers and an area of 11,491.43 ha of cocoa and 324.65 ha of vanilla. At the time of the survey, a number of target beneficiaries have already started using the roads, having been cleared of thick vegetation through the routine maintenance works that started since July 2021. The full benefits from these roads are still to be generated considering that only 10 road sections/140.16 km is undergoing the rehabilitation and specific maintenance out of the targeted 15 road sections/257.16 km. The other 5 roads sections/117 km are yet to be implemented for rehabilitation and specific maintenance which have been either issued Letter of Acceptance, Contract Agreement done, and for Detailed Project Report preparation. Reaching the estimated number of beneficiaries above will therefore depend upon full completion of the 15 road sections. Table 3 presents the breakdown of the area and number of cocoa and vanilla producers, aquaculturalists and fishers served by the improved rural roads.

Table 3. Estimated number of beneficiaries and area served by the Routine maintenance actions

No.	Province/District	LLG	Name of Road	Length	RMG Member	Vanilla	Cocoa	Population Served	Status
East Sepik Province				*km*	*no.*	*ha*	*ha*		
1	Wewak	Dagua Rural LLG	Banak - Wautogik	7.8	4	5.56	964.75	2,391	*On going from Jul 2021*
2	Wewak	Wewak LLG	Yarapi-Niengwanji Suambukau	12	6	4.44	425.25	1,650	*On going from Jul 2021*
3	Wewak	Wewak LLG	Yawasoro Niiengwanje	10	8	1.11	425.25	554	*On going from Jul 2021*
4	Maprik	Bumbita Muhian	Bonohoi - Endibi Taunages	14	7	33.33	1037.00	4,965	*On going from Jul 2021*
5	Maprik-Ambunti-Drekirkir	Bumbita Muhian - Kawanga	Taunages Asanokar	6	3	40.00	701.25	3,386	*On going from Jan 2022*
6	Ambunti-Drikirkir	Drikirkir LLG	Balif Araseli Road	12.8	6	13.33	695.00	5,157	*On going from Jul 2021*
7	Angoram	Angoram - Marienberg	Marienberg District Feeder Road	30	15	3.33	475.00	25,296	*On going from Jul 2021*
8	Angoram	Angoram Rural LLG	Salaki - Palpal LLG Access Road	20	10	22.22	198.83	4,711	*On going from Jul 20221*
9	Wosera Gawi	South and North Wosera	Patiko - Nuangaiwa	30.6	16	1.11	473.75	13,399	*On going from Jul 2021*
10	Wosera Gawi	Gawi LLG	Buruwi Torembi Road	25	12	0	645.75	18,538	*On going from Jul 2021*
11	Yangoru Saussia	Saussa LLG	Munji - Haripmo	6.5	3	4.44	886.00	2,236	*On going from Jul 2021*
12	Ambunti-Drikirkir	Drikirkir LLG	Yawaso-kunger Road	14	6	11.11	695.00	5,434	*On going from Jul 2021*
13	Kwanga-Ambunti-Drikirkir	Kwanga and Drokirkir	Nanha-Tau	14.5	10	134.67	909.10	1,587	*On going from April 2022*
13	**Sub Total ESP**			**203.2**	**106**	**274.65**	**8,531.93**	**89,304**	
West Sepik Province									
14	Aitape Lumi	Aitape West LLG	Aitape Malol Road	24	12	6.67	1246.75	9,112	*On going from Jul 2021*
15	Vanimo Green	Bewanim Wuangto-Onei LLG	Passi Krissa Osol Road	30	15	4.44	418.75	2,239	*On going from Jul 2021*
16	Vanimo Green	Bewanim Wuangto-Onei LLG	Onip-Rawo Leitre Road	20	10	1.11	419.00	2,239	*On going from Jul 2021*
17	Nuku	Nuku Central	Walkasa Mai Mai Wanwan	17.7	9	17.78	750.00	1,939	*On going from Jul 2021*
18	Nuku	Nuku Central	Yimnum Wilboe LLG Road	18	9	20.00	125.00	7,225	*On going from Jul 2021*
5	**Sub Total WSP**			**109.7**	**55**	**50.00**	**2,959.50**	**22,754**	
18	**Grand Total**			**312.9**	**161**	**324.65**	**11,491.43**	**112,058**	

Rural airstrips. The programme aims at improving and maintain 5 airstrips (3 in ESP and 2 in WSP) that have been identified and proposed by ILO in collaboration with FAO and the Provincial administrations. The Rural Airstrip Agency (RAA) is in charge of the execution of these works. The Implementation Agreement (IA) has just been approved by the ILO Regional Office for Asia and Pacific (ROAP). Hence no single airstrip has commenced the implementation yet. The target beneficiaries will be identified and consulted once the RAA will start its preliminary activities.

Fishers' jetties. The rehabilitation of 5 fishers' jetties was replaced with construction in 3 new sites (2 in Wewak and 1 in Angoram). The field survey has shown that the 5 original sites were abandoned and not used. The construction of the jetties in the 3 new sites face the Right of Way and land acquisition and

compensation issues. In fact, these will be located in customary lands, i.e. the forging of agreements with the communities will take time, overcoming the programme timeline.

ICT. The progress is the adoption of ICT solutions is slow because the public infrastructure serving the Sepik region is under-developed and digital literacy is equally low. The initial plan to host applications on Integrated Government Information System (IGIS) data centre was deferred to comply with the Digital Transformation Policy (2020) that has opted for moving them to a public cloud. The GoPNG has commissioned the Integrated Government Information System (IGIS) (USD 53 million - turn key through Chinese EXIM Bank loan) in 2014[8]. This On-premise Government Data Center with Cloud Computing capabilities and shared infrastructure and services (fiber options and shared office applications, Microsoft and web conferencing etc.) interconnects 52 agencies, 46 based in the National Capital District, and 6 pilot in the provinces including Wewak, ESP, and Vanimo, WSP, as the hosting platform for government information and services.

The IGIS has bee partially operational between 2018 to 2021 when the GoPNG stopped the data centre in the original form, due to low uptake and deteriorating services, including political and bureaucratic divergencies and unforeseen 'high OPEX operations and maintenance cost'. Hence, the DICT has undertaken the Digital Transformation Policy (2020) implementation that points to the transition to a cloud data management system. The STREIT digital services and application, and service delivery channel and policy were initially centred on the ON-PREM local hosting that was part of the IGIS infrastructure and services. With the shift to the cloud approach in 2021, the programme deployment and e-Agriculture strategy for ESP and WSP implementation has to be delayed until the second part of 2022 (enactment of the Digital Government Act 2022 and Digital Government Plan 2023-2027[9]), with the deployment of the cloud approach. The programme ICT component (Outcome 2.1.2) revised its work plan accordingly. These changes of national policies have delayed the implementation STREIT Outcome 2.1.2. In the meanwhile, ITU has supported the revision of the national framework and it is now accelerating the implementation of the ICT component whose sustainability is ensured by its alignment with the national policies and integration with the workplans of the Department of ICT that coordinated this sector.

The e-Agriculture strategies of ESP and WSP include actions that improve the information content of the services that support the decisions of farmers and partners. The ITU, with assistance of NICTA, has conducted Broadband gap analysis (2022) with the data provided by the main digital phone services operator. Such study has revealed that the 2G network covers 82%, the 3G one 58% and the 4G 56% of the population of the ESP and 63%, 31% and 24% respectively of the WSP. The assessment of the challenges to connectivity has promoted a study on the standard on the Quality of Service and Quality of Experience of the network coverage, accessibility and reliability of the ICT network services (mobile telephony, mobile broadband, fixed telephony, fixed broadband and customer-related services) that has been gazetted by the GoPNG.

The programme has assisted the provincial administrations in elaborating the e-Agriculture strategies for the ESP and WSP. These documents include a set of actions that are expected to improve the reach of the ICT services in the intervention areas. However, they do not indicate the source of funds for the execution of the actions that are not performed by the programme and the modalities of cost recovery for the performance of the ICT services. In practice, their implementation should be integrated into the national and provincial development plans through a budget planning exercise.

[8] IGIS project public announcements: https://www.thenational.com.pg/digitalising-government-system-seen-as-key-2/ , https://postcourier.com.pg/igis-set-initiate-phase-two/

[9] Digital Government Act 2022: https://www.ict.gov.pg/Legislation/Digital%20Government%20Bill/Digital%20Government%20Bill%202022%2022.03.22%20Final.pdf Digital Government Plan 2023-2027: https://www.ict.gov.pg/Digital%20Govt%20Plan%202023-2027/Digital%20Government%20Plan%202023-2027%20-%20Final%20Version.pdf

Resource centres. The programme has identified and is establishing eight Resources centres and strengthening other two in the assisted districts, i.e. one per assisted district. This action is still in the phase of procurement of the equipment, due to the complexity of identification of partners that comply with adequate technical, operational and security skills. Only the Resource centre of the Maprik secondary school is already conducting awareness and training activities by using its own computer laboratories (this school is connected to the public electricity grid). Such trainings include the training of trainers on e-market place, agriculture and extension services, e-commerce platforms, digital skills.


On-going road rehabilitation works

Financial services. The Digital financial services consist in the performance of financial transaction through digital technologies, such as mobile phones, the internet, other electronic devices and remote banking access points. They include mobile money, digital payments, digital savings, loans, insurance, and investments. The Digital financial initiative (DFI) has supported the development and promotion of the use of digital payments services by financial institutions and enterprises among the value chain actors of the Sepik region. The programme has assisted the expansion of their network of agents / mini branches in the ESP and WSP districts and trained farmers there on financial literacy. These companies have been assisted in training new staff, established fixed and mobile facilities, and adopted innovative modalities of registration of the account holders, thus establishing 41,748 individual and collective bank / mobile bank accounts. Banking services have been extended to woman and youth in the remote programme locations.

Renewable energy. The programme has performed an assessment and organized a symposium on renewable energy in 2021 to promote the adoption of solar energy systems among selected public entities. It has assisted the Department of Petroleum and Energy in drafting the solar energy sub-policy and associated regulations and operational guideline. The Renewable energy feasibility study of the Sepik region has prioritised the solar energy as provided an overview of alternative sources of energy with emphasis on the solar one. The programme has identified six, schools and health centres for the installation of demonstration solar energy systems. Their equipment procurement / shipment is ongoing.

The programme is installing the solar energy systems of the Resource centre of the Nagum secondary school and assisted the Taul health centre in restoring its solar grid - that have not yet been initialised. Through the Investment fund, the FAO is installing additional solar systems (kW 4) on the roof of the Pagwi and Ambunti mini branches of WMBL to ensure their access to ICT services and the solar system on the roof of the Kaup / Balam fishers' community building.

JC 2.1 Modalities of the participation of the intended beneficiaries to the implementation

The programme has hugely invested in the mobilisation of the beneficiaries by establishing good work relations with local authorities and organising RMGs, groups and clusters of producers to facilitate their participation in its activities such as training, road works, seedlings, equipment and materials distribution.

On-going causeway construction

Intervention modalities. Each activity of the programme has elaborated its specific modality of interaction with the beneficiaries. For Outcome 1, assistance to farmers and fishers and agri-preneurs is directly performed by the programme staff, a part some NGOs training and technical assistance actions. The direct modality is also used in assisting the PNG institutions in developing programming documents, IMS and capacities.

For Outcome 2, the programme activities support the service providers in building infrastructure, performing services that are expected to benefit the producers of the three value chains. The fact that this assistance is institutional doesn't rest the fact that also in this case their strong dependence on the programme limits their activism and prompt further need for assistance. In practice, the local partners improve their technical capacities but not their governance of the services delivered – a part the financial partners of the FinTech component -. The expectation that the invisible hand of the market will fill in the gap between the enabling services and their beneficiaries are exaggerated. Because such gaps are the result of macro-economic, regulatory framework weaknesses and distortions, of the fragmentation of the farmers and fishers, etc. Consequently, the cost recovery for such services delivery is still tentative.

JC 2.2 Benefits delivered that match the change of context due to external factors intervened

Value chains. The initial benefit delivered by the programme concern the building of capacities of the farmers on resilient agricultural practices, the planting of improved cocoa and vanilla clones, elaboration of programming documents and expansion of beneficiary bank account holders. No net economic benefits have been obtained yet as cocoa and vanilla take 4 years to reach maturity. Indeed, during the transition, farm production is depressed because the old plants exist no more.

Enabling services The enhanced FinTech services have produced some initial, encouraging economic outputs by lowering the cost of transactions. Of course, account holding per se is not producing revenues. The installed solar energy systems still have to be activated and the income generated by the running of the seed nurseries and performance of the road works issues from the programme subsidies and should be considered a temporary boosting of the farmers' economy. Renewable energy and ICT are still in the installation and activation phases and have not yet produced economic returns. Until the completion of all the components, it is unlikely that the aggregation of producers be effective especially because the post-harvest technology assets and information management systems have still to be put in place or launched and the collaboration with processing factories, exporters are still in their planning or procurement phase.

Innovation role. The interviewed stakeholders appreciate the programme support to innovation they otherwise have no access to. But until the completion of the all the components no mutually reinforcing effects can be generated and no aggregation of the offer to better position the producers in the market can be expected. It is important to mention that the achievement of the technical result of developing production capacities precedes and produces the development objective of improving sales and income. The expectation of early economic returns produces short term revenues that are not sustainable. In practice, the solution of development problems has to be grafted on the capacities and assets built by the programme to produce the expected economic results, and not the reverse – that can produce some early blooming at the expense of the wilting of the harvest -.

JC 2.3 Change in scope or strategies employed during the implementation

The scope and strategy of the intervention have not changed since its identification and design. Its targets have been fine-tuned along the feed-back of the baseline assessments but not their objectives. The side effects of the gaps in the programme design are a challenge to the sustainability of its results. The lagging of the production of tangible results has raised the concern in the national institutions that realise that wonder if technical achievements alone can boost local development, to increase sales and income. The growing trust and harnessing of joint actions are boosting the collaboration of the programme with local authorities but is insufficient to produce sustainable development results because it lacks the governance and cost recovery modalities that integrate technical solutions into broader socio-economic dynamics.

JC 2.4 Unintended outputs and outcomes

Overall, the programme has not yet increased the economic return of the selected value chains although their outlook is positive – the generation of revenues that overcome the programme investment may take 10-13 years, i.e. the completion of the useful life cycle of the new plantations and equipment -. This action has built capacities and assets of a number of farmers - and in perspective, it will do so also with the target fishers and agri-preneurs – and likely reach it quantitative delivery targets by the programme end. Its focus on the innovative technologies – such as green, climate resilient, farming and fishing practices – has prompted the adoption of more sustainable production systems. However, these successes should not hide the fact that development comes from inside and that the strengthening of the managerial capacities of leaders of the groups of producers and their public and private partners is essential to move from the renewal of production practices to the expansion of sales and increase of income of their members.

2.3 Efficiency

EQ3 Are the benefits of the programmes matching the costs incurred in comparison with alternative approaches (cost of training a beneficiary, cost of providing a seedling, cost of establishing electric power generation, cost of establishing telecommunication connections, etc.)?

The programme unit long set-up – including difficulties encountered in visa obtention for expat staff, the building of the project unit complex in DAL Wewak (ESP) compound and endowment of Vanimo satellite office (WSP) -, establishment of knowledge and skills, and arrangements to mobilise the contribution of the implementing agencies and local partners have combined with the COVID-19 have produced numerous delays in the execution of the planned activities. Furthermore, the planning of field work required the performance of several studies and building of the capacities of the staff of local partners along with the signing of agreements with local partners and discussions with the beneficiaries. These planning activities were conducted at the apex of the COVID-19 pandemic in 2020 accruing to the programme delays. Mitigation measures were undertaken, as raising awareness on good practices for the prevention of the spread of the pandemic during trainings and meeting and distributing masks and sanitizers along the national health directives. Since 2021, the delivery pace has increased recovering some initial delays although it is unlikely that all the planned activities be completed by the programme end.

Budget breakdown. The detailed work plan with the targets of the indicators was finalised by incorporating the results of the baseline survey and endorsed by the PSC. The FAO and ILO manage most of the financial resources allocated to the programme execution (see Annex 10 C). The FAO budget represents 62% of the total (this agency being also the only once contributing co-finance, <1%), followed by ILO with 25%, while UNDCF, UNDP and ITU get about 5% each. The staff and personnel cost account for about 25% of the component budget, with ITU scoring about 50% of the respective component budget. The major budget-line consists in the Contractual services that amount to 38% of the budget allocated with ILO scoring higher (66%) followed by UNDP (36%) and the other components ranging between 20% and 30%. Furthermore, UNDP scores high in terms of Supplies (26%), an item in which the other components budget is contained to 1-6% and FAO in terms of equipment, vehicles, furniture (11%) due to the establishment of the field office and programme operational capacities. Among the other budget-lines, travels scores 10% (with FAO and ITU recording slighter higher values, 13% and 12%), while indirect cost, general costs,

transfers and grants, and communication and visibility all score less than 10% of the total and component budgets. Only UNCDF presents a substantial transfer and grants budget amounting to 35% of its budget. The large size of the Value chains component budget reflects the fact that the investments in the assistance to producers represent most of the field activities and cover the general services supporting field work. Consequently, FAO budget scores high in personnel (euro 13 million), Contractual services (euro 14.8 million), i.e. the studies, assessments, transport and other operational expenses (euro 5.6 million). The rural transport component run by ILO is scoring high in Contractual services that are mostly made of road rehabilitation and maintenance works (13.4 million euro) and Personnel (euro 3.6 million). Contractual services score high also in the Renewable energy (1.3 million euro) and FinTech components (1.0 million euro) that concern the numerous studies and assessments performed. The Supplies score is high in the Value chains component (euro 2.9 million) due to the procurement of the sowing materials, work materials, equipment delivered to farmers, etc. and in the Renewable energy component (0.9 million euro) in relation to the procurement of the solar energy systems. The FinTech component also scores high in Grants (1.7 million euro) because this modality is used to support the expansion of the activities of financial institutions. The ICT component records a high value of personnel costs (1.2 million euro) along with the FinTech one (1.1 million euro). This picture of the allocation of budget reveals that the programme is expertise intensive, with about one quarter of the resources allocated to personnel, that the collaboration with local organisations and performance of studies and assessments (Contractual services) is central in the design and performance of field work, the programme being characterised by a strong knowledge management approach.

The analysis of the budget allocations shows that each UN agency has customised its intervention approach along the peculiarities of its component. Only UNCDF has extensively invested along the Grant tendering modality, the other agencies having preferred the Contracting of services approach to mobilise local expertise, because the scarcity of suppliers renders tendering little effective. This is confirmed by the fact that key studies as the baseline assessments, were assigned to public technical agencies. The large amount of budget allocated to procure supplies plays a central role in the delivery of materials to the producers, the performance of the rural transport works and installation of solar energy systems.

The programme initial work plan and budget were elaborated in consultation with institutions, local authorities and partners. Hence, the allocation of budget resources is consistent with the expected outputs and outcomes, with the unavoidable finetuning of specific costs. The build-up of the value chains requires the mobilisation of expertise, development of knowledge and delivery of inputs across the ESP and WSP provinces in a capillary way that accrues substantial costs to that of the procured seedlings, work tools and other materials distributed to the producers. The investments in Rural transport infrastructure also combines expertise, knowledge, materials and logistic costs that make this the second component by financial resources mobilised. It should be noted that personnel and contracted services cover the training and technical assistance delivery that is the main soft element of the programme strategy and whose delivery across time and space connects the programme components in conceptual and operational ways. For instance, the other components (except ILO) associate their field work – i.e., reach the beneficiaries – to the performance of that of FAO that is central in the mobilisation and follow up of the beneficiaries in the assisted communities. As the articulation of the assistance to producers is central to the programme strategy of support to the value chains, such choice is not only consistent with it but also operationally effective because ensures that the enabling services be connected to the evolution of the field production.

Expenditures and commitments. The scaling up of field activities since 2021 and adoption of the Acceleration plan has made possible to party recover the initial delays.

Table 4. Programme expenditures by year

Year	Received		Expenditures and commitments		Expenditures/Received
	USD	%	USD	%	%
2020	16,971,045.00	21	6,413,093.67	8	38
2021	25,375,964.00	31	11,760,028.00	14	46
2022	22,576,272.89	28	21,655,130.68	27	96
Cumulative	64,923,281.89	80	39,828,252.35	49	61

Budget	81,600,000.00	100	81,600,000.00	100	

By the end of 2022, the Implementing partners have received 80% and actually expended or committed 49% of the programme budget, such expenditures corresponding to 61% of the received funds. The rate of expenditure of the received funds has steadily increased over the time with a strong leap in 2022 after the removal of the COVID-19 restrictions had with the full deployment of the programme staff. It should be noted that the Expenditures include the cost of the procurement of goods whose delivery is ongoing and that have not yet produced effects on the beneficiaries.

Table 5. Programme expenditures by Implementing agency

Agency - Component	*Total Budget*	*Budget Received*	*Cumulative actual expenditures and commitments 2022 estimated*	*Expenditures*	
	USD	*USD*	*USD*	*% of own budget*	*% of expenses*
FAO Value chains	55,252,726	37,847,929	19,649,899	33	48
ILO Roads	22,340,097	19,612,366	14,851,754	64	37
ITU ICT	2,751,244	835,976	482,594	18	1
UNCDF FinTech	5,502,487	3,773,832	2,682,889	49	7
UNDP Renewable energy	3,954,035	2,853,179	2,161,117	55	6
Total	89,800,589	64,923,282	39,828,253	44	100

The Roads, FinTech and Renewable energy components have expended or committed more than half of the funds received to the end of 2022 while the Value chains and ICT ones have been much less performant. It should be noted, that in terms of available budget the two largest components are those concerning the Value chains and roads that in absolute terms are also those that have executed the largest sums, 48% and 37% of the total expenditures.

Table 6. Programme expenditures by budget category

UNDG Harmonized Budget Categories	*Budget*	*Cumulative actual expenditures and commitments 2022 estimated*	*Expenditures*	
	USD	*USD*	*% of budget*	*% of expenses*
Staff and other personnel costs	21,334,447.02	9,608,819.93	45	24
Supplies, Commodities, Materials	4,448,212.24	3,757,087.49	84	9
Equipment, Vehicles and furniture including Depreciation	6,574,908.22	2,984,763.23	45	7
Contractual Services	34,286,409.35	15,532,743.38	45	39
Travel	8,960,085.07	2,114,477.82	24	5
Transfers and Grants to Counterparts	2,035,568.08	811,819.00	40	2
General Operating and Other Direct Costs	4,039,974.47	1,878,864.10	47	5
Communications and Visibility	2,246,180.04	615,301.58	27	2
Total Direct costs (actuals + commitments)	*83,925,784.49*	*37,303,876.52*	*44*	*94*
Indirect costs (7%) (Project support costs)	5,874,804.91	2,524,377.35	43	7
Total Eligible costs	*89,800,589.40*	*39,828,253.87*	*44*	*100*
FAO Co-financing	330,149.23	0	0	0
Total costs	*89,470,440.64*	*39,828,253.87*	*45*	*100*

The largest budget categories in terms of actual expenditures of commitment, i.e. the Contractual services (39%) and the Staff and other personnel costs (24%) set the programme burn rate at 45% of the available budget. Each of the other budget categories represent less than 10% of the total costs. The analysis of the burn rate of each budget line shows that the procurement of the Supplies, commodities and materials is the highest scoring (84%), while Communication and visibility (27%) and Travel (24%) are the lowest performing. The ongoing and planned procurement of supplies can be expected to be completed by the

programme end, while a consistent portion of the other budget lines – say quite 10 million USD, a little more than 10% or the available budget - will likely remain unspent by such date.

The execution of the larger components (value chains and roads) has been extremely slow in the initial phases of the execution thus negatively affecting the execution of the programme budget. As a result, also the release of the funds to all the components is compromised as an execution rate of 70% is needed to proceed with the release of the following tranche. Thus, the implementation of Renewable energy, the component scoring higher in terms of expenditures and commitments, has obliged the UNDP to commit its financial resource (procurement, still ongoing, is a large share of its budget).

Budget to results linkages. The donor has regularly delivered of three tranches of the budget to the UN agencies. However, due to the late hiring of staff, limited travel costs incurred, and delay in the contracting of services and procurement of equipment and materials. FAO which has the largest budget, has accumulated substantial financial reserves while other UN agencies have fully executed their programme advance – notwithstanding the One-UN approach to shared commitments that should ensure budget assistance among agencies. Some UN agencies have advanced funds from other sources to maintain momentum in deliveries of outputs. Minor re-distribution of FAO funds to other UN agencies has been performed without tackling this problem at its root. Such problems have accrued the delays in the execution of activities. This difficulty is further enhanced by the fact that the GoPNG doesn't refund the UN agencies for the money advanced in terms of *Goods and services tax*, obliging the latter to source their own funds to sustain this programme cost. Such unjustified budget difficulties are among the reasons of the late procurement / service contracting that affects the strengthening of the enabling services.

Value chains. According to the programme work plans and annual reports, the value chains component has steadily committed and spent money since 2020 with the hiring of the core programme staff, procurement of equipment and tendering of the office compound works. Supply of sowing and production material to farmers, contracting of baseline assessments and other external services have steeply risen in 2021 along with the deployment of the rest of the work team, and activities have spread under all the budge-lines in 2022 when the programme delivery has reached its full pace. It should be noted that the first year has been devoted to elaborating work plans, tendering works, etc. A substantial (although inferior to target) quantity of the first year budged has been spent or committed in such period, notwithstanding the substantial delivery of inputs to the final beneficiaries has started with the end of the pandemic in 2021. Thus, the rate of expenditures for the first two years has been decidedly lower than planned in the first two years while it has exceeded the target in the third one. The major initial savings recorded by this component reside in the unspent personnel money due to the late completion of the team, that has been accrued by the low level of expenses incurred under the travel budget-line. Forecast expenditures for 2023 show that all the major budget-line are on the increase (notably, Supplies and Contracted services) or steady except Equipment, vehicles, because the burden of the programme office establishment is over.

Rural transport. The rural transport component budget execution in the first year has been very low, with main expenditures concentrating in the Personnel field. Its commitments have expanded in the second year, with the completion of the team staff and Services contracting to perform studies, trainings and construction works. Their further expansion in the third year is reflected in the further growth of the Contractual services expenditures. However, the expenses incurred in 2022 are decidedly lower than the money allocated for that year due to the numerous planned works that have not started yet or that are slowly progressing in the rainy season. The budget execution rate for 2023 is also expected lower than planned. In summary, the rural transport component has not yet completed the rehabilitation of any road while community maintenance works may be expected to produce some minor results until when they will be connected to (a) the rest of the rural roads network and (b) relaunching of the value chains. Direct observation shows that the improved tracts of roads completed don't change yet the efficiency of rural transport because they are still partial and connected to higher level roads that are frequently interrupted by climatic events. For such reason, their transit alone has a minimal impact on the local livelihoods.

The delays in the transport infrastructure works have been mainly caused by their late start, with the earliest road rehabilitation works in June 17, 2022 due the COVID 19 impact on the preparatory works,

contractors still learning the e-procurement process and billing system, and aggravated by adverse weather condition with rainy season starting in October 2022 until the end of April 2023.
The Rural transport infrastructure works progress as of February 2023 comprises 10 road sections with on-going rehabilitation and specific maintenance, 1 with CA signed, 1 with CA for issuance of EU No Objection on Environmental concerns, 3 with DPR preparation in progress, and all 312.9 km with on-going Routine Maintenance to continue in 2023. Overall, the weighted implementation progress of 15 roads Rehabilitation and Specific Maintenance was 6% against a time lapsed of 58% in February 2023, a situation that translates to more than 50% negative slippage on overall physical target.

Table 7: Detailed evaluation of the Road rehabilitation works by weighted progress

No.	Province/District	LLG	Name of Road	Length *(km)*	Status	Cost Est. (PGK) *million*	Contract (PGK) *million*	Wt %	Progress %	Wtd Progress %	Remarks / Start Date / Completion Date
	A. EAST SEPIK										
1	Wewak	Dagua Rural	Banak - Wautogik LLG	7.8	*on going*	2.456	2.240	4.63	35	1.62	17Jun2022 - 17Jun2023
2	Wewak	Wewak	Yawasoro Niiengwanje	7.43	*on going*	2.100	2.509	5.18	5	0.26	03Jan2023 - 03Jan2024
3	Maprik	Bumbita Muhian Rural	Bonohoi - Endibi Taunages LLG	12	*on going*	1.639	1.849	3.82	7	0.27	22Nov2022 - 22Nov2023
4	Maprik - Ambunti Drekirkir	Bumbita Muhian Rural & Kawanga Rural	Taunages Asanokar	5.83	*on going*	1.987	2.646	5.47	5	0.27	02Jan2023 - 03Jan2024
5	Ambunti-Drikirkir	Drikirkir	Balif Araseli	12.8	*on going*	1.697	1.691	3.49	28	0.98	17Jun2022 - 17June2023
6	Angoram	Angoram Rural & Marienberg Rural	Marienberg District	30	*For EU "NO on Envi"*	2.056	2.469	5.10	-	-	contract not yet signed
7	Wosera Gawi	South Wosera & North Wosera	Patiko - Nuangaiwa	30.6	*on going*	3.674	3.376	6.97	7	0.49	16Aug2022 - 16Aug2023
8	Wosera Gawi	Gawi	Buruwi Torembi	25	*DPR Preptn*	6.750	6.750	13.94	-	0	DPR still in progress
9	Yangoru Saussia	Saussa	Munji - Haripmo	6.5	*on going*	1.335	1.287	2.66	45	1.20	17Jun2022 - 17Jun2023
10	Kwanga & Ambunti-Drikirkir	Kwanga & Drikirkir	Nanha-Tau	14.5	*on going*	2.298	2.097	4.33	5	0.22	03Jan2023 - 03Jan2024
10	**Sub Total ESP**			**152.46**		**25.992**	**26.914**	**55.59**		**5.30**	**97.46km on-going; 55km balance**
	B. WEST SEPIK										
11	Aitape Lumi	Aitape West	Aitape Malol	24	*DPR Preptn*	6.477	6.477	13.38	0	0	DPR still in progress
12	Vanimo Green	Bewanim Wuangto-Onei	Passi Krissa Osol	25	*on going*	1.720	1.670	3.45	15	0.52	17Jun2022 - 17Jun2023
13	Vanimo Green	Bewanim Wuangto-Onei	Onip-Rawo Leitre	20	*DPR Preptn*	5.400	5.400	11.15	0	0	DPR still in progress
14	Nuku	Nuku Central	Walkasa Mai Mai Wanwan	17.7	*on going*	2.545	2.999	6.19	5	0.31	03Jan2023 - 03Jan2024
15	Nuku	Nuku Central	Yimnum Wilboe LLG	18	*Contract Awarded*	4.099	4.957	10.24	-	-	contract not signed yet
5	**Sub Total WSP**			**104.7**		**20.241**	**21.503**	**44.41**		**0.83**	**42.70km on-going; 62km balance**
15	**Grand Total**			**257.16**		**46.233**	**48.417**	**100.00**		**6.12**	**140.16km on-going; 117km balance**

The Grand cost of the works for the 257.16 km of roads is PGK 48.417 million or USD 13.833 million equivalent to a unit cost of PGK 188,276 per kilometre or USD 53,793 which is lower than the current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation as gathered from the DAL, an indication that the road rehabilitation works are cost-efficient.

Table 8: Budget requirement for the Rural transport infrastructure actions

				Total required Budget(USD)	**17,271,524.29**
				Total available budget(USD)	**14,773,851.22**
				Deficit Budget(USD)	**(2,497,673.07)**
No.	**Description**	**Unit**	**Length/ No.**	**Amount (PGK)**	**Remarks**
1	**ROUTINE MAINTENANCE**				
1.1	Wage payment for implemenation of 278 km of roads with engagement of 139 RMGs in year 021	km	278	755,027.44	Expenditure
1.2	Wage payment for implemenation of 312 km of roads with engagement of 162 RMGs in year 022	km	312	1,394,090.88	Expenditure
1.3	Wage payment for implemenation of 312 km of roads with engagement of 162 RMGs in year 023	km	312	1,394,090.88	Forecasted budget
1.4	Wage payment for implemenation of 312 km of roads with engagement of 162 RMGs in year 024	km	312	1,394,090.88	forecasted budget till Dec 2024
1.5	Construction tools and PPEs	no.	2	140,000.00	Expenditure
1.6	Insurance for worker compensation and Public Liability	no.	4	72,000.00	Expenditure and forecast
	Sub-Total (1)		**312**	**5,149,300.08**	
2	**REHABILITATION and SPECIFIC MAINTENANCE**				
2.1	Batch I-Lot 1-ITB/11/2022/MOA(Rehabilitation of Banak Wautogik road)	km	7.80	2,240,256.09	Contract Amount
2.2	Batch I-Lot 2-ITB/11/2022/MOA(Specific Maintenance of Patiko Nuangaiwa)	km	30.60	3,376,330.39	Contract Amount
2.3	Batch I-Lot 3-ITB/11/2022/MOA(Rehabilitation of Munji Haripmo Road)	km	6.50	1,286,837.50	Contract Amount
2.4	Batch I-Lot 5-ITB/11/2022/MOA(Specific Maintenance of Balif Araseli Road)	km	12.80	1,691,394.54	Contract Amount
2.5	Batch I-Lot 6-ITB/11/2022/MOA(Specific Maintenance of Pasi-krisa Road	km	25.00	1,669,189.02	Contract Amount
2.6	Batch II-Lot 1-ITB/39/2022/MOA[Specific Maintenance of Angoram Marienberg Road]	km	30.00	2,468,587.98	Contract Amount
2.7	Batch II-Lot 2-ITB/39/2022/MOA[Specific Maintenance of Bonohoi Endibi Taunages Road]	km	12.00	1,849,619.42	Contract Amount
2.8	Batch II-Lot 3-ITB/39/2022/MOA[Specific Maintenance of Walkasa Maimai Wanwan Road]	km	17.70	2,999,280.47	Contract Amount
2.9	Batch II-Lot 4-ITB/39/2022/MOA[Rehabilitation of Yawasoro Niengwanjie Road]	km	7.43	2,509,394.07	Contract Amount
2.10	Batch II-Lot 5-ITB/39/2022/MOA[Rehabilitation of Nanha Tau Road]	km	14.50	2,096,974.79	Contract Amount
2.11	Batch II-Lot 6-ITB/39/2022/MOA[Rehabilitation of Yiminum Wilbowe Road]	km	18.00	4,956,808.28	Contract Amount
2.12	Batch II-Lot 7-ITB/39/2022/MOA[Rehabilitation of Taunages Asanokar Road]	km	5.83	2,646,372.21	Contract Amount
2.13	Batch III-Lot 1-[Rehabilitation of Aitape Malol Road	km	24.00	6,476,800.00	Forecasted Budget
2.14	Batch III-Lot 2-[Rehabilitation of Rawo Leitre Road]	km	20.00	5,400,000.00	Forecasted Budget
2.15	Batch III-Lot 3-[Rehabilitation of Buruwi Torembi Road]	km	25.00	6,750,000.00	Forecasted Budget
	Sub-Total (2)	**km**	**257.16**	**48,417,844.76**	
3	**RESTORATION of FIVE RURAL AIRSTRIP in EAST and WEST SEPIK** **Sub Total (3)**	**no.**	**5**	**4,410,315.00**	Contract Amount
4	**CONSTRUCTION and MAINTENANCE of JETTIES-Sub Total**	**no.**	**3**	**1,196,800.00**	Forecasted budget
5	**CAPACITY DEVELOPMENT**				
5.1	Capacity development of Government Stakeholders and Contractors (PNG UNITECH)	no.	408	956,945.00	Contract Amount(on going)
5.2	Skill Development of Youth and Women	no.	150	134,560.66	Contract Amount(completed)
5.3	Skill Development of Youth and Women	no.	150	140,000.00	recommended by MTR to repeat
5.4	Orientation to Community, LRUC, LLGs, DA and Provincial Admnistration for sustainabiltiy of maintenance	districts	10	100,000.00	recommended by MTR
	Sub Total (5)			**1,331,505.66**	
6	**ESTABLISHMENT of SUSTAINABILITY MECHANISMS**				
6.1	EXCOL Contract for Developer for upgradation and necessary backstop support and preparation of Provincial Transport Master Plan	no.	1	150,000.00	Expenditure and additional backstopping support.
6.2	Capacity development of Government in PNG RuTIMS	no.	4	100,000.00	Additional capacity Development and proper handover to DoWH
6.3	Preparation of Work Norms for PNG-Department of works and Highway	no.	1	40,000.00	Additional work requested by DoWH and agreed by ILO
	Sub Total (6)			**290,000.00**	
	Total required budget in PGK			**60,795,765.50**	
	Total required budget in USD			**17,271,524.29**	

Rural airstrips. The IA between the RAA and the ILO ROAP for the 5 airstrips rehabilitation has been recently approved and its implementation has not yet started. The RAA proposal of July 2022 (PGK 4.41 million or USD 1.26 million) took 8 months to get approved due to the discussion on the high cost of transporting construction materials by chartered helicopter (45% of the total cost) and procurement of equipment, materials, and tools (29%). The RAA has drafted an implementation schedule of 14 months for the 5 airstrips. The programme will end by May 2024, barely 15 months starting on March of 2023.

Fishers' jetties. The progress in the 3 jetties construction and maintenance faced problems in reaching agreements on the ROW acquisition and compensation. The ESP Provincial administration has suggested to substitute the jetties works with the clearing of the waterways of the tributaries of Sepik river that are used by the vanilla and cocoa producers. The identification of these waterways will require the consultation with the riverine communities and identification of the beneficiaries, also a long process.

Balance. Overall, the lack of an organic integration of the programme design with the local development plans negatively affects the delivery of its activities of this component. The road component budget will incur deficits of about USD 2.50 million in case of capacity building and other action supporting the creation of the sustainability mechanism.

Enabling services. The ICT component expenditures have been minimal in 2020. ITU component started 12 months after the rest of the programme and the. Further delays were induced by the mentioned policy change and decommissioning of the IGIS data centre. Activities have expanded since 2021 with the contracting of personnel and expanded in the third year with the performance of technical studies. An abrupt increase in the budget spent is expected in 2023, with the full mobilisation of personnel and experts to perform studies, the procurement of resource centres materials and systematic organisation of training.
The FinTech component incurred in limited expenditures that concentrated on personnel in year one. A steady increase of Contracted services, Contractual services and Grants has been recorded in year two to cover the studies, training and the issuing of grants to the companies that collaborate with the programme in expanding the coverage of their financial service. This trend has been sustained in 2022 without steep changes and that is expected to continue in 2023.
The Renewable energy component has incurred in limited personnel expenditures up to date. The bulk of its expenses have concerned the Contractual services since the first year of the programme execution that have covered the formulation of studies, assessments, policy documents. The budget allocations for Contractual services, i.e. studies, have been exhausted and overspent and no more expenditures are expected under this budget-line. A great commitment of resources to pay for the procured solar energy systems and their installation is expected for the year 2023. The huge conceptual and design investments of this component are expected to demonstrate innovative solutions that is unlikely that substantially impact on the three value chains efficiency, because their replication at a larger scale – i.e., systematically covering the intervention areas – requires a broader set of energy sources than the solar one and substantial public and private investments that are only envisioned in the assessments and planning studies. Also in this case, the integration of programme technical achievements in the local dynamics plans is not supported by the strengthening of the governance and cost-recovery of local development.
The ICT and Renewable energy components are undertaking the procurement and installation of teaching and solar energy systems equipment. Thus, the initial results of the two latter components consist in the completion of studies, planning documents but not their execution – that requires training and utilisation of the mentioned physical endowments. Indeed, their success, as it can be appreciated through the mentioned documents, requires the commitment of resources that overcome the scope of the value chains alone. In practice, their scope is more properly consistent with the execution of local development strategies that commit the resources of education, production, social actors. This fact explains why the ratio between the commitment of budget resources and the achievement of results in these fields is someway eluding: their extensive formulation of studies, assessments, planning documents preludes to demonstrative exercises that are unlikely to produce concrete results of a size that justifies such preliminary investments.
Challenges. The analysis of expenditures shows that their repartition matches the progress made by the individual components. The value chain and rural transport components deal with the bulk of field work and materials distributed and used. The rate of expenses of FAO on the budget allocated to its component is also the lowest (thus, accumulating unspent funds), while the rural transport scores the highest, as a result of the ongoing roads rehabilitation and maintenance works. The Fintech component concentrates its resources in the Grants assigned to support the expansion of the financial services. The ICT component has acted mainly through its staff and experts and overall has spent a minor share of the allocated budget.
The Renewable energy component has formulated an extensive set of studies and planning documents while the procurement of solar energy systems is underway. This explains the overspending recorded under the Contractual services budget-line that has been over-spent, only such case in the whole programme budget. A common feature of all the component is the underutilisation of the money assigned to travel, due to the overestimation of this budget-line for the value chain component and to the fact that the other components have combined their field trip to those performed by FAO that, dealing with the value chains, is in charge of most relations with the fact-finding, coordination, training and technical assistance visits to the farmers and their communities.
The relations between the budget spent and results achieved up to date reflects the delays incurred in performing field work. An extensive surveys, studies and planning documents has been produced, in the

case of the Renewable energy component setting the ground for an ambitious expansion of the solar energy sector that overcomes the programme scope and doesn't assuredly correspond to a balanced deployment of all the renewable energy source. For instance, the initial results are satisfactory for the FinTech component where the expansion of bank account holders is approaching the target value. The renovation of cocoa, vanilla and fish production is delayed and the completion of the follow-up activities that complement the delivery of such inputs will likely exceed the project end. The creation of revenues expected from planting improved cocoa saplings are not yet there because (a) it takes four years for these plants to reach maturity and substitute the production of the substituted trees, (b) the downstream value chain rings are not yet in place (notably, the establishment of processing and marketing capacities), (c) the discouragement of marginal farmers whose adoption of the programme innovation faces greater development hurdles. Thus, the initial batch of cocoa saplings procured in 2020 is producing some early fruits whose value is still lower than that of the substituted trees. The yield break-even point of the first batch of transplanted cocoa trees may be expected in 2024 if the beneficiary farmers are assisted in dealing with the growing number of soil fertility, phytosanitary, marketing problems issuing from the intensification of production. The build-up of vanilla and fish production endowments is ongoing and can't be expected to produce substantive results for at least two-three more years, subject to the same conditions delineated for cocoa.

Economic outlook of the value chains. The synthetic assessment of the outlook of the additional revenues generated by the assisted value chains (i.e., the extra revenues earned by the farmers, fishers and fermentary owners) makes possible to calculate the tentative balance of their economic benefits. This exercise is based on the analytic data of the programme Feasibility economic assessment and outlook of revenues generated by the value chains (see Annex 9) are reduced along the impact of the context on the theoretical production level. In practice, the harsher than forecast influence of the climate and foreseeable drop out of some beneficiaries make unlikely the achievement of the forecast production across the whole Sepik region. Such negative impact is not compensated by the probable although limited increase of unit price for the production. These considerations result in a correction factor (10% less for the seed nurseries and fishery and 20% less for the cocoa and vanilla producers than the planned maximum production, except in the case of the fermentaries) applied to the programme estimates of production in the field at regime level. In fact, the present value (or baseline) already discounts the impact of the environmental and socio-economic factors while the forecast production is assumed as homogeneous across time and locations. The mentioned correction is not applied to the production of the seed nurseries and fermentaries that have greater facility to expand their market beyond their present area of reach and that in such way compensate the mentioned effects of climate, drop-outs and price.

Multiplicatory effects. The assessment of the programme benefits also considers the fact that several programme activities also impact on other economic activities and on the social welfare of the direct beneficiaries (this is the case of the fermentaries that resell in their villages the goods they purchase in town when delivering the dried cocoa to the exporting companies) as well as of the population at large and not only of the direct beneficiaries of this action. A direct economic benefit of the programme consists in the remuneration of their labour and of that of their relatives and casual workers employed in the production and that is the main production cost for cocoa, vanilla, seed nursery and fish production. The amount of such benefits – that can't be analytically calculated through this exercise – may be estimated as twice the additional revenues generated by the assisted value chains.

Economic outlook. The following table presents the Net present value (i.e., the additional benefits obtained by the producers) and Internal return rate (i.e., the percentage of revenues on the investment) of the economic benefits created by the programme[10].

[10] The cocoa and vanilla plants achieve maturity in 4 years (3 in the more favourable environmental conditions), the return on investment should be calculated on the basis of at least 10 years for cocoa and 13 years for vanilla due to its longer useful life., when market-oriented farmers substitute them with new saplings. Infrastructure and technology investments timespan depends on the consumption of production inputs whose minimum period is 10 years for cocoa, vanilla and fishing alike.

Table 9. Outlook of the revenues generated by the Value chains

Item	*Cocoa seed nurseries*	*Cocoa producers (3 million clones)*	*Cocoa fermentaries*	*Vanilla producers*	*Fishers and aquaculturalists*	*Total*
Years	10	13	10	13	10	
Beneficiaries	200	14079	200	8000	2567	
Extension		Ha 4800		Ha 800	287 partnerships	
Net present value (USD) without programme	6,104,286.34	1,412,643.95	1,063,552.72	349,342.43	-559,795.07	8,370,030.37
Net present value (USD) with programme	8,131,593.59	12,421,087.85	6,504,570.78	11,188,732.13	2,536,807.17	40,782,791.52
Net present value difference (USD)	2,027,307	11,008,443.90	5,441,018	10,839,390	3,096,602.00	32,412,760.90
IRR % without programme	98	15	36	14	-22	-
IRR % with programme	65	31	95	68	30	48
IRR % difference on baseline (without project)	-33	16	59	54	52	38

The total economic revenues generated by the programme, as mentioned, are estimated three times those achieved by the direct beneficiaries through the supported value chains. On the basis of this assumption, the Internal return rate (IRR) of the money invested by the programme is presented in the following table.

Table 10. Internal return rate of the programme

Item	*Total revenues without the programme*	*Total revenues with the programme*	*Total revenues with the programme difference on the baseline*	*IRR % with the programme*	*IRR difference % on baseline with programme*
Net present value generated by the value chains	8,370,030.37	40,782,791.52	32,412,760.90	48	38
Gross benefits in terms of local development	-	122,348,374.56	97,238,282.70	143	114
Investment	-	85,300,000.00	85,300,000.00	100	100

With the cautions proper of an economic outlook exercise that is based on the assessment of the benefits created by the programme on the basis of present values and the adoption of precautionary production patterns (underestimating production by 10% - 20%), it can be concluded that the direct revenues generated by the value chains are just less than half of the programme investments but that the development process prompted by the programme will generate revenues that overcome such investment.

Enabling factors. The solution of the problems that influence the effectiveness of the strengthening of the value chains requires the commitment of resources that exceed those of the programme and that, in many cases, can't be forecast as they depend on the situation in each intervention area. This weakness is intrinsic to the project strategy. The improvement of the production of cacao, vanilla and fish (but under this respect, also the results of the supporting components) scales up the environmental and socio-economic threats faced by the farmers – as cropping in each location faces specific pests and diseases, logistic constraints, etc. – and thus the convenience of their production. Consequently, the programme is induced to expand its assistance to the beneficiaries to preserve the initial results achieved. Such effort,

requiring expertise, new technology transfer, etc. expands the scope of the technical assistance – because the producers' associations and local technical services are unable to keep the pace and fulfil such tasks. This is notably the case of the management of the land and water / soil fertility and of the prevention and control of pests and diseases outbreak. The existence of innovative solutions doesn't imply that these technologies be delivered in a systematic, predictable way across the intervention areas, as their mainstreaming has to be adapted to each environmental and socio-economic condition of the farmers. The same happens with the strengthening of aggregators: cocoa fermentaries, vanilla curing centres, cocoa and frozen fish storage facilities.

JC 3.1 Major factors influencing the achievement or non-achievement of the objectives

Value chains. The extensive expertise and work needed in building the trust with the representatives of the beneficiaries, organising them is the main physical hurdle to the achievement of the programme objectives. The field survey has revealed that the leaders of the groups of producers are endowed with very variable capacities of leadership of their members. When facing major hurdles – such as conflicts on the access to land and water or other disputes among farmers – they recur to local authorities and often to the programme staff for technical advise. The addressing of the weaknesses of the producers' groups would require a stronger commitment to the build-up of their governance, capacities of their leaders on one side and of the corresponding development steering capacities of the local authorities. The programme gap in the build-up of local development capacities is a clear hurdle to the full exploitation of the economic achievements produced through the promotion of innovative farming and processing techniques that weakens the commitment of its partners and beneficiaries to integrate the value chains.

At the beginning of the programme, the local nurseries matching the requirements for producing healthy and uniforms cocoa seedlings were a few. Therefore, in first two years, field activities focused on establishing producers' groups and building their capacities on cocoa budding, expanding the number of seed nurseries able to bud clone seedlings. The distribution of improved vanilla vines was subject to the performance of a study by consultants on the prevalence of diseases, to avoid their spreading. Such preliminary activities were essential produced delays in the multiplication and planning of these crops but were unavoidable to establish the technical basis for the renovation of these crops. This, along with the timespan for the plants to reach maturity and overcome the production of the previous ones (but also the lag in the establishment of the enabling services, especially those supporting the harvest marketing), explains the fact that the first batch of transplanted crops has not yet produced significant economic results.


Fingerlings growing pond

Rural transport. These problems are arising also in the deployment of the other components supporting the strengthening of the value chains. The challenges faced while initiating road routine maintenance procedures include the need for time for RMGs to familiarize themselves with the modalities for the community-based road maintenance such as the use of Personal Protective Equipment (PPE), RMG governance, monitoring and supervision during COVID-19 restrictions, and the replacement of some RMGs by family members without prior notice. It will require time for the community to fully absorb and eventually understand the labour-based concept of road maintenance.

JC 3.2 Partners' contributions integration in the delivery of the field activities

The assistance to farmers and fishers includes the elaboration of technical packages, training of trainers, organisation of the groups of producers, and delivery of capacity building, technical assistance, assets. The promotion of the solar energy production and adoption of ICT technologies is centred on the build-up

of the capacities of the local service providers and linked to the design of a favourable regulatory framework. The road component should be linked to other infrastructure initiatives through its coordination with the institutions and local administrations in charge of, by joining forces in planning, monitoring, etc.

Inter-agency collaboration. The programme has improved the effectiveness of inter-agency planning, coordination and field delivery after the initial delays. The Acceleration plan provides a high-level coordination mechanism that commits the strict collaboration of the UN agencies to the execution of the activities. At the same time, the programme staff is continuously interacting and jointly visits the programme sites and beneficiaries thus collaborating in targeting their needs. This bottom-up approach to tackle the beneficiaries' needs is appropriate to customise solutions although insufficient as the multiple development challenges of they face clearly exceeds the expertise of the programme. Structural development barriers are broader and deeper than the programme staff capacities to tackle them. In absence of local capacities to take-over the challenges created by the expansion of production, the programme risks engaging in many fields and disperses resources without consolidating its results.

Challenges. The budget execution is under target, due to the multiple delays incurred especially in the setup of the programme and execution of the activities during the COVID-19 pandemic. Progress made in building the farmers' and fishers' capacities is relevant but still challenged by the fact that the establishment of most enabling capacities and services by the local authorities and technical services has still to be completed. There is a widespread awareness among the interviewed partners that the change in the national economic policies is slow and limits competition and initiative of the private sector – thus creating bottlenecks in the value chains that negatively affect the farmers' and fishers' share of added value generated through their integration -. Thus, the rural producers struggle for the access to inefficient external services and markets and are increasingly dependent on the programme assistance.

EQ4 Has the coordination between stakeholders have been properly maintained (European Union Delegation, Office of the Governor, Provincial Administration, Department of National Planning and Monitoring)?

Strategic level. The Programme steering committee (PSC) ensures the supervision of the programme strategy and execution. Its membership includes the EU Delegation, DNPM/NAO, UNDP Resident coordination, UN agencies and key local partners, including provincial administrations. But it meets only once per year and can't be involved in the steering of the implementation of activities. It is the FAO that performs the vertical coordination of the partners, linking the strategic to the operational and technical decisions. It ensures the Implementing partners coordination through frequent meetings and performs the other managerial functions of annual planning, monitoring and communication, while each UN agency is in charge of its own administrative and financial tasks and procurement.

Family aquaculture pond

The inter-agency Acceleration plan is an important coordination tool elaborated by the programme to address at the high level the delays accumulated at the start of the programme, strengthening the linkages between strategic – PSC level - and technical decision making – performed by the programme staff through routine meetings - on the implementation of the activities. The supervision of the programme has been continuous and minute, with frequent exchanges of information among the DNPM/NAO, EU Delegation and UN agencies. Specifically, the DNPM performed several monitoring missions between April 2021 and October 2022 and particularly the Rapid Appraisal Mission of November 2021 that has identified key weaknesses of the programme and outlined

21 recommendations for improvement. The EU Delegation has conducted a fact-finding mission in late 2021 especially pointing to the delays faced in the delivery of Renewable energy systems.
The findings of these missions (notwithstanding the Monitoring mission of October 2022 has constated some improvements) reveal widespread delays in the performance of field activities, insufficient visibility and some not-conformities in the delivery of outputs, pointing to the fact that changes in the modalities of payment have created concerns among nursery owners, i.e. cocoa saplings providers. At the time of the evaluation field survey, most of these problems had been solved with the speed up of the delivery of cocoa sapling, the set-up of visibility boards incorporating the GoPNG logo, involvement of the provincial and district administration technical staff in the capacity building interventions undertaken by ILO, periodic monitoring of ILO engineers on rehabilitation and improvement works of contractors and routine maintenance works of the RMGs, and improved regularity in payments. Of course, the establishment of the reliable interactions with suppliers has been a cumbersome trial and error tasks due to the difficulty of communication with partners in the field. The setup of the programme IMS – completed at the end of 2022 – has made possible to follow up and link physical execution to financial commitments and thus it is reducing the complexity of the checks needed to authorise payments. At the same time, the collaboration with the provincial administrations and local authorities – mentioned as troublesome in the early CNPM monitoring missions, had steadily improved at the time of the evaluation one although the full involvement of the district administration in field visits and monitoring of on-going road works initiated by the ILO which are under the jurisdiction of this office still needs to be improved as the former indicated that they need to be invited and involved in these field activities. Procurement of solar energy systems is underway, being challenged by custom clearance and logistic constraints, and can be expected to be completed during the present year. Although the programme is improving the speed and accuracy of the delivery of its activities, such delays negatively impact on many activities connected – such as training, start of production, etc. – across its components, thus negatively impacting on its efficiency. Indeed, due to the importance of the interaction of the programme with the sector institutions and local authorities to solve technical and financial problems since the planning of activities, it would be advisable that these bodies participate to the DNPC Monitoring missions. A more extensive interaction of the DNPC with the other institutions implicated in the programme execution – DAL, DoWH, Cocoa and vanilla boards, NFA, RAA, etc. – would contribute (a) to make more organic the programme support to the strengthening of the national policy, planning and regulatory framework and (b) to enhance the preparation and follow up of their participation to the PSC meetings. In this way, the DNPC would properly guide and consolidate the contribution of the public sector to mainstream the programme into the GoPNG development policies. Feedback of the PSC meetings and monitoring missions have provided incentives to intensify the activities but has little impacted on the implementation strategy that is the result of the complex coordination of the different components along technical criteria rather than through the governance of the development processes.
Local level. The programme is strictly collaborating with the Provincial and local administrations – the Wewak office premises hosting the agricultural services -. However, the Annual reports show that the linkages among partners across different components not always ensures their sequence or harmonisation to tackle the needs of specific groups of beneficiaries. This weakness is more a consequence of the project design that has advanced technical decisions that should have better been taken in response to the findings of the baseline assessments than of the initial identification. As a result, some discrepancies among the programme components are recorded as in the case of the building of the Renewable energy systems and commitment to the ICT aspects of the provincial e-agriculture strategies.
Challenges. The programme coordination faces several challenges. Misunderstanding have arisen in the initial phases of the project due to the actors' different appreciation of the sequence of technical and development achievement. The Logframe is clear in assuming that the development achievement (notably, the sales and revenues increase) be the consequence of the adoption of technical innovations at the field level. This is also the logic of local development. Farmers, fishers, adopt innovation that improve their production efficiency and hence increase their revenues and incomes. Early expectations on the achievement of the latter – i.e. of the programme outcomes – has produced the misunderstanding that injecting the programme resources in the local economy alone would bring results. Indeed, the elaboration,

adaptation and adoption of technical solutions is going to produce long-lasting – in short, development – results. While prompting the farmers and fishers to adopt not customised solutions may produce short term increase in revenues and incomes that will not last. This misunderstanding is aggravated by the mentioned gap in the local development approach of the programme that struggle to concentrate resources in the more areas enjoying integrated transport / logistic systems. The push for the achievement of early development results further spread the project activities across the Sepik region and dispersion of resources, thus hampering the establishment of socio-economic development corridors.
The coordination with the provincial and district administrations, LLGs and communities faces multiple barriers as fragmentation and logistics that result in the concentration of activities on the performance of technical tasks / transfer of technology. The performance of the women and youth strategy partly fill in this gap of the development approach. Of course, it doesn't diminish the weakness of the mentioned partners in representing and assisting the farmers, fishers and agri-preneurs. Progress in this field is more apparent than real as local partners are becoming dependent on the programme in their interaction with the final beneficiaries. Such situation is acceptable if it is transitional and framed in a development approach that reduce it to make room for the effective partnership in the field. In practice, if the technical focus of the programme shifts to a developmental, that means if its strategy is refocused by framing the adoption of innovation in a more active governance of development by the local partners.

4.1 Contributions / exemptions in the FA, PE from government (offices, experts, staff etc) facilitating the project execution
The Financial agreement adopts the indirect management with international organisation modality. The UN agencies execute their respective financial and administrative procedures in contracting external services and procuring goods and awarding of grants. Such approach makes possible to exploit the UN agencies' tax exemptions - along their conventions with the GoPNG – to contain procurement cost. They do not pay the custom duty on imported equipment and material. However, UN agencies pay the *Goods and services tax* (analogous to Value added tax) that the GoPNG doesn't refund. This tax is an expenditure not recognised by the EU thus the UN agencies incur in an extra expense on their own.
The mobilisation of local resources is still a challenge. The programme has trained the technicians of the provinces and districts and technical agencies that collaborate in the transfer of technology. In the same way, it has contracted Cocoa board, NARI, NFA, etc. to perform technical services – including procurement of seedlings – in the frame of the implementation of activities. Their contribution is programme driven and doesn't imply the mobilisation of the resources of their organisations and could also produce duplications – as in the case of the ESP Governor managed cocoa programme.

EQ5 What communication and information strategies were developed and implemented in terms of visibility, dissemination and access to information acquired by the project? If and to what extent the communication and information sharing in the country, regionally and internationally took place and was it effective (what was the price of reaching one person on-line or by the mailing list given the allocated budget?)
The scope of the Programme communication and visibility strategy is extremely broad, including Corporate communication, Communication for development, Visibility actions and Social listening, including the feedback from stakeholders through a call centre and the monitoring of communication. It elaborates targeted messages directed to the public and private stakeholders on the programme activities and results along with the general public through social media[11]. The Annual communication plans elaborate in detail the modalities of dissemination of training, awareness-raising and information-sharing materials. Factsheets, success stories have been elaborated, including infographic and training materials in pidgin. Press releases were extensively shared with the main media outlets of PNG and through FAO, Facebook

[11] The Social media strategy identifies the following targets:
Primary target audience: Direct beneficiaries, General Public in the Greater Sepik Region, Youths & Women.
Partners and influencers: Decision Makers, Local, Provincial, National and Development Partners/Counterparts, Professional Community, Opinion Leaders and Influencers, Media, Journalists and Reporters, International community/UN Agencies

and Twitter platforms. In practice the communication actions include the information of decision makers – as PSC members and key partners - on the programme progress and the dissemination of information / technical documents that contribute to raising the awareness and training of the final beneficiaries.
The strict linkages established between the M&E and Communication strategies has developed a knowledge management approach that is centred on the programme IMS. The systematisation of the information generated and its elaboration and dissemination through the programme responsive, multimedia website and other media outlets fosters the exchange of information among stakeholders.
Outreach. According to the joint M&E and Communication team (see Annex 15), the outreach of all the communication actions concerns both the intervention area (494,791 people) and the whole country (1,503,727 people). As the number of the recipients of messages of different media often overlap, a conservative value of 50% may be applied with the result that 250,000 people or 41% of the Sepik region inhabitants and 750,000 people or about 12% of the PNG population has been exposed to the communication actions. Overall, the euro 1.5 million allocated for the communication activities may be expected to reach about 1.2 million people by programme end, with a unit cost of euro 1.25 per recipient.
The communication strategy and materials developed have a strong technical orientation. In fact, they do not include advocacy campaigns directed to support policy makers or local administrations in taking strategic decisions. Some concern exists for this gap because the programme supports agriculture that is an important element of the national development strategy and best practices are expected to be replicated in the Momase and other regions. By confining communication to the technical activities and achievements, the programme communication actions hardly contribute to engaging the support of the policy makers to its execution. It doesn't provide input for addressing at the high level the weaknesses of the agricultural and development policies or strategies. Insufficient political ownership is a barrier to the solution of macro-economic constraints to the strengthening of the value chains and full engagement of the national and local technical agencies to the performance of its activities.

EQ6 Was the project monitoring providing accurate information to support the flexibility of the project strategy steering?
The direct output of the programme monitoring system consists in the monthly and annual reporting of its activities plus the monitoring missions made by the programme staff to check the field work and achievement. The Annual reports are clear in presenting the progress made in performing the activities. The reporting of achievements by programme outcome and output consists in the list of the activities performed with their targets. This exercise extensively documents the performance of activities and achievement of results through the calculation of the values of the Logframe indicators (see Annex 9) and compilation of a detailed set of achievements in the delivery of the activities[12].
Indicators. The fitness of the programme reporting also depends on the appropriateness of the Logframe indicators. These are very extensive (11 for the Objectives and 21 for the outputs), that are split by value chain, gender, component, etc. as it is appropriate with a multi-component programme.
The programme calculates in great detail the performance of activities through 185 items under SO1, 143 under SO2 and 68 under programme coordination and management[13]. In fact, the planning and monitoring data are also tracked through a multi-layer GIS/Remote sensing mapping exercise that makes possible to geographically represent and link its activities and components. The cross-checking of this information is important for the planning and supervision of the field work through the clustering of the field activities of the Implementing partners.
Some Specific objective indicators don't properly measure the programme impact. This is the case of the indicators for *Specific objective 1* measure the strengthening of the value chains. They are a bit redundant – notably, in measuring the value of production (1.1) and (1.3) net income of the beneficiaries of the value chains at once, these two parameters being correlated –. Most Output indicators under this specific

[12] See the values in the Annex II of the 2022 Annual report

[13] Keeping updated and cross-check the values on the performance of activities is a complex and burdensome task that explains why they are not always in line with the values of the indicators. Cfr. Table 3 Project results tracking (section B.2) and the table on the Achievements by Outcome and Output (Annex II) of the 2022 Annual report.

objective measure the delivery of the programme activities, or don't well differentiate their definition (farmers, fishers using the improved practices) from that of the Outcome 1.2 indicator (number of people engaged in the value chains). With these limitations, they are present in a clear way the progress made in implementing the programme activities and their direct impacts.

The indicators for *Specific objective 2* measure the access of the beneficiaries to the value chains enabling services, that should be more properly considered outputs rather than their impacts. They are at the same level of the Output indicators for this objective that concern the delivery of the programme activities, as availability of financial products, energy generating facilities, rehabilitated roads. A more appropriate approach would list the Outcome 2 indicators as part of those measuring its Outputs and the benefits obtained of the enabling services (as improved access to market, use of ICT technologies in agriculture, added value of the production due to the adoption of ICT, renewable energy, etc.) as Outcome 2 indicators.

The Logframe indicators provide information on the progress towards the achievement of the Outcome 1 and extensive information on the achievement of the outputs of both Outcomes. As a result, it they provide information that support the finetuning of activities and only partly the decision making on the steering of the programme strategy and the programme accountability towards its stakeholders is limited.

IMS platform. The M&E system includes a IMS platform accessible online data entry and reporting that is not limited to the collection of data for the calculation of the values of the indicators but also hosts multimedia materials mainly intended for the performance of the communication actions. The IMS platform systematises a very extensive set of data and shares them with the stakeholders, being an important knowledge management tool. The programme M&E staff tracks the execution of activities, in collaboration with the field staff of the Implementing partners that feed the IMS platform database and perform the quality control of the data collected. Such exercise is at the basis of the clear and comprehensive formulation of the Annual reports and provides the content for the redaction of the communication materials. Furthermore, the key stakeholders – as PSC members – have online access to the platform-stored information thus developing a shared understanding of the progress and achievement of the programme.


Vanilla trader

Challenges. The operation and maintenance of the M&E system – and particularly of the IMS platform – fully depend on the work of the programme staff. Until now, local partners have not been trained or involved in it management. Such situation is a challenge to the hand-over of the monitoring knowledge and skills created by the programme to the local partners and thus to its continuation. It should be noted that the programme assists the Cocoa board and NFA in improving their IMS. The implementation of such actions may create the opportunity for designing the transfer of the programme M&E system technology to local partners that could exploit it and thus ensure the continuation of the IMS platform.

2.4 Impact

EQ7 Have the project objectives been achieved?

The project is overcoming most of the difficulties due to its poor identification and design by adapting innovation to the needs of the final beneficiaries. The early stage of adoption of the improved varieties and technologies combined with some delays in the procurement of equipment explain the fact that the initial results of the programme activities have not yet combined to produce substantial economic impacts. Thus, the analysis of the programme achievement should be limited to the individual impacts of its components and to the forecast of their joint contribution to produce the expected outcomes.

Table 11. Values of the key Outcome indicators

SO1: Increased economic returns from three selected value chain			
Indicator	*Target*	*December 2022 value*	*Achievement %*
SO1.2: Number of households **supported** in the focused value chains	Total = 56,100* (59,050) HH Cocoa = 42,250 (40% women, 60% Youth) Vanilla = 10,400 (30% women, 60% Youth) Fisheries = 6,400 (45% women, 60% Youth)	*Total = 51,650* (54,367) HH* Cocoa = 43,079 (28% Women, 38% Youth) Vanilla = 8,700 (34% Women, 39% Youth) Fisheries = 2,638 (38% Women, 47% Youth)	92
SO2: Strengthened, climate resilient and more efficient value chain enablers			
indicator	*Target*	*December 2022 value*	*% of achievement*
SO2.1 Increased number of people **employed** by MSMEs through the support of the Programme	Total = 7,133 Cocoa (Full-time) (60% Youth): Male = 3,897 Female = 2,493 Vanilla (Full-time) (60% Youth): Male = 129 Female = 45 Fishery (Full-time) (60% Youth): Male = 313 Female = 256	Total = 600: Male = 480 Female = 120 Cocoa = 600: Male = 480 Female = 120 Vanilla 0: Male = 0 Female = 0 Fishery 0: Male = 0 Female = 0	8
SO2.2: Number of value chains stakeholders benefitting from improved access to value chain related **financing** supported by the Programme	Total = 100,000	Total = 65,940	66
SO2.3: Number of Programme households using **ICT tools and services**	Total = 25,105 East Sepik (60% Youth): Male = 10,806, Female = 7,204 Sandaun (60% Youth): Male = 4,257, Female = 2,838	Total = 440: Male = 180 Youth, Female = 220 East Sepik Adult = 40 (Teachers): Male = 180 Youth, Female = 220 Youth Sundaun 0: Male = 0, Female = 0	0
SO2.5: Number of people/households who live **within 2 km of all-season rural roads** rehabilitated with Programme support and sustainably maintained	Total = 112,056 / 18,676 East Sepik = 89,302 / 14,884 Sandaun = 22,753 / 3,792	Total = 40,774 / 6,796 East Sepik = 32,972 / 5,495 Sandaun = 7,802 / 1,300	36

N.B. The values of the other Outcome indicators will be calculated by the endline evaluation.
* Value that considers the overlapping of the beneficiaries of cocoa and vanilla value chains.

Value chains. The values of the outcome indicators measured until now concern the outputs the results rather than the impact of the programme, the cross-checking of such data with the first-hand observations made during the survey allow to make some forecast on the achievement of the programme objectives. Such analysis complements the calculation of the Feasibility economic assessment reported in the section on the programme efficiency. The value of the beneficiary households calculated by the Logframe SO 1.2 indicator is overestimated because approximatively 5% of these families are assisted in improving cocoa

and vanilla farming alike. Thus, the number of households assisted in the three value chains is about 51,650 rather than 54,367, as reported by this Logframe indicator (target: 56,100 instead of 59,050). The other outcome indicators are realistic, including SO 2.2 whose 65,940 value measures the value chains stakeholders benefitting from improved access to value chain related financing, i.e. the new individual and collective account holders.

The production of the expected impact is reducing the initial gap in term of achievement of the stated quantitative targets. However, such positive appraisal is subject to a more in-depth analysis of the level or retention of the programme inputs. The farmers, fishers, agri-preneurs have started to generate some revenues that are minimal with respect to those expected because the value chains are still incomplete. On one side, the substitution of the prior practices and operation of the equipment provided by the programme are still in their early stages – cocoa trees and vanilla vines need 4 years to reach their optimal yields and most procured equipment has not yet been delivered -. On the other side, the adoption of innovation by farmers and fishers is not assured if the obstacles to development are not removed. The enabling services fill in partly such chasm. They are very specific and only partly address the deficit of governance of development locally or at the national level. Thus, not all the beneficiaries will fully exploit the new techniques, production assets innovation and enabling services.

Development factors. These achievements of course are forecast and subject to the completion of the ongoing activities and strengthening of the local development governance. The potential of the innovation introduced by the programme and integration of the value chains is high but their final, forecast impact depends not only on the provision of the enabling services but also from their integration into a sustainable development perspective.

Innovation management. The adoption of improved cropping techniques and establishment of infrastructures and services enabling the value chains are scattered across the assisted provinces, i.e. the aggregation of their outputs is very limited. Several elements should be considered to fully exploit the expected progress in yield and efficiency of the production. The producers' groups have to be strengthened to properly perform their aggregation role. The integration of producers to improve their market positioning faces huge managerial and logistic problems. The technical solutions proposed in supporting the Value chains focus on production practices. The programme Innovation fund is financing the creation of common infrastructure that is intended to support the value chains. The strengthening of the entities in charge of it and of the external services that will be required for their functioning should complement such endeavour. In practice, the access to innovation entangles the expansion of the assistance to the final beneficiaries. For example, the programme doesn't elaborate the structural aspects of land and water management[14] that risks putting a cap to the yield increase[15]. And that could backfire as the increase of value of the production is likely to transform the individual conflicts on the access to such natural resources into community ones.

With such limitations, the production practices adopted are producing their initial positive results in most districts. The most committed farmers' groups have expanded their seed nurseries to supply cocoa clones to not-project communities they also assist in adopting the innovative practices of the project. In such case, the technical capacities built by the project have been matched by dynamic leaders of the producers' groups that have realised that technology transfer can become a business and that replicate their experience to the benefit of neighbouring communities.

[14] The 1.1.1 Rationale section of the Project document (page 18) recognises that: *Cocoa is vulnerable to droughts, one of the impacts recognised in PNG's NDC. Climate-smart agricultural practices tailored to adapt to drought will be prioritised: e.g. water-saving measures, etc*. and the 1.1.3 section Priority areas for support / problems analysis (page 11) of the Action doc. states that *water supply management* is among *the major challenges to the sustainable development of the aquaculture value chain*.

[15] The Law of Mitscherlich of Law of physiological relations – that expands the scope of the Liebig's Law of minimum - states that the scarcer production factor hampers the growth of the crop yield expected from the accumulation of the other ones thus resulting in *diminishing returns* per unit of investment (see also Alfred Marshall 1890. *Principles of economics* text that elaborates the concept of *marginal physical productivity* as a cross-cutting economic principle). The land and water management – irrespective if such elements are abundant or scarce – has to be improved to keep the pace of the intensification of the agronomic technique and expansion of the economic opportunities provided by post-harvest processing and trade.

Rural transport. The impact of the rehabilitated rural roads on the local economy also depends on maintenance of the district, province and regional roads. By bringing their stuff to the village centres, the farmers have not solved all their logistic troubles as the roads connecting villages to the Wewak and Vanimo cities are often interrupted by floods and landslides, as was observed during the survey trips. The skills of the local authorities in performing road maintenance are still insufficient.
ICT. The impact of ICT on the local economy overcomes the specific outcome of the programme. The ITU assists NICTA in developing and implementing relevant Quality of Service / Quality of Experience policies and regulations to improve coverage, enhance service quality delivery and provide means of network quality assessments in the East and West Sepik provinces. This will enable the digitalisation of services and e-Agriculture practices adoption. The potential impact of the programme is high in this field but the enabling services should be supported by pro-active policies and local participation to putting in place the relevant provisions in a perspective of independence from the programme support.
Financial services. The expansion of the financial services through the establishment of bank agencies and mini branches has already achieved its target. The increase of account holders and operations is progressing although not in all the districts. This situation is confirmed by the representatives of the banks interviewed that show moderate optimism on the rentability of the new operations. In practice, they have recorded positive results although their finetuning will take time especially in the remote districts where the growth of farm production is slower than expected.
Renewable energy. The installation of the solar panels in selected schools and health posts and establishment and strengthening of the resource centres are in their early steps. Two already existing resource centres are already collaborating with the programme by hosting meetings and conducting financial literacy and other training. The benefits expected from these actions have still to concretise and of course depend on the fact that the strengthened centres be supported in their ordinary activities by effective development policies.

EQ8 Has the project strengthened the institutional and human resources capacity of the PNG Government bodies?
Value chains. The programme collaboration with the PNG institutions and technical agencies has centred on the support to develop policy, legal and technical documents (draft solar bill, e-Agriculture provincial strategies, fermentaries assessment, etc.), building of technical capacities. The provincial administrations technicians and technical agencies has also provided their services and participated in the field activities as training, advise and liaison with the beneficiaries. In practice, they have both contributed to and learnt from the delivery of the programme activities. Such collaboration has made possible the transfer of knowledge and skills but not strengthened the capacities of such organisations to organise the assistance to the final beneficiaries. In some cases, the performance of programme activities has been conducted in parallel with local initiatives. Indeed, the collaboration with the programme has produced no visible effects on the managerial capacities of its local partners.
Rural transport. The DoWH as an institution has the technical capacity of implementing the infrastructure programs and projects of PNG with its capable human resources. What needs to be capacitated on infrastructure development are the staff and employees at the provincial, district, and LLG levels given the institutional inefficiencies including lack of professional experience and skill sets to initiate sustainable infrastructure development. This raises the question on how the provinces and districts as institutions can be capacitated if there is no technical personnel within their organization. This may require policy changes at the national level to strengthen the operational capacity of these institutions.
ICT. The ITU through the resource centre initiative is developing ICT capabilities of service providers in the assisted provinces. Progress in this field is hampered by the insufficient competition among ICT service providers that raises the costs of their services and discourages farmers and MSMEs from acquiring the equipment and services that make possible the full exploitation of the e-Agriculture instruments. In fact, this component has produced several assessments and steering documents[16] with a practical value for

[16] The 2 provincial e-Agriculture strategies, the assessment of the network coverage by internet service, the Telecommunications Quality of Service of Rule report – along with the ongoing development of practical tools – the e-Learning Management System

the implementation of this component as their adoption facilitates the coordination with the GoPNG and local partners in the design and implementation of new/digital infrastructure and services (also in coordination with other programme components).

Financial services. The UNCDF has adopted a straightforward approach to the promotion of innovative FinTech solutions customised on the needs of the assisted farmers, fishers, agri-preneurs, by establishing direct collaboration with financial institutions and companies that already use such technologies. In this way, this component has limited its intervention to facilitate the extension of already tested FinTech tools in the intervention areas. This is the case of the deployment of digital applications (AgUnity payment system with vanilla producers and PNG Agriculture cocoa supply chain management software supporting purchase traceability) and of the expansion of the presential Y digital banking services offered by MiBank, WMBL/Mama Bank and Cellmoni of Digicel (e-wallet).

Renewable energies. The UNDP supports the GoPNG in the coordination of the renewable energy sector development by linking it with the national *Climate Change Strategy and Action Plan* and aligning it to the *National Determined Contribution*. It has assisted the Department of petroleum and energy in the Development of a solar energy policy and associated regulations and operational guidelines and the National energy authority in drafting the solar energy sub-policy. Along with such national level actions, it has performed the Feasibility assessment for Renewable Energy in the East Sepik and Sandaun provinces and Business Models and Financial Instruments for Renewable Energy Implementation report. The study compares global cost and performances of the different sources of renewable energy without providing specific cost – benefits assessment for the specific options whose potential is presented in its section 4.1. Indeed, section 4.2 presents scale-utility solar photovoltaic costs higher than that of the other examined sources. Incongruously, the selection of the Optimal energy mix (section 4.3) expands on the solar energy solution and the comparison among the different solutions (sections 5) considers larger scale hydro power systems, clearly oversized to supply the targeted public facilities and private businesses. Thus, the way forward for the programme implementation only considers the solar option (section 6)[17]. It can be inferred that since the use of solar energy source was already made for other programme activities – the powering of the programme office and drying of harvest -, its expertise in such field was already in place and pre-empted alternative choices[18]. The specifications for the production of renewable energy were elaborated on the basis of specific and detailed field studies[19].

JC 8.1 Limitations in the capabilities of the Government bodies

The national agencies are technically capable and committed to the guide and supervision of development processes. However, their linkages with the provincial and district ones suffer from several problems connected to the human / financial resources and logistic weakness of the latter. The mainstreaming of development policies from the national to the local level is thus plagued by multiple gaps that limit their effectiveness. Overall, the simple capacitating of technical personnel is not enough to make the local entities able to manage development processes. This gap is being temporarily filled in by the programme that, however, rather than acting to strengthen the local development mechanisms, it risks to accrue the dependence on external assistance and postpone the effective implementation of national policies.

JC 8.2 Government commitment to support the communities in the sustainability of the project facilities

(LMS) platform on MOODLE open-source base and the online training content on cocoa, vanilla and fishery value chain, Entrepreneurship, Financial and Digital Literacy

[17] The 2020 Annual progress report (page 18) anticipated that the programme will purchase solar equipment for selected public entities as the same time that it states that the technical assessments of the feasibility and investment options for renewable energy generation systems had just started in November of that year.

[18] The operational costs of delivering at once different technical solution in the intervention areas are high, due to the existence of limited specialised human resources, market bottlenecks, logistic constraints. Such situation is conducive to the containment of the number of solutions to be tested. However, such restricted approach contradicts the value of performing an exercise that should explore and expand the options available in different contexts by demonstrating their comparative advantages.

[19] Feasibility assessment for rooftop solar photovoltaic systems on 15 public buildings, Preliminary assessment on households to receive solar power kits by FAO and solar Photovoltaic systems design exercises.

Value chains and local development plans. The GoPNG collaborates to the programme through the action of the DNPM/NAO, DAL, Cocoa and spices board, DoWH, NFA, Provincial administrations, etc. These entities have established work relations with the UN agencies that have made possible the formulation of studies, organisation of events, delivery of field activities. However, such collaborations concern the performance of activities and have little strengthened the management capacities of such organisations. in some cases, these entities perform activities parallel to those of the programme. Their commitment to assist the producers depends on the integration of their tasks in the sector strategies along a sustainable development approach. The implementation of the Provincial development plans is very tenuous, limited to the technical aspects of the promotion of innovation, with few exceptions (notably, the establishment of the Provincial Gender Mainstreaming Technical Working Group). Thus, the local administration capacities to guide and assist the producers that are increasing their production are still insufficient. As the innovation build-up implies greater and more customise technical assistance, the training of local technicians may be insufficient to fill in such gaps.

Rural transport. The biggest challenge of the GoPNG commitment to support rural transport is the steady decline in budgetary contribution of the national institutions to the local administrations that negatively affects the continuation of the rural road rehabilitation and recurrent maintenance and of the network of higher-level roads that link them to the urban centres. Over the years these tasks have shifted to the province and district administrations due to the fiscal squeeze recorded at the national level. The ESP administration intends to build necessary enabling infrastructure and supporting utilities as part of the economic corridor development strategy to drive complementary developments in the other sectors. District feeder and LLG access roads are mostly gravel roads often built by logging companies but have become unusable following the departure of timber companies. These roads need to be redeveloped and made accessible for use. To overcome the problem of temporary nature of the roads and bridges, future developers need to be obliged to include as part of their investment portfolio or community service obligations, the construction of sustainable all-weather roads and bridges.

ICT. The improvement of the ICT connectivity and services is made of several actions, not directly connected. The Resource centres are managed by public and private organisations that are endowed with the resources for their operations and maintenance. No extra commitment of the Government is needed to support their sustainability. The implementation of the provincial e-Agriculture strategies faces greater challenges. No provision exist for the financing of their actions not directly implemented by the programme. The gap here is the usual lack of budget planning capacities that doesn't ensure the cost recovery of investment. In such case, the GoPNG commitment to execute such interventions is dubious. Also in this case, it is important to develop effective modalities of governance of these actions to link them to development processes that ensure that the benefits they generate are re-invested in their functioning.

Financial services. The assisted micro-finance institutions still struggle to expand their network of users of mobile banking services due to the delay in the strengthening of the connectivity in all the ten districts of East and West Sepik provinces. They have achieved their numerical targets in terms of account holders but have to improve the rentability of such services to continue such operations and expand them.

Renewable energies. The solar electric systems procurement is ongoing. The beneficiaries of this action include the schools and health post that, being financially supported by the government and private organisation, have little problems in performing their tasks for the surrounding communities. Of course, the full exploitation of the potential of the increased access to electricity / hot water depends on the implementation of the respective sector policies and development plans. As such task is outside the scope of the programme, it is not assured that the use of the solar systems will produce all their expected benefits.

2.5 Sustainability

EQ9 Have the communities and institutions the capacities to continuate the benefits delivered by the project activities?

Value chains. The initial results of the programme show that most producers and assisted communities are eager to intensify and expand the production of cocoa, vanilla and fish. They are actively participating to the programme activities as surveys, trainings, distribution of assets thus improving their capacities.

The feedback of the studies, be they on financial services and production capacities of other aspects of the value chins, confirm that they understand the necessity to innovate for improving their yield, sales and income. This positive attitude – although not universal – means that the beneficiaries own the programme results. However, the enabling services are not yet performed along the cost recovery criteria that link the contribution of each stakeholder to the harvesting of their expected benefits. The build-up of the value chains governance, in practice the representation of producers in the design and implementation of the policies, plans, regulatory framework, should accompany it. Thus, the training on farming and fishing, the distribution of seedlings, fish gears, the roads rehabilitation and maintenance, etc. have produced outputs whose outputs are not yet sustainable.

Development factors. The major challenge to the value chains sustainability consists in the fact that the producers' groups and local authorities are still weak and insufficiently committed to implementing the provincial development plans. The programme enhances their skills especially in the technical fields. But little impacts on their capacities to steer development and collaborating in establishing local pathways to the access to innovation and technical assistance. Thus, it is not yet assured that they will take over the management of the rural roads, seed nurseries, adaptation and evolution of technologies promoted by the programme. Indeed, the programme strategy support the achievement of the economic objectives of the local development plans. Their continuation, expansion and, in perspective replication in other provinces, will require management capacities, collaboration mechanisms, that the local actors still lack.

The sustainability challenge resides in the fact that the beneficiaries confront a plurality of environmental and socio-economic problems that could discourage their commitment to producing for the market. Thus, the break in of new pests and diseases, the change of price and breakage of trade routes, the change of policies and macro-economic conditions affect the rentability of the farm and fish production. The producers, communities and value chains have to deal with such problems to become sustainable. This, means, that they have to commit to local development at large and not only for the strengthening of agricultural production and enabling services.

Local resources mobilisation. The individual beneficiaries, producers' groups, MSMEs and partners are generating revenues by performing their activities – farm production, processing, training, etc. -. Such economic benefits are still small but, overall, their outlooks are positive also if some drop out have been recorded. The consolation such process requires not only the acquaintance of the beneficiaries and partners with the new techniques, assets, etc. but also their active participation in their adaptation, adoption and maintenance. Such consideration points to a programme design weakness, the fact that the programme doesn't ask for the co-financing of the GoPNG. Thus, it is not yet assured that money will be allocated to fund the assistance to the beneficiaries and the enabling services after the end of the programme. Indeed, the participation of PNG officers to the implementation of field activities – in absence of co-funding – misses the objective typical of development actions to produce local ownership by learning by doing governance and management.

Rural roads. The programme is building the capacities of road maintenance of the assisted communities along the RMG approach that should establish their local ownership. The programme complements such effort through the supply of hand tools and monthly wages. The national agencies and local authorities interviewed consider that this approach has little progressed towards sustainability. The maintenance of these roads cannot be done and ensured by the communities alone for several reasons. First, if the corresponding higher-level roads are not equally maintained, the communities may lose interest in the performance of the rural roads. Then, the GoPNG together with the provincial, district, and LLGs should guide the functioning of the RMGs in the technical and financial fields. The DoWH can provide equipment support and the DNPM can provide enough funds for the maintenance of these facilities. Their allocation depends on high level decisions that frame the RMGs action in the harmonised implementation of development policies[20].

[20] The main source of funds for the maintenance of district road in the Sepik region is the Government run District Support Improvement Project (DSIP) strong of PGK 10 million per year (about USD 3 million) allocated by the District Development Authority through annual resolutions. Each province receives PGK 5 million per year that the Governor allocates to the districts

Table 12. Progress to the completion of the road works and planned completion date

Road	*District, Province*	*Works*	*Progress %*	*Planned completion date*
Banak - Wautogik	Wewak ESP	Rehabilitation and special maintenance	35	June 2023
Munji - Haripmor	Yanguro-Saussia, ESP	Rehabilitation and special maintenance	45	June 2023
Yawasoro - Niengwanjie	Wewak, ESP	Road Maintenance		Continuous
Balif - Ariseli	Maprik and Ambunti-Drikirkir, ESP	Rehabilitation and special maintenance	28	June 2023
Nanaha - Tau	Ambunti-Drikirkir, WSP	Rehabilitation and special maintenance	5	January 2024
Walkasa - Mai Mai - Wanwan	Nuku, WSP	Rehabilitation and special maintenance	5	January 2024
Passi - Krissa	Vanimo Green, WSP	Rehabilitation and special maintenance	15	June 2023

Challenges. The progress to achieve the sustainability of the rural roads of the assisted communities includes the strengthening of the management of information on rural roads. The programme has created the Operations manual on Rural Transport Information System (RuTIMS) and Construction Site Monitoring (CSM), a complete and comprehensive database system for road networks information management that should be completed by the end of the programme. The programme has trained technical officers from the DoWH and Provincial division of works of the East and West Sepik provinces on the running of the RuTIMS and the DoWH has installed this information system temporarily through a server based in Nepal while it is planning to procure its own server.

JC 9.1 Policies and reforms needed to sustain the project results

Value chains. The GoPNG has established far-reaching agricultural and development policies that encompass not only the selected value chains but also the other components by the programme. Some programme actions support the finetuning of these policies and legal and planning instruments at the national and provincial level. For instance, it has assisted the drafting of the solar sub-policy and plans to assist the revision of the Spice industry board act, it has contributed to the drafting of the provincial e-Agriculture strategies, and performed a great number of studies whose outputs should guide the action of the institutions, technical agency and private service providers in structuring and improving their assistance to the final beneficiaries. The programme has contributed to the creation of technical working groups – as in the case of the Provincial ones on gender mainstreaming – and built the capacities of the technical staff of these entities in the fields concerned by its actions.

Enabling services. The integration of the enabling services is especially important as they facilitate the transition from subsistence to market-driven rural production. But it is also a pre-requirement for the effective deployment of such services. Thus, the efficiency of the financial services depends on the existence of roads, electric grid and Wireless networking coverage. Insufficient competition in these fields raises the cost of financial transactions and their coverage of the remote locations.

Cost recovery of innovation. The execution of the development policies is very weak due to the lack of capacities, resources to tackle the environmental and socio-economic problems faced by the rural population and MSMEs. The same constraints apply to the implementation Provincial development plans. The cost of providing technical assistance to the producers increases with the adoption of innovative technologies that intrinsically depend on external providers, and of the access to larger markets that imply greater business risks. Their follow-up and evolution depend on technical expertise – which the community does not currently have - as well as on market forces that drive the evolution of innovation, including the recruitment of specialists and external sourcing of goods and services -. The value chains market-driven approach should be reflected in the enhancement of the management skills of the local producer or organisations. This means the establishment of cost recovery modalities to maintain and improve the innovation along the peculiarities of each environment and socio-economic context. The producers and /

on the basis of their work plans. The DNPM also allocates funds for local roads maintenance through the Public Investment Program (PIP) on the basis of the local proposal. Each LLG receives PGK 500,000 per year under the LLG PIP.

their organisation should raise the money needed for the access to the external inputs, provided by specialised services, in a business-like way to ensure the continuation and evolution of such technology[21].

JC 9.2 Government and communities collaboration to the design of the Exit strategy

The commitment of the DNPM/NAO to the programme success since the programme validation workshops is confirmed by the performance of several field missions and its dialogue with the institutions and technical agencies contributing to the design and implementation of activities. The approaching end of the programme raises the problem of the handover of the enabling services and performance of the assistance to the producers in the aftermath. In practice, the UN agencies have to discuss with their technical counterparts about how they expect to recover their costs of in the supervision and monitoring of the performance of the technical assistance to the final beneficiaries and of the running of enabling services.
Their mutual understanding with the local administrations and the participation of the representatives of the producers in the delivery of technical assistance are also part of this picture that is synthetised in the words: governance of the development processes. This is a critical point for the completion of the programme activities and formulation of the Exit strategy: to put greater emphasis on the cost recovery and governance of the value chains and development processes.
Indeed, the Exit strategy should be axed on (a) strengthening the participation of local actors in the management of the programme implementation, (b) development of cost recovery modalities to the value chains governance and performance of enabling services, and (c) integration of the assistance to farmers in the provincial and local development plans. In practice, it should aim at enhancing local capacities and ownership of the development processes. Such shift in strategy should be accompanied by the substitution of programme staff by representatives of the local administrations and partners in performing the remaining tasks – to ensure the smooth hand over of the assistance to farmers -.

JC 9.3 Adoption and maintenance of the technology acquired up to this point in time by intended beneficiaries

Value chains. The initial results of the assistance to the producers are promissory but biased by the fact that the programme contribution is pervasive and could veil the unsustainability of the initial economic achievements. The interest of farmers, fishers, agri-preneurs in the technology promoted by the programme is great. A growing number of communities apply for the programme assistance. Some hundred beneficiaries call at the office premises in Wewak every month to ask for technical advise. Indeed, they submit new requests arising from their growing needs that often overcome the programme topics. The challenge consists in the fact that their capacities and resources to operate and maintain the new technologies are still insufficient. The programme commitment to disseminate green technologies and smart agriculture struggles with the fact that the beneficiaries have very diversified needs and are in different position to tackle them [22]. As the structure of costs and benefits is highly variable, the delivery of uniform solutions is unlikely because their sustainability depends on multiple contextual factors[23].

[21] Basis, locally produced hand tools do not need the accumulation of savings to pay for their repair or substitution. Traditional community facilities that are operated through an “institutional modality” that formally organises the users / managers do not need to be managed by “specialists” formally educated. More complex technologies including externally sourced equipment and tools require the performance of operation and maintenance and servicing capacities that make it necessary to assign management tasks to organise specific functions and to source external inputs (using expertise ordinarily not existing in the community) and assign new tasks to community bodies (e.g., technical training of community organisations leaders and volunteer workers). These systems have the capacity to (co)produce economic and trade relations through the employment of paid staff and hence a professional, specialised management, that, inherently, aims at making a profit out of the service provided. Cfr. Fabrice Gangneron. Politiques des objets et objets politiques. Les adductions d’eau villageoises en Afrique de l’Ouest. In: *Anthropologie et développement*. N. 46-47. *Sociotechnical myths and development*. 2017. p. 139. This study (p. 136-139) analyses the socio-economic challenges faced by communities shifting from *well*, to *hand pump*- and to *village water supply*-based water systems.
[22] The environment and socio-economic conditions strongly influence the opportunity choices among different technical solutions, notably in pest and disease control, land and water management, agro-forestry and intercropping, marketing of the products. Similar challenges concern the road component where sourcing of local materials, sequencing of activities, and the weather strongly impact the organisation of work.
[23] The logistics constrains makes little reliable the comparison of different economic options across locations.

Drop-out. Discontentment and dissatisfaction of the beneficiaries has been recorded by producers' groups in remote districts and communities assisted in the rehabilitation of the roads. In one case, a local conflict is challenging the cohesion of a producers' group and in another case, a road rehabilitation had to be discarded for the rivalry among communities. In can be concluded that the programme technical focus has resulted in insufficient capacities to deal with local development problems that arise from the weak leadership of the assisted communities.
The access to market is also a great challenge whose difficulties negatively feedback on the production. Local traders that provide logistic and financial services are little interested in promoting the conservation and improvement of the characteristics of the products. The programme awareness raising on quality standards is expected to improve this situation. But as the mentioned actors also face multiple challenges in ensuring the size and timeliness of their deliveries, their commitment is not ensured.

2.6 Cross-cutting issues

EQ10 Has the project up-taken the exigencies of vulnerable groups and used them to improve their contribution to the steering of the three value chains?
The programme has strongly tackled the exigencies and women and with positive results in their participation to its activities. Its Gender and youth inclusion and action plan recognises the positive contribution of these groups to the performance of activities that improve the quality of the cocoa, vanilla and fish production, especially due to their role in the post-harvest phases. The mentioned Action plan proposes a set of diversified actions that raise the voice of these women and youth in the critical points of the value chains including the establishment of the Provincial Gender Mainstreaming Technical Working Group that should plan and monitor gender mainstreaming in the programme activities at field level.
Gender equality. The programme has mainstreamed gender equality in the agreements with the local partners ensuring that women are about 50% of its beneficiaries. Some actions have been specifically directed to women, as the micro-finance services where they prevail among beneficiaries because of their greater social openness to innovation. This progress is not reflected in the management of the value chains as the programme has not invested in the establishment of their governance.
Challenges. The collaboration with local NGOs has played an important role in the mobilisation of women and youth. Awareness raising meetings have been organised. In this way the programme has mainstreamed gender equality in the agreements with the local partners that have eagerly enlisted women and youth among their beneficiaries. These positive results issue also on the fact that women are traditionally active actors of the family and community economy, undertaking some of the heaviest farm and off-farm chores. They traditionally share the workload with men in the three value chains, as repeatedly stressed by the villagers met during the survey. However, their participation to the family work is usually subordinated and hampered by socio-economic constraints that exclude them from decision making. Thus, the women representation in the community governance bodies is still a minority. Scaling up in such field would require the setup of community-level actions as part of the strengthening of the local development processes.

10.1 Target groups participation to steering the delivery of field activities
The programme has successfully mobilised the beneficiaries' participation to its activities through its collaboration with local and community authorities. Indeed, their participation to the steering of field activities is less successful. This is partly due to the logistics constraints the limit their interaction with the programme staff but also to the fact that most producers' organisations are still weak and unable to properly represent the needs of their members. Thus, the finding of the assessments and studies – as well as the active monitoring of the programme progress, programme filed visits, etc. - are the main
Local contribution. Dialogue, technical advise, organisation of events such as the Community engagement and accountability workshop in 2022, and the extensive monitoring and communication activities – including *social listening*, i.e. the collection of the feedback of stakeholders through a call centre, and the active monitoring of the output of field activities ensure that the programme staff is in continuous touch with the exigencies of the beneficiaries that in such way indirectly influence the steering of its field activities.

This approach doesn't allow to fully represent the beneficiaries' viewpoint that would require that their organisations be more active – elaborating and promoting their viewpoint in a systematic way -.
This gap is strictly linked to the insufficient commitment to strengthen local development governance. It is unlikely that without a establishing their direct, corporate representation in the value chains governance, the rural people can modify or remove the policy, legal and macro-economic barriers to harvesting the full benefits of their access to the market. That means that bottlenecks in the supply chain and market access may still negatively affect the sustainability of the growing production of cocoa, vanilla and fish advocated by the programme through its national and local level interventions. This could be especially he case of decision making about the policies on competitiveness and export. The insufficient structuring of the representation of the smallholder producers through their organisations is the greater challenge to the effective governance of the value chains.

3. Conclusions, recommendations, lessons learnt

3.1 Conclusions

1. *Identification and design*. The programme strategy is centred on promoting the access to innovation to strengthen the more promissory value chains (cocoa, vanilla, fishery) of the Sepik region. This approach leverages the creation of capacities, production assets and infrastructure to strengthen the production renewal and aggregation of the offer to better position smallholders vis-à-vis the other actors of the value chains. Its implementation along the indirect management modality with international organisations is also axed on prompting the technical dimension of development. This design little enhances the governance of development also in fields in which the local actors are already active and should more properly improve their management capacities (e.g., seed nursery production, road rehabilitation) than improve technology. The increase of production could create new and more sophisticated needs whose solution requires (a) stronger managerial capacities of the public and private services that assist the producers and conversely (b) the establishment of cost recovery modalities of technical assistance to production and marketing. This focus on innovation rather than on the management of the development processes negatively affects the replication of the programme results at a larger scale, notably the forecast expansion to the Morobe and Madang provinces of Momase region following the mid-term evaluation. The programme design implicitly increases the final beneficiaries' dependence on external assistance rather than mainstreaming it through strengthened local governance processes, a major weakness for an action whose Overall objective is expected to increase sustainable and inclusive economic development of rural areas.
2. *Effectiveness*. The transfer of innovation to the farmers, fishers, MSMEs is recording positive results with the dissemination of improved varieties of cocoa, adoption of smart agriculture practices and improvement of the post-harvest processing. The programme is promoting simple and cheap techniques – grafting, pruning, pollinating, fertilising, sun-drying, cool storage; digital banking, solar energy production, training modules adoption by vocational schools, etc. - that fit the economic but also social needs of the beneficiaries. These solutions were formulated on the basis of an extensive set of studies and assessments of different value. For instance, the baseline of the three value chains was extensive and to the point in establishing the situation of the different groups of beneficiaries and fixing the targets of the planned actions. However, the feasibility study on renewable energy looks like a didactic exercise as its provisions confirmed solutions that had already been anticipated by the Implementing partners.
The progress made in the delivery of the activities under the value chains component are substantial in quantitative terms: one third of the cocoa clones and one fifth of the vanilla vines have been planted, the new account holders are overcoming the target. Training has been very extensively performed through a cascade approach achieving a number of cocoa and vanilla farmers approaching the initial targets. The lower delivery of training is recorded in the fishery value chain due to its late start.
For instance, the adoption of innovation creates new problems – as the spread of new pests and diseases, the development of managerial and marketing capacities, the delivery of customer's care in remote areas - As a result, the programme staff is requested to develop new solutions, and mobilise extra capacities to assist the beneficiaries and their organisations to solve these unexpected problems. This is evident in the

more remote and weaker communities where the membership of producers' clusters is shrinking often to the size of individual households.

3. *Efficiency*. The programme implementation accumulated substantial initial delays at the beginning – notably, time-consuming arrangements among Implementing partners and staff recruitment, COVID-19 restrictions –. Since 2021, the pace of the field work sped up thank to the local authorities and the adoption of the Programme acceleration plan and the fluid work relations established by the programme staff. The harsh logistics remains the major obstacle to field work. The long rainy season slows down the performance of the road works and negatively affects the other field activities. As a result, the delivery of activities is uneven across the intervention areas, with strong delays in the more remote ones.

The speed up of the delivery of activities after the lifting of the COVID-19 restrictions has decidedly increased the programme expenditures and commitments, especially in the road rehabilitation and maintenance component. The programme budget expenditures and commitments record 44% of the available resources. Its components record an uneven rate of expenditures, with the Roads and Renewable energy ones overcoming the 50% of their budget and the Value chains and ITC ones scoring much lower at the end of December 2022. The delays in the delivery of field activities incurred in the first two years are being recovered although the actual achievements in terms of beneficiaries served are still unsatisfactory. In practice, the completion of the activities under the two larger components – value chains and rural transport – will exceed the initial programme timespan due to (a) the time needed to complete delivery of planting materials and construction of infrastructure due to environmental and logistic constraints and especially (b) the fact that activities depending on the existence of such physical endowments – training, innovation adaptation, establishment of cost-recovery modalities – will have to be performed after their completion. The FinTech component is exceeding its targets in time. The other enabling services components experience delays in the procurement and installation of equipment and materials but may expected to be completed by the programme end as their ancillary activities have already started and are little subject to environmental and logistics constraints.

However, the identification, design, tendering and contracting of works and, more in general, the procurement of imported equipment and materials is slowly progressing. For instance, the remaining works on road rehabilitation is still 94%, the fishers' jetties recommended to be replaced with waterways clearing still needs scoping and community consultations, and implementation agreement on airstrip rehabilitation works was just recently approved and still subject to field survey and community consultations by the RAA. Thus, it is unlikely that the larger components of this action – value chains strengthening, roads rehabilitation, waterways clearing, and rural airstrip rehabilitation – be completed by the programme end.

The donor has regularly delivered of three tranches of the budget to the UN agencies. However, due to the late hiring of staff, limited travel costs incurred, and delay in the contracting of services and procurement of equipment and materials. FAO which has the largest budget, has accumulated substantial financial reserves while other UN agencies have fully executed their programme advance – notwithstanding the One-UN approach to shared commitments that should ensure budget assistance among agencies. Some UN agencies have advanced funds from other sources to maintain momentum in deliveries of outputs. Minor re-distribution of FAO funds to other UN agencies has been performed without tackling this problem at its root. Such problems have accrued the delays in the execution of activities. This difficulty is further enhanced by the fact that the GoPNG doesn't refund the UN agencies for the money advanced in terms of *Goods and services tax*, obliging the latter to source their own funds to sustain this programme cost. Such unjustified budget difficulties are among the reasons of the late procurement / service contracting that affects the strengthening of the enabling services.

Such approach makes possible to exploit the UN agencies' tax exemptions - along their conventions with the GoPNG – to contain procurement cost. They do not pay the custom duty on imported equipment and material. However, UN agencies pay the *Goods and services tax* (analogous to Value added tax) that the GoPNG doesn't refund. This tax is an expenditure not recognised by the EU thus the UN agencies incur in an extra expense on their own.

4. *Impact and sustainability*. The outlook of the economic revenues generated by the three value chains is moderately positive. In fact, the programme is not only increasing the production yield but also the

market positioning of the producers. However, the implementation of the different components is uneven had has not yet produced the expected mutually reinforcing effects. The newly planted cocoa and vines need 3-4 years to reach maturity and the aggregation of production is still in its early stages. The performance of the enabling services too is in its early stages, except in the field of the FinTech solutions. Such problems are surfacing in the more remote communities where discouraged beneficiaries have dropped out of the producers' groups. Of course, several other factors contribute to such negative outcome, including the weakness of their leaders associated to local conflicts and the delays incurred in the delivery of the programme activities. The governance of the value chains is still weak. In fact, the build-up of the technical capacities of the producer and local partners is not associated to the improvement of their management ones. As a result, the gap between the supply of local assistance services and the technical needs of the producers is on the raise. The programme fills in this gap on a temporary basis but can't solve the underlying problems, a task that requires a strong commitment of resources in building the capacities of the local communities sand their partners in the field of local development. The establishment of work relations between producers' organisations and service providers along cost-recovery modalities is also essential for the continuation, expansion and replication of the technical and business solutions promoted by the programme. Consequently, sustainability of its results is still tentative.

5. *Monitoring and communication*. The programme has hugely invested in monitoring and communication by properly linking these activities to manage knowledge. It has established a freeware-developed Information platform to collect, process, reports and disseminate the information provided by the implementing partners. The systematic quality control of this data includes routine cross-checks, field visits, thematic surveys that ensure their completeness and reliability. About one hundred key stakeholders / decision makers inside and outside the programme have direct access to this database that feeds a plurality of communication actions customised along the information needs of the beneficiaries, partners and other stakeholders, locally, nationally and internationally. The Logframe includes an extensive number of indicators that serve to cross-check the performance of the Implementing partners across the components and actions. However, the updating of such minute reporting is very burdensome and produces some inconsistencies among the values of the outputs and outcomes and is of little value to support strategic decision making. Communication tools have been designed to collect the feed-back of and to fulfil the information needs of the beneficiaries. The broad set of technical documents produced by the programme is also spread through its website and social networks, reaching a broader audience than its stakeholders The fact that the programme fully runs the IMS poses the problem of its continuation after the programme completion because the capacities of the local institutions have not been built.

6. Inclusion and gender. The programme has elaborated a gender and youth strategy and is systematically mainstreaming its provisions across its activities. The collaboration with local authorities and awareness raising actions have ensured that women and youth are actively involved in and benefit from its activities, both categories accounting for about 40% of the heads of the assisted households. The establishment of the Provincial gender and youth working groups is expected to raise the level of their engagement in local development planning with a positive impact on the inclusiveness of the local development processes. However, the women's and youth's role in the governance of their communities is still marginal. The removal of cultural barriers may overcome the programme capacities because it should be performed at different levels, including the enhancement of the vulnerable groups' participation to the community governance, a topic that overcomes the programme expertise and resources.

N.B. Annex 20 presents specific conclusions for each component.

3.2 Recommendations

N.	*Concl. N.*	*Recommandation*	*To be implemented by whom?*	*Priority*	*Importance*
1	*1*	*Development perspective of the technology transfer*. Expand the capacities of the lead farmers trained by the programme to transform them in community agricultural workers and not only the trainers of their fellow beneficiaries. The building of their capacities should enable them to become the entry point for technical assistance thus expanding such interface between their communities and public and private service providers. In practice, the performance of training modules on technical topics related to the innovation promoted by the programme should be complemented by the building of the capacities of extension, development promotion of the lead farmers.	FAO, producers' groups	Medium-term	High
2	*2*	*Value chains technical packages*. Elaborate and include in the assistance to producers the promotion of water-economy practices such as: - use of small ponds to store water for the dry season and reduce and digging of horizontal ditches to contain soil erosion (improved water management counters the negative effects of the increased frequency of cropping actions and yield on the fertility of slope farmland), - community fishponds deriving water from surface sources that ensure the continuation of production in the dry season (the supply chain of family fishponds may be too complex in the remote districts), - elaboration of formulas of concentrated feed for aquaculture that exploit the local production of tapioca, cereals (if feasible), palm oil, protein residues (of fish, legume crops, non-wood forest products, etc.), limestone to and reduce the dependence on purchased ingredients (e.g., to vitamins and drugs).	FAO, DAL, local partners	Medium-term	High
3	*2*	*Exchange of experiences*. Increase the number of visits to successful beneficiaries, etc. to spread the lessons learnt among the beneficiaries. Topics object of such exercises should include the presentation of the achievements obtained by champions, the challenges faced by producers' groups, MSMEs, the exposure to innovative production practices of commercial farmers and processors. Special care should be put on the elaboration of didactic materials presenting the key features of these experiences (notably, success stories of the beneficiaries) for further spread among the farmers and other stakeholders of the value chains, also in the perspective of replicating their experience in other provinces. Such endeavour is clearly integrated with the communication actions of the programme and may exploit its IMS to reach a broader audience of potential beneficiaries.	UN agencies, local partners	Medium-term	Medium

4	*3*	*Budget management.* Establish an agreement among UN agencies concerning the advance of funds to speed up the execution of their tasks, by using the financial reserves accumulated to date. The implementation of such agreement has to be directly linked to the performance of the planning exercise. This joint approach avoids that the planned activities are delayed due to the fact that the UN agency in charge has already expended its share of the advance budget and thus has to wait for the transfer of the next donor's instalment to move forward.	FAO	Short term	High
5	*3*	*Cooperation with the GoPNG institutions*. Support the UN agencies in their request of exemption from / refunding of *Goods and services tax* by the GoPNG. Associate the other institutions and provincial administrations in the performance of field monitoring missions. Discuss with them the findings of such exercises in view of the PSC meetings and the outputs of the mentioned meetings to smooth the programme integration with and contribution to the performance of development / sectoral policies, strategies and work plans.	DNPM/NAO	Short term	High
6	*3*	*No cost extension*. Elaborate the plan for the no cost extension of the components: value chains strengthening and road rehabilitation and maintenance. These are those that more likely will not complete the delivery of their activities by the programme end and should be performed by the core staff of the programme in collaboration with an increasing number of local partners in view of their integration in local development processes and hand-over. The technical assistance activities performed by these two components provide opportunities for target actions strengthening the local partners in charge of running the assets created by the other components. Financial resources can be sourced mostly from underspent budget-lines such as Personnel and Travel. A planning and budgeting exercise preliminary to the submission of the no-cost extension to the donor should be performed in collaboration with the programme partners and its outputs illustrated at a dedicated session of the PSC. The value chain component continuation by 6-12 months should concentrate on the completion of the initial targets and support the action of the farmers' groups and local partners in framing the development governance and cost recovery modalities that are essential for the continuation of the technology transfer / assistance to the beneficiaries. The Value chain component continuation by twelve months should concentrate on the strengthening of the development processes that ensure the sustainability of the innovation transferred to the farmers, the creation of cost-recovery mechanisms, and the follow-up of producers facing new production and marketing challenges, as the control of pests and diseases, the aggregation of the harvest, and the collaboration of the stakeholders in the governance of the value chains (e.g., through the organisation of meetings	DNPM/NAO, UN agencies	Medium-term	High

		devoted to develop contractual agreements, procure shared inputs, present technical needs to researchers and other technical partners). The Rural transport infrastructure component continuation by twelve months should complete the road rehabilitation and improvement works. The rehabilitation of the five airstrips and clearing and maintenance of the tributary waterways - instead of the construction of the three river jetties - should be performed once finally decided and work plans completed, likely requiring a similar no-cost extension.			
7	*4*	*Value chain governance*. Adopt a fully fledge approach to the governance of the value chains by: a) Organising meetings of the actors of the individual value chains, to discuss their challenges and develop collaboration. Provincial administrations and local authorities should be actively involved in such process that should integrate the evolution of the value chains in the broader local development processes. Such events also serve to elaborate and spread success stories, formulate policy briefs (e.g., on the options for the organisation of the producers, on their participation to the value chains governance, on the access of producers to crops market intelligence) that raise the awareness and stimulate the action of the national institutions – notably, the removal of barriers to local development and market access that penalise smallholders and MSMEs -. b) Elaborating, with the collaboration of the producers' groups, local administrations and technical agencies, modalities of cost recovery of the assistance to the beneficiaries. For instance, the programme has assisted the fishers' groups in developing model business plans. Such exercises have to be expanded to farmers' groups (e.g., in relation to the seed nurseries) and to fermentaries and linked to the enhancement of their management capacities and interaction among value chain stakeholders. Such task may be linked to the financial literacy events and exploit the resource centres facilities. However, it should be performed as a fully developed exercise mobilising specific expertise through (a) the elaboration of model business plans and (b) their customisation to the peculiarities of each producers' groups. As well as to the build-up the leadership and budget planning skills of the representatives, relevant services of the mentioned groups. Such endeavour should be embedded in the provincial development plans and connected to the programme Exit strategy to support the handover to local stakeholders of the tasks performed by the programme staff.	UN agencies, local partners	Long-term	High
8	*4*	*Rural roads maintenance.* Organise a workshop to discuss the modalities of maintenance of the rural road. Relevant topics include the exploration of the connection of the RMGs functioning to the performance of the traditional community voluntary work modality, through rotation of the members of the RMGs; the identification of the expertise the provinces and	ILO, local partners	Medium-term	High

		district administrations, LLGs have to develop to supervise and assist them; the organisation of the Labor Based/Equipment Supported (LB/ES) method of maintenance, especially during major distresses and periodic maintenance every two-three years depending on usage and weather condition since these will require the use of heavy equipment for re-grading and re-compacting which is only available from DoWH.			
9	*4*	*Enabling services:* *a) ICT National framework development.* Assist the partners of the actions planned under the provincial e-Agriculture strategies in budget planning, elaborating cost recovery modalities, to make possible the execution of such interventions. Assist the partner ICT operators in planning the Radio frequency drive data collection, elaborating budget for the purchase of the tool kits for such task, and linking with NICTA to share such information. Support the implementation of digital services (Digital Registries/Database, web hosting). Align them to GOVSTACK technology stack framework and link them to Digital Government, Government Private Network initiative led by DICT. b) *Resource centres operations and maintenance.* Assist the Resource centres in elaborating work plans that support the training of the producers, their organisations, local administrations, service providers in developing the knowledge and skills detailed in the previous recommendations. Frame a capacity building plan including all these activities to prioritise the topics of interest for the assistance to the beneficiaries and to deliver them along harmonised training modalities that include the measuring of the learning. Assist the Resource centres in establishing the security of the computer laboratories infrastructure. Link the Resource centres to the Province / District technical and vocational training plans. c) *Access to financial services.* Assist Digicel CellMoni in elaborating a work plan – including budget planning and cost recovery – to establish points-of-presence for deposits for the account holders of MiBank and WMBL at district level. d) *Renewable energy.* Train a core group of beneficiaries of each solar energy system on its operation and maintenance, ensuring that each assisted entity has at least two people able to discuss on such topics with the suppliers of such technology.	a) ITU, local partners b) ITU, Resource centres, local administrations c) UNCDF, Digicel Cellmoni, MiBank, WMBL d) UNDP	Medium-term	High
10	*5*	*Information management systems*. Explore the opportunity of transferring tasks performed by the programme IMS to those under design for the Cocoa board and NFA. The specifications of the databases and data collection tools of the different institutions have to incorporate the experience of the programme IMS, thus linking the management of technical information to the development of innovative dissemination tools that prompt the interaction with their stakeholders – data entry, instances processing - and possibly the linkage to	FAO, ILO, Cocoa board, NFA, DoWH	Medium-term	High

		training and experience sharing. Such ambitious approach should be directed to make the best use of the programme IMS technology and experience that otherwise will end with its end. Assist the DoWH and Provincial Administration of East and West Sepik to initiate the road network inventory in their respective jurisdictions and to upload the data to the RuTIMS system to develop operational capacities in its operation and maintenance. Discussions, capacity building and exchange of experience with the programme M&E and communication staff should support such actions.			

3.3 Lessons learnt

Value chain programme implementation. Include a component that links the governance of the value chains to local development. Activities should include:

- *access to innovation*, by integrating the technical assistance to producers (natural resources conservation, climate, cropping techniques; post-harvest processing, storage and market access) with the implementation of the local development plans (community building, inclusion),
- *organisation of producers*: assisting the producers' organisations in building managerial capacities and leadership to make them active partners of the value chain governance,
- *governance of the value chains:* building the capacities of the local institutions, partners, producers' groups on budget planning. to elaborate cost recovery modalities that share the costs of governance of the value chains and technology transfer (training, technical assistance, aggregation, etc.); and by enhancing the policy and regulatory framework if needed;
- knowledge management (M&E, ISP, communication, advocacy) along a continuous improvement approach.

Development programmes implementation. Ensure that the Local implementing agencies – including the local administrations - participates to the management of development programmes (a) by co-financing them and (b) by participating in the budget planning, execution and supervision. The double signature of expenditures by the Technical assistance and Local Implementing agency is an efficient way to combine the advantages of the compliance of donor's financial and administrative regulations with that of the building local capacities. Communities residing within the project areas particularly for rural transport infrastructure need to be actively involved in the identification, prioritization, and implementation to build a sense of ownership being the direct beneficiaries which is an important ingredient for them to commit and ensure that the completed facilities are operationally sustainable through proper operation and maintenance.

Actions design and planning. Jointly design and plan actions whose implementation should be performed as a sequence – as studies and planning, procurement and training, institutional building and technical assistance – to ripe their full benefits. In such cases, the outputs of the former are the inputs latter -. For example, the information generated by the study should be useful for the planning of activities, the procurement of equipment for the performance of hands-on training, the improvement of institutional capacities for delivering viable technical assistance services.

Technology transfer sustainability. Collaborate with local development initiatives, to customise the technology transfer to the local environmental and socio-economic factors. The adaptation and adoption of innovation often multiply the needs and expectation of the beneficiaries beyond the scope and mandate of technology transfer programmes. The increase of technical assistance may overcome the resources and expertise of the Implementing agencies, making necessary their collaboration with community-driven development actions.

Multi-component programmes management. Establish two-tier management modalities – as in the case of the Acceleration plan and technical coordination of the Implementing partners – to deal with strategic and institutional issues independently from the solution and operationalisation of technical problems.

One UN approach. The deployment of this modality of collaboration between the UN agencies has to be shaped at the same time in the (a) planning and (b) budgeting of a programme. For instance, an inter-agency agreement should be established at the beginning of the activities that ensures the alignment of the planning and budgeting exercises to avoid the coexistence of the hoarding of financial resources by an UN agency and the depletion of the advance budget of other UN agencies.
Knowledge management and advocacy. Coordinate the M&E and Communication actions to develop a knowledge management approach that creates and use evidence from the programme to ensure upstream and downstream accountability. Use such information to elaborate advocacy actions for decision makers to promote their commitment to remove macro-economic and regulatory barriers to the functioning of value chains and local development.

Annexes

1. Terms of reference

BACKGROUND

Relevant country / region / sector background
Papua New Guinea (PNG) is one of the most culturally diverse countries in the world with over 800 languages and 1,000 ethnic groups*. It has a total land area of approximately 460,000 km* comprised of 600 islands of various sizes. The country is separated into four regions — Highlands, Islands, Momase and Southern —and 22 provinces., its population is estimated at above 9 million and of this over 80 percent livein rural areas. PNG is a relatively stable democracy. Real GDP growth was estimated at 2,8 percent in 2017,and slowed further to 0.3 percent in 2018, largely due to a contraction in the extractive sector following theFebruary 2018 earthquake in the highlands. The country is dominated by two main sectors: the formal, capital-intensive mining and energy sector and the agriculture sector which, employs an estimated 80 percent of the population and accounts for approximately 27 percent of GDP*. Despite considerable naturalwealth and reasonable economic performance, PNG's rural population continues to face significant challenges. More details on PNG main socio-economic indicators are detailed in Appendix VII.
PNG's Human Development Index (HDI) ranking is 155 in 2020, the lowest in the Pacific with a 0.68% with an increase from 2010 to 2019. PNG has the fourth highest child stunting rate in the world (more than double the global average) with almost one in two children in PNG suffering stunted growth from chronic malnutrition. It is estimated that undernourishment had an estimated cost to the PNG economy of
$USD5D8 million in the 2015-16 financial year (2.81% of the reported annual GDP). Within PNG, the highestchild stunting rates are reported in the Momase region and highlands.
The disparity between rural and urban living conditions is exacerbated by the country's difficult and disperseterrain and islands which increases hardship, poverty, and isolation in rural areas, and limits access to basicinputs and services, road infrastructure, transport and markets. Less than 20 percent of rural households have access to electricity, 60 percent lack access to safe drinking water, and an estimated 80 percent lack access to improved sanitation Most of the rural population do not have access to any sourceof electricity.An estimated 15a of the population have reliable access to telecommunications.
PNG is ranked 161 out of 162 countries in the 2019 Gender Inequality Index.' Gender-based violence (GBV)is widespread, with over two thirds of women having experienced some kind of violence in their lifetime. GBV — both within the home and in public spaces severely affects women's ability to contribute to the economy, participate in business activities, and support family livelihoods. Gender inequalities contribute to the underperformance of the sector.
With its highly diverse terrain and locations along a major earthquake fault line, the country is subject to both El Niño and La Niña events and both can have significant impacts such as severe droughts, landslides and flooding from increased rainfall. The World Risk Report 2016 ranks PNG as 10th, due to its high exposureto natural disasters and its high social and economic vulnerabilities.
griculture is the dominant source of livelihood in PNG. It accounts for an estimated 80% of the total labourand contributes 27% to GDP. Cocoa, vanilla and coffee are key cash crops, while fisheries are used for botheconomic well-being as well as directly for food security and nutrition. PNG is considered a small cocoa, buta large vanilla producer in the international market. However, the quality of its vanilla and fine flavourcocoais recognized and sought after. Smallholders represent 95% percent of the cocoa and vanillaproduced In PNG.
The World Bank suggest that agriculture in PNG continues to underperform, and is characterized by low productivity and lack of competitiveness. Constraints remain in place, limiting the development of cocoa, vanilla and fisheries as agribusiness for many smallholder farmers. These include high transaction costs, poor economies of scale, lack of access to Information and technologies due to poor economies of scale; poor rural infrastructure, insecurity in transport, uncertainty about land ownership and lack of access to finance. The private sector is comprised of many local small and medium enterprises, a few larger national agribusinesses and multinational mostly engaged in cocoa and vanilla. Microenterprises are also importantmostly as aggregators and transporters linked logistically isolated smallholders to markets and input and service providers. Multinational continue to invest in tuna fisheries and associated onshore procession of tuna catches. Privates sector investment in coastal and inland fisheries is principally by small and micro enterprises.
As per the EU Action Document and Financing Agreement the intervention logic is based on a holistic approach to rural development in order to maximise the impact of the Programme in the area of action, focused initially on Sepik Provinces (Sandaun and East Sepik). After the mid-term review of the action, valueChain development activities will be considered for expansion to neighbouring Provinces of the Momase region.

The Overall Objective of the Programme is to increase sustainable and inclusive economic development ofrural areas.
This will be achieved through a combination of two integrated outcomes:
increasing the economic returns and opportunities from three selected value chains (cocoa, vanilla,fishery) while in parallel:
strengthening and improving the efficiency of value chain enablers including the business environment and supporting sustainable, climate proof transport and energy infrastructure development.
Under outcome 1, major outputs will include increased volume, value and improved quality of cocoa, vanilla, fisheries products, more value addition and an increased number of people and enterprises engaging in and benefiting from improved value chain

development. Benefits planned include both increased income and enhanced food security and nutrition at household level and job creation.
Under outcome 2, major outputs planned include an increased number of people employed and agripreneurs and MSMEs engaged in the selected Value Chains benefiting from reduced transaction costs and time, improved access to finance, increased availability and usage of digital tools and services.Increasedavailability of renewable energy, improved energy efficiency and access to rehabilitated roads, landing sites,and lower transport costs are also planned.
Target beneficiaries will include a range of Value chain stakeholders including local agripreneurs and MSMEs, farm families and their organisations. Women and youth will be prioritised as beneficiaries with set targets and specific resources to be set aside to ensure their fullest engagement and benefit from Programme activities.
Planning for sustainability and ongoing and future climate change impacts was a key factor in the intervention logic. The target beneficiaries will receive a range of direct and indirect benefits which will motivate them to continue their engagement in the three value chains after the completion of the Programme and learn to integrate climate projections and adaptation in their operations.
Direct benefits include increased income for producers, traders, agripreneurs and local MSMEs and enhanced adaptive capacity to climate change, as well as food security and nutrition. Indirect benefits include an improved policy, regulatory, business and digital environment. Based on lessons learned from previous EU funded programmes, substantive local government and community engagement in Programme planning and implementation is foreseen including throughout the planned 12 months inception phase. To ensure effective management, coordination and ensure timely delivery of such a large and integrated Action, a single and recognized technical lead agency, such as FAO, is required. Complementary blending actions will/can be considered under the investment window of the EU Pacific Regional Indicative Programme.

Activities and Implementation
5O1: Increased economic return from three selected value chains
With the following results:
Output 1.1: Increased sustainable production and inclusiveness of the Cocoa value chain
Output 1.2: Increased sustainable production and inclusiveness of the Vanilla value chain
Output 1.3: Increased sustainable production and inclusiveness of the Fishery value chain (coastal,riverine and aquaculture)
SO2: Strengthened, climate resilient and more efficient value chain enablers.
With the following results:
Output 2.4: Conducive business, trade, policy and regulatory environment for sustainable ruralagripreneurs and MSMEs established:
Output 2.2: Value chain support services strengthened and resilient to climate change impacts
Output 2.3: Increased production of, and access to renewable energy systems
Output 2.4.' Improved and climate proof rural transport infrastructure
The geographical scope of the Programme will initially be focused on the East Sepik and Sandaun provinces. After the mid-term review of the programme, cocoa value chain development activities be considered for expansion to the neighbouring provinces of Morobe and Madang for those activities that require heavier localised investment.
In view of the recognized scarcity of data, and especially related to rural areas, a comprehensive baseline survey will be undertaken during the Inception phase in Year 1 to update the log frame and refine targets and indicators of the Programme.
Women and youth will be prioritized as beneficiaries with set targets and specific resources will be set asideto ensure their fullest engagement and benefit from Programme activities. The updated and detailed log frame will be presented to the Project Steering Committee co-chaired by NAO and EU for review and approval by month 11 of the one year Inception Period.

Titles of the Actions to beevaluated	Support to Rural Entrepreneurship, Investment and Trade inPapua New Guinea (STREIT PNG)
Budgets of the Actions to be evaluated	81,300,000.00
CRIS numbers of the Actions to be evaluated	FED/2019/410-934 (EC)
Dates of the Actions to beevaluated	Start: 06/12/2019 End: 01/05/2022

Stakeholders of the Action
Government Institutions: specifically the National Authorising Officer (NAO) and Department of National Planning and Monitoring (DNPM), Department of Works (DoW), Provincial Government of East Sepik, Department of Agriculture and Lands (DAL) , DTTI, Department of Information and Technology (Ex- DCIE), National Fisheries Authority (NFA), The National Information and Communications Technology Authority (NICTA), Department of Commerce and Industry.

Development Partners: FAO, ILO, UNDP, UNCDF, ITU, UNRC PNG.

Other available information
Progress reports for 2020 and 2021.
The Financing Agreement of the STREIT pogramme and Contract documents for each Component

DESCRIPTION OF THE EVALUATION ASSIGNMENT

Type of evaluation	mid-term
Coverage	The Action in its entirety
Geographic scope	Papua New Guinea, with special focus on East Sepik and Sandaunprovinces
Period to be evaluated	Approximately half period of the Action from 06/12/2019 to01/05/2022

1 COM(2013) 686 final "Strengthening the foundations of Smart Regulation – improving evaluation" - http://ec.europa.eu/smart-regulation/docs/com_2013_686_en.pdf; EU Financial regulation (art 27); Regulation (EC) No 1905/200; Regulation (EC) No 1889/2006; Regulation (EC) No 1638/2006; Regulation (EC) No 1717/2006; Council Regulation (EC) No 215/2008
2 SEC (2007)213 "Responding to Strategic Needs: Reinforcing the use of evaluation", http://ec.europa.eu/smart-regulation/evaluation/docs/eval_comm_sec_2007_213_en.pdf ; SWD (2015)111 "Better Regulation Guidelines",

Objectives of the evaluation
Systematic and timely evaluation of its programmes and activities is an established priority[1] of the European Commission[2]. The focus of evaluations is on the assessment of achievements, the quality and the results[3] of Actions in the context of an evolving cooperation policy with an increasing emphasis on result- oriented approaches and the contribution towards the implementation of the SDGs.[4]
From this perspective, evaluations should look for evidence of why, whether or how these results are linked to the EU intervention and seek to identify the factors driving or hindering progress.
Evaluations should provide an understanding of the cause and effect links between: inputs and activities, and outputs, outcomes and impacts. Evaluations should serve accountability, decision making, learning andmanagement purposes.
The main objectives of this evaluation are to provide the relevant services of the European Union and interested stakeholders with:
an overall independent assessment of the past performance of the "STREIT PNG", paying particular attention to its results measured against its expected objectives; and the reasons underpinning such results;
key lessons learned, conclusions and related recommendations in order to improve current and future Actions.
In particular, this evaluation will serve to understand the performance of the Action, its enabling factors and those hampering a proper delivery of results so as to inform the planning of future EU interventions and Actions in the same sector. The lessons learnt, conclusions and recommendation from this evaluation of STREIT PNG will be useful for future EU interventions in this sector. The outcome of this evaluation will be critical to shape phase 2 of STREIT.
The main users of this evaluation will be the European Union Delegation to Papua New Guinea, the NationalAuthorising Officer (NAO) and Department of National Planning and Monitoring (DNPM), Department of Works (DoW), Provincial Government of East Sepik, Department of Agriculture and Lands (DAL) , DTTI, Department of Information and Technology (Ex- DCIE), National Fisheries Authority (NFA), The National Information and Communications Technology Authority (NICTA), Department of Commerce and Industry, FAO, ILO, UNDP, UNCDF, ITU, UNRC PNG.

Requested services

Scope of the evaluation
The evaluation will assess the Action using the five standard DAC evaluation criteria, namely: relevance, effectiveness, efficiency, sustainability and impact. In addition, the evaluation will assess two EU specific evaluation criteria:
the EU added value (i.e. the extent to which the Action brings additional benefits to what would have resulted from Member States' interventions only);
the coherence of the Action itself, with the EU strategy in Papua New Guinea and with other EU policies and Member State Actions, and other donors such as the World Bank and UNDP
The evaluation team shall furthermore consider whether gender, environment and climate change weremainstreamed; the relevant SDGs and their interlinkages were identified; the principle of Leave No-One Behind and the rights-based approach methodology was followed in the identification/formulation documents and the extent to which they have been reflected in the implementation of the Action, its governance and monitoring.

Indicative Evaluation Questions

The specific Evaluation Questions as formulated below are indicative. Based on the latter and following initial consultations and document analysis, the evaluation team will discuss them with the Evaluation Manager[5] and propose in their Inception Report a complete and finalised set of Evaluation Questions withindication of specific Judgement Criteria and Indicators, as well as the relevant data collection sources andtools.

Once agreed through the approval of the Inception Report, the Evaluation Questions will become contractually binding.

Problems and needs (relevance): This criterion aims to assess the extent to which the objectives of thedevelopment intervention (projects/programmes) are consistent with beneficiaries' requirements, country needs, global priorities and partners' and EC's policies.

http://ec.europa.eu/smart-regulation/guidelines/docs/swd_br_guidelines_en.pdf ; COM(2017) 651 final 'Completing the BetterRegulation Agenda: Better solutions for better results', https://ec.europa.eu/info/sites/info/files/completing-the-better- regulation-agenda-better-solutions-for-better-results_en.pdf

3 Reference is made to the entire results chain, covering outputs, outcomes and impacts. Cfr. Regulation (EU) No 236/2014 "Laying down common rules and procedures for the implementation of the Union's instruments for financing external action" -https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/pdf/financial_assistance/ipa/2014/236-2014_cir.pdf.

4 The New European Consensus on Development 'Our World, Our Dignity, Our Future', Official Journal 30th of June 2017. http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:C:2017:210:TOC

Relevance refers to the appropriateness of the actions and capacity building (including the input of thetechnical assistance) for the beneficiaries. Analysis should focus on:

the extent to which STREIT has been consistent with, and supportive of the policy and
programme framework within which the project is placed, in particular the EU-PNG Multiannual Indicative Programme and the Partner Government's development policies, provincial plans and sectorpolicies;

the extent to which the multiagency approach has been instrumental for addressing the problems andneeds.

the quality of the problem analysis and the project's intervention logic and logical framework
matrix, appropriateness of the objectively verifiable indicators of achievement;

the extent to which stated objectives correctly address the identified problems, clarity and internalconsistency of the stated objectives;

the extent to which STREIT problem analysis fits with the baseline survey that has been conducted.

the quality of the identification of key stakeholders and target groups, and of institutional capacityissues;

the stakeholder participation in the design and in the management/implementation of theproject, the level of local ownership, absorption and implementation capacity;

the realism in the choice and quantity of inputs (financial, human and administrative resources);

the adequateness of project steering and governance mechanisms

Achievement of purpose (effectiveness): This criterion aims to assess how far the programme resultswere attained, and the programme purpose and specific objectives achieved.

The analysis of effectiveness will focus on issues such as:

whether the planned benefits have been delivered and received, as perceived by all key
stakeholders with particular attention to communities and most vulnerable groups (youth, women,remote villages);

the extent to which the multiagency approach has been instrumental for achieving the purpose.

The extent to which the international staff has added-value to the project.

The extent to which coordination between stakeholders have been properly maintained (European Union Delegation, Office of the Governor, Provincial Administration, Department of National Planning and Monitoring).

Contributions from government (e.g offices, experts, staff etc), exemptions, as set out in thefinancing agreements and PE's;

What communication and information strategies were developed and implemented in terms of visibility, dissemination and access to information acquired by the project? If and to what extent the communication and information sharing in the country, regionally and internationally took place and was it effective (what was the price of reaching one person on-line or by the mailing list given the allocated budget?)

Quality of monitoring: its existence (or not), accuracy and flexibility, and the use made of it.

Achievement of wider effects (impact): At impact level the final evaluation will make an analysis of the following aspects:

Extent to which the objectives of the project were achieved so far as intended in particular the plannedspecific objective and results;

The impact the implementation of the programmes brought about in terms of strengthening ofinstitutional and human resources capacity of the institutional bodies concerned;

Continuation of achieved results (sustainability): the sustainability criterion relates to:

Community Acceptance and Ownership

This important component of sustainability needs to be assessed in all relevant target groups.Has the target groups felt the outputs to date of the project are relevant to their needs?

Does the target group know who is in the driving seat?

If so, are they leading in implementation and have their priorities been addressed by theproject?

Appropriate Technology

[5] *The Evaluation Manager is the staff of the Contracting Authority managing the evaluation contract. In most cases this person will be the Operational manager of the Action(s) under evaluation.*

Did the technology offered (where applicable) correspond to the capacity and needs of the target groups? Have the intended beneficiaries adopted and maintained the technology acquired up to this point in time?

Institutional and Management Capacity
- Assess the commitment of all parties involved, such as communities, governments. Has an Exit Strategy been discussed/prepared?

The recommendations of the valuation team will be instrumental for the scope of phase 2 of the action.

Phases of the evaluation and required outputs
The evaluation process will be carried out in four phases:
Inception
Desk
Field
Synthesis
The outputs of each phase are to be submitted at the end of the corresponding phases as specified in the synoptic table in section 2.3.1.

Synoptic table
The following table presents an overview of the key activities to be conducted within each phase and lists the outputs to be produced by the team as well as the key meetings with the Contracting Authority and the Reference Group. The main content of each output is described in Chapter 5.

Phases of the evaluation	Key activities	Outputs and *meetings*
Inception Phase	Initial document/data collection Background analysis Inception interviews Stakeholder analysis Reconstruction (or as necessary, construction) of the Intervention Logic, and / or description of the Theory of Change (based upon available documentation and interviews) Methodological design of the evaluation (Evaluation Questions with judgement criteria, indicators and methods of data collection and analysis, selection of sample site visits) and evaluation matrix	*Kick-off meeting with the Contracting Authority and the Reference Group* via remote conference Inception report
Desk Phase	In-depth document analysis (focused on the Evaluation Questions) Interviews Identification of information gaps and of hypotheses to be tested in the field phase Methodological design of the Field Phase	Desk Note Slide presentation of key findings of the desk phase *Meeting with Reference Group* via remote conference.
Field Phase	Gathering of primary evidence with the use of the most appropriate techniques' Data collection and analysis	*Initial meetings at country level with* EU Delegation, National Authorising Officer's Support Unit Field Note. Slide Presentation of key findings of the field phase *Debriefing with the EU Delegation* (either face to face or virtual)

Phases ofthe evaluation	Key activities	Outputs and *meetings*
Synthesisphase	Final analysis of findings (with focus on the Evaluation Questions) Formulation of the overall assessment, conclusions andrecommendations Reporting	Draft Final Report. Executive Summary according to the standard template published in the EVAL module Final Report

Inception Phase
This phase aims at structuring the evaluation and clarifying the key issues to be addressed.
The phase will start with initial background study, to be conducted by the evaluators from home. It will thencontinue with a kick-off session preferably via teleconference; between EU Project Manager and the evaluators. Half-day presence of evaluators is required. The meeting aims at arriving at a clear and shared understanding of the scope of the evaluation, its limitations and feasibility. It also serves to clarifyexpectations regarding evaluation outputs, the methodology to be used and, where necessary, to pass on additional or latest relevant information.
In the Inception phase, the relevant documents will be reviewed (see annex II).
Further to a first desk review of the political, institutional and/or technical/cooperation framework of EU support to rural development and agriculture in PNG, the evaluation team, in consultation with the Evaluation Manager, will reconstruct or as necessary construct, the Intervention Logic of the Action to be evaluated.
Furthermore, based on the Intervention Logic, the evaluators will develop a narrative explanation of the logic of the Action including an assessment of the evidence underpinning this logic (especially between outputs and outcomes, and between outcomes and impact), and articulates the assumptions that must hold for the Action to work, as well as identification of the factors most likely to inhibit the change from happening.
Based on the Intervention Logic and the Theory of Change the evaluators will finalise i) the Evaluation Questions with the definition of judgement criteria and indicators, the selection of data collection tools andsources, ii) the evaluation methodology, and iii) the planning of the following phases.
The methodological approach will be represented in an Evaluation Design Matrix[6], which will be included in the Inception Report.
The methodology of the evaluation should be gender sensitive, contemplate theuse of sex- and age-disaggregated data and demonstrate how actions have contributed to progress on gender equality.
The limitations faced or to be faced during the evaluation exercise will be discussed and mitigation measures described in the Inception Report. Finally, the work plan for the overall evaluation process will be presented and agreed in this phase; this work plan shall be in line with that proposed in the present ToR.Any modifications shall be justified and agreed with the Evaluation Manager.
On the basis of the information collected, the evaluation team should prepare an Inception Report; its content is described in Chapter 5.

Desk Phase
This phase is when the document analysis takes place. The analysis should include a brief synthesis of the existing literature relevant to the Action
The analysis of the relevant documents shall be systematic and reflect the methodology developed and approved during the Inception Phase.
Selected phone interviews with the project/programme management, the relevant EU services based at the EU Delegation to Papua New Guinea and key partners in Papua New Guinea may be conducted during this phase to support the analysis of secondary sources.
The activities to be conducted during this phase should allow for the provision of preliminary responses toeach evaluation question, stating the information already gathered and its limitations. They will also identify the issues still to be covered and the preliminary hypotheses to be tested.
During this phase the evaluation team shall fine-tune the evaluation tools to be used during the Field Phaseand describe the preparatory steps already taken and those to be taken for its organisation, including the list of people to be interviewed, dates and itinerary of visits, and attribution of tasks within the team.
At the end of the desk phase a Desk Note and a Slide Presentation will be prepared; its content is describedin Chapter 5.
A presentation by the evaluation team to the Reference Group, if needed, will take place preferably via remote conference. One day presence of evaluators is required (excluding travel time).

Field Phase
The Field Phase starts after approval of the Desk Note by the Evaluation Manager.

The Field Phase aims at validating / changing the preliminary answers formulated during the Desk phaseand further completing information through primary research.
If any significant deviation from the agreed work plan or schedule is perceived as creating a risk for the quality of the evaluation or not respecting the end of the validity of the specific contract, these elements are to be immediately discussed with the Evaluation Manager and, regarding the validity of the contract, corrective measures undertaken.
In the first days of the field phase, the evaluation team shall hold a briefing meeting with the EU Delegationand other relevant stakeholders.
During the field phase, the evaluation team shall ensure adequate contact and consultation with, and involvement of the different stakeholders; with the relevant government authorities and agencies. Throughout the mission the evaluation team will use the most reliable and appropriate sources of information, respect the rights of individuals to provide information in confidence, and be sensitive to the beliefs and customs of local social and cultural environments.
At the end of the field phase, the evaluation team will summarise its work, analyse the reliability and coverage of data collection, and present preliminary findings in a meeting with the EU Delegation and National Authorising Officer.
At the end of the Field Phase a Field Note and a Slide Presentation will be prepared; its content is describedin Chapter 5 .

Synthesis Phase
This phase is devoted to the preparation by the contractor of two distinct documents: the Executive Summary and the Final Report, whose structures are described in the Annex III; it entails the analysis of thedata collected during the desk and field phases to answer the Evaluation Questions and preparation ofthe overall assessment, conclusions and recommendations of the evaluation.
The evaluation team will present, in a single Report with Annexes, their findings, conclusions and recommendations in accordance with the structure in Annex III; a separate Executive Summary will be produced as well, following the compulsory format given in the EVAL module (see Annex III).
The evaluation team will make sure that:
Their assessments are objective and balanced, statements are accurate and evidence-based, and recommendations realistic and clearly targeted.
When drafting the report, they will acknowledge clearly where changes in the desired direction areknown to be already taking place.
The wording, inclusive of the abbreviations used, takes into account the audience as identified in art. 2.1 above.
The evaluation team will deliver and then present to the EU Delegation and the NAO Support Unit, the DraftFinal Report to the Reference Group to discuss the draft findings, conclusions and recommendations.One day of presence is required of – as minimum – the evaluator in the case of a sole evaluator or the TeamLeaderin case of a team of evaluators.
The Evaluation Manager consolidates the comments expressed by the Reference Group members and sends them to the evaluation team for the report revision, together with a first version of the Quality Assessment Grid (QAG) assessing the quality of the Draft Final Report. The content of the QAG will be discussed with the evaluation team to verify if further improvements are required, and the evaluation teamwill be invited to comment on the conclusions formulated in the QAG (through the EVAL Module).
The evaluation team will then finalise the Final Report and the Executive Summary by addressing the relevant comments. While potential quality issues, factual errors or methodological problems should be corrected, comments linked to diverging judgements may be either accepted or rejected. In the latter instance, the evaluation team must explain the reasons in writing. After approval of the final report, the QAG will be updated and sent to the evaluators via EVAL Module.

Specific Contract Organisation and Methodology (Technical offer)
The invited Framework Contractors will submit their specific Contract Organisation and Methodology by using the standard SIEA template B-VII-d-i and its annexes 1 and 2 (B-VII-d-ii).
The evaluation methodology proposed to undertake the assignment will be described in the Chapter 3 (Strategy and timetable of work) of the template B-VII-d-i. Contractors will describe how their proposed methodology will address the cross-cutting issues mentioned in these Terms of Reference and notably gender equality and the empowerment of women. This will include (if applicable) the communication actionmessages, materials and management structures.

[6] *The Evaluation Matrix is a tool to structure the evaluation analysis (by defining judgement criteria and indicators for each evaluation question). It helps also to consider the most appropriate and feasible data collection method for each of the questions,*

Management and Steering of the evaluation

At the EU level
The evaluation is managed by the Evaluation Manager of the EUD; the progress of the evaluation will be followed closely with the assistance of a Reference Group consisting of members of EU Services within theDelegation and the National Authorising Officer.
The main functions of the Reference Group are:
To define and validate the Evaluation Questions.
To facilitate contacts between the evaluation team and the EU services and external stakeholders.
To ensure that the evaluation team has access to and has consulted all relevant information sourcesand documents related to the Action.

To discuss and comment on notes and reports delivered by the evaluation team. Comments by individual group members are compiled into a single document by the Evaluation Manager and subsequently transmitted to the evaluation team.
To assist in feedback on the findings, conclusions, lessons and recommendations from the evaluation.
To support the development of a proper follow-up action plan after completion of the evaluation.
At the Contractor level
Further to the Requirements set in the art. 6 of the Global Terms of Reference and in the GlobalOrganisationand Methodology, respectively annexes II and III of the Framework contract SIEA 2018, the contractor is responsible for the quality of: the process; the evaluation design; the inputs and the outputs of the evaluation. In particular, it will:
Support the Team Leader in its role, mainly from a team management perspective. In this regard, the contractor should make sure that, for each evaluation phase, specific tasks and outputs for eachteam member are clearly defined and understood.
Provide backstopping and quality control of the evaluation team's work throughout the assignment.
Ensure that the evaluators are adequately resourced to perform all required tasks within the time framework of the contract.

Language of the Specific contract
The language of the specific contract is to be English

2. Evaluators' CV

Team Leader:
Mr. Giorgio V. BRANDOLINI, who holds an M.Sc. in Agriculture and Post-Doc specialization in the evaluation of natural resources complemented with emphasis on climate change mitigation and adaptation, has completed over 30 evaluations exercises of programmes and projects concerning agricultural and rural development, water management and climate resilience. Specifically, Mr. Brandolini excels in the formulation of strategies, work plans and evaluations of multi-sector initiatives where environmental, socio-economic and cultural issues impact on the governance and implementation of technology transfer. Mr. Brandolini is highly knowledgeable of the agricultural and natural resources conservation policies as he has already assessed projects in these fields for the EU Delegations in South-East Asia and the Pacific and other regions. He has a long-standing experience in the organisation and execution of participatory surveys of rural communities. During his assignments, he has developed a great familiarity with the Logical Framework / Project Cycle Management methodology and Critical Path Analysis. He is well acquainted with the financial instruments, procedures and reporting requirements of the EU, UN, USAID, World Bank and national cooperation agencies.

Key Expert 2:
Mr. Jack Tomon is a renowned technology expert in Papua New Guinea with specialization in telecommunication, digital economy and e-banking system. He has obtained Masters in Information Technology and Bachelor in Electrical Engineering, Communication Engineering. He has more than 20 years of solid working knowledge in technology-based development project particularly in telecommunication and digital financial system in energy sector. He has developed the whole government cloud technology adoption system and developed stratgic partnership with e-government system. He has developed communication and information system of Ministry of Information Communication Technology and Energy. As a GSM wireless technology expert, he has managed GSM mobile project. As a chief technology officer, he has provided overall technical leadership for booming network operation in PNG and Solomon Island. He has supported for providing business strategy for preparing market liberalization of telecommunication sector and provided ICT engineering and telecommunication services to relevant government organizations and international telecommunication union. He has supported for presenting digital government agenda in APEC telecommunication sector flora meeting. He has developed ICT protection system for securing digital financial services and upraised digital skills of government officials and relevant organization members for establishing digital economy and e-banking system. He has provided consultancy services for promoting digital agricultural process in rural areas besides supported to EU and government for promoting rural entrepreneurship trade and investment. He has developed monitoring and evaluation strategy for assessing digital government system with special focus on information delivery wing. He has built IGIS infrastructure, shared platform, critical infrastructure and improved cyber security capabilities of government ICT department. He has fluency in English language with outstanding report writing skill.

Key Expert 3:
Mr. Clovis IKE J. Payumo is a highly skilled infrastructure development expert in area of rural road and infrastructure development for sustainable and inclusive economic development of rural areas in PNG. He has obtained Masters in Public Administration along with Bachelors in Civil Engineering and also accomplished Post Graduate Diploma in Hydraulic Engineering. Clovis IKE J has over 35 years of extensive professional experience in conducting

engineering project evaluation and feasibility studies of large-scale donor funded rural infrastructure development programs. He has developed comprehensive design and building feeder roads, bridges, building construction, irrigation schemes and drainage works, Specialization in developing local disaster risk reduction policy, management planning, budgeting and implementation, provided support for developing irrigation networks, small-scale irrigation possibilities, potable water supply systems and reviewing irrigation schemes plan prepared by National Irrigation Administration (NIA) etc. He has acquaintance in civil engineering works and rural roads construction as well as roads maintenance issues enabling effective value chain for improving rural business environment and entrepreneurship development. Beside with that, he has over 5 years of experience in EU project evaluations by reviewing and assessing of rural infrastructure, agriculture, irrigation, fisheries and investment of agriculture & rural community development projects, practical experience in conducting large-scale EU funded rural development projects cost around Euro 48.65 million by following OECD-DAC evaluation criteria, Project cycle management (PCM), Logical Framework Approach (LFA) etc. Furthermore, he has admirable communication skills with strong command over English, Pilipino, Mandaya and satisfactory command over Cebuano language.

3. Detailed methodology

The following table presents the risks and mitigation measures

Risks	***Mitigating actions***
Evaluation data are not available in time and/or do not provide adequate information.	Clarify availability and information constraints with stakeholders at the earliest opportunity;
Inadequate access to requested documentation and information on the programmes to be evaluated.	Address emerging difficulties at the earliest opportunity, through *inter alia* communication with stakeholders and/or with the support of EU Delegation in order to trace direct or alternative sources of information.
Stakeholders are not regularly informed about the objectives and methods of this evaluation, and do not provide full cooperation.	Present the phases and exigencies of the field survey, update the implementing partners on the next steps of the evaluation
Stakeholders involved in sub-standard and/or non-transparent practices are unlikely to provide helpful information.	An evaluation such as this is unlikely to be able to deal with evasive responses. Inform the EUD if authorities availability is at stake. Authoritative introduction and follow-up support by the EUD may generate compliance.
Key stakeholders fail to participate in interviews, focus groups or surveys, or nominate staff with insufficient knowledge.	Clarify availability and information constraints with stakeholders at the earliest opportunity; Provision in advance of interview guidelines / questions and design and development of clear and user-friendly questionnaires
Number of surveyed intermediaries and/or beneficiaries (people, enterprises, etc.) population samples are not large enough to enable a representative picture to be generated (especially of unintended or unexpected impacts).	Samples will include different types of support, channels, modalities, intermediaries, beneficiaries etc. The selection process will strictly apply a set of relevance and representativeness criteria to ensure that these risks are mitigated.
The use of virtual tools reduces the empathy of the meetings and the evaluators' capacity to absorb quality information	The team will increase the number of stakeholders to "meet" in order to build larger database and more solid averages, and thereto will consider the pursuit of more quantitative tools (along the KPIs of the EQ-JC-KPIs evaluation matrix)

Insufficient time for sharing and feedback of evaluation phases outputs with key stakeholders to ensure co- ownership of the evaluation process and gradual materialisation and internalisation of participatory and inclusively arrived at evaluation findings and conclusions as basis for pertinent and duly owned recommendations	Structured feedback of outputs and outcomes of the successive evaluation phases (inception, desk, field and synthesis) both written and interactive if and when possible, in an efficient and effective manner to ensure timely completion within envisioned ten months implementation period. In view of covid-19 pandemic, substantive use of e-consultations, e-conferences and possibly webinars. When needed / necessary, possible consideration of slightly longer implementation period up to 12 months, particularly also in view of constraints and mobility limitations imposed by the corona pandemic
Lack of set End of the project targets.	Discuss with project team the revision of work plan in relation to fixing the End of project target.
Logistics challenges during the rainy season can increase the travel time to remote project sites.	Discuss with local authorities in District towns about alternative routes, communities to be visited. Update the field survey itinerary accordingly.

The evaluation questions

The Final evaluation is centred on the answers to the Evaluation questions included in the Evaluation matrix that has been slightly revised with respect to their formulation in the Terms of Reference. The Evaluation matrix links the Evaluation questions to the relevant indicators and sources of information. Annex 5 presents the Evaluation matrix that links the Evaluation questions to the assessment criteria, indicators sources of information and data collection modalities. The analysis of the EU added value and the difference with reference to the contribution by EU Members States are addressed jointly with the coherence criteria through a specific Judgment criterion addressing the same Evaluation question

Strategy and Methodology

Evaluation strategy

The evaluation is guided by the five standard OECD/DAC evaluation criteria: relevance, effectiveness, efficiency, sustainability and impact. It will also assess the 1) EU added value to the action, 2) the coherence; and; 3) cross-cutting issues.

The evaluation process combines the desk analysis of the project documents with the collection of fresh information from the stakeholders, including institutions, beneficiaries and partners. The project documents will provide concrete information on the project achievements that can be used in elaborating key aspects of the project performance and outputs. The analysis compares the results obtained with the baseline values of the indicators and through the information collected during the survey assesses how much such changes are due to the programme or other interventions.

The experts jointly perform the evaluation by assessing the different components of the programme along the respective sectoral expertise. The Team Leader is in charge of the analysis of the programme setup and implementation mechanism of the Objective 1 (value chains) and Objective 2 Output 2.1 (environment). Expert 2 is in charge of the analysis of the Output 2.3: Increased production of, and access to renewable energy systems and Expe3t 3 of the analysis of Output 2.4. Improved and climate proof rural transport infrastructure. The Team leader ensures the coherence of the contribution of the experts. The Consortium leader ensures the quality control of the output of the Evaluation team.

Field data collection process

Sampling

The field survey is the main source of primary information for the evaluation. This is performed in form of direct engagement with a sample of communities and stakeholders that represent the different kinds of intervention in the target Provinces and Districts. The three project-assisted value chains are expected to strengthen smallholder farmers from rural communities in the East Sepik and West Sepik provinces that are met and interviewed through Focus group discussions (FGD).

The identification of the communities to be engaged in the field survey was conducted interactively with the implementing partners, MoA and Local Government Authorities (LGAs) representatives. We have elaborated the field survey plan on the basis of the following five criteria:
1. the representation of the different components of the project,
2. the geographical coverage - that is correlated to the different environmental conditions,
3. the representation of assisted and not-project communities,
4. the information of the project documents and indications provided by the representatives of the MoA, LGAs and local partners,
5. the logistics of the survey - to elaborate an itinerary that maximises the time spent meeting the beneficiaries also in relation to the rainy season constraints.

The field survey is split in two phases, interrupted by the end of the year holidays: 11-16/12/2022 and 7-25/2023. The collection of primary information in the field is completed by interviews held in Port Moresby / remotely during the inception and desk phase (28/11-9/12/2022) and at the beginning of the second phase (7-8/2/2022) and by the debriefings conducted on 23/2/2022 in Port Moresby to validate the preliminary findings of the survey.
A total 30 sites are visited during the survey including a not-project community. They include 5 East Sepik districts (Ambunti, Angoram, Maprik, Wewak, Wosera Nuku, Lumi) and 4 West Sepik districts (Nuku, Lumi, Aitape, Vanimo)[24]. A total 37 activities are surveyed during the three weeks of the field survey. In fact, some sites include several activities, as it is shown in the following table.

Sites and activities of the survey

Component	*East Sepik*		*West Sepik*		*Total*	
	Sites	*Activities*	*Sites*	*Activities*	*Sites*	*Activities*
Cocoa value chain	12	6	1	2	13	8
Vanilla value chain		5		2		7
Fishery / aquaculture value chain		2		2		4
Road rehabilitation and maintenance	5	5	1	1	6	6
Fintech	4	4	1	1	4	5
Solar energy	4	3	1	1	7	4
ITC	2	2		1		3
Total	25	27	5	10	30	37

Data collection
Data and information collection is a crucial step in the process of evaluation as it provides first-hand data issuing from the beneficiaries and their local partners. In collecting data, the Evaluation team is likely to use one or more of the following modalities:

- In-depth documentary review: The documents being reviewed include policy, regulatory, planning documents, stakeholders' reports, the strategies and as well as the output of meetings concerning the scope of the project, studies and evaluation reports.
- Analysis of existing quantitative data, including statistics, along the results chain;
- Field visits and focus group discussions in the communities participating in the project activities.
- Key Informant Interviews/meetings: the interviews are being conducted with the assistance of a semi-structured interview questionnaire/guide.
- Visit of the assisted communities, infrastructures, local partners. The experts jointly visit the sampled villages (Section 7.2.1) to meet the farmers and inspect the field actions and organise focus group discussions with the community members. As the livelihoods vary among the value chains and community members, the experts are going to complement the quantitative data for the farmers benefitting from the project assistance and for a group of villagers that have not been supported. This to assess the project's differential impact on their livelihoods. Such an approach allows the evaluation to define the range of benefits obtained in each community and link them to the socio-economic conditions of the more representative groups of beneficiaries. The basic assumption of the assessment is that the project assistance has improved the food security, incomes and well-being of the assisted farmers. At the same

[24] East Sepik includes 6 districts and West Sepik 4 districts.

time, we are going to inquire about which other initiatives have supported the community and in such case we discuss with the villagers the relative contribution of the different projects.

The data collected through FGD and in-depth interviews with local informants is triangulated with those provided by programme partners and institutions and with findings from secondary data (after reviewing project document, baseline and progress report) and from experts' observations while on the project sites. For the Rural Transport Infrastructure, an ocular inspection checklist is used to assess the current condition of the completed facilities in the areas of materials quality, workmanship, appropriateness of design, and the presence of distresses and deficiencies on the major parts of the completed infrastructure.

During the FGD, the team discusses with the farmers and fishers the socio-economic and environmental factors that influence their production and its outputs, connection with the other actors of the value chains, operation and maintenance of roads and other infrastructures and other sources of income.

Data Processing and Analysis

The data collected are analysed through the comparative approach to define the contribution of the different programme components to local development, actual and potential costs and benefits. The comparative approach is conducted through the Strengths – Weaknesses – Opportunities – Threats (SWOT) analysis that highlights the key elements that distinguish the programme interventions. The quantitative data are combined with the qualitative ones on the factors influencing the production and livelihoods of the farmer's families to present the socio-economic and environmental factors that influence the achievement of the project results and objectives.

Cost benefit analysis

The assessment of the cost benefits of the programme provides the economic basis of the SWOT analysis used establish the fitness of the programme components. The proposed approach is based on the break-down of the main elements of the cost and benefits of the programme in the selected value chains. It also takes into account that there is little room for sampling the sources of economic data in a systematic, counterfactural way.

The economic analysis of the programme outcomes is performed by component of the programme, by associating the off farm activities relevant to the output of the selected value chains. The assessment of the economic benefits generated by the selected value chains is linked to the calculation of the progress in achieving the target of the Logframe indicators. The experts collect information on the economic production in the provinces / districts to validate the baseline values and through the interviews and field visits from the beneficiaries. The economic calculation is based on the assumption that the programme activities have the potential to improve the farm / fishery outputs – i.e. it is a perspective assessment –. It considers:

- the cost of the intervention that have benefitted or benefit the producers by the progrmme end (investments) and the main production elements (purchase of external assets, work, maintenance, processing cost whereas relevant)
- the expected production increase, foreseeable price at farm gate and of the processed product whereas relevant.

In synthesis, the economic information to be collected are:

A	Costs
1	Investments
2	Production
2.1	Purchase of external inputs
2.2	Work employed
2.3	Maintenance cost
2.4	Processing cost
2.5	Non financial costs
B	Benefits
1	Production increase
2	Foreseeable price at farm gate
3	Processed product cost
4	Non financial benefits

The extrapolation of these data collected from the informants in the visited sites to the present and expected number of beneficiaries will make possible to calculate the simplified return rate:
Return rate = Benefits / Costs
We use a standard actualisation rate to calculate the present value of the costs and benefits in line with the simplified model adopted in the cost benefits analysis. In fact, the uncertainty on the outputs of the programme investments is still quite broad at this state of implementation of field activities – tentatively 5% -.
An approximate method is used to attribute the other costs and benefits of programme activities – roads, electricity and ITC – as in this case the benefits for extra-agricultural and fishery uses are very high – tentatively 1/3 as part of them are harvested by other economic activities and part by residential (non-economic) ones -.
In addition, the cost effectiveness on interventions provided under the Rural Transport Infrastructure is measured by comparing the unit cost parameters of implementing the road improvement and road maintenance per kilometre between the estimated cost in the original design against the actual cost during implementation. The output of this exercise is cross-checked by comparing the actual cost from a similar project having the same component if this information are available.
Quality Control
The reliability of the assessment is achieved by spot check of the data entered in the spreadsheet used to systematise the data collected during the survey.

The Interview Guide: Checklist/Questionnaire
The interviews both at FGD and key informant levels are conducted along a guide that includes the topics aligned with the Evaluation questions that articulate an open discussion with the informants on the key issues concerning the programme design, performance, and achievements. Such an approach makes it possible to include in the analysis the external factors that the stakeholders deem important for the success of the programme and other elements not initially identified in its strategy that influences their engagement with the project. The interview of partners and beneficiaries and focus group discussions are conducted in an open way, to catch their perceptions and expectations. Annex 8 presents the survey guide.
The assessment of the roads and othe infrastructure built by the project is summarised in a synthesis profile that presents the key facts about them including the feedback of the meetings held in the surveyed villages. Such data are used to calculate the exigencies of operations and maintenance of the infrastructure. Annex 9 presents the infrastructure profile form.

Work plan
Inception phase
The inception phase takes 1 week and is conducted remotely (3 Day) and in Port Moresby (5 days).
Team leader: 8 working days. Expert 2: 8 working days, Expert 3: 8 working days
It consists of the following activities:
Kick-off meeting. Documents collection and review (3 days home-based). The kick-off meeting of the Experts with the Contracting Authority / Evaluation Manager took place on 28th November 2022 in Port Moresby. This meeting mainly discussed and clarified key issues of the Terms of Reference (ToRs) including:
Scope and tasks of the Evaluation
Challenges faced in the programme performance
Initial document/data collection and review
Organisation of the interviews and field visits
Preliminary interviews. The experts introduced the mission to the NAO, DAL, FAO and selected informants to identify the key informants and define the focus of the survey and interviews.
Methodological design of the evaluation. The evaluation team reviewed and analysed the project documents to develop the methodology and work tools. These activities focus on:
Themes to be studied as stated in the ToR;
Logical framework and intervention Logic;
Programme stakeholders' mapping and Theory of change reconstruction
Evaluation matrix with the final version of the Evaluation questions, judgment criteria, relevant indicators, and sources of information.
Interview guide
Preliminary work plan of the interview phase, elaborated with the assistance of the EU Delegation, FAO and Ministry of agriculture
List of key informants
Contacts of the key informants

Reconstruction of the Support Intervention Logic / reconstructed Theory of Change. The joint intervention logic (IL) of the programme represents the hierarchy of objectives and expected effects of this initiative. As such, it represents the backbone for the evaluation and outlines the set of objectives against which the EU interventions will be assessed. The joint IL will be built, based on the actions' logframe.

Submission and Presentation of the Inception report. The Evaluators submitted the Inception report at the end of this phase.

Deliverables

Inception Report (draft and final version) with the methodology and work tools of the Evaluation

Desk phase

The Desk activities take 1 week and are conducted in Port Moresby.

Team leader: 5 working days. Expert 2: 5 working days. Expert 3. 5 working days.

The Desk activities include the following tasks:

Desk Analysis and Preliminary Interviews

The Desk analysis starts after the approval of the Inception report. It includes a review of key policy and project documents at national and local levels and remote/face-to-face interviews with key programme partners.

Indicators The logical framework includes "Objectively Verifiable Indicators (OVIs)" and "Sources of Information" which are useful for structuring the evaluators' work. As long as OVIs have been properly monitored, including baseline data, they become a major part of the factual basis of the evaluation. We will revise the values of indicators to fix their values.

This will lead to:

Finetuning of the key topics of the evaluation

In-depth document analysis (focused on the Evaluation questions)

Revision of the values of the indicators

Identification of information gaps and of hypotheses to be tested in the Interim phase

Methodological design of the Field phase

Finalisation of a detailed work plan and making Interviews arrangement.

The experts, with the assistance of the FAO / project team identify and contact the key informants to introduce their mission and perform the preliminary interviews.

Presentation of the Desk study

A meeting with the Contracting Authority / Evaluation Manager and Reference group is to be organised to present the Desk report with the assistance of a PowerPoint presentation.

Deliverables

Desk report

PowerPoint presentation of the Desk report

Field phase

The field phase takes 3 weeks, split in two steps.

Team leader: 15 working days. Expert 2: 15 working days. Expert 3: 15 days.

The Interview activities include the following tasks:

First step (1 week) of the survey in East Sepik Province (ESP) and interviews

The interviews will start as soon as the Desk Report has been approved.

Tasks

Gathering of primary evidence with the use of key informant interviews at national, district and community levels,

Secondary Data collection and analysis

Visit communities and undertake Focus group discussions (FGD) in a sample of project sites in the East Sepik Province.

Fieldwork is meant to collect evidence as diversified and reliable as possible through the following means:

Statements by key informants who have been personally involved;

Facts, statistics and documents provided by the key informants.

Proxies, i.e. observation originating from the facts, statistics and documents provided by the key informants.

The experts visit a sample of programme sites that represent the different conditions and kinds of activities performed in the selected Districts and not-project communities to have the perception of the project differential impact.

Pictures of visited sites in support to the findings in the field reports

Second step (3 week) of the survey in East Sepik and West Sepik Provinces (ESP / WSP) and interviews in Port Moresby (1 week)

After the interruption due to the holidays of end of the year, the team resumes the field survey and completes the interviews.

Ethical behaviour

The evaluation team has both a responsibility towards the EU and the groups and individuals involved in the evaluation or concerned by it. That means that the following aspects are to be carefully considered, especially on a programme that has encountered various difficulties:

Interviewers are familiar with and respectful of the beliefs, manners and customs of the interviewees. The evaluation team should also minimise demands on interviewees' time.

Interviewers respect people's right to provide information in confidence and ensure that sensitive data cannot be traced to its source; we anonymise the answers of the interviewees in the text of the MTE reports.

Evaluations sometimes uncover evidence of wrongdoing. What should be reported, how and to whom will be carefully discussed with the EUD Evaluation manager.

Presentation of the Preliminary findings of the interviews

Once the interviews are over, our team will conduct a debriefing with the Contracting Authority/Evaluation Manager and Reference Group in Port Moresby to present the Preliminary findings of this phase with the assistance of a PowerPoint presentation.

Deliverables

Field note (PowerPoint presentation) with the preliminary findings of the field visits and interviews

Synthesis phase

The Synthesis phase will take 5 weeks. This phase will be performed remotely.

Team leader: 22 working days. Expert 2: 22 working days. Expert 3: 22 working days

This phase includes the following activities:

Draft Evaluation report

The experts will produce the Draft Evaluation report and draft Executive summary and submit them to the Contracting Authority / Evaluation Manager.

Presentation of the draft evaluation report

The Team Leader and the two Experts will conduct a remote conference with the Contracting Authority / Evaluation Manager and Reference Group and selected stakeholders to present the Draft Evaluation report with the support of a PowerPoint presentation.

Revision of Draft evaluation report

The experts will incorporate the output of the conference in the revision of the Draft Evaluation Report and Executive summary and submit them to the Contracting Authority / Evaluation Manager.

Tasks

Final analysis of findings (with focus on the Evaluation Questions)

Formulation of the overall assessment, conclusions and recommendations

Discussion with the Contracting Authority / Evaluation Manager and Reference Group via remote conference.

Deliverables

Draft Evaluation report

Executive Summary according to the standard template published in the EVAL module

PowerPoint presentation

Final Evaluation report

Dissemination phase

The Dissemination phase will take 1 week. This phase will be performed remotely.

Team leader: 5 working days. Expert 2: 5 working days. Expert 3: 5 working days

This phase includes the following activities:

Presentation of the Evaluation report to key partners

The experts will elaborate the presentation of the Evaluation Report and present it to the Reference Group and key partners. We will conduct two presentations, respectively for the key partners in Port Moresby and in Wewak.

After taking on board their additional comments, they will complete and submit the Final report and Executive summary.

Tasks

Elaboration and presentation of the Evaluation report to the Reference group and key parnters via remote conference.

Deliverables

PowerPoint presentation

Final Evaluation report

Final Executive summary

4. Evaluation matrix

N	*Evaluation question*	*Judgment criteria*	*Indicators*	*Ways and tools*	*Source of information*
1	**Problems and needs**				
EQ1	How much the STREIT has been consistent with, and supportive of the EU-PNG Multiannual Indicative Programme and the PNG Government's development policies, provincial plans and sector policies?		STREIT PNG consistency with country's development priorities and strategies from design stage to present as well as the EU – PNG Multiannual Indicative Programme Target groups and current beneficiaries' needs vis-à-vis Programme objectives and input targets and quantity	Secondary documents and Programme reports	Plans and Programmes, Progress Reports, Mission Reports, Baseline Survey Results
1.1		multiagency approach modality of contribution to the addressing of beneficiaries' problems and needs			
1.2		logical framework SMARTness			
1.3		target groups and institutional contribution to strategy and activities design			
2	**Achievement of purpose - Effectiveness**				

EQ2	Have the communities and most vulnerable groups received the planned benefits (number of seedlings distributed, beneficiaries trained, reached by improved road and communication i.e)?		Increase in economic return from 3 selected value chains, and strengthened, climate resilient, and more efficient value chain enablers Satisfaction of beneficiaries with services provided by the project Increased capacities of the beneficiaries Implementation challenges and mitigating measures for implementation to stay on-track	Desk review and analysis of available documents/ reports Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
2.1		modalities of the participation of the intended beneficiaries to the implementation			
2.2		benefits delivered that match the change of context due to external factors intervened			
2.3		change in scope or strategies employed during implementation			
2.4		unintended outputs and outcomes			
3	**Sound management and value for money - Efficiency**				

EQ3	Are the benefits of the programmes matching the costs incurred in comparison with alternative approaches (cost of training a beneficiary, cost of providing a seedling, cost of establishing electric power generation, cost of establishing telecommunication connections, etc.)?		% of budget execution Increase in prices and actual unit cost parameters Timeliness of funds release	Desk review and analysis of available documents/ reports Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
3.1		major factors influencing the achievement or non-achievement of the objectives			
3.2		partners' contributions integration in the delivery of the field activities			
EQ4	Has the coordination between stakeholders have been properly maintained (European Union Delegation, Office of the Governor, Provincial Administration, Department of National Planning and Monitoring)?		Delays in fund release Government resources contributed	Desk review and analysis of available documents/ reports, budget Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
4.1		contributions / exemptions in the FA, PE from government (offices, experts, staff etc) facilitating the project execution	Awareness of beneficiaries on the project achievements Awareness by decision makers on opportunities and challenges of the three value chains	Desk review and analysis of available documents/ reports, policy and planning papers Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions

				Field visits first-hand observations
EQ5	What communication and information strategies were developed and implemented in terms of visibility, dissemination and access to information acquired by the project? If and to what extent the communication and information sharing in the country, regionally and internationally took place and was it effective (what was the price of reaching one person on-line or by the mailing list given the allocated budget?)			
EQ6	Was the project monitoring providing accurate information to support the flexibility of the project strategy steering?	Use of monitoring feedback in project strategy steering	Desk review and analysis of available documents/ reports, Logframe Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
4	**Achievement of wider effects - Impact**			

EQ7	Have the project objectives been achieved?		Revenues generated by the three value chains Change of income of the beneficiaries	Desk review and analysis of available documents/ reports, Logframe Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
EQ8	Has the project strengthening the institutional and human resources capacity of the PNG Government bodies?		Current operational status of completed facilities Ordinances on proper use of completed facilities including sanctions to erring end users Establishment and effectiveness of O&M systems and procedures i.e. O&M organizations in place and functionality, capability, availability and sufficiency of annual O&M budget	Desk review and analysis of available documents/ reports, Logframe Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
8.1		limitations in the capabilities of the Government bodies			
8.2		government commitment to support the communities in the sustainability of the proect facilities			
5	**Continuation of achieved results - Sustainability**				

EQ9	Have the communities and institutions the capacities to continuate the benefits delivered by the project activities?		Degree of commitments of PNG Government agencies to support maintenance and cooperation of end users Establishment of O&M Monitoring and Evaluation and its functionality Ordinances on proper use of completed facilities including sanctions to erring end users if any	Desk review and analysis of available documents/ reports, Logframe Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations
9.1		policies and reforms needed to sustain the project results			
9.2		government and communities collaboration to the design of the Exit strategy			
9.3		adoption and maintenance of the technology acquired up to this point in time by intended beneficiaries			
6	**Cross-cutting issues**				
EQ10	Has the project uptaken the exigencies of vulnerable groups and used them to improve their contribution to the steering of the three value chains?		Participation of women and other vulnerable groups in the governance of the three value chains Share of revenues obtained by women and other vulnerable groups	Desk review and analysis of available documents/ reports, Logframe Interviews Group discussion	Progress Reports, Mission Reports, Baseline Survey Results Responses to structured interviews and group discussions Field visits first-hand observations

10.1	target groups participation to steering the delivery of field activities
10.2	conditions of women and other vulnerable groups improved thanks to the project

5. Literature

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6. Itinerary of the field visits

DATE	PLACE	ACTIVITY	DELIVERED BY
First phase			
25th-26th Nov		Flight to Port Moresby	
285h Nov	Port Moresby	Kick off meeting at EUD Meeting with Acting secretary of DAL	
29th Nov	Port Moresby	Remote meeting with FAO team	
30 Nov	Port Moresby	Meeting with: DNPM / NAO MiBank	
1st Dec	Port Moresby	Meeting with: Climate change and development authority (CCDA) Deputy secretary, Department of works	
2nd Dec	Port Moresby	Coordination, Desk report writing	
5th Dec	Port Moresby	Coordination, Desk report writing	
6th Dec	Port Moresby	Meeting with: Women micro bank Ltd or Mama bank	
7th Dec	Port Moresby	Meeting with : DOWIAD UNDP	
8th Dec	Port Moresby	Meeting with: CEO, Spice Industry Board	
11th Dec	Wewak	Flight to Wewak	
12th Dec	Wewak	Meeting with EU STREIT PNG Team	All agencies
		Provincial Administrator/Deputy Provincial Administrator/Technical agencies	All agencies – Provincial administration
		Meeting with Executive Manager, Provincial Division of Agriculture and Livestock	FAO – Province DAL
		Meeting with Cocoa Board Sepik Regional Manager	FAO – Cocoa
		Meeting with Provincial Division of Physical Works	ILO - DoW
		Meeting with Mama Bank Branch Manager	UNCDF
		Meeting with Mi Bank Branch Manager	UNCDF
		Briefing on meetings and Plan for next day	All agencies
13th Dec			
	Banak Wautogik road	Meeting with Beneficiaries, Government Officers, Contractor	ILO
	You	Meeting with Fish hatchery and Fisher Folks	FAO – Fishery
	Hawaiin	Cocoa Board Hawaiin Nursery	
	Hawaiin	Meeting with Cocoa Nursery manager, fermentary and beneficiaries	FAO – Cocoa
	Yawasoro – Niengwanjie Road	Meeting with Routine Maintenance Group (RMG)	ILO
	Yawasoro	Meeting with Yawasoro Technical School (TVET)	FAO, ILO
14th Dec			
	Yangoru	Meeting with Nagum Secondary School (Renewable Energy)	UNDP
	Munj, Yawasoro road	Meeting with Beneficiaries, Government Officers, Contractor	ILO

	Yangoru junction	Meeting with Mi Bank agent	UNCDF
		Travel to Maligaini Cocoa Group (Pack Lunch during travel)	
	MAligini	Meeting with Maligaini Group Cocoa Farmers	FAO – Cocoa, Gender and Youth inclusion
15th Dec			
	Pagwi	Meeting with Mama Bank Access Point Manager, Pagwi	UNCDF
	Wombisa, Wosera	Meeting with Fisheries Beneficiaries, Government Officers	FAO – Fisheries
	Hayfield, Maprik	Meeting with Maprik Secondary School (Resource Center)	ITU
	Mandi	Meeting with Vanilla Farmers	FAO – Vanilla, Gender and Youth inclusion
16th Dec	Wewak	Flight to Port Moresby	
	Port Moresby	Remote meeting with PNG Agriculture Remote debriefing with STREIT project unit	
12th Jan	Home based	Remote debriefing with EUD	
Second phase			
Sun 5th - Mon 6th Feb		Inbound flight	
Tue 7th Feb	Port Moresby	Arrival at Port Moresby Briefing with UN agencies	
Wed 8th Feb	Port Moresby	Meeting with: NFA NAQIA Rural airstrip agency (RAA) of PNP Ltd	
Thu 9th Feb	Wewak	Flight to Wewak	
	Wewak	Meeting with EU STREIT PNG Team	All agencies
Fry 10th Feb	Dagua	Travel to Dagua	
	Dagua	Dagua Community Health Centre, Dogur Dagua Cocoa farmers' group	UNDP
	Mandi	Mandi Vanilla farmers' group	FAO – Vanilla
	Turubu	Taul Community health post	UNDP
	Wewak	Help Resources local NGO	FAO - Gender and Youth Inclusion
Sat 11th Feb	Wewak		
Sun 12th Feb	Nagam	Nagam Secondary School	
Mon 13th Feb	Angoram	WMBL minibranch	UNCDF
	Angoram	Mi Bank agency	UNCDF
	Angoram	Angoram Cocoa and vanilla farmers' group	FAO – Cocoa, vanilla
	Angoram	Meeting with Angoram District Administration EG Futures NGO	All agencies
Tue 14th Feb	Maprik	Bonohoi Endibi and Taunages Asanokar road	ILO – Road
	Warabung	Warabung Not-project Cocoa farmers' group	Cocoa
	Maprik	Maprik Secondary School	ITU - Resource centre
	Albinama	Albinama Vanilla farmers' group	FAO – Vanilla
	Mssim	Misim Vanilla farmers' group	FAO – Vanilla
	Drekiker	Balif – Ariseli roadn	ILO – Road
	Nanha-Tau	Ambunti Drikirkir: Nanha-Tau Road	ILO – Road
Wed 15th Feb	Nuku	Cocoa farmers' group	FAO – Cacao
	Nuku	Walkasa MaiMai Wanwan road	ILO - Road
	Nuku	Meeting with Nuku District Administration Officers	All agencies
Thu 16th Feb	Lumi	MamaBank mini branch	UNCDF
	Yarasi	Wainam agro Ltd. / Cocoa farmers' group	FAO – Cocoa
	Kefam	Kefam Cocoa and Vanilla farmers' group	FAO – Cocoa, vanilla
	Lumi	Meeting with Lumi Sub District Administration Officers	All agencies
	Lumi	Luti Cocoa farmers' group,/ Weteme Cocoa farmers' group	FAO – Cocoa

Fry 17th Feb	Wewak	Return to Wewak	
Sat 18th Feb	Wewak		
Sun 19th Feb	Wewak		
Mon 20th Feb	Kaup	Kaup Fishery group	FAO - Fishery
	Wewak	Programme coordinator, assistant programme coordinator	All agencies
Tue 21st Feb	Wewak	Binatant Fire ants demonstration plot	FAO
	Wewak	M&E and Communication officer	FAO
Wed 22nd Feb	Vanimo	Flight to Vanimo	
		Vanimo province administration	All agencies
Thu 23rd Feb	Port Moresby	Flight to Port Moresby	
		Meeting with NMNC / NAO	
		Meeting with UN Resident Coordinator and Head of Agencies (FAO, ILO, ITU, UNCDF, UNDP)	All agencies
		Debriefing with EU Delegation	
Fry 24th Feb	Port Moresby	Outbound flight - KE2	
Sat 25th Feb -Sun 26th Feb	Port Moresby	Outbound flight – TL	

7. Informants

A. Informants met during the first phase of the survey

Informants met during the first phase of the survey

date	*Organisation*	*Name*	*task*	*phone*	*email*
28/11/2022	EUD	Mr Marco Arena	Programme manager		Marco.ARENA@eeas.europa.eu
28/11/2022	EUD	Mr Hans Lambrecht	Head of operations		Hans.LAMBRECHT@eeas.europa.eu
28/11/2022	EU	Ms Annemie Cumps	South Pacific Desk		
28/11/2022	Department of agriculture and livestock (DAL)	Mr Nelson Simbiken	Acting secretary	+675 7162 5711	nsimbiken@gmail.com
29/11/2022	FAO	Rabi G. Rasaily	Programme Coordinator a.i.	+675 7431 6808, 7843 2095	rabi.rasaily@fao.org
29/11/2022	FAO	Takayuli Hakigada			
29/11/2022	DNPM NAO	Wilfo Liebregts	eam leader and aid effectiveness specialist		ecoconsult@connect.com.fj, ecocnosult@gmail.com
29/11/2022	DNPM NAO	Mr Wesley Welli	Director of NAO Support Unit		wsrjwelli@gmail.com
29/11/2022	DNPM NAO	Mr Jason Peter	Monitor and Evaluation Officer		jasonpetertiger@gmail.com
29/11/2022	DNPM NAO	Ms Cathy Lau	Programme officer		cathy.lau4951@gmail.com
29/11/2022	MiBank	Tony Westaway	CEO		twestaway@mibank.com.pg
01/12/2022	Climate Change and Development Authority, Port Moresby	Mr Johnson Kilis	Manager, Mitigation	7138 4469	kilisjohnson18@gmail.com
02/12/2022	Department of works	Mr Gibson Holemba	First Assistant Secretary	75434724, 70087055	gholemba@gmail.com
06/12/2022	Women's Micro Bank Limited	Mr Gunanidhi Dash	CEO		gunanidhi@womenmicrobank.com;

06/12/2022	Women's Micro Bank Limited	Mr Prabhash Mishra	POC for STREIT project at WMBL			Prabhash@womenmicrobank.com
07/12/2022	UNDP	Mr Dirk Wagener	Resident Representative, PNG			dirk.wagener@undp.org
07/12/2022	FOWIAD	Ms Monica Jeddah-Otto	Director, Wewak	+675 7209 7915		jirjeddah@gmail.com
08/12/2022	Spice Industry Board	Mr Harry Godfrid	Acting CEO, Port Moresby		70533036	hgodfrid@gmail.com
08/12/2022	Spice Industry Board	Mr Backsy Poka	National programme manager		70120325	backsypoka@gmail.com
12/12/2022	ILO, Wewak	Engr. Arun Kumar Yadav	Training Engineer		73672626	arunk@ilo.org
12/12/2022	ESP Division of Works	Engr. Obed Ryan Yanoda	Civil Engineer			
12/12/2022	ESP Division of Works	Engr. Pio Ipangu	Technichal Officer to Civil Engr			
13/12/2022	UNCDF	Sandeep Kumar	Digital and financial information consultant	7014 9585		Sandeep.kumar@uncdf.org
13/12/2022	FAO	Tobbie Niruodia	National vanilla project officer	7286 1020		Tobbie.niruodia@fao.org
13/12/2022	ILO, Wewak	Joe Kamin	Field Engineer			
13/12/2022	ILO, Wewak	Naptali Tabali	Site Engineer			
13/12/2022	UNCDF	Benjamin Gawi	National DFS consultant	7031 7823		Benjamin.gawi@uncdf.org
13/12/2022	UNCDF	Sharod Bangari	Digital and agricultural financial specialist	7031 7731		Sharod.bangari@uncdf.org
13/12/2022	FAO	Genaro Castro	Operation officer	7148 1597		Genaro.castro@fao.org
13/12/2022	FAO	Mohammed Zakir Hossain	Fishery and aquaculture officer	7430 2740		Mohammed.hossain@fao.org
13/12/2022	FAO	Michael Lames	Cocoa value chain	7008 8723		Michael.lames@fao.org
13/12/2022	FAO	Kuayo Henry	Nutrition officer	7014 9094		kuayo.henry@fao.org
13/12/2022	FAO	Edward Bue	M&E officer	7040 2503		Edward.bue@fao.org
13/12/2022	FAO	Job Opu	Fishery	7839 9370		Job.opu@fao.org

13/12/2022	FAO	Rabi Rasaily	Programme coordinator a.i.	7431 6808	Rabi.rasaily@fao.org
13/12/2022	FAO	Mohammed Atif Nasim	M&E officer	7240 5493	Mohammad.atif@fao.org
13/12/2022	UNDP	Karen Anawe	Project manager	7112 3406	Karen.anawe@gov.undp.org
13/12/2022	ITU	Kanagat Alyshbaev	Project officer	7226 6417	Kanagat.alyshbaev@itu.int
13/12/2022	ILO	Arun Kumar Yadav	Infrastructure specialist	7367 2626	arunk@ilo.org
13/12/2022	FAO	Patu Shang	Gender and youth inclusion specialist	7027 6562	Patu.shang@fao.org
13/12/2022	Cocoa Board, ESP, Wewak	Mr Daryll Worimo Wobar	Sepik Regional Manager	70661740	daryll.worimo@gmail.com
13/12/2022	ESP Provincial Department of Agriculture and Livestock	Mr Kevin Hawan	Executive Manager	74313470	hawankevin5@gmail.com
13/12/2022	ESP Provincial administration	Mr James Balaoloi	Deputy provincial administrator for economic sector		
13/12/2022	PNG University of Technology (UNITECH)	Dr. Mirzi Betasolo	Dean of Engineering; Team Leader for Training, STREIT ILO		
13/12/2022	MIBank, ESP, Wewak	Mr Solomon Dilyundiwi	Acting province manager		Sdilyundiwi@mibank.com
13/12/2022	We Women - Mama bank, ESP, Wewak	Ms Elvis Lavu	Province branch manager	7354 5378	Elvis.lavu@womenmicrobank.com
14/12/2022	Kaystar Construction Ltd (contractor)	Engr. Walter Kamaren	Project Engineer		
14/12/2022	LLG Sausso and Yangoru	James Wyn	Ward Councilor		
14/122022	Maligani agriculture groups	Mr Philip Louis	Chairman	7045 8013, 7844 5070	maligainiagriproducers@gmail.com
15/12/2022	PDAL	Ms Angelina Gossipa	Food Security Officer for Wosera Gawi	72159524	gossibaangela@gmail.com
16/12/2022	PNG Agriculture Company	Mr Brad Jackson	CEO		brad.jackson@png-agriculture.com

16/12/2022	FAO	Mr Xuebing Sun	Programme Coordinator	7414 3895, +675 7414 3895, 78650944	xuebing.sun@fao.org
16/12/2022	FAO	Eva Galvez Nogales			
16/12/2022	FAO	Pavel Burian			
16/12/2022		Abhina Kumar Gupta			
16/12/2022		Shallendra Kumar Jha			

B. informants of the second phase of the survey

Date	*Organisation*	*name*	*Task*	*Phone*	*Email*
07/02/2023	UNDP	Richard S. Howard	UN resident coordinator	7969 8118	Richard.howard@undp.org
07/02/2023	FAO	Bir Chandra Mandal	Head of office	7150 7391, 7886 0763	Bir.mandal@fao.org
07/02/2023	ILO	Matin Karimli	Director	3313 3866	karimli@ilo.org
07/02/2023	ILO	Thomas	National coordinator		
07/02/2023	ILO	Keysan	Head of the resident coordinator office		
07/02/2023	UNDP	Dirk Wagener	Resident representative		dirk.wagener@undp.org
07/02/2023	ILO	Raj			
07/02/2023	ITU	Cannagal	IT project officer		
08/02/2023	National fishery authority	Jacob Wani	Executive Manager, Aquaculture & Inland Fishery Unit		
08/02/2023	National fishery authority	Ms Lina Y. Pandihau	Inland Fishery Officer	78623523	lpandihau@gmail.com
08/02/2023	National fishery authority	Joshua Ryan	Executive Manager, Project Management Unit		
08/02/2023	NAQIA	Mr Michael Areke	Export programme manager	313 6922	Emanager@naqia.gov.pg
08/02/2023	Rural airstrip agency (RAA) of PNP Ltd	Ms Nichola Kedek	Liaison manager	320 3995	nichola.kedek@raa.com.pg
08/02/2023	Rural airstrip agency (RAA) of PNP Ltd	Ms Kim Opiti	CEO		kim.opiti@raa.com.pg

08/02/2023	Rural airstrip agency (RAA) of PNP Ltd	Mr Hau'ofa Sailasa	Manager		hauofa.sailasa@raa.com.pg
15/02/2023	Nuku District Administration	Mr Gerald Nakunawe	Acting Programme manager DAL Nuku	79431741	geraldikaonneil@gmail.com
	UNFPA	Ms Marielle Sander	UNFPA Resident Coordinator, PNG		sander@unfpa.org
		Mr Paul Jimmy	Provincial Fisheries Advisor, WSP, Vanimo	72609455	mahnpj22@gmail.com
		Mr Frank Banak	Don Bosco Technical High School Principal		fpar00422100@gmail.com
		Mr John Kanz	Vanimo Secondary School Principal	73222073	johnpaikanz@gmail.com
21/02/2023	STREIT programme	Ali Said Yesuf	Programme Coordinator		Ali.said@fao.org
21/02/2023	STREIT programme	Pavel Burian	Deputy Programme manager		Pavel.Burian@fao.org
22/02/2023	FAO	Mohammed Atif Nasim	M&E officer		Mohammed.atif@fao.org
22/02/2023	FAO	Amir Khaleghiyan	Communication officer		Amir.Khaleghiyan@fao.org
22/02/2023	FAO	Ruth Sim	trainer		Ruth.sim@fao.org
22/02/2023	West Sepik Province administration	Paul Jimmy	WSP provincial fishery advisor		
22/02/2023	West Sepik Province administration	Joe Guaf	WSP Provincial division of agriculture and livestock director		
22/02/2023	West Sepik Province administration	Noel Mundok	WSP Provincial tree and export crops officer		
22/02/2023	West Sepik Province administration	Charles Sirongo	WSP West Sepik investment limited		
22/02/2023	West Sepik Province administration	Stephen Kambasi	WSP Agricultural advisor		
23/02/2023	West Sepik Province administration	Tony Wouwou	WSP Governor		
23/02/2023	DNPM NAO	Mr Wesley Welli	Director of NAO Support Unit		wsrjwelli@gmail.com

8. Outlook of revenues generated by the value chains

1. Analytical data

Source: STREIT programme

A. Cocoa seed nurseries (10 years)

Without Project

		1	2	3	4	5	6	7	8	ù9	10
Total Inflow		42,700	61,000	61,000	61,000	61,000	61,000	61,000	61,000	61,000	63,241
Expenditures											
Capital Investment:		26,175									
Replacement cost			100	100	100	7,725	100	100	100	100	100
Staff/Labour Cost		22,400	22,400	22,400	22,400	22,400	22,400	22,400	22,400	22,400	22,400
Inputs		14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000	14,000
Transportation		1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1.500
Total Outflow		64,075	38,000	38,000	38,000	45,625	38,000	38,000	38,000	38,000	38,000
Net Cash Flow	**Without Project**	**-21,375**	**23,000**	**23,000**	**23,000**	**15,375**	**23,000**	**23,000**	**23,000**	**23,000**	**25,241**

Net Present Value	**106,825**
IRR	**98%**

With Project

	1	2	3	4	5	6	7	8	9	10
Total Inflow	85,400	109,800	109,800	109,800	109,800	109,800	109,800	109,800	109,800	112,041
Expenditures										
Capital Investment:	52,350									
Replacement cost		200	200	200	15,650	200	200	200	200	200
Staff/Labour Cost	44,800	44,800	44,800	44,800	44,800	44,800	44,800	44,800	44,800	44,800
Inputs	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000	28,000
Transportation	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Total Outflow	**128,150**	**76,000**	**76,000**	**76,000**	**91,450**	**76,000**	**76,000**	**76,000**	**76,000**	**76,000**
Net Cash Flow With Project	**-42,750**	**33,800**	**33,800**	**33,800**	**18,350**	**33,800**	**33,800**	**33,800**	**33,800**	**36,041**

Net Present Value	**142,303**
IRR	**65%**

IRR Difference WP-WOP	**-33%**

B. Cocoa producers (13 years)

Without Project

		1	2	3	4	5	6	7	8	9	10	11	12	13
Total Inflow		-	-	1,500	1,500	3,000	3,000	3,000	3,000	3,000	1,500	1,500	1,500	1,500
Expenditures														
Capital Investment:		1,161												
Replacement cost			100	200	100	100	100	261	100	100	100	100	100	100
Staff/Labour Cost/Input		1,000	900	900	900	1,200	1,200	1,200	1,200	1,200	600	600	600	600
Inputs		275	275	275	275	275	275	275	275	275	275	275	275	275
Transportation		50	50	50	50	50	50	50	50	50	50	50	50	50
Total Outflow		2,486	1,325	1,425	1,325	1,625	1,625	1,786	1,625	1,625	1,025	1,025	1,025	1,025
Net Cash Flow	**Without Project**	**-2,486**	**-1,325**	**75**	**175**	**1,375**	**1,375**	**1,214**	**1,375**	**1,375**	**475**	**475**	**475**	**475**

Net Present Value	**1,030**	
IRR	**-22%**	First 5 Years
IRR	**15%**	13 years

With Project

	Year<<< <	1	2	3	4	5	6	7	8	9	10	11	12	13

Total Inflow		-	1,200	3,000	3,000	4,800	4,800	4,800	4,800	4,800	3,600	3,600	3,600	3,600
Expenditures														
Capital Investment:		3,752												
Replacement cost			100	530	100	100	100	1,014	100	100	100	100	100	100
Staff/Labour Cost/Input		1,200	1,100	1,100	1,100	1,600	1,600	1,600	1,600	1,600	800	800	800	800
Inputs		-	-	-	-	-	-	-	-	-	-	-	-	-
Transportation		100	100	100	100	100	100	100	100	100	100	100	100	100
Total Outflow		5,052	1,300	1,730	1,300	1,800	1,800	2,714	1,800	1,800	1,000	1,000	1,000	1,000
Net Cash Flow	**With Project**	**-5,052**	**-100**	**1,270**	**1,700**	**3,000**	**3,000**	**2,086**	**3,000**	**3,000**	**2,600**	**2,600**	**2,600**	**2,600**

Net Present Value	**9,057**	
IRR	**5%**	Frist 5 Years
IRR	**31%**	13 years

IRR Difference WP-WOP	**27%**	Frist 5 Years
IRR Difference WP-WOP	**16%**	13 years

C. Cocoa fermentaries (10 years)

Without Project

		1	2	3	4	5	6	7	8	9	10	
Total Inflow		27,300	39,000	39,000	39,000	39,000	39,000	39,000	39,000	39,000	44,985	
Expenditures												
Capital Investment:			10,140									
Replacement cost				100	240	100	100	100	9,390	100	100	100
Staff/Labour Cost			5,040	5,040	5,040	5,040	5,040	5,040	5,040	5,040	5,040	5,040
Cocoa Wet bean			22,500	22,500	22,500	22,500	22,500	22,500	22,500	22,500	22,500	22,500
Bags			472	472	472	472	472	472	472	472	472	472
Fuelwood			3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Transportation			1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500	1,500
Total Outflow			42,652	32,612	32,752	32,612	32,612	32,612	41,902	32,612	32,612	32,612
Net Cash Flow	**Without Project**	**-15,352**	**6,388**	**6,248**	**6,388**	**6,388**	**6,388**	**-2,902**	**6,388**	**6,388**	**12,372**	

Net Present Value	**18,612**	
IRR	**24%**	Frist 5 Years
IRR	**36%**	10 Years

With Project

		1	2	3	4	5	6	7	8	9	10
Total Inflow		54,600	78,000	78,000	78,000	78,000	78,000	78,000	78,000	78,000	104,125
Capital Investment:		25,250									
Replacement cost			250	350	250	250	250	620	250	250	20,000
Staff/Labour Cost		3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360	3,360
Cocoa Wet bean		45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000	45,000
Bags		945	945	945	945	945	945	945	945	945	945
Fuelwood		1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800	1,800
Transportation		3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Capital Investment:		25,250									
Total Outflow		79,355	54,355	54,455	54,355	54,355	54,355	54,725	54,355	54,355	74,105
Net Cash Flow	**With Project**	**-24,755**	**23,645**	**23,545**	**23,645**	**23,645**	**23,645**	**23,275**	**23,645**	**23,645**	**30,020**

Net Present Value	**113,830**	
IRR	**88%**	Frist 5 Years
IRR	**95%**	10 Years

IRR Difference WP-WOP	**64%**	Frist 5 Years
IRR Difference WP-WOP	**59%**	10 Years

D. Vanilla producers 13 years)

	1	2	3	4	5	6	7	8	9	10	11	12	13
Total Inflow	-	-	-	1,688	1,688	5,625	5,625	5,625	5,625	3,375	3,375	3,375	3,375
Expenditures													
Capital Investment:	1,726												
Replacement cost		-	-	476	-	-	976	-	-	476	-	-	
Staff/Labour Cost/Input	840	1,344	1,344	2,688	2,688	2,688	2,688	2,688	2,688	1,344	1,344	1,344	
Inputs	-	-	-	-	-	-	-	-	-	-	-	-	
Transportation	50	50	50	50	50	50	50	50	50	50	50	50	
Total Outflow	2,616	1,394	1,394	3,214	2,738	2,738	3,714	2,738	2,738	1,870	1,394	1,394	1,394
Net Cash Flow	**-2,616**	**-1,394**	**-1,394**	**-1,526**	**-1,051**	**2,887**	**1,911**	**2,887**	**2,887**	**1,505**	**1,981**	**1,981**	**1,981**

1,528	**1,528**	
IRR	**-29%**	5 Years
IRR	**14%**	13 Years

With Project

	1	2	3	4	5	6	7	8	9	10	11	12	13
Total Inflow	-	-	-	9,375	9,375	15,000	15,000	15,000	15,000	11,250	15,000	11,250	11,250
Capital Investment:	2,601												
Replacement cost			-	- 476		-	- 1,976		-	- 476	-	-	-
Staff/Labour Cost/Input	840	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344	1,344
Inputs	-	-	-	-	-	-	-	-	-	-	-	-	-
Transportation	100	100	100	100	100	100	100	100	100	100	100	100	100
Total Outflow	3,541	1,444	1,444	1,920	1,444	1,444	3,420	1,444	1,444	1,920	1,444	1,444	1,444
Net Cash Flow	**-3,541**	**-1,444**	**-1,444**	**7,455**	**7,931**	**13,556**	**11,580**	**13,556**	**13,556**	**9,330**	**13,556**	**9,806**	**9,806**

4,972	**48,951**	
IRR	**35%**	5 Years
IRR	**68%**	13 Years

64%	5 Years
54%	13 Years

E. Fish cooperatives

Without Project

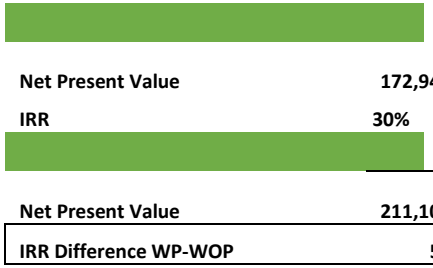
	1	2	3	4	5	6	7	8	9	10
Total Inflow	705,250	705,250	705,250	705,250	705,250	705,250	705,250	705,250	705,250	707,667
Expenditures										
Capital Investment:	42,500									

Operational Cost		325,600	325,600	325,600	325,600	325,600	325,600	325,600	325,600	325,600	325,600
Staff/Labour Cost/Input		378,560	378,560	378,560	378,560	378,560	378,560	378,560	378,560	378,560	378,560
Inputs		600	600	600	600	600	600	600	600	600	600
Transportation		-	-	-	-	-	-	-	-	-	-
Total Outflow		747,260	704,760	704,760	704,760	704,760	704,760	704,760	704,760	704,760	704,760
Net Cash Flow	**Without Project**	**-42,010**	**490**	**490**	**490**	**490**	**490**	**490**	**490**	**490**	**2,907**

Net Present Value	**(38,163)**
IRR	**-22%**

With Project

	Year<<<<	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Total Inflow		1,269,450	1,428,131	1,428,131	1,428,131	1,428,131	1,428,131	1,428,131	1,428,131	1,428,131	1,432,966
Expenditures											
Capital Investment:		95,781									
Staff/Labour Cost/Input		473,200	473,200	473,200	473,200	473,200	473,200	473,200	473,200	473,200	473,200
Operational Cost		870,000	870,000	870,000	870,000	870,000	870,000	870,000	870,000	870,000	870,000
Inputs		12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000	12,000
Transportation		10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000
Total Outflow		1,460,981	1,365,200	1,365,200	1,365,200	1,365,200	1,365,200	1,365,200	1,365,200	1,365,200	1,365,200
Net Cash Flow	**With Project**	**-191,531**	**62,931**	**62,931**	**62,931**	**62,931**	**62,931**	**62,931**	**62,931**	**62,931**	**67,766**



B. Synthesis of the Feasibility economic assessment

Item	*Cocoa seed nurseries*	*Cocoa producers (3 million clones)*	*Cocoa fermentaries*	*Vanilla producers*	*Fishers*	*Total*
Years	10	13	10	13	10	
Beneficiaries	200	14079	200	8000	2567	
Extension		Ha 4800		Ha 800	287 partnerships	
Net present value (PGK) wop	21,365,002.19	4,944,253.82	3,722,434.53	1,222,698.49	-1,959,282.74	29,295,106.28
Net present value (USD) wop	6,104,286.34	1,412,643.95	1,063,552.72	349,342.43	-559,795.07	8,370,030.37
Net present value (PGK) wp	28,460,577.57	43,473,807	22,765,997.74	39,160,562.45	8,878,825.11	142,739,769.87
Net present value (USD) wp	8,131,593.59	12,421,087.85	6,504,570.78	11,188,732.13	2,536,807.17	40,782,791.52

Net present value difference (PGK)	7,095,575	38,529,554	19,043,563	37,937,864	10,838,108.00	221,187,698.04
Net present value difference (USD)	2,027,307	11,008,443.90	5,441,018	10,839,390	3,096,602.00	32,412,760.90
IRR % wop	98	15	36	14	-22	
IRR % wp	65	31	95	68	30	48
IRR % difference on baseline	-33	16	59	54	52	

C. Calculation of the development benefits

Item	*Total wp*	*Total wp*	*Total difference*	*IRR %*	*IRR % difference*
Net present value	8,370,030.37	40,782,791.52	32,412,760.90	48	38
Gross benefits		122,348,374.56	97,238,282.70	143	114
Investment		85,300,000.00	85,300,000.00		

9. Updated programme Logframe

Indicator	Unit of Measure	Baseline	Targets (EOP)	Current Value (Dec 2022)	Comments
Impact (OO): Increased sustainable and inclusive economic development of rural areas					
OO1 - Proportion of the population living below USD 1.90 (PPP) per day by sex, age, and geographical location (urban/rural) (SDG 1.1.1, EURFL1T1)[1]	Percent	68%[3]	50%		The result will be captured in end line evaluation.

OO2 - Prevalence of stunting (moderate and severe) in children aged below five years (EURFL1T9)	Percent	[4]East Sepik = 43.6% Sandaun = 41.2%	East Sepik = 40% Sandaun = 40%		The result will be captured in end line evaluation.
OO3 - Renewable energy (excluding biomass) as a production of total energy production (SDG 7.2.1, EURFL1T12) (Region+ PNG)[2]	Percent	East Sepik = 0% (Note: Total production = 11.63 MW/Day, and RE Baseline = 0 MW/Day) Sandaun = 0% (Note: Total production = 4.19 MW/Day and RE Baseline = 0 MW/Day)	East Sepik = 1.51% (Note: Total production = 11.81 MW/Day, and RE Target = 0.18 MW/Day) Sandaun = 6.09% (Note: Total production = 4.19 MW/Day, and RE Target = 0.27 MW/Day)		Solar power has been installed at three sites. The results will be captured in the end line evaluation.
SO1: Increased economic returns from three selected value chain					
SO1.1: Percentage Increase in average annual sales value by Programme supported households of cocoa/vanilla/fishery products	Percentage	**Cocoa** = 0% **Vanilla** = 0% **Fishery** **-** Riverine = 0% - Coastal = 0% - Aquaculture = 0%	**East Sepik (PGK)** Cocoa = 65% Vanilla = 70% **Fishery** - Riverine = 65% -Coastal = 65% - Aquaculture = 35%		The Programme is in the 2nd year of implementation and most of the cocoa seedlings are distributed in 2021 and 2022. Therefore, an increase in sale cannot be observed.
SO1.2: Number of households supported in the focused value chains (disaggregated by sex, age of the household head, region, and positioning in the value chain)	Number of Household and Percentage of Women and Youth	**Cocoa =** 0 **Vanilla =** 0 **Fisheries =** 0	**Total = 59,050 HH** **Cocoa =** 42,250 (40% women, 60% Youth) **Vanilla =** 10,400 (30% women, 60% Youth) **Fisheries =** 6,400 (45% women, 60% Youth)	**Total = 54,367** **Cocoa** = 43,079 (28% Women, 38% Youth) **Vanilla** = 8,700 (34% Women, 39% Youth) **Fisheries** = 2,638 (38% Women, 47% Youth)	

SO1.3: Percentage Increase in average annual net income reported by Programme supported households of the cocoa/vanilla and fishery products value chains, (disaggregated by sex and age, and region and household head)	Percentage	**Cocoa** = 0% **Vanilla** = 0% **Fishery** **-** Riverine = 0% - Coastal = 0% - Aquaculture = 0%	**Cocoa** = 50% **Vanilla** = 50% **Fishery** **-** Riverine = 25% - Coastal = 25% - Aquaculture = 25%		The Programme is in the 2nd year of implementation and most of the cocoa seedlings are distributed in 2021 and 2022. Therefore, an increase in income cannot be observed.
SO2: Strengthened, climate resilient and more efficient value chain enablers					
SO2.1 Increased number of people employed by MSMEs through the support of the Programme (disaggregated by sex and age)	Number of Household and Percentage of Women and Youth	**Total =** 0 **Cocoa (Full-time)** Male = 0 Female = 0 **Vanilla (Full-time)** Male = 0 Female = 0 **Fishery (Full-time)** Male = 0 Female = 0	**Total =** 7,133 **Cocoa (Full-time) (60% Youth)** Male = 3,897 Female = 2,493 **Vanilla (Full-time) (60% Youth)** Male = 129 Female = 45 **Fishery (Full-time) (60% Youth)** Male = 313 Female = 256	**Total** = 600 **Cocoa (Full-time) (60% Youth)** Male = 480 Female = 120 **Vanilla (Full-time) (60% Youth)** Male = 0 Female = 0 **Fishery (Full-time) (60% Youth)** Male = 0 Female = 0	The Programme established/ rehabilitated 200 nurseries in the region, and based on our calculation (FEA), 3 employments (FT) were created per nursery. The Programme is in the process of supporting other MSMEs such as fermentaries, and vanilla and fish processors.
SO2.2: Number of value chains stakeholders benefitting from improved access to value chain related financing supported by the Programme, (disaggregated by sex and age)	Number of Value Chain Stakeholders	**Total** = 0	**Total** = 100,000	Total = 65,940	The Programme supported stakeholders by opening bank accounts
SO2.3: Number of Programme households using ICT tools and services (knowledge and market information-MIS/FIS and LMS), (disaggregated by sex and age of the households head)	Number of Household	**Total** = 0 **East Sepik** Male = 0 Female = 0 **Sandaun** Male = 0 Female = 0	**Total** = 25,105 **East Sepik (60% Youth)** Male = 10,806 Female = 7,204 **Sandaun (60% Youth)** Male = 4,257 Female = 2,838	Total = 440 **East Sepik** Adult = 40 (Teachers) Male = 180 Youth Female = 220 Youth **Sundaun** Male = 0 Female = 0	Resource Center in Maprik Secondary School trained 40 master trainers (Teachers) in digital and financial skills and then these teachers further trained the students of the school

SO2.4: Amount/percentage of renewable energy (excluding biomass that may induce land-use change) used by VC related agripreneurs and MSMEs in the Programme area as part of their total energy consumption	MW/Day Percent	East Sepik = 0% (Note: Total production = 11.63 MW/Day, and RE Baseline = 0 MW/Day) Sandaun = 0% (Note: Total production = 4.19 MW/Day and RE Baseline = 0 MW/Day)	East Sepik = 1.51% (Note: Total production = 11.81 MW/Day, and RE Target = 0.18 MW/Day) Sandaun = 6.09% (Note: Total production = 4.19 MW/Day, and RE Target = 0.27 MW/Day)		Solar power has been installed at three sites. The results will be captured in the end line evaluation.
SO2.5: Number of people/households who live within 2 km of all-season rural roads rehabilitated with Programme support and sustainably maintained (SDG 9.1.1)	Number of People/ HHs	**Total = 0** East Sepik = 0 Sandaun = 0	**Total = 112,056 / 18,676** East Sepik = 89,302 / 14,884 Sandaun = 22,753 / 3,792	**Total = 40,774 / 6,796** East Sepik = 32,972 / 5,495 Sandaun = 7,802 / 1,300	Rehabilitation/specific maintenance of the 9 roads are ongoing, these roads benefitted the Population of 40 wards
Component 1: Sustainable value chain development					
Sub-component 1.1: Increased Sustainable Production and Inclusivness of the Cocoa value chain					
O1.1.1 Number and proportion of farming households producing cocoa using sustainable and/or climate-smart management practices supported by the Programme (disaggregated by sex and age of the households head)	Farm HH (% of total no. of HHs enaged in cocoa farming)	Total = 0 Male = 0 Female = 0 Youth = 0	**Total = 30,000 (55%) HH** Male = 18,000 Female = 12,000 Youth = 60%	Total = 14,079 (27%) HH Male = 9,499 Female = 4,580 Youth = 28%	14,079 households received 1,009,979 CPB tolerant cocoa Seedlings that ensured the CSA
O1.1.2 Increased Profitability (Internal Rate of Return (IRR)) of cocoa smallholder farmers and fermentaries using sustainable and/or climate-smart management practices supported by the Programme (disaggregated by sex and age of the households head)	IRR	Increased IRR is 0% for smallholder farmers Increased IRR is 0% for fermentary	Increased Average IRR is 10% for smallholder farmers Increased Average IRR is 30% for fermentary	0	The Programme is in the 2nd year of implementation and most of the cocoa seedlings are distributed in 2021 and 2022. Therefore, an increase in income cannot be observed.

O1.1.3 Proportion of women in managerial positions of groups for cocoa based activities supported by the Programme	Percent	0	25% of managerial position held by women in cocoa groups supported by the Programme	#REF!	The Programme established 150 groups in cocoa value chain. Out of all managerial positions 14% are hold by women.
Sub-component 1.2: Increased Sustainable Production and Inclusiveness of the Vanilla value chain					
O1.2.1 Number and proportion of smallholder farming households producing vanilla using sustainable management practices supported by the Programme (disaggregated by sex and age groups)	Number of Household and Percentage of Women and Youth	**Total = 0** Male = 0 Female = 0 Youth = 0	**Total = 10,000 HH (28%)** Male = 6,000 Female = 4,000 Youth = 60%	Total = 5, 283 HH (15%) Male = 3,965 Female = 1,318 Youth = 25%	The number of HHs trained by the Programme and received quality agriculture inputs e.g. vanilla husbandary and processing kits.
O1.2.2 Area under vanilla where sustainable and/or climate-smart management practices are applied in proportion to total areas under vanilla in the implementation area supported by the Programme	Hectare	0 (as this indicator only refers to farmers supported by the Programme)	800 Hectares	528.3 Hectares	The Programme benefitted over 5,000 HHs producing vanilla in 528 Ha.
O1.2.3 Proportion of women in managerial positions of groups for vanilla based activities supported by the Programme	Percent	0	25% of managerial position held by women in vanilla groups supported by the Programme	#REF!	The Programme established 60 groups in vanilla value chain. Out of all managerial positions 16% are hold by women.
Sub-component 1.3: Increased Sustainable Production and Inclusiveness of the Fishery value chain (coastal, riverine and aquaculture)					
O1.3.1 Number and proportion of smallholder fisher households producing fishery products using sustainable fishing practices supported by the Programme (disaggregated by sex and age groups)	Number of Household and Percentage of Women and Youth	**Total = 0** Male = 0 Female = 0 Youth = 0	**Total = 6,400 HH (51%)** Male = 3,520 Female = 2,880 Youth = 60%	**Total = 2,567 HH (20%)** Male = 1,588 Female = 797 Youth = 46%	The number of HHs trained by the Programme in aquaculture and riverine

O1.3.2 Number ~~and outreach~~ of productive smallholder fishery partnerships established supported by the Programme	Number of Partnership	0	320 partnerships	**Total = 287 Partnerships** East Sepik = 160 Partnerships Sandaun = 127 Partnerships	Number of groups assessed and profiled
O1.3.3 Number of quality control systems for fishery products and value chain processors and traders established and operational	Number of QC System	0	1 Systems	0	The NFA already has a system that monitors and ensures the integrity, accuracy, and completeness of data received under licensing requirements and ensures data entry, security, analysis and dissemination processes. The Programme is working with NFA to further improve the system by adding features of the market and fisher household profile.
Component 2: Climate-resilient and efficient value chain enablers					
Sub-component 2.1: Conducive business, policy and regulatory environment for sustainable rural agripernues and MSME's established					

O2.1.1 Provincial Platforms for Public Private Sector dialogue on sustainable and inclusive cocoa, vanilla and fisheries development established and functional	Number of Platform	0	FAO = 2 UNDP = 1	FAO= 1 UNDP =1	- A Greater Sepik Economic Secretariat Forum (GSESF) has been formalised and is set to continue the process of promoting and strengthening agri-enterprise in the Sepik Region - Solar policy note drafted and shared with Government for approval - Working on the National Gender in Agriculture (WiA) policy
O2.1.2 E-agriculture and climate-smart strategy implemented in the Programme area	Number of Strategies	0	Strategy = 2	Strategy = 2	Two e-Agriculture strategies for East and West Sepik Provinces have been developed by the Programme and approved by the authorities
O2.1.3 Improved availability and accessibility of financial products and services for VC stakeholders	Bank access point/service/products	Access Point = 132 Service/Product = 0	Access Point = 264 Services/Product = 3	Access Point = 112 Product = 3	Number of financial access points established by the Programme MiBank =35 WMBL = 8 Cellmoni = 69
Sub-component 2.2: Value chain support services strengthen and resilient to climate change impacts					
O2.2.1 Number of agriculture specific financial products developed and available to rural population	Number of Financial product	Product = 0	Product = 3	Products = 3 (MiBank, WMBL, Cellmoni)	Number of banking accounts opened using banking products supported by the Programme MiBank – 14,503 accounts WMBL – 18,900 accounts Cellmoni – 32,511 accounts

O2.2.2 Enrolment/uptake by region residents (disaggregated by sex and age and implementation agency) of programme-supported MSME-focused training initiatives (financial/business/management/ICT)	Number of region residents	**Total = 0** ITU = 0 UNDP = 0 ILO = 0 (Uptake = 0%)	**Total = 1,784** ITU = 300 UNDP = 500 ILO = 984 (Uptake = 70%) (incl. 1,000 farmers trained on financial literacy by FAO under commponent 1).	**Total = 1,004** ITU = 130 ILO = 835 UNDP = 39 (552 farmers trained on FL)	Number of people trained by the Programme (ITU/ILO/UNDP)
O2.2.3 Number of relevant ICT mobile applications available to MSME and value chain stakeholders (extension services, market information, value chain specific, financial etc.) supported by the Programme	Number of Application	0 Application	3 Applications	0	The existing system of Programme value chains has been analyzed, and drafted RFA/TOR of the proposed system of Cocoa, Vanilla and Fisheries
Sub-component 2.3: Increased production of, and access to Renewable energy systems					
O2.3.1 Number of renewable energy generation public facilities (except biomass) in operation in the Programme area established with Programme support	Number of RE Facility	East Sepik = 0 Facilities Sandaun = 0 Facilities	East Sepik = 3 Facilities Sandaun = 3 Facilities	East Sepik = 3 Sandaun = 0	The Programme finalized renewable energy generation at 3 selected public facilities, 3 remaining is ongoing at Sandaun.
O2.3.2 Annual amount of electricity [in MW] generated from renewable energy sources established with Programme support in the Programme area (disaggregated by location)	MW	**Total = 0 MW** East Sepik = 0 MW HH level = 0 MW Enterprise level = 0 MW Public facility = 0 MW Sandaun = 0 MW HH level = 0 MW Enterprise level = 0 MW Public facility = 0 MW	**Total = 164 MW** East Sepik = 65 HH level = 15 Enterprise level = 14 Public facility = 37 Sandaun = 99 HH level = 15 Enterprise level = 12 Public facility = 73	**Total = 0 MW** East Sepik = 0 HH level = 0 Enterprise level = 0 Public facility = 0 Sandaun = 0 HH level = 0 Enterprise level = 0 Public facility = 0	The installation of RE is at final stages.

O2.3.3 Number of MSMEs in the Programme area having access to programme-supported renewable energy system (except biomass)	Number of MSME	**Total = 0** Fermentary = 0 Vanilla (dryers) = 0 Fishery (ice making) = 0 Banks = 0	**Total = 300** Fermentary = 50 Vanilla (dryers) = 200 Fishery (ice making) = 30 Banking Access Points = 20	0	The procurement of RE systems for the enterprise level is in progress.
Sub-component 2.4: Improved and climate-proof rural Transport infrastructure					
O2.4.1 Number and length of rural roads and other access ways rehabilitated (spot improvement/specific maintenance) under the Programme	Number and km of Road / access ways	Roads = 0 Airstrips = 0 Jetties = 0	Roads = 15 (264 km) Airstrips = 5 Jetties = 3	Roads= 9 (142 km) Airstrips = 0 Jetties = 0	- 3 roads rehabilitation projects are under procurement, and 3 contracts awarded - Airstrips are under due diligence - Facing land acquisition issues in jetties, dialogues are ongoing
O2.4.2 Number and total length of rural roads regularly maintained under community-based management agreements in the Programme area	Number and km of Road	0	Roads = 18 Length = 315 km	Roads = 18 ` Length = 175 km	The routine maintenance work is ongoing in all 18 selected roads
O2.4.3 Income earned by community members from community-based road management and maintenance agreements in the Programme area (disaggregated by sex and age)	USD	USD 0 Million Women = 0% Youth = 0%	USD 4 Million Women = 50% Youth = 35%	USD 762864 (Women = 51% and Youth = 34%)	Income are the person days paid to RMGs, and daily wage is 28 kina. Y2 = 18,216 man-days Y3 = 77,142 man-days
O2.4.4 Number and length of rural roads and other access ways where climate-change projections have been integrated in the Programme area	Number and km of Road / access ways	Road = 0 Airstrips = 0 Jetties = 0	Road = 18 (315 km) Airstrips = 5 Jetties = 3	Roads = 18 (175 km) Airstrips = 0 Jetties = 0	Rehabilitation, specific, and routine maintenance of the roads where the climate-change projections have been integrated in the Programme area

Source: STREIT programme

10. Programme expenditures

A. STREIT programme budget

Source	*Financial agreement*	*Contribution agreement*	
	Euro	Euro	USD
EU	85,300,000	81,300,000	89,470,441
FAO	300,000	300,000	330,149
Total	85,600,000	81,600,000	89,800,590

Exchange rate: Euro 1 = USD 1.10

B. Key dates of the programme

Financial agreement signature	7/2-4/6/2019
Contribution agreement signature	5-6/12/2019
Inception phase start	1/1/2020
Implementation phase start	19/4/2021
Mid-term evaluation	12/2022 – 3/2023 (36-39 months since 12/2019)
Completion date	31/5/2024 (15 months since 3/2023)

C. Budget allocated (euro and percentage by component)

UNDG Harmonized Budget Categories	FAO	ILO	UNDP	ITU	UNCDF	Total	FAO	ILO	UNDP	ITU	UNCDF	Total
	euro	Euro	euro	euro	euro	euro	%	%	%	%	%	%
1. Staff and other personnel costs	12,975,623	3,576,218	493,560	1,192,215	1,148,569	19,386,185	26	18	14	48	23	24

2. Supplies, Commodities, Materials	2,888,239	103,282	932,280	18,200	100,000	4,042,001	6	1	26	1	2	5
3. Equipment, Vehicles and furniture including Depreciation	5,594,580	138,928	63,980	0	177,000	5,974,488	11	1	2	0	4	7
4. Contractual Services	14,810,738	13,424,703	1,275,808	642,460	1,001,666	31,155,375	29	66	36	26	20	38
5. Travel	6,713,010	722,060	155,380	309,400	242,000	8,141,850	13	4	4	12	5	10
6. Transfers and Grants to Counterparts	0	0	109,680	0	1,740,000	1,849,680	0	0	3	0	35	2
7. General Operating and Other Direct Costs	1,958,635	947,361	327,212	174,174	263,662	3,671,044	4	5	9	7	5	4
8. Communications and Visibility	1,981,649	59,410	0	0	0	2,041,059	4	0	0	0	0	2
*9. Total Direct costs of the Action**	*46,922,474*	*18,971,962*	*3,357,900*	*2,336,449*	*4,672,897*	*76,261,682*	*93*	*93*	*93*	*93*	*93*	*93*
10. Indirect costs(7%)**	3,284,573	1,328,037	235,053	163,551	327,103	5,338,317	7	7	7	7	7	7

11. Total Eligible costs of the Action	*50,207,047*	*20,300,000*	*3,592,953*	*2,500,000*	*5,000,000*	*81,600,000*	*99*	*100*	*100*	*100*	*100*	*100*
FAO Co-financing	300,000	0	0	0	0	300,000	1	0	0	0	0	0
Total cost	*50,507,047*	*20,300,000*	*3,592,953*	*2,500,000*	*5,000,000*	*81,900,000*	*100*	*100*	*100*	*100*	*100*	*100*
% of total	62	25	4	3	6	100						

Source: programme document

D. Budget by UN agency (USD)

Agency	*Total Budget*	*Budget Receivied*	*Actual expenditures and commitments 2020*	*2021*	*2022 estimated*	*Cumulative*	*Balance*	*Expenditures* *% of available budget*	*% of expenses*
FAO	55,252,726	37,847,929	5,120,679	5,734,879	8,794,341	19,649,899	35,602,827	36	49
ILO	22,340,097	19,612,366	360,235	3,503,143	10,988,376	14,851,754	7,488,343	66	37
ITU	2,751,244	835,976	16,956	149,776	315,862	482,594	2,268,650	18	1
UNCDF	5,502,487	3,773,832	213,686	1,391,454	1,077,749	2,682,889	2,819,598	49	7
UNDP	3,954,035	2,853,179	701,538	980,777	478,802	2,161,117	1,792,918	55	5
Total	89,800,589	64,923,282	6,413,094	11,760,029	21,655,130	39,828,253	49,972,336	44	100

Source: STREIT programme

E. Expenditures and commitments by harmonized budget category (USD)

UNDG Harmonized Budget Categories	*Budget*	*Budget received*	*Expenditures*					*Expenditures*	
		2022	*2020*	*2021*	*2022 estimated*	*Cumulative estimated*	*Balance estimated*	*% of budget*	*% of expenses*
1. Staff and other personnel costs	21,334,447.02	5,212,898	1,636,456.31	3,672,947.99	4,299,415.63	9,608,819.93	11,725,627.09	45	24
2. Supplies, Commodities, Materials	4,448,212.24	5,193,136	182,623.76	618,446.76	2,956,016.97	3,757,087.49	691,124.75	84	9
3. Equipment, Vehicles and furniture including Depreciation	6,574,908.22	1,601,477	2,011,525.57	84,135.64	889,102.02	2,984,763.23	3,590,144.99	45	7
4. Contractual Services	34,286,409.35	19,622,873	1,373,366.04	4,547,965.62	9,611,411.72	15,532,743.38	18,753,665.97	45	39
5. Travel	8,960,085.07	1,913,328	323,809.67	717,643.42	1,073,024.73	2,114,477.82	6,845,607.25	24	5
6. Transfers and Grants to Counterparts	2,035,568.08	825,076	-	452,775.00	359,044.00	811,819.00	1,223,749.08	40	2
7. General Operating and Other Direct Costs	4,039,974.47	1,472,852	465,361.71	722,863.25	690,639.14	1,878,864.10	2,161,110.37	47	5

8. Communications and Visibility	2,246,180.04	934,253	36,573.97	204,105.93	374,621.68	615,301.58	1,630,878.46	27	2
*9. Total Direct costs of the Action**	*83,925,784.49*	*36,775,893*	*6,029,717.02*	*11,020,883.61*	*20,253,275.89*	*37,303,876.52*	*46,621,907.97*	*44*	*94*
10. Indirect costs (7%)**	5,874,804.91	2,574,312	383,377.37	739,145.19	1,401,854.79	2,524,377.35	3,350,427.56	43	6
11. Total Eligible costs of the Action	*89,800,589.40*	*39,350,205*	*6,413,094.39*	*11,760,028.80*	*21,655,130.68*	*39,828,253.87*	*49,972,335.53*	*44*	*100*
FAO Co-financing	330,149.23	0	0	0	0		330,149.23	*0*	*0*
Total cost	*89,470,440.64*	*39,350,205*	*6,413,094.39*	*11,760,028.80*	*21,655,130.68*	*39,828,253.87*	*49,642,186.77*	*45*	*100*

Source: STREIT programme

11. The Reconstructed Theory of Change

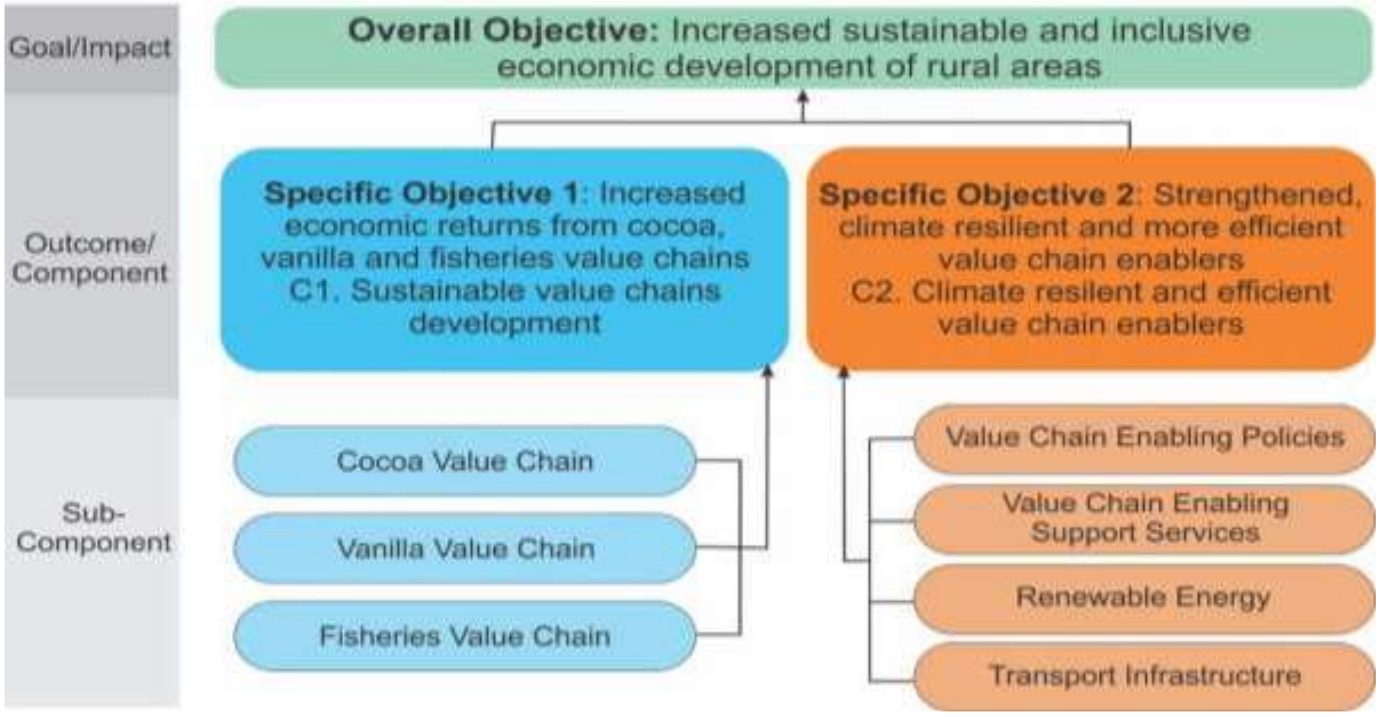
The *Theory of Change* (ToC) of the project identifies the sequence of conditions and factors deemed necessary for project outcomes to yield impact (including context conditioning and actor capacities) and assesses the current status of and prospects for results. The ToC is a framework designed to discuss the *programme's effectiveness* from output all the way through immediate outcomes to impact and sustainability and to make clear its contribution to the *overall development strategy*.

Intervention logic

The STREIT PNG programme constitutes an integrated approach to increase sustainable and inclusive economic development of rural areas sought through the combination of:

- increased economic returns and opportunities from three selected value chains (cocoa, vanilla, fishery) while in parallel:
- strengthened and improved efficiency of value chain enablers including the business environment and supporting sustainable, climate proof transport and energy infrastructure development.
- Its objective is inscribed in the Government of Papua New Guinea overall development objective of reducing the poverty that is especially high in the rural areas and it is strengthened by planning for sustainability and ongoing and future climate change impacts.
- the Action is articulated around four mutually reinforcing pillars:
  - business enabling environment
  - support services for the development of value chains
  - climate-proof physical infrastructure (including transport, telecommunication and renewable energy)
  - community engagement, with emphasis on women and youth.

Diagram 1. Programme strategic framework



The project partners and beneficiaries are expected to adhere to these assumptions whose concurrence is variable in the performance of its components. Also when not directing influencing the achievement of a specific result they can be expected to indirectly impact on its sustainability because they are conditions for the successful deployment of the selected value chains.

The programme contribution to Increase the peasants' economic return is strictly linked to the expansion of the

selected value chains that concern two export commodities (cocoa and vanilla) and fishery that is rather related to food and nutrition security (SO1). Climate resilience is mainstreamed in the production practices and the business, trade, policy and regulatory environment for sustainable rural agri-preneurs and MSMEs is improved in relation to support services, renewable energy systems and climate proof rural transport infrastructure. This articulated approach to the relaunching of the rural economy is firstly performed in East Sepik and Wesk Sepik to be later expanded to the nighbouring Morobe and Madang provinces.

This strategy tackles a broad set of development themes at once: technology transfer and adaptation, smallholder producers integration with businesses, expansion of the capacities of public and private service providers, investments in physical infrastructure that support livelihoods, welfare and community development. Farm production and fishery are promoted to spearhead the competitiveness of their provinces and change of economic paradigm of smallholder producers' low input and low income household economy.

It should be noted that several of the programme actions have a reach that decidedly overcomes the circumscribed economic field of the selected value chains, as climate resilience, inclusiveness and the regulatory framework infrastructure developed by the programme serve a broader range of communities and district and regional instances. Thus, the programme commitment to increase the sustainable and inclusive economic development of rural areas should stimulate the action of famers, fishers, service providers but also of the other actors of the community, local economy and services provided by public administrators.

This perspective is especially relevant in relation to the physical infrastructures built to integrate geographically the actors of the selected value chains whose owners and beneficiaries expect return that greatly exceed those the could be provided by the trade and access to the market of the mentioned commodities and fishery products.

The practical consequences of this endeavour on the programme strategy are multiple:

- technology transfer and assistance to producers have to be consistent with the territorial planning and management of the local authotities (local level governments (LLG), district and provincial administrations),
- connections with public policies and other interventions supporting the local development in its multiple facets have to be organic,
- the exigencies and expectations of the producers have to be represented along with those of other groups of stakeholders of rural / local development in the elaboration of activities that are not strictly related to the product technology choices and have to contribute to create a share vision of local development,
- the experience gained during the implementation of the planne activities has to be systematised and disseminated to ensure not only the upstream and downstream accountability but also to engage a growing set of stakeholders than are not limited to the mere producers and their commercial counterparts in the selected value chains.

The establishment of the mentioned conditions for the programme success can be synthesised in the fact that the selected value chains spearhead the integration of socio-economic development corridors or prompt the coalescence of the resources – technical, human, natural, etc. - of the territory to produce sustainable and inclusive economic development and to progressively multiply its effects across the target provinces.

The programme strategy is well aware of its multipronged commitment – typified in its explicit contribution to eleven Sustainable Development Goals (SDG) and engagement of institutional partners already involved in the Value Chain for Development (VC4D)[25].

The programme strategy implicitly requires that the instances of the programme stakeholders be elaborated in their multiple components through the action of the actors of local development and notably of the local authorities that unify them in terms of local development.

Indeed, the themes object of the planned activities represent barriers, conditions, resources that have until now negatively affected the quality and quantity of the produce of the farmers and fishers in the

[25] See the Section 4.2 of the Action document.

target provinces, districts and communities and that have discouraged them from adopting new techniques, varieties and from looking for new customers and partners in accessing to the market.
The strengthening of the individual, collective and institutional capacities go hand in hand in driving the improvement of the rural economy in all the themes object of the programme support, from the enhancement of the capacities, to the efficiency of the production inputs to the addition of value through the collaboration of the value chain actors. This approach involves the build up of and participation to the value chain governance of their stakeholders, but also their connection with the broader local development governance typified in the action of local authorities.
The national scale of this intervention links the strengthening of the regulatory framework to the assistance to producers and their partners to create the conditions that facilitate the access to inputs and trade of produce along with public (development agencies) and private investments for producing the multiplicatory effects envisaged by the expansion of the programme to several provinces. Also in this respect, there is need for local leadership to involve a progressively larger set of stakeholders.
As already mentioned, barriers to hamper the uptake of innovation and investment are numerous and far-reaching in their effects. The successful implementation of the programme largely depends on the availability of inputs and services provided by public and private partners alike. These include the packaging and dissemination of research results (improved varieties, resilient practices, sourcing of alternative inputs, etc.) and the establishment of markets and market-based risk management instruments. The smallholder producers have different propensity to their adoption as the rural economy is largely infused by self-resilience. The beneficiaries' skepticism on the employment of externally supplied inputs that disrupt the locally-centred organisation of the production resources is a recurrent topic of development project[26] that is usually tackled by strengthening their organisations and the planification and management capacities of local authorities. Thus, the programme partnership with actors and organisations rooted in the target areas is essential to strategize the proposed technology and economic changes through the catalytic role played by local leaders. It is expected to reduce the risks associated with the integration of the action of rural producers with services providers and to prompt the replication of successful experience at a larger scale.
In this way, it is possible to improve the management of the land, water and other resources of the territory along resilience, inclusion and sustainability criteria (environmental protection, natural disaster prevention, recycling of human activities waste, etc.). Thus, the delivery of the programme materials, knowledge, work approaches a technical task rooted on the enhancement of the governance, operational and technical capacities of its stakeholders and not only beneficiaries. This approach implies the creation of capacities of individuals and their organisations at the community, LLG, district and province level – and connection to national initiatives – groups, associations and technical bodies.
The programme multi-sector vision links the macro and micro dimensions, the assets construction and soft skills development aspects of local development. The assessments and studies, the planning and regulatory instruments link the direct assistance to producers and service providers to the framing of solutions conducive to economic growth.
Such efforts imply that the strengthening of the capacities of the smallholder producers, agribusinesses and traders be directed also to their participation in the governance of the value chains and advocacy of their interests at the different geographical levels along with that of the other bearers of interests.

Challenges

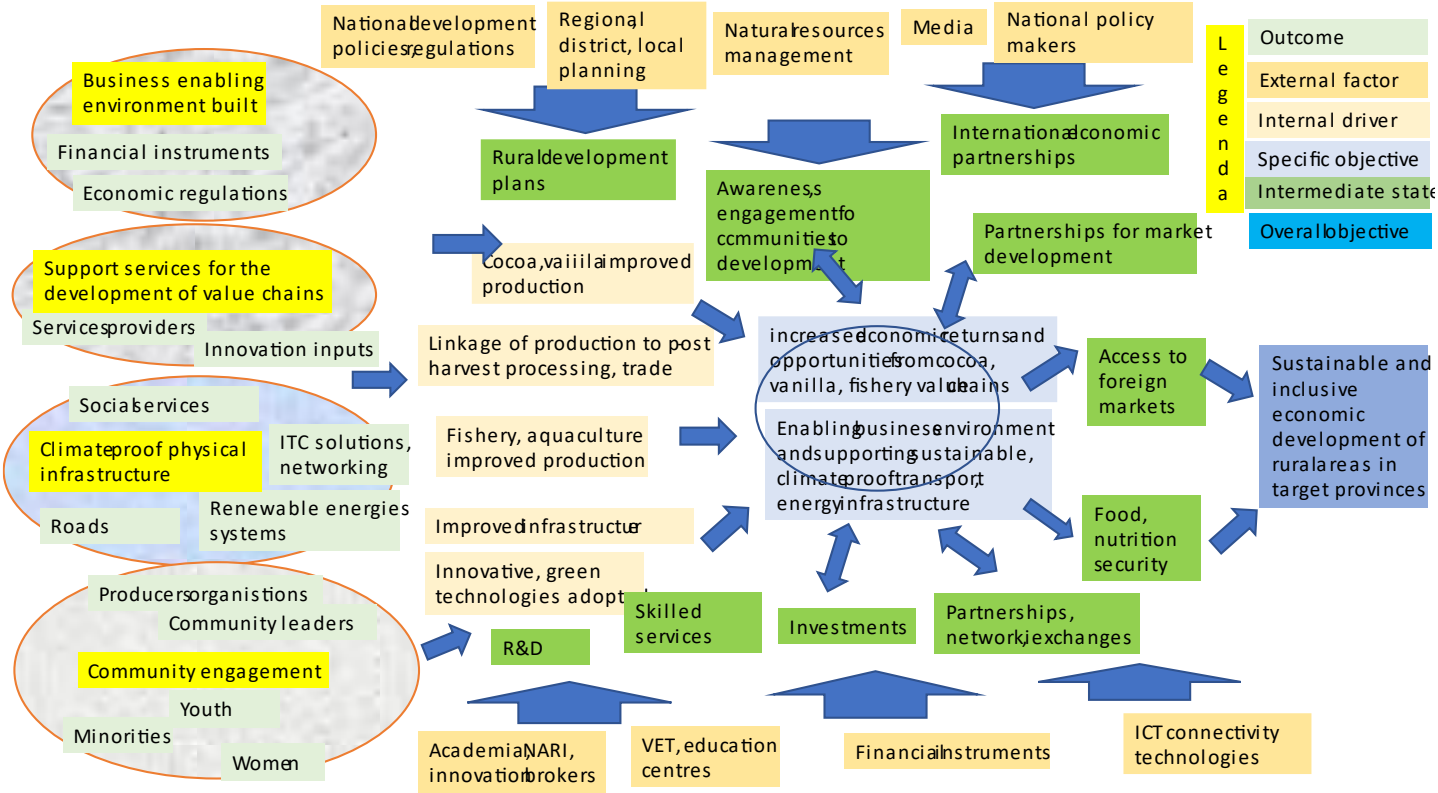
The greatest challenge of the project consists in the concurrence of the enabling conditions to enhance the capacities and activities of the producers. The performance of the project activities has to produce results whose effects merge at the community and family level to raise the efficiency of farming, fishing, processing and trading. This implies that the beneficiaries be assisted through different combinations of project activities that are consistent with the barriers they face in accessing to inputs, markets and in

[26] This propensity to circular economy and short value chain production is exemplified in the biological life cycle or myth of eternal return (the seed germinates, growth, issue fruits that are spread and degraded in soil where seeds newly sprout. A self-sufficiency vision preferentially employs the family, community workforce to the detriment of externally sourced services that break the circle. This analysis framed in the works of F. Nietsche and M. Eliade the conceptual model of traditional society is elaborated with reference to the assumption and reach of technology transder in development projects by Fabrice Gangneron. Politiques des objets et objets politiques. Les adductions d'eau villageoises en Afrique de l'Ouest. p. 136-139

organising the production inputs. Thus, the project execution has to be flexible and adapt its solutions to tackle the multiple, varied problems that affect the productivity of the smallholders, on the basis of the studies, feedback of activities and opportunities created by the progress of its components.
The build-up of the individual capacities is mirrored in the strengthening of the collaborations among the actors of the value chains that allow the articulation, planning and coordination of their economic choices to produce large scale impacts in terms of yield, added value and income. This perspective of long-term market development and access to inputs and investments addresses the *strategic* and *operational or technical aspects* of farming, fishing, and the off-farm activities of the selected value chains.

The commitment of the farmers, their community-based organisations to the common operations – in dealing with service proiders and customers, etc.) and their collaboration with public services – as they are also beneficiaries of road construction, energy production and ICT facilities – create interfaces that make possible (a) the customisation of such inputs on the beneficiaries exigencies and (b) their continuation after the programme end. This implies the elaboration and adoption of business models that consider the contribution of each public and private actors to the management of the programme established assets, assisted services, and supported organisations.
Building their capacities concern both the technical and financial aspects of the adopted technologies, since their design. This is important for their effectiveness, sustainability but also in view of the latter phase of the programme that concerns their extension to other provinces. The tackling of such challenge is critical for the success of the intervention in the Papua New Guinea context that is characterised by environmental and socio-economic fragmentation. It has to be pursued along a continuous improvement approach that systematises, tests, adapts and monitor the progress made in each target area. The programme information management system plays a critical role in supporting decision making that integrates the knowledge generated in implementing field activities at a progressively growing and expanded scale.
Another critical challenge for the programme success consists in the coordination of very diversified capacities, inputs, modalities of work to make them into a coherent implementation strategy. Its activities are broad-ranging and conducive to achieving mutually reinforcing effects in increasing the cost-effectiveness of the selected value chains and rural economy growth. Assistance to farming technical change, post-harvest processing and trade, access to information and investments, physical assets, communication networks for the smallholder and their economic counterparts is also conducive to fragmentation along thematic priorities with the risk that they adopt different geographical targets. The broad range of topics addressed by the programme makes it possible to catch the expected benefits of the addition of value to production only if the implementation modality is also strictly integrated among components, technologies, etc.
This challenge is also a facet of the governance of the development processes. In practice, the strengthening of the local organisations catalyses the integration of different programme activities and contributes to the coordination of the action of the programme partners. The performance of advocacy and communication actions is critical for the operationalisation of these collaborations as they clarify the opportunities and rallying points for undertaking joint actions, thus overriding the inertial commitment of each programme partner to its priorities set on the basis of technical considerations.
This result is also linked to the availability and mobilization of private resources in the latter phases of the value chains. The commitment of the private sector entrepreneurs (traders, agribusinesses, service providers, etc.) and financial institutions is expected to point to the critical points for the integration of the thematic actions as they link production to market requirements and to the elaboration of cost recovery of actions that are not always immediately justifiable in terms of the benefits achieved by the individual producer.
Such commitment to advocacy and communication contributes to creating a consensus on the joint goals, harmonising the actions of the stakeholders and smoothening the strategic problems that are intermingled with the expansion of the selected value chains (that are in competition with oher productions, etc. in accessing to infrastructure, investments, service providers). This process facilitates the clarification of which programme actions have more chances of success - conflicting access to the natural and other resources of the territory are often a source of conflicts that modify the priorities of the producers – and should be addressed jointly by the programme implementing partners, in liaison wih

their local counterparts. The discussion of this topic, its consideration in the shaping of the programme actions also benefit from the collaboration with national institutions that own the broader, long term perspective of the compatibility of concurring local development priorities, initiatives, etc.
The harmonisation of the programme execution with the agricultural and other development policies, regulations and plans (financial stability, management of natural resources, social inclusion, etc.) should be re-assessed periodically on the base of a joint analysis of the programme progress in the field by considering the mentioned challenges. Overall, the programme contributes to connecting the external stakeholders with the farmers, fishers, other local economic actors. Their dialogue and the outputs of their collaboration play a central role in the enhancement of implementation strategy. At the smaller scale of the implementation of field activities, this is also the main instrument to elaborate technical solutions that are discussed, adapted to the feedback provided by the smallholder producers and their partners in the sustainable and inclusive economic development of the target producers and their communities.



12. Stakeholder Mapping

This *Stakeholders' analysis* consists of the characterization of the key actors of the program to identify their roles and relations in the driving of the project strategy and implementation. The stakeholders of the project include regional, national, and local actors. The following groups of stakeholders are the main players in the STREIT PNG programme. Their interaction at the national and local levels mobilises the resources needed for the orientation and improvement of agricultural production and specifically the design and implementation of the projects' activities.
The **smallholder farmers** have little income; limited access to finance; dysfunctional access to input and product markets. They are rooted in the community economy and constrained by the scarcity of production inputs and opportunities for the marketing of their products. They are facing new opportunities of farming, especially in relation to cash crops production (cocoa, vanilla). At the same time, they are participating in their community life, joining forces in addressing the environmental and socio-economic constraints to the improvement of farming practices.
The **women** are very knowledgeable of the socio-economic and environmental context, and practice horticulture, agro-forestry, fishery and petty livestock rearing. They are in charge of the family access to

key inputs such as water and firewood and are active in the local trade of the harvest, processed food and domestic stuff, including handicrafts.

The **community leaders** represent the socio-economic interests of their communities and ensure their mobilization, resolving the conflicts among their members. They play a critical role in the negotiation of access to the resources of the territory and balance the interests of the different families and groups of the population. Thus they are properly positioned to play a central role in the transfer of technology and oranisation of farmers.

The **cooperatives and community based organisations** are organised farmer groups established to operate and maintain common infrastructure and access to market. They play a central role in the management of the value chains, organising farmers in dealing with service providers and customers. Other community based organisations of importance include **community based microfinance groups** that play an important role in orientating farm production and diversifying the household economy.

Commercial farmers are well organised producers that have access to finance and technology and that have well established relations with the formal market, such as wholesalers and large scale food distribution chains (supermarkets). Their human and financial resources make it possible to access and test innovation also in direct connection with foreign partners and investors.

Local traders and agro-dealers are small entrepreneurs that ensure access to farming tools, including seed and fertiliser, and provide markets and aggregation of the harvest for temporary storage and transport to larger markets. They are intermediaries between the farmers and the larger actors of the agricultural market-based in the cities such as Papindo, Queen Emma industrial companies.

The private sector consists of large players in the market responsible for the manufacturing and trading of agricultural inputs and tools, buying and agro-processing of agricultural products for supplying to the domestic and external markets, financial institutions as banks, fintech companies that play a key role in the expansion of the plantation areas. They are endowed with specific knowledge of products and techniques that are essential for the delivery of the production inputs to the farmers. They ensure the transfer of technology from research, companies and the public sector to the commercial farmers and to a lesser extent to the smallholder producers.

The governance of the programme includes the **FAO and UN agencies, the EU Delegation** and the **Programme Steering Committee (PSC)** that provides strategic guidance to the programme itself. **UNCDF** on improving access to finance and financial awareness among value chain producers; **UNDP** on energy policy/strategy and public facilities renewables - providing access renewable energy - solar power for value chain actors

The **Department of National Planning and Monitoring (DNPM)** is the central agency responsible for the overall coordination and monitoring of all Development Programmes in the country. Part of its responsibilities is on advising Government on matters relating to strategic development; development policy; development planning; foreign aid coordination and management; and monitoring and evaluation of national development projects and programmes. The **National Authorising Officer (NAO)** is the contracting authority in the intervention and supervises the project execution and coherence with national policies.

The **Ministry of Agriculture (MoA)** is in charge of leading the agriculture sector, and its **Department of Agricultura and Livestock (DAL)** leads the revision of the agricultural policies, provides technical assistance to farmers and facilitates the implementation of the value chains. The MoA is in charge of the policy, regulation, and supervision of the technical assistance delivered to the farmers. Its role is especially critical in relation to the framing of policies that orientate production and irrigation investments. Its assistance to the farmers is dependent on the collaboration with other actors such as NGOs, professional service providers and the community-based organisations that aggregate the smallholder farmers. The Ministry of Agriculture is also providing extension services, i.e. the local network of public services that assists the farmers in accessing knowledge and skills and advises them on the production and maintenance of the farming assets. As they are usually under-resourced, they integrate their action with that of NGOs, private sector bodies and community-based organisations in assisting the farmers.

The **National Fisheries Authority (NFA)** is mandated for fisheries development in PNG and will be a key partner both at the national and provincial level and fisheries activities of STREIT will be integrated into the work plan of NFA.

The **Department of Transport and Infrastructure** is responsible for transport infrastructure policy and planning. It is the lead agency in formulation of policies and planning of transport infrastructure projects, administers transport legislations and ensuring compliance to safety, security and related environmental standards. The department's core functions is to provide transport policy, strategy and planning advice across all three modes of transport (air, land, and sea), co-ordinate and monitor implementation of government policies, strategies and plans for the three modes, administer relevant legislation for all three modes, monitor and ensure the effective execution of delegated authorities and legislation implemented by other transport sector bodies.

The **Department of Works and Highways (DoWH)** is the PNG Government's implementing agency for infrastructure in the country. It is the biggest and one of the oldest government organizations in the country and the only department in the government that has an office in every province of PNG all linked together through the wide area network. The department provides rural infrastructure services not covered by organizations such as PNG Power, the Waterboard or Eda Ranu and others and also provides consultancy services to other organizations. DoWH is a key partner at National and Provincial level on roads, infrastructure; maintenance and improvement of roads and riverine infrastructure.

The **International Labor Organization (ILO)** is a specialized agency of the United Nations devoted to promoting social justice and internationally recognized human and labour rights. It helps advance the creation of decent work and the economic and working conditions that give working people and business people a stake in lasting peace, prosperity and progress. Its unique tripartite structure gives an equal voice to workers, employers and governments providing a unique platform for promoting decent work for all women and men. Led by ILO, the road and infrastructure component of the EU-STREIT PNG is focused on upgrading roads, bridges, jetties and airstrips. This effort aims to help create an enabling environment for farmers to increase their income and profit with opportunities to participate in value-added markets to become agri-preneurs under the three value chains supported by the Programme.

The **National Agriculture Research Institute (NARI)** is responsible for providing technical, analytical, diagnostic and advisory services and up-to-date information to the agriculture sector in PNG. FAO contracted the NARI together with the National Fisheries Authority (NFA) to design and conduct a baseline survey to determine and quantify key value chain criteria and parameters prior to the start of programme activities.

The **National Agriculture Quarantine and Inspection Authority (NAQUIA) is** mandated to certify agricultural, fisheries, and livestock commodities in PNG and to provide sound scientific quarantine and inspection services to assist and encourage agricultural production and providing biosecurity services focused towards minimizing the risks of introduction, establishment and spread of regulated pests and diseases affecting animals and plants. These functions are performed in inspection of imported animals and plants products and providing quality assurance for agricultural exports.

The **Department of Commerce and Industry (DCI)** mandate is to guide PNG into maximising its full potential in the development of vibrant and diversified domestic commerce and industry and participation in the international trade for the ultimate achievement of sustainable socio-economic growth, increased employment and income earning opportunities, and proverty alleviation.

The **Climate Change and Development Authority (CCDA)** coordinates the Climate Change efforts of PNG and is the coordinating entity for all climate change related policies and actions in the country. It is the designated National Authority under the United Nations Framework Convention on Climate Change (UNFCCC). The office is basically tasked with ensuring that Papua New Guinea follows a path of climate-compatible growth, that the country's economy develops while simultaneously mitigating greenhouse gas emissions and reducing vulnerability to climate change related risks.

The **Conservation and Environmental Protection Authority (CEPA)** established in 1985 to ensure natural and physical resources are managed to sustain environmental quality and human well-being.

The **Department of Community Development (DCD)** is responsible for women, gender and community engagement and empowerment**.** Its primary function is to develop policy and legislation that promote community development initiatives, services and programmes. The department also facilities, coordinates and promotes programs that mobilises local communities and marginalised groupings. It takes the lead in mobilising local communities and marginalised groupings in order to enhance productive living and on-going process of human development.

The **Department of Information and Communication Technology (DICT)** provides people in the government with the tools, methods, practices, and policy guidance they need to deliver effective and accessible digital services and ensure the use of appropriate and affordable digital technologies through a transformative and inclusive approach across sectors of the economy for benefits of all.

The **Investment Promotion Authority (IPA)** has the primary mandate to promote and facilitate investment in Papua New Guinea and regulate the business industry in the country. It is responsible for business registration and the point of identification of markets for PNG exports and dissemination of investor- related information about PNG. The IPA is the organisation that houses the Companies Office of PNG, the Securities Commission of PNG and the Intellectual Property Office of PNG, hence the roles and functions of the IPA is diverse.

The **Independent Consumer and Competition Commission (ICCC)** enforces competition, fair trade and consumer protection regulations. The ICCC is the principal economic regulator and consumer watchdog. Its primary role is to administer and implement the ICCC Act and other related legislations. It performs a number of functions including administration of price regulation, licensing, industry regulation and other matters outlined under the ICCC Act or any other act. The primary objectives of the ICCC are to enhance the welfare of consumers in PNG, promote industry conduct and standards, and protect consumers interests with regards to the price, quality and reliability of goods and services.

The **International Telecommunications Union (ITU)** is the United Nations specialized agency for information and communication technologies to facilitate international connectivity in communications networks, allocating global radio spectrum and satellite orbits, developing the technical standards that ensure networks and technologies seamlessly interconnect, and striving to improve access to ICTs to underserved communities worldwide. It promotes communication tools and technologies improving digital services.

The **National Information & Communications Technology Authority (NICTA)** is a government agency responsible for the regulation and licensing of Information Communications Technology (ICT) in Papua New Guinea. The aim is to ensure the ICT industry contributes meaningfully to the long-term economic and social development of PNG in line with national goals and directive principles and the basic social obligations of the constitution. It calls for the ICT industry to be regulated in a manner that promotes consumer welfare through an equal, transparent, technology nuetral, timely and non-discriminatory measures. NICTA works closely with all stakeholders while ensuring industry compliance with licence conditons, codes and standards. It also monitors the effects of regulations to ensure they are responsive to the wider community's needs

The **National Institute of Standards and Industrial Technology (NISIT)** is the government statutory national standards body established under NISIT Act 1993. Its functions cover technical standards, metrology, conformity assessment schemes, productivity and technical barriers to trade in Papua New Guinea.

The **PNG Customs** is responsible for protecting the country's border and community, preventing transnational crimes and ensuring there is effective supply chain security. It works in collaboration with a number of key partner agencies including Government and industry.

The **PNG Power Limited**, State Owned Enterprise (SOE) is a fully integrated power authority responsible for generation, transmission, distribution and retailing of electricity throughout Papua New Guinea and servicing individual electricity consumers. It services customers in almost all urban centres throughout the country encompassing industrial, commercial, government and domestic sectors. Where possible, the services extend to rural communities adjacent to these urban centres. PNG Power also performs a regulatory role on behalf of the Independent Consumer and Competition Commission (ICCC). These responsibilities include approving licenses for electrical contractors, providing certification for models of electrical equipment and appliances to be sold in the country and providing safety advisory services and checks for major installations.

The **National Youth Development Authority (NYDA)** is mandated for youth affairs to mainstream youth issues into society and facilitate youth development with all sectors of society.

The **Intellectual Property Office (IPO)** is within the Investment Promotion Authority (IPA) with defined units that deal with trademarks examination and registration, patents and industrial design examination and registration and legal matters concerning Intellectual Property. It deals with administration of

intellectual property rights (IPRs) and administers intellectual property (IP) legislations in Papua New Guinea.

The **Department of Education** is the PNG lead advisor on the education system, shaping direction for education agencies and providers and contributing to the Government's goals for education. It develops strategic policy for the education sector and deliver services to the sector.It undertakes education research and analysis and monitor education sector capability and viability. The Department delivers policies, programmes and services focused on improving the community's knowledge of and participation in the education system.

The **Department of Petroleum and Energy (DPE)** is comprised of two main Divisions, Petroleum, Energy and a third support Division, Corporate Services. The Petroleum Division is responsible for administering and regulating all petroleum related projects within PNG to support the Government's efforts to develop the Nation's discovered and potentially discoverable petroleum resources by promoting, monitoring and regulating all activities directly related to the exploration of petroleum in the country. The Energy Division takes charge of policies and oversees the non-fossil energy sources and renewable energy sector. This also covers the retailing and distribution of petroleum products for electricity generation and transmission.

The **Local Government Authorities (LGA)** – province and district level - are in charge of socio-economic development at the local level and collaborate with the MoA and national institutions in the coordination of the communities' actions with the national policies and planning processes.

The **Department of Provincial and Local Government Affairs (DPLGA)** provides the vital link between the National Government, Provincial Government, Local-level Government and Municipal Authorities, while empowering and building their capacities to serve the people through sound mentoring, capacity development, monitoring, coordination, and partnership activities.

NGOs are especially active at the local level in transferring technology to and assisting communities and farmers in improving their livelihoods and welfare. They are actively participating in the programme as implementing partners/grant beneficiaries. They are endowed with socio-economic capacities and collaborate with the extension services and private sector by interfacing between the smallholder farmers, community-based organisations and external service providers. Depending on their specialisation, they may assist specific groups of vulnerable people or whole communities.

Development partners collaborate with the national institutions and agencies in guiding the transition to sustainable, inclusive and resilient development, thus interfacing the international socio-economic trends with the national development policies and actions. Those active in the programme sector include World Bank, Asian Development Bank and JICA. Their understanding of the larger picture / global trends that influence local development contribute to ensure the smooth transition from subsistence to market-oriented farm production.

Financial institutions provide financial services to the economic actors of the agricultural sector, with emphasis on the agri-business, service providers and commercial farmers. They depend on external sources of capital due to the limited saving capacities of most farmers, thus they are not eager to take risks to support the growth of smallholder production that has little changes to create revenues that can be saved in the financial institutions. Micro-finance institutions are struggling to fill in such gaps but face high investment risks that raise the cost of their services. Community based saving and loans groups, often made of the more economic active female villagers, are well positioned to provide the start and running capital for the diversification and growth of the community economy.

The **Bank of PNG and CEFI** (the Centre for Excellence in Financial Inclusion) is the Central Bank of the country mandated to coordinate the implementation of the Financial Inclusion Strategy 2016-2020. Ensure that its monetary and banking policy is directed to the greatest advantage to the people of PNG and direct its efforts to promoting monetary stability and a sound and efficient financial structure.

13. Survey guide

Topics for discussion with the informants, beneficiaries

Identification	
n.	
Date	
District	
Place	
Informant(s)	
Task(s)	
Organisation	
Gender	
Topics	
1	Participation in the identification of the project/activities
2	Transport, communication and livelihood issues
3	Environmental and climate challenges, water and land management
4	Improvement of farming systems / best agricultural practices and linkages between research and production
5	Access to farm inputs and extension services
6	Post-harvest management of products and access to market
7	Producers' / processors' / traders' organisation governance
8	Participation in value chain steering, policies elaboration
9	Access to knowledge and market information
10	Participation to community infrastructure, roads operations and maintenance
11	Regional coordination and participation in other initiatives
12	Fund release timeliness and delivered inputs fitness
13	Role of and benefits for women, youth, vulnerable groups
14	Recommendations

14. Infrastructure profile

Information of the Road Transport Infrastructure visited

Identification	
n.	
Date	
District	
Place	
Name	
Beneficiary communities	
Users	
Extension	
Information	
Materials origin	
Description	
Supply chain	
Technical solutions	
Community contribution	
Costs	
Economic challenges	
Environmental challenges	

Socio-economic issues	
Implementation	
Date	
Supervision	
Overall Quality	
Sustainability Measures	

15. Communication actions outreach

Media	*Coverage*	*Coverage or circulation*	*Trend of presence, reach out and engagement*	*Recipients of STREIT Messages (estimated)*
Local Radio Programme	6 out of 10 districts in the Sepik	600,000	Active continues presence (Weekly)	200,000
National TV	40% of the Country's population	3,000,000	Relatively active continues presence (Weekly)	600,000
National Radio	69% of the Country's population	6,300,000	Periodical presence (Monthly)	500,000
Print Media	Across the country	30,000	Active continues presence (Weekly)	100,000
Online Media	Across the country	3,000,000	Active continues presence (Weekly)	300,000
Social media	Viewer of our page	3,000,000	Active continues presence (Daily)	211,588
Print Material	10 districts	15,000	Active continues production and distribution (Monthly)	75,000
Physical Contact (Offices)	10 districts	300,000	Active continues engagement (Daily)	2,000
Public Events	6 districts	600,000	Relatively periodical engagemnt (Quarterly)	10,000
Regional Media	Across the Pacific Islands	15,000,000	Relatively periodical engagemnt (Quarterly)	20,000
Local level outreach (ESP & WSP)				494,791
National level outreach				1,503,797
National and regional level outreach				1,523,797

16. Coverage of the broadband network

A. East Sepik province

Digicel Mobile Broadband Gap Analysis-2022 – East Sepik

						2G Digicel				3G Digicel				4G Digicel			
Province	Dist_no	District	LLG_no	LLG	Total Pop 2020	Covered	(%) Covered	Uncovered	(%) Gap	Covered	(%) Covered	Uncovered	(%) Gap	Covered	(%) Covered	Uncovered	(%) Gap
EAST SEPIK					**562342**	**461310**	**82%**	**101032**	**18%**	**327785**	**58%**	**234557**	**42%**	**315265**	**56%**	**247077**	**44%**
	1	Ambunti/Drekikier			90774	72230	80%	18544	20%	28399	31%	62375	69%	23102	25%	67672	75%
			1	Ambunti Rural	26455	24374	92%	2081	8%	0	0%	26455	100%		0%	26455	100%
			2	Drekikier Rural	30985	30711	99%	274	1%	22519	73%	8466	27%	18095	58%	12890	42%
			3	Gawanga Rural	18518	15147	82%	3371	18%	5880	32%	12638	68%	5007	27%	13511	73%
			4	Tunap/Hustein Rural	14816	1998	13%	12818	87%	0	0%	14816	100%		0%	14816	100%
	2	Angoram			112731	56887	50%	55844	50%	19464	17%	93267	83%	13207	12%	99524	88%
			5	Angoram/Middle Sepik Rural	30939	19268	62%	11671	38%	10876	35%	20063	65%	11284	36%	19655	64%
			6	Karawari Rural	16275	12795	79%	3480	21%	0	0%	16275	100%		0%	16275	100%
			7	Keram Rural	26242	13938	53%	12304	47%	6062	23%	20180	77%		0%	26242	100%
			8	Marienberg Rural	23318	10013	43%	13305	57%	2526	11%	20792	89%	1923	8%	21395	92%
			9	Yuat Rural	15957	873	5%	15084	95%	0	0%	15957	100%		0%	15957	100%
	3	Maprik			94722	93828	99%	894	1%	89689	95%	5033	5%	88963	94%	5759	6%
			10	Abiges/Mablep Rural	18123	18119	100%	4	0%	15641	86%	2482	14%	15090	83%	3033	17%
			11	Bumbita/Muhian Rural	25549	25552	100%	-3	0%	24775	97%	774	3%	24775	97%	774	3%
			12	Maprik/Wora Rural	28222	27736	98%	486	2%	26852	95%	1370	5%	26677	95%	1545	5%
			13	Yamil/Tamaui Rural	22828	22421	98%	407	2%	22421	98%	407	2%	22421	98%	407	2%
	4	Wewak			104813	90587	86%	14226	14%	74446	71%	30367	29%	72537	69%	32276	31%
			14	Boikin/Dagua Rural	25779	22416	87%	3363	13%	10359	40%	15420	60%	10359	40%	15420	60%
			15	Turubu Rural	13469	11025	82%	2444	18%	9938	74%	3531	26%	8928	66%	4541	34%
			16	Wewak Islands Rural	14228	5811	41%	8417	59%	2814	20%	11414	80%	1915	13%	12313	87%
			17	Wewak Rural	18144	18143	100%	1	0%	18143	100%	1	0%	18143	100%	1	0%
			18	Wewak Urban	33193	33192	100%	1	0%	33192	100%	1	0%	33192	100%	1	0%
	5	Wosera Gawi			80961	72431	89%	8530	11%	47693	59%	33268	41%	49874	62%	31087	38%
			19	Burui/Kunai Rural	16432	15996	0%	436	3%	5510	34%	10922	66%	4334	26%	12098	74%
			20	Gawi Rural	12277	6403		5874	48%	1530	12%	10747	88%	1802	15%	10475	85%
			21	Norther Wosera Rural	21764	20276		1488	7%	15515	71%	6249	29%	19201	88%	2563	12%
			22	South Wosera Rural	30488	29756	98%	732	2%	25138	82%	5350	18%	24537	80%	5951	20%
	6	Yangoru Saussia			78341	75347	96%	2994	4%	68094	87%	10247	13%	67582	86%	10759	14%
			23	East Yangoru Rural	24458	23593	96%	865	4%	20565	84%	3893	16%	19719	81%	4739	19%
			24	Numbor Rural	18856	18854	100%	2	0%	17466	93%	1390	7%	18854	100%	2	0%
			25	Sausso Rural	14420	12295	85%	2125	15%	10107	70%	4313	30%	9177	64%	5243	36%
			26	West Yangoru Rural	20607	20605	100%	2	0%	19956	97%	651	3%	19832	96%	775	4%

B. West Sepik province

Digicel Mobile Broadband Gap Analysis-2022 – West Sepik

						2G Digicel				3G Digicel				4G Digicel			
Province	Dist_no	District	Llg_no	LLG	Total Pop 2020	Covered	(%) Covered	Uncovered	(%) Gap	Covered	(%) Covered	Uncovered	(%) Gap	Covered	(%) Covered	Uncovered	(%) Gap
WEST SEPIK					**310352**	**195802**	**63%**	**114550**	**37%**	**97142**	**31%**	**213210**	**69%**	**74631**	24%	235721	76%
	1	Aitape/Lumi			89195	77143	86%	12052	14%	28922	32%	60273	68%	19736	22%	69459	78%
			4	West Wapei Rural	15016	9463	63%	5553	37%	0	0%	15016	100%	0	0%	15016	100%
			3	West Aitape Rural	23307	22374	96%	933	4%	7568	32%	15739	68%	0	0%	23307	100%
			2	East Wapei Rural	13118	12237	93%	881	7%	0	0%	13118	100%	0	0%	13118	100%
			1	East Aitape Rural	37754	33069	88%	4685	12%	21354	57%	16400	43%	19736	52%	18018	48%
	2	Nuku			76896	50571	66%	26325	34%	36071	47%	40825	53%	24103	31%	52793	69%
			17	Maimai Wanwan Rural	8251	1882	23%	6369	77%	874	11%	7377	89%	0	0%	8251	100%
			7	Yangkok Rural	21172	18275	86%	2897	14%	184	1%	20988	99%	0	0%	21172	100%
			6	Paimai Rural	19336	17489	90%	1847	10%	11494	59%	7842	41%	7590	39%	11746	61%
			5	Mawase Rural	28138	12925	46%	15213	54%	23519	84%	4619	16%	16513	59%	11625	41%
	3	Telefomin			59462	31900	54%	27562	46%	7205	12%	52257	88%	7996	13%	51466	87%
			11	Yapsie Rural	11113	0	0%	11113	100%	0	0%	11113	100%	0	0%	11113	100%
			10	Telefomoin Rural	14996	10366	69%	4630	31%	7205	48%	7791	52%	7996	53%	7000	47%
			9	Oksapmin Rural	20532	13068	64%	7464	36%	0	0%	20532	100%	0	0%	20532	100%
			8	Namea Rural	12821	8466	66%	4355	34%	0	0%	12821	100%	0	0%	12821	100%
	4	Vanimo/Green River			84799	36188	43%	48611	57%	24944	29%	59855	71%	22796	27%	62003	73%
			16	Walsa Rural	10015	5895	59%	4120	41%	0	0%	10015	100%	0	0%	10015	100%
			15	Vanimo Urban	16338	12135	74%	0	0%	20339	124%	0	0%	16339	100%	0	0%
			14	Green River Rural	18189	5149	28%	13040	72%	0	0%	18189	100%	0	0%	18189	100%
			13	Bewani/Wutung Onei Rural	24251	7541	31%	16710	69%	4605	19%	19646	81%	6457	27%	17794	73%
			12	Amanab Rural	16005	5468	34%	10537	66%	0	0%	16005	100%	0	0%	16005	100%

17. The study of the QoS/QoE

The QoS/QoE study included: (a) the study the ICT/Telecommunications laws, regulations and other relevant government decrees and issuances, (review existing standards and international best practices on key performance metrics, measurement and reporting process for the ICT Network Service providers, (c) elaboration of the national framework of minimum technical parameter for QoS/QoE of ICT services with emphasis on customer centric Key Performance Indicators, conducting and reporting prepare consultation on implementing the drive test such as; (i) Coverage, (ii) internet Access, (iii) Internet Speeds Tests and (iv) Data throughput, (d) assistance to NICTA in the implementation of QoS/QoE regulatory framework and support to produce a detailed plan to encompass implementation and monitoring of the current framework, (e) technical guidance for stakeholders to measure Quality of Service / Quality of Experience (QoE) group, (f) drawing detailed guidelines for fair and representative measurement of QoS/QoE parameters for each of the four services covered by the proposed rules which are (a) mobile telephony, (b) mobile broadband, (c) fixed telephony and (d) fixed broadband; (g) developing the reporting framework for QoS/QoE measurements in the Sepik region; (h) developing the technical plan for QoS/QoE measurements guidelines based on international examples and ITU study groups including amongst other the work of SG12 of ITU-T in particular ITU-T Recommendation: Strategies to establish quality regulatory frameworks, https://www.itu.int/rec/T-REC-E.805); (i) preparing materials to conduct a national stakeholder workshop on the suggested QoS/QoE framework, (j) the final report with findings, recommendations reference and workshop materials and attaching the proposed updated template of reporting.

18. Minutes of the meetings

Date: 28 11 2022 h 9 00
Venue: EU Delegation, Port Moresby
Participants:
2 informants

The 4th PSC was recently held in Wewak. Private sector (traders, exporters, producers' associations, cooperatives) is not involved in its meetings
Complains about delays, not only due to COVID-19 restrictions. For example, the coco seedlings distribution has reached 1.3 million out of a 3 million target. Components lagging behind are: Renewable energy (solar panels procurement on going) and ITC.
Positive results by the Fintech component managed by UNCDF
FAO is in charge of the value chains, cocoa and vanilla are fine while fishery and aquaculture lags behind
Vanilla quality is low
Rural Transport Infrastructure connection with value chain areas should be assessed
Provincial administrations are in charge of development, maintenance of roads along with local governments.

Evaluation should assess:
- What was achieved, is it sustainable
- How to improve and speed up the delivery of activities
- Potential no cost extension with prolongation of some components, also by moving resources from operations to staff
- Support to policies
- interaction of components and linkages to national development policies
- check road conditions and sustainability

Date: 28 11 2022 h 14 00
Venue: Department of agriculture and livestock, Port Moresby
Participant:
1 informant

The baseline study by NARI was done well after the project start
Evaluation:
- Impact on households, families and community income, is it sustainable
- contribution of local administrations, communities

Cocoa technology transfer along with distribution of improved seedlings, linkage to processing

Construction of roads, infrastructure to support marketing
DAL established demonstration plots (ha 100)
Cocoa board is in charge of licensing fermentation units.
Wet beans PGK/kg 1.0-1.5, Fermented bean PGK/kg 2.3
Characteristics are affected by pests

Vanilla
Processing plants established; 30% high quality and 70% low quality

Roads
Provinces in charge of maintenance in collaboration with districts and LLGs with regular annual funds from District Support Infrastructure Program (DSIP) of PGK 10 million, LLGSIP of PGK 500,000, and PSIP of PGK 5 million decided by the provincial governor
DNPM distributes funds to local governments for implementation

Fishery
Women active in harvesting shrimps. They get soft loans through microfinance
Local buyers are fes, no cold storage facilities to expand the market. Private sector should establish ice factory, cold storage

Date: 29 11 2022 h 8 30
Venue: teleconference with STREIT project / FAO
Participants:
Programme staff

Agree with wield visits coming to Wewak on December 11 and going back to POM by December 16
December 12 TME team will meet with FAO and partners in FAO office
Field visit will be split by component; difficult logistics in rainy season, long time is needed to reach the programme sites
Some communication created misunderstanding with Government bodies

Date: 29 11 2022 h 10 30
Venue: DNPM / NAO
Participants:
5 informants

Project activities 20% in West and 80% in East Sepik province. Cocoa plantations rehabilitation, no new sowings. Roads have to support marketing. High mortality of seedlings.
Local level governments (LLG) are key to mobilise communities
Strong interest by political authorities on the project progress
Delays, low delivery rate
Baseline survey has important data. The ESP government has its own cocoa seedlings multiplication programme. Not enough participation of district authorities
Dispersion of resources among many activities
Evaluation:
- Cost benefits analysis
- Programme extension by one year
- Sustainability and ownership are key focal areas of the study
- Efficiency of money spent in roads, high cost of ILO
- concentrate on the mor effective activities

Date: 30 11 2022 h 15 00
Venue: MiBank
Participants:
1 informant

The project trained 23 bank agents to work with cocoa producers. In In other district the bank finance farmers producing cocoa

Date: 1 12 2022 h 10 30
Venue: Climate change and development authority (CCDA)
1 informant

He was involved in identification of the solar power component of the project. It demonstrates the solar technology
The solar panels put on the rooftop solar of the Government health centre of Trubu in East Sepik should have substituted a power generator of KW 4. When switching to solar system everything collapsed

Date: 2 12 2023 h 14 00
Venue: Department of works and highways (DoWH)
Participants:
1 informant

He participated to the 3rd and 4th PSC meetings but not consulted by the programme ever since
They give technical assistance to write standards specification of rural roads, maintenance, resilience to climate change
The national roads cost PGK/km 10,000,000 (cm 5 asphalt on cm 35-50 gravel layer)
The LLG have a clerk and a secretary. They should employ technicians to maintain rural roads.
They were not consulted by project about creation of local capacities before, or in inspection and test
The national DoWH has oversight control over Provincial DoWH, only department with office at the province but none in districts
Provincial governments have no engineer; engineer in the provincial administration is from DoWH
Until 1995, DoWH was responsible for all roads in PNG but after that, provinces were made responsible since DoWH budget was reduced
For STREIT, it has to be checked who inspects and tests / performs quality controls since DoWH has never been consulted by programme staff ever since
Performing capacity building in provinces requires engineers
Ministry of transport is in charge of the Jetties fish landing building

Date: 6 12 2022 h 11 00
Venue: Women micro bank Ltd or Mama ban
Participants:
2 informants

They started working with project in July 2021. They held 181 community awareness meetings on Mama access technology. They have established 17,167 new accounts in 10 districts, 10 Mama access points in ESP and WSP of which 60-70% are current users (at least one operation in 90 days). They manage PGK/location 5-10,000, lend money. They have deployed 38 agents. They have established bank access mobile points. Their staff performs financial literacy. The savings culture is growing there. Electricity, road, wifi access are still challenges in the rural locations. They agents use scanner, printer, tablet, to register account holders. The agent location exploits collaboration with church or District development authority. Collaboration with company no establish solar panels in a Mama agent location.
Account holders include farmers, fishers, agribusinesses, fermenters, small traders, self reliance groups, women (most clients). Women are active in business, they earn their own money and are expanding their businesses.
They have to establish collaterals. Cocoa beans can work as such. A cocoa factory will be established by private company. Fishers need solar powered freezers to link to traders. The Government subsidises Digicel to cover remote areas with phone signal. This is essential for expanding their digital banking services. They are introducing community banking. This includes training customers on financial services, etc.

Date: 7 12 2022 h 13 30
Venue: Port Moresby
Participant:
1 participant from DOWIAD NGO

The DOWIAD association has members in 4 districts of ESP and 2 of WSP. They have 4 satellite nurseries and 3 budwood garners that worked with the project in 2021-2022. When budstock are ready they are moved to seed nurseries for grafting They got buds from Cocoa bord and multiplied in their budwood gardens. They distributed 100,000 clones in 2021 and 50,000 in 2022. They advise farmers on pests as pod borer control, pruning. They pay part of the cost of transport.
The 2000 farmers of her village that received cocoa clones in 2019 are now producing MT/year 30-40. Fermenters work there. Road infrastructure construction is slow. There is no road. She is going to build two bridges, splitting the timber and making it across the river. One bridge is under construction now. Thus the time to reach the market will decrease
They have distributed cocoa seedling, trained members on cocoa and fishing. They are also working with external farmers. Farmers get the cocoa clones that cost toya 50 each (PGK 0.50). The improved cocoa tree (37 clones from Cocoa board) produce dry bean kg/plant 10 per year or MT/ha 2-3
They train their members on nutrition, economic cooking, financial literacy, local herbs. They pa fee tuition for children of members that go to university.

Fish
About 1,500 fishers, their members and other farmers, asked to join the project. The purpose of this value chain is to increase the protein in the farmers' diet. Local demand of fish is high. Riverine fish stock is decreasing. They produce riverine aquaculture using nets and feeding the fish with tapioca, fish meal, oil from coconut and oil palm. They are training farmers on the aquaculture production. They sell the fresh, salted, cured fish in the village market. City market pays better, there is a huge demand for fresh and dried fish.
They are clients of MiBank mobile banking services
Difficulties in mobile banking depend on cultural bias. Men don't want that their wives connect to strangers by phone.

Date: 7 12 2022 h 15 00
Venue: UNDP office
Participant:
1 informant

UN agencies established the project unit. The COVID-19 delayed the import of solar panels, equipment. Procurement time increased.
The UN agencies do not pay the custom duty on imported materials but they pay the Good and services tax that is an expenditure not recognised by the EU and that the GoPNG systematically refuses to refund.
EU pays the next tranche when expenditures have reached 70% (a unique threshold for the whole project). Some agencies that have spent over 70% don't get the new tranche because, FAO that has the bigger amount of fund, is low expending. Thus, UNDP has prefinanced some activities with its own resources.
The local administrations are weak, not able to unify the action of the project components, central government agencies are loosely connected to the local administrations. Provincial officers know little about national decision making processes in development.
Achieving sustainability will require more time than the programme duration.
There is frequent communication among project partners and EUD. The NAO monitoring mission had some problem with a FAO staff member. His report was biased.

Date: 7 12 2022 h 9 00
Venue: Spice industry board, DAL, Port Moresby
Participants:
2 informants

The vanilla voluntary standards initial assessment was performed. Producers' are not united in an association. Cooperatives are not associated in a federation. Discussion with industry is not structured.
The characteristics of the vanilla processed is low. Post-harvest processing, storge has to be improved
District agricultural officers should assists producers.
the Spice industry board has to revise the spice act of 1999, national policy and plan. The Spice stabilisation fund has to be removed as direct subsidies have to be removed to export under the WTO agreement. The Spice inspectors have to be trained for the implementation of standards.

Date: 11 12 2022 h 14 00
Venue: STREIT project, Wewak
Participants:
2 informants

The customers of the three micro-finance institutions are about 50,000, Mi bank 10,000, Mama bank 17,000, Cellmoni mobile money offering of Digicel company 33,000 (Kina bank accounts)

Date: 12 12 2022 h 9 00
Venue: STREIT project, Wewak
Participants:
Informants: FAO 10, UNCDF 3, UNDP 1, ILO 1, ITU 1

Presentation of the programme components
Dry cacao price is now PGK/kg 7 wet while international is PGK/kg 9 dry

Date: 12 12 2022 h 10 00
Venue: UNCDF office
Participants:
1 informant

Mama bank had 2 branches at the beginning of the project, not 17,000 customers of which 50% active
The adoption of solar panels will facilitate the remote banking connectivity
Mama bank is using a software already in place. It can access to customers from District capital town. MiBank increased agents by 35 unit. It accesses to customers through agents based in villages. Customers come to the city branches to access to wifi for the transaction. It expanded from Wewak and Maprik to 10 district centres. Cellmoni has got 52 agents trained, growing from 132 to 184. The three banking systems are introducing biometrics. Total 60,146 accounts, 54% female owned. There are 100 new access points in the ESP and WSP.
When there are trainings on cocoa and vanilla the project advises the banks to join the meetings to open new accounts.

AgUnity Indonesia is a branch of an Australian managed company (CEO). It has developed a mobile banking app. It works with vanilla value chain farmers since April 2022. It creates the digital profile of farmer to facilitate bank transaction. They use QR card instead of mobile phone to sell Cooperative that export vanilla to Australian purchasing company. MiBank support the operation with the account for the transactions. Some farmers already have bank account other 56 created them in joining the project. An agent is a trader / Cooperative licensed to export vanilla. Until now, 96 farmers have sold Kg 113 of vanilla at 30% premium price.
They trained 50 lead farmers from 11 farmers' groups, reaching 900 farmers (trained) and expect to reach 1500 farmers in 8 districts of the Sepik region. The project distributed 100 mobile phones at subsidized rates to use the AgUnity app.
MiBank developed a MSME-account solution where a bank agent remotely opens the account. Registration documents are uploaded (this procedure is more complex than the farmers' mobile system) to open the account and register the transaction. The MSME account has higher limits, fees, etc. than the individual farmer's one.
They should develop a commodity financing tool. The data can be used for delivering emergency micro-loans. The establishing of collaterals is a problem with smallholders. They can digitalise the transaction but loans are still difficult.
The logistic costs don't allow to work in Momose, Marabe districts

The establishment of the inter-operability of the mobile wallet to the bank accounts has to be established to link the POS systems (using visa cards). They should establish universal QR code system to recognise the POS transaction.
Only 20% of mobile banking system users have ID and can be registered to perform bank operations through POS. A national ID infrastructure has to be established as per the e-agriculture strategy. The relative policy is under discussion. Its implementation has started at national level, it will take time to reach the rural areas.

Low demand by national market keeps low the price of vanilla. The cured beans of vanilla are shrunk from UED/Kg 1,600 to USD/kg 200.
No international market. Madagascar represents the 80% of world supply. Thus, the 90% of PNG vanilla production is traded informally at Indonesia border and 10% is formally exported to Australia, etc. Vanilla is high profitable. Hand pollination is the main cost. Production in gardens is organic. The crop needs rain all the year-long, thus dry season is the main problem.
The Spice industry board is very weak. It got no subsidy by Government.
They should establish a vanilla content analysis laboratory. Lack of electricity, water discourages investments in vanilla processing factory

Date: 12 12 2022 h 10 00
Venue: programme ILO office
Participants:
1 informant
End of Project (EOP) Targets and Status as of December 2022

- ✓ Total ILO Budget: US$ 22.34 million @ 1$ = K3.50
- ✓ For Contractors' Budget US$ 14.77 million inclusive of Roads, 5 Airstrips, 3Jetties, CapBldg
- ✓ 312 km until EOP broken down as follows:
  - 15 roads of 257km for Rehabilitation and Specific Maintenance (Status as of DEC 2022)
    - 6 lots on-going
    - 6 lots for contract signing by EO December
    - 3 roads for final DPR preparation
    - possible budget deficit for remaining roads hence possible cut-down on targets
  - all 312km of roads (15 @257km rehab and sp. maint. and 3 @ 55km routine maint.) will be put under Routine Maintenance by EOP although all are now undergoing maintenance by STREIT-organized Road Maintenance Group (RMG) the status of which:
    - 161 RMGs organized with average membership of 4 members each from local communities with poor and single mothers as part of LLG selection criteria and residing within the vicinity of the road section
    - of these membership, 51% are female (inclusive of female youth) and 35% are youth (inclusive of male and female) with below 35 years old classified as youth and below 18 years old classified as child
    - all 18 road sections are undergoing road maintenance since July 2021 with each RMG having annual workplan and paid on monthly basis
  - 5 airstrips
    - Total budget of US$1.20 million for non-operational 5 airstrips to be implemented by the Rural Airstrip Agency (RAA) composed of:
      1. Mariama (Angoram – Karawai Rural LLG) for Fishery VC, ESP
      2. Munduku (Angoram- Karawari LLG) for Vanilla VC, ESP
      3. Moropote (Ambunti- Drikikir – Tunap/ Hustein Rural LLG) for Vanilla, Cocoa, Fishery VC, ESP
      4. Okisai (Telefomin- Telefomin Rural LLG) for Vanilla VC, WSP (Sandaun)
      5. Warakori (Telefomin- Telefomin Rural LLG) for Fishery VC, WSP (Sandaun)
    - operated and maintained by the Mission Aviation Fellowship (MAF) for 8-seater planes in rural areas
    - basically a grass runway identified and selected by FAO for cocoa value chain areas and agreed by the provincial administration and detailed proposal done by the RAA
    - for installation of geo-textile and general improvement of facilities
    - waiting for approval of Implementation Agreement (IA) by ILO Regional Office for Asia and Pacific (ROAP)

- 3 Jetties
  - under the rural infrastructure branch of the DoWH which was consulted by the ILO composed of:
    1. Kreer Fish Market Wewak, ESP
    2. Divisional Fisheries Office Wewak, ESP
    3. Pagwi Water front, Angoram, ESP
    4. Ambunti station, Ambunti (to be reconfirmed in February)
  - waiting for clearance of land issues (customary land ownership)
  - intended for passengers and products
  - provincial engineers suggesting to clear waterways instead through community-based to let communities travel by river since land issues will take time to resolve

Implementation Delays

- ✓ Started Inception Phase in March 2020
- ✓ Project identification and DPR preparation started in November 2020
  - Process heavily affected by outbreak of COVID 19
  - Operation shot down by 2 months and slowed down for the next 7-8 months
  - Resumed regular operation in November 2021
- ✓ First rehabilitation works started in August 2022 preceded with trainings to contractors in procurement
- ✓ Contractors still learning to comply with documents required for billing contributing to delays in implementation although catching up with compliance as reported during KII with contractors
- ✓ Maintenance works started in July 2021

- Coordination Mechanism (issues on disconnects)
  - ✓ FAO adopted the provincial division approach in identifying potential VC area for coverage based in agreed criteria
  - ✓ ILO generated list of roads from provincial administration
  - ✓ ILO coordinated with FAO on which road is critical in support to the identified Vanilla and Cacao VC
  - ✓ Identified road consulted with provincial administration with signing on which road to cover under STREIT
    Given this process, there seems to be No Disconnect on the roads implemented under the programme with the target Value chains areas as identified by FAO although districts need to be involved and coordinated since roads are under their direct jurisdiction

Procurement Issues

- ✓ adopted ILO guidelines revised according to PNG Guidelines
- ✓ PNG has no existing electronic bidding process and needed to train local contractors on e-bidding
- ✓ Majority cannot submit bid bonds as required under procurement hence proposals were cancelled
- ✓ Average unit cost for rehabilitation works is from US$50,000 to US$60,000 per kilometer
  - Subbase course: US$33 per cubic meter
  - Cement: 40 kina per bag
- ✓ Similar project recently completed funded by World Bank

- Sustainability
  - ✓ ILO developed the use of Rural Transport Information System (RuTIMS) and hopefully will be completed and established by EOP to be hosted later by DoWH
  - ✓ RuTIMS appreciated by DoWH saying that the agency has no Annual Road Maintenance Program
  - ✓ Annual Road Maintenance Guidelines is included under RuTIMS for approval of DoWH
  - ✓ Provincial Master Plan for discussion with DoWH and Provincial Government and to be developed by 2023 through the use of RuTIMS as basis of budget from Central Government
  - ✓ Other sustainability features and concerns:
    - ESP has recently engaged 2 civil engineers under the Provincial Division of Works
    - WSP (Sandaun) has a Deputy Director under the Provincial Division of Works which is not a civil engineer with 1 Architect saying that it has no budget to engage an engineer
    - District Development Authority is headed by a District Administrator and some have engineers

Date: 12 12 2022 h 15 00
Venue: ILO office
Participants:
2 provincial Division of works (DoW) informants

East Sepik Province (ESP) Experiences

- ✓ Provincial Administration has a Division of Works and Technical Services headed by an Executive Manager (Mr. James Baloiloi) which is a surveyor by profession acting as Provincial Deputy Administrator under the Economic Sector since 1985
- ✓ Engr, Obed Ryan Yanoda, a civil engineer was engaged since May 2022 (7 months) and Pio Ipangu, technical officer to the civil engineer since 1 year and 8 months (unlicensed engineer)
- ✓ Prior to this, only an undergraduate mining engineer was in available in the Provincial Administration
- ✓ Activities of engineers:
  - undertakes cost estimates of scope of all road works through contractors including maintenance
  - with on-going rehabilitation works from DNPM budget to the province and provided through:
    1. PIP (Public Investment Program) – K100 million

2. PSIP (Provincial Support Improvement Program) – K60 million
3. DSIP (District Support Improvement Program) for District Administration – K60 million

- just let the contractors do the implementation including maintenance works
- seeks support from Provincial DoWH upon request for equipment (rental basis) and availability

✓ on community-based maintenance: easier to work with contractors than local community directly (complains if not paid even for works not done) since contractors have own engineers
✓ Capacitated in RuTIMS but could not apply since it requires laptops that STREIT still needs to provide
✓ ILO is not coordinating at district level during inspections even if districts have technical officers (6 districts under ESP)
✓ Concerns was brought 2 months ago (October) that District Administration is not aware of STREIT
✓ STREIT just publishes in Facebook, Media, etc. even if Province and Districts have e-mail addresses
✓ Meeting with province but districts not invited
✓ Districts are invited in capacity building as reported by ILO

Date: 12 12 2022 h 14 00
Venue: FAO Fishery and aquaculture team
Participants:
2 informants

Fishery value chain is about improving the nutrition status of the community. They train farmers, provide fingerlings, assist in building fenced ponds. There are 3-4 companies of breeders former farmers that produce fingerlings. Individual fishing. The mangroves and inland ponds are used for aquaculture. Riverine clans are in charge of fishing areas. Women smoke (4 days storage), pack the fish and sell it in the city market. Each women's group serves its market.
The project is replacing polyester nets, to increase the mesh size 1.5 inch to 3-5 inches and distributing plastic or fibre glass canoes. It also supplies boats, engines, to transport the fish.
The project supports the establishing buffer zones around the swamps of the coast.
They provide cold storage facilities using solar electricity generation through UNDP energy component. The province administrator should decide to rehabilitate a fish market in Wewak and one in Vanimo. It plans Ice factories building in Tepek and Wewak. The procurement of the ice producing equipment is ongoing. The freezer is already in PNG.
NFA has a Fish market information data base.
There is no control and monitoring system on fish captures at the community level. They will use the QR code to transmit information on the catches of fish at provincial level

They raised awareness on GBV issue
National trainers along with community trainers are conduct training on nutrition. They are capacity building provincial officers on technical issues of aquaculture, small fishing operations including cold chain. The provincial officers participate co-facilitators and in the distribution of gears
They use local ingredients to produce fish concentrate feed. Fish meal distribution. Fingerlings 30-40%, and adults 20% of content of fish meal. The feeding is 70% of cost of production.
Traders in Wewak sell to hotels, etc. Drought creates water scarcity
They have established 17p fishers' groups. They distributed 30 aggregation device: platform with floaters with food that attracts the small fish and big ones that have developed business plans. Training will be done at beginning of 2023. They are seeking collaboration with MiBank tht has opened bank accounts for fishers.
The project promotes the Thiaroye processing technique for drying fish by smoking

Date 12 12 2022 h 15 00
Venue: programme office
Participants:
1 Cocoa board informant

The project works with cocoa board since 2019 to improve productivity. They established 200 budwood gardens to produce clones of cocoa, working with 300 cluster groups. Thy have 625 wards at village level. They assessed 2000 fermentation facilities. 1000 are working with them.
The main changes is the grafting of cocoa trees,
production is decreasing:
MT 19,000 in 2019
Mt 12,500 in 2020
Mt 10,700 in 2021
Mt 7,000 in 2022
The rehabilitation is reducing the production for 2 years. Higher production is in June to August. The price is low, it varies from PGK 1.0 to PGK 1.5
They are shifting the mind of farmers from subsidies to market driven
There about 5 million cocoa trees, 2,801 fermentaries (with at 5,000 cocoa trees, 20 to 30 growers, tress/ha 150-600 density).

The Office of the governor runs a cocoa trees multiplication programme (they got 2 million polybags). Idem the District nurseries. Marketing has to be improved in collaboration with fermenters. Improve quality and make consistency and uniformity in the supply. They have to motivate the farmers to improve quality.

Date 12 12 2022 h 16 00
Venue: Programme office
Participants:
2 SEP Division of agriculture and livestock (DAL) informants

They established nurseries, distributed seedlings of cocoa, provide extension services. Cocoa and coconut institutes, NARI have not disseminated results to farmers. The project supported seed nurseries, training, teaching on vanilla pollination, processing. They have no agreement with District offices gu5 2i5h cocoa board, NGOs
The cooperative groups are made of 100, 200 members that contribute PGK 50-100 per year.
National institute of standards is preparing the standards for vanilla, cocoa. The cooperative groups should have their own budwood gardens with tolerant strains to graft their cocoa trees.
Training on field management for the blocks of vanilla and cocoa is needed: pruning, control insect, grasses, bud grafting (to have more trees substituted). Cocoa pod borer was detected first in East New Britain. They selected cocoa tolerant strains. Climate change has reduced water availability. The exchange of farmers, officers with East New Britain cocoa producers is forecast
There are 18 clones for grafting cocoa.

Date: 12 12 2022 h 16 30
Venue: programme office
Participants:
2 SEP administration informants

Provincial development plan goal is to improve the livelihood of the people.
The Value chains improve food security, moving from subsistence to cash generating production, agro-industry. Strong training plan is ongoing. The administration has different ideas. The coordination with the project has been improving through discussion.
The cocoa and vanilla value chains are good. The fishery sector collaboration has to be improved.
The project is developing. Inland fishing pond.

Date: 12 12 2022 h 17 00
Venue: programme office
Participants:
3 MiBank informants

Cocoa and vanilla farming is part of the subsistence of rural families. They help farmers to open accounts. They have trained their agents and expanded their network in villages.
The accounts target is 30,000. They established 12,211 accounts
Most farmers don't use the accounts. They spend money, they are not accustomed to save it.
AgUnity project with MSMEs. I5 guyw the vanilla through the account cashless payment.
Mobile cooperative account. The transaction is authorised through mobile phone. The personal account is connected to the cooperative account. They collect 2% monthly interest on the loans. The owner of the account should have 30% of the money on the account as equity

Ms Elvis Lavu, manager
Mama bank agency

They trained agents. They try to educate farmers to manage businesses. Internet connection is a big problems.
Farmers got 30% more from Australian vanilla purchaser for payment through mobile banking.
Women established their groups. They are requested to have 30% equity in the account instead of 50% of the individual for getting loans.
In some districts there are a few accounts

Date: 13 12 2022
Venue: Banak road (see road profile)
Participants:
RMG members

They will complete it in June 2023. They are building 23 Culverts
The workers are members of the RMG. They elect their leader.

Family seed nursery of cocoa

they got training. They grow 5,000 seedlings of cocoa from their plots
Cocoa board will give bud-stocks. Delivery every 6 months
they need transport
Production from MT/ha 9 grows to MT/ha 16 of wet beans. They get PGK/kg 1.5 for wet beans
Training
Production for ha 10 of full substitution, plants/ha 600
The PGK 3.5 plus toya 70 for transport are paid by project

Date: 13 12 2022
Venue: Banak road
Participants:
Woman leader of group of 400 farmers

They have individual and group Mibank account. The project pays them through account. Need transport to deliver seedlings

Date: 13 12 2022
Venue: Banak Village School
Participants:
3 informants

They are involved in cocoa, vanilla production. They fresh products in market
They use Digicel mobile phone. The school is the last phone connected place. No community electric power sources.
Department of Works stays 6 months, project stays more to finish the road.
there is a road provincial masterplan. They have a water source in the mountain. In dry season there is no water in the source. They can derivate water from uphill sources.

Date: 13 12 2022
Venue: Yuo village Aquaculture farm
Participants:
2 informants

The project assists 2000 farmers from six districts
He started in 2009 to produce fish. He has 3 ponds.
He underwent ToT, got fingerlings from project. He sells 20,000 fingerlings in three months at PGK 11 each
He sells kg 1-15 per month to local schools at PGK/kg 7
He rents vehicle to go to sell fingerlings and is paid by project. Farmers pay in cash their part
He purchases feed from NFA: PGK 50 for kg 20 of feed

Date: 13 12 2022
Yuo Cocoa Board Hawaiin Nursery
Participants:
4 informants

Cocoa Nursery manager, fermentary and beneficiaries FAO – Cocoa Hawaian Seed nursery of cocoa board
The drier of cocoa bean made with stones and firewood, the solar protection

Date: 13 12 2022
Venue: Yawasoro road
Participants:
Routine Maintenance Group (RMG) Yawasoro – Niengwanjie Road (see also road profile)
1 ILO informant

Niengwanjie road maintenance by RMG.
The producer of cocoa has got 300 budstocks. He produces kg/year 3000 (60 bags of kg 50)

Date
13 12 2022 h 17 00
Venue: STREIT office, Wewak
Participants
2 FAO informants

Collaboration with stakeholders took time.

Expectations for the investments were high.
The local authorities expected to have greater control of the funds.
They submitted proposals for granting money
They work with the groups, cooperatives, etc.
Paper farmers are very abundant here. They have not been in the farms for a long time.
They went to the field after the Covid-19 pandemic.

At the beginning there aw no DAL or NFA agreement as their bank account is in the National treasury, not here in Wewak. Not money arriving here.
The provincial administration is going to open an account in Wewak. So they will be able to fund it. They can have direct implementation agreements with the Wewak and Vanino province administration.
Integration of all the activities is growing.

On 19-23/3/2020 they did the first cocoa training on cocoa budding
They suspended training up to 10/2020 for COVID-19.
Difficult to establish agreements. They had to procure everything.
They are developing the model for sustainability of the seed nurseries of cocoa
Cocoa board has research centre that makes breeding of cocoa
They train on grafting and block management

Cocoa value chain
Cocoa board LoA made at the end of 2020, establish 200 budwood gardens in 10 districts run by farmers' groups. The Cocoa board act is under revision by parliament.
Some districts are politically strong. Districts that are weak didn't like the project. They bypassed the districts to reach the villages
They receive farmers at the office to pick up equipment. They have a Hot line.
The Provincial offices have little resources. The heads are ad interim, politically appointed. They are not very motivated.
The project trains the provincial officers on technical matters
Cocoa board makes extension along with its regulatory tasks, as certification of budwood gardens and fermenters, producers- Seedling distribution is expensive and 10% dies in the ordinary modality of distribution.- They establish nurseries, gardens near the communities, and supervise them.
The exporters rely on the board that certifies that the fermenters are licensed. Licenses are renewed every year for PGK 200.
Fermentaries are connected to farmers that provide the beans
The clones distributed bear fruits in 18-24 months, with a peak in 3-4 years. After 14 years the production declines rapidly. There are 10 farmers business oriented. They look for export licence.
They promote the establishment of a downstream processing factory. Paradise food co. subsidises Queen Emma. The project made a MoU for having a semi-processing unit to produce cocoa butter, paste (at least), powder. The project will fund the equipment for processing cocoa, the Queen Emma company will put the land and building. The Authorities should support the connection to energy grid, etc. Queen Emma asked to move the processing facility to POM- The Boroko factory in POM processes the bean from Rabaoul, Bouganville, etc. Queen Emma grades beans. They tried to enter Australia and did not work. They now aim at semi-processed processes.
Bag Kg 62.2 is paid PGK 400. i.e. PGK/kg 6.5-7.0. Queen Emma pays PGK/kg 10.0
Every step multiplies the price by 3: Bean PGK 7. Paste 12. Butter 18. powder 32

Vanilla value chain
Oil palm, vanilla, are the most exported food commodities in terms of value.
The Spice industry board has to be reformed. The vanilla act has to revise the cost of the licences and avoid the monopoly of export.
People want licences for export. That the board doesn't let them to do.
The project may support the revision of policy and act to make the vanilla board more open to competition.
Internationally recognised certification system. The testing laboratory has to be established to certify the content of vanilla of the beans and be recognised internationally.
The Germans introduced vanilla. The project is introduces improved production technology, as pollination that reduces the fall of flowers with rain, improved curing: to harvest, to kill dry and cure the beans of vanilla. The sun drying burns the vanilla. They have to use canvas that scree moisture from soil.
They will provide solar energy vacuum packaging machine to the more active farmers.
They introduce selected vines from other districts to improve the genetic materials. There is a famer supplier of vines registered as a company that delivers the vines to a seed nursery. The project officer signs that the vines are fine.. They sprays the vines with lemon, ginger, garlic solution.

Fish value chain
They trains to develop fingerlings production. The Cold chain is being built. There are 157 cooperatives of fishers. Some of them will associate to manage the ice factory.
They have an agreement will be with Provincial division of fisheries, cooperatives and programme. They trained the farmers. A 30 solar freezers procurement is ongoing. 15 big and 15 small.

Ice factory is going to be established for coastal and island places to support the increase of production and access to market.

Concept note for service centre. They purchase abroad because there is not enough local supply, high prices, little competition.

Date: 14 12 2022 h 9:00
Venue: Ponpom
Participants:
Vanilla producers' group informants

Vanilla pollination and curing training
Families with 100 vanilla plants
Family with 900 vanilla plants. Kg/plant 1.5-2.0. kg/year 1,000. They get PGK/kg 170
Glyricidia support tree
the project recommends 50 plants per person to pollinate them well
the cocoa nursery with 70,000 plants

Date: 14 12 2022 h 9:00
Venue: Munji – Haripmor Road, culverts, to meeting shedding. (see also road profile)
Participants:
103 RMG informants

Ward in charge of three villages
Road broadened from m 4 to m 6
Beneficiaries, Government Officers, Contractor

Date: 14 12 2022 h 9:00
Venue: Yangoru Junction
2 MiBank informants

AfDB project is distributing a registration card of people without ID. Registration in the ward head village. The account holders get Msm from phone on balance
Their Agent has 200 customers in three villages
Women pay PGK 20 to open men PGK 50. Women do not pay running fee
Cards for pos are released by Kinabank outlets
Account holder to get a loan need to have 30% equity and the rest in goods, equipment

Date: 14 12 2022 h 9:00
Venue: Maligaini village, Maligaini agriculture producers' group
Participants:
1 informant + FGD

Cocoa/Gender and Youth initiative
550 participants. 10 seed nurseries
First phase multiplication
Ongoing training on plot Management technique
In future harvest and processing
Seed nursery 5,000 seedlings, 3 satellite seed nurseries other 5,000 seedlings
They want to receive also the training on vanilla
The water well built by EU some years ago is not more working

Date: 14 12 2022 h 15:00
Venue: ILO office
Participants:
1 PNG University of Technology, Lae, Morobi informant

- It has started the engagement for capacity building with ILO for STREIT in March 2022
- They have completed 4 modules for contractors with 120 participants from 60 contractors from ESP and WSP
modules covered: 2 days – supervision; 2 days – quality assurance; 3 days – materials testing; 3 days – contract management; - LO conducted 5 days on RuTIMS
- The contractors appreciated trainings but only few engineers with majority as Technical Staff with 2 years vocational trainings in civil engineering
- To start capacity building for the government to include DoWH, Provincial Division of Works, District Technical Officers

- They covers 12 modules (contracts and maintenance) with 2 on quality assurance done during MTR in December 2022
- PNG through the Investment Promotion Authority classifies contractors into Small, Medium, Large based on turn-over of projects with DoWH
- UNITECH contract extended until June 2023
- No follow-up on trainings done yet due to budget constraints; needs to assess effectiveness of trainings since it seems that training days are too short to be absorb especially if topics are new to the participants

Date : 15 12 2022 h 12 00
Venue : Pagwi, Wosera Gawi, Sepik river
Participants:
2 Mama Bank Access Point informants

Mama bank mini-branch assisted by the programme
Solar power system on roof of the bank agency
Project will give more panels
it started six month ago and has 1,100 customers, from several villages

Venue : aquaculture farm, Pagwi, Wosera Gawi, Sepik river
Participants:
1 aquaculturalist, 1 Wosera District technician

150 members of aquaculture group
They dug an aquaculture pond producing tilapia
Groundwater pond. Muddy water. Drying up in dry season
Available water source from river but needs pumping and needs to explore the use of solar pumps
In 2021, four months without water
They purchase fingerlings from an external supplier
Feed for fish: termite mound, house scrap, aquatic plants blades
they produce for self consumption and sell the extra production in local market
Dry fish comes from Sepik river. They want to eat fresh fish. They will get training

Date : 15 12 2022 h 12 00
Venue: Village school
Participants:
2 teachers

Training on farming fish
Interest in expanding to commercial aquaculture
Water is not available in dry season
They know how to produce the feed
Each family has a pond.
Other families have ponds. 50 families
They should use river source to fill pond. Need a pump
Their cooperative produces cocoa

Hayfield, Maprik
Maprik Secondary School (Resource Center)
the project provided 2 schoolrooms with 20 computers
training of farmers, their children
Connected through hotspot Southstar
Connected to the electric grid. Diesel generator
Demonstration for cocoa and fish ponds planned
Visit of farmers in East New Britain to learn about cocoa

Date: 16 12 2022 h 12 00
Venue: teleconference
Participants:
1 PNG agriculture informant

Their project will finish in February 2023
Digicel has phone access to all districts.

The project provided 1,500 subsidised phones. Farmers want to have access to information. Farmers have to purchase the mobile phones and pay PGK/month 20
They have good relationship with suppliers of the software. The software can be used offline. There is enough infrastructure for phone data exchange.
Stagnation of cocoa production in the last 20 years depends on low quality. They need better extension, digitalisation. No incentives to fulfil good agricultural practices. Production should be pushed through post-harvest quality and marketing
Incentives have to be selective. To support the best farmers. Not supporting every farmers. Grading of the beans has to be introduced.

Date: 2022 12 16 h 16 30
Venue: Remote debriefing with programme staff
Participants :
Informants : FAO 3, ILO 3

Presentation of key aspects of the project

Date: 12 01 2023 h 8 00
Venue: EUD remote debriefing
Participants:
1 informant

Debriefing

Date: 7 2 2023 h 15 00
Venue: UNDP office
Participants:
Informants: FAO 1, ILO 3, ITU 2, UNDP 2

COVID-19 impact was very serious. Shipments were delayed.
The Labour based approach needed in road maintenance. The public and public partnerships prevail in PNG.
Local governments are chronically underfunded. Budgets are not respected
Triangle collaboration: project staff, local community, technical departments
Beneficiaries are involved in the planning and development of solutions, they bring in them the local knowledge
NIQTA installed internet connection to the schools
ITU component started on year 2. Little delay by COVID-19. Working with local governments in promoting digital services. They need for developing data skills. Experts have to be available locally.

UNDP representative met Secretary of planning. They decided to collaborate in facilitating the project implementation. Mr Ali Said, the new programme coordinator, will start working mid February 2023.
The no-cost extension of project components is needed

Date: 2023 02 08 h 10 00
Venue: NFA
Participants:
3 informants

Value chain for coastal fishery. Fresh conditions of the catch. The cold chain has to be establish. Cold storage facilities are needed. In the islands they have no electric power. They should establish it on shore.
Value chain for riverine. They are going to make a stock assessment in the Sepik river basin. Province and district administrations.
Value chain for aquaculture. Fingerlings. Satellite hatcheries have to be established. Farmers have to be trained. They have to learn technical capacities.
A number of trainings has been done. They discussed with project team and sent recommendations. They got no feedback yet. They identified locations independently from the project in collaboration with province and district administrations.
They have MoU with province administrations. They collaborate with local fishery officers. They have to work together to identify where to put the cold chain, which energy source to use (e.g. solar energy). etc. the project should strengthen the capacities of province and district fishery officers.
They are in the PSC that meets once or twice per year. There was a meeting with project staff on the validation of the study.
They should work more with the project staff on the work plan.
The development of fish aggregating devices is an area of possible collaboration.
The beneficiaries of other fishery projects are different from the STREIT ones.

The project experience on developing value chains can be used in other provinces. The management of the stock of fish in Sepik river is important. There are mining exploitations.
They should take on the project outputs to ensure its sustainability and replication.

Date: 8 2 2023 h 11 30
Venue: NAQIA
Participants :
1 Informant

NAQIA has Port managers that make food inspection in Wewak and in Vanimo. They deal with the sanitary status of food. They release phytosanitary certificates for export. Some export is done from. The Producers have to improve vanilla characteristics for export
Port Moresby. They participated to a project workshop and PSC meetings.

Date: 8 2 2023 h 14 30
Venue: Rural airstrip agency (RAA) of PNP Ltd
Participants
3 informants

STREIT proposed the rehabilitation of 5 airstrips in places not accessible by road. The use of the land has been agreed with the communities, the owners.
They discussed withe ILO the Financial agreement, procurement process on the basis of a 14-month work plan. Payment schedule and competitive procurement process schedule. The estimated cost is PGK 4,410,315. They discussed the budget. The helicopter service offer cost is high. They look for more quotations. The Regional ILO office is discussing the implementation agreement. They expects the report of the physical assessment of the places.
The airstrips concern the provincial air traffic routes that serve local communities, including hospitals, public services, etc.
The construction of the airstrip include the use of manual driven compactors, wheel-barrows, simple equipment. The host communities select the volunteers in charge of the maintenance of the airstrips, equipment, meteorological reporting. the RAA trains the two airstrip officers and collaborates with the province administration, local communities for the supervision.

Date: 10 2 2023 h 9 30
Venue: Dagua health centre, East coast
Participants:
1 informant
Building maternity ward is being built. The project has installed solar panels put in January w023, not yet functioning

Date: 10 2 2023 h 10 00
Venue: Dagua cocoa farmers' group
Participants:
3 informants + FGD

The programme supports 3 cocoa producers' groups. Their one is made of 300 Cocoa farmers
they established a cocoa seed nursery with 10,000 polybags and transplanted seedlings in 2021 and 2022. Training included block management, cleaning, pruning downhill, building terraces to keep the soil from erosion.
No grading based price: the fermenters pay their wet beans PGK/kg 0.9-1.50.

Date: 10 2 2023 h 14 00
Venue: Mandi vanilla group
participants:
2 informants + FGD

the project assistance started in 2020. It has distributed 10,000 vines to 62 members of the group that further shared them with the 600 community member farmers
Each family has 200-300 vines, spaced m 4x4 or plants/ha 625, for a total 50 plants per family member
They were trained on 10/12/2022 to clean, prune, produce organic manure, mulch the soil with coconut straws, pollinate manually (beans are ripe in 9 months). They don't use neither fertilizers nor pesticides. They participate to the digital banking component too.
They sell vanilla at PGK/kg 500, in 2017 its price was PGK/kg 1,600
They ship vanilla by plane to companies from Canada and Switzerland
The project Innovation Fund will build a vanilla storage building

Date: 10 2 2023 h 15 00
Venue: Taul Community health post
participants:

1 informant

The ADB funded the construction of the building of the health post and the project gave solar panels for electric power generation, water heating

Date: 10 2 2023 h 15 00
Venue: ILO office, Wewak
Participants:
2 informants

- They prepared implementation progress (%) for all on-going roads for assessment of weighted accomplishment as of February 2023
- Road Maintenance Guidelines for approval by DoWH within the STREIT timeline
- Continue discussion with RAA on Implementation Arrangement (IA) and hopefully will agree until EO February 2023 particularly on budgetary estimates
- The use of PNG Defence helicopter for transporting materials for airstrips being requested by ILO but no response to date
- The original 5 jetties for improvement and maintenance not feasible since site visits by ILO revealed these were abandoned airstrips and never used
- ILO identified and proposed new sites with FAO and Provincial Government of East Sepik
- 3 jetties for new construction identified but with land issue since located in customary land which will take time to resolve
- Provincial Administration suggested to replace jetties construction with waterway clearing instead since these are also used by the same farmers producing cacao and vanilla

Date 10 2 2023 h 16 00
Venue: Help resources NGO, Wewak
Participants:
3 informants

The NGO was established in 1999 and has food security programme implementation experience.
the project selected for the management of the Resource centre it among 20 applicants. The resource centre has 800 beneficiaries. They mainstream gender and human rights through 10 village members' groups (Sepik where there are many NGO, Tari island where there are few NGO). They collaborate with District administrations that are weak: no GBV strategy. They have made several meetings with communities to learn their problems. assisted the village groups in organising, registering, training trainers and economic development materials for vanilla, cocoa, fish production. They will organise a nutrition campaign. They need extra capacities to monitor the beneficiaries. To sustain the Resource centres they need no cost extension, subsidy of government.

Date: 12 2 2023 h
Venue: School
Participants:

Date: 13 02 2023 h 10 30
Venue: Mama Bank minibranch (WMBL), Angoram
Participants:
1 informant

The mini branch was established in 2022, has 3 employees and covers the Angoram district
Project assisted in the office establishment and in reaching the farmers producing fish, cocoa
Electric power is discontinuous. Outside the Angoram village not existent. Only Maprik city ha reliable water and electricity supply.
Digicel is the only reliable phone network. It has to invest to extend to the villages.
The bank has elaborated a Solar panels loan that will provide electricity to Angoram villagers for residential uses, light, phone recharge, domestic appliances and that will supply also theMama Bank mini branch
The Mama Bank agents visit the villages with tablets to open accounts. The account holders are women, fishers, farmers, fermentary farmers. They come to the mini-branch to make physical operations
There are 400 self reliance groups made of 1-4 people. The total customers in the East Sepik province 10 branches (before they were w) are 20,000 customers

Date: 13 2 2023 h 9 00
Venue: ILO Office
Participant:
1 Wewak Urban LLG informant

A graduate of Community Development doing project planning at community level

Hired as Project Officer for Wewak District since February 10, 2024 but with experience in AusAID as community development worker for 10 years and assisted Ambunti District in 2020 in community development assessment, identifying infra needs, and prepares and submits project proposals for funding by district
Wewak has no civil engineer hence projects are implemented by hiring freelance civil engineer to plan and supervise the works
Assisted ILO in identifying roads, customary land owners, and community members to work with ILO and to participate in rural infra implementation and maintenance
Engineering and technical units with expertise stops at the provincial level
Annual regular budget of PGK10 million District Support Improvement Project (DSIP) from national government used for maintenance of roads within the district using local contractors hiring communities for unskilled labor force
Can also avail of the Provincial Support Improvement Project (PSIP) upon the discretion of the provincial governor to augment the district budget for infrastructure through submission of district work plans
Always invited by ILO for trainings but ILO not coordinating with district during field inspection which he thinks should be done

Date: 13 2 2023 h 10 30
Venue: ILO Office
Participants:
1 Yawasor Vocational Training, Technical Vocational Education Training (TVET) informants

Engaged by STREIT to capacitate left out youth and women where ILO identifies participants together with ward councillors for TVET to train
TVET uses 5 modules for 7-day training each composed of the following:

1. Construction of Reinforced Concrete Casting (RCC)
2. Construction of Cement Masonry and Gabion Walls
3. Maintenance Camber, Reshaping, Gravelling, Filling Slopes, and Excavation of Side Drains
4. Pipe Culverts
5. Occupational Safety and Health during construction at site

TVET assists in training but ILO engineers conduct lectures and also engages DoWH engineers in trainings together with TVET in-house instructors with relevant skills
Trainings are done in combination of lectures and demonstrations on actual procedures hence uses the TVET facilities and on-site
Trainings said to be effective and suggested to include TVET staff/instructors (maybe 1 batch of training for them for all modules) to serve as pool of trainers once STREIT assistance is terminated for sustainability of capacity building to left-out youth and women to be engaged in RMG maintenance work and contractors in rehabilitation works in the near future
TVET contract with ILO for the 5 modules already completed for 1 year training 30 different participants for each module equivalent to 150 total participants and not aware if new contract will be issued by ILO
The 30 different participants will therefore be capacitated only in 1 module which is fine but Module 5 on Occupational Safety and Health during construction at site should have been provided to all since this is needed by everyone trained in the other 4 modules

2023 02 13 h 11 30
Venue: MiBank branch, Angoram
Participants:
1 informant

Their agents visit villages along the Sepik river upon request and identify the customers, also without documents. MiBank and Mama bank release the Digizen card that identify electronically the hlder. This identification is used to open the account, as it is recognised by a scanning machine. The use opens the account and receives the card for making transaction with Pos. He uses the Card with POS machines or by phone in dealing with the MiBank agent and register transaction at the MiBank branch. There are 2 shops in Angoram that have POS machine.
They opened 30 accounts last week, there are 1,200 customers mostly cacao producers, fishers. The MiBank branch receives deposits of PGK / day 2,000. Most people saves about PGK 1,000.
the fermenters pay in cash the farmers for wet beans of cacao. ILO deposits money in the bank account for RMG. Farmers' Cooperative of at least 4 people have group accounts
The MiBank Agents are recorded in the business register. They pay a fee of PGK 200 and deposits PGK 2,000 to act as MiBank agents.

Date: 13 02 2023 h 14 00
Venue: Angoram cocoa and vanilla producers' group
Participants:
Informants: 1 Angoram district administration + 1 EG Future + FGD

The cocoa and vanilla producers' cooperative has 15 members, they want to reach 200 members
There are 25 seed nursery groups. Each received 10,000 seedlings and polybags. The programme purchases seedlings from the seed nursery groups at PGK 3.5 each and distributes to the farmers. the project purchases. The cost of transports is PGK/seedling 0.70. the project gives 50 seedlings or more to each farmer. They are recommended to grow 300 cocoa trees or ha 0.5. they use the improved

varieties distributed by the project to regenerate the other trees. They graft a bud sprouting from the old cocoa tree roots and prune the other buds. Mr Paul Gerome, chairman of cocoa farmer's group has 1,000 cocoa trees
The project trained farmers in block management for cocoa production and seed nurseries
EG Futures now trains 8 groups each of 30-35 farmers and fermentary owners on finance literacy. They are opening bank accounts

Fermenters purchase from farmers Cocoa wet bean price is PGK/bag 350-400. The weight of a bag is kg 62.5 net.
Farmer fermenters join 1-4 to go to Wewak by road (upriver also by boat)
cocoa board establishes the export price. No grading. Now the price of export cocoa dry bean USD/kg 2.5 or PGK/kg 7.5-8.0). The private shops in Wewak pay a bit more. Fermentary owners have shops. They purchase the goods in city and resell in village.
Fermenters pay wet bean price PGK/kg 1.00-1.20 and resell dry beans at PGK/kg 6.00, in Wewak. Cost of transport varies with distance from Wewak. Fermenter pays PGK/kg 1.50 wet bean near Wewak.
Cocoa board assisted farmers with training. It approves the cost if building the fermentaries. It advises on pruning. Etc. Now it regulates the business. It licences the fermentaries. It assists farmers with assistance of the project.

Fairtrade has a small organic cocoa business in PNG. It can pay more for exporting certified organic cocoa. The project supports Queen Emma company (Nasfund pension fund owns Paradise food that has the majority share of Queen Emma company: it is a national company) in purchasing new equipment and process cocoa in Wewak. It will establish a storage in Angamar.
There are no national standards. Queen Emma uses the Australian ones to certificate product exported to that company. It makes test of cocoa characteristics to accept it. In the future, they may pay more for the high grade cocoa, if it develop new products.
The project organised 3 days participation of Queen Emma and some farmers / fermenters at International food and beverage fair in Singapore 2022. Queen Emma made stall and found purchasers. In March they will make a visit in New East Britain, Rabaoul, where there are cocoa plantations.
The confectionary companies ask for specific, high fat content cocoa, that has to be homogeneous. The semi processed product (paste, butter, liquor, powder) gets a better price.
In the past the dry season lasted 6 month, now it rains also in the dry season

Date: 13 2 2023 h 14 00
Venue: ILO office
Participants:
2 informants

A walk-through on RuTIMS and CSM was provided by Engr. Arun to demonstrate the features of the system
The Rural Transport Information System (RuTIMS) and Construction Site Monitoring (CSM) is a complete and comprehensive database system for road networks with the following features highlighted to include:

- Managing the road network, inventory, inventory reports, road condition, traffic and utilities
- Planning maintenance needs under unconstrained and constrained budget scenario, prioritizing roads using multi-criteria approach such as access to socio-economic centers, population served by the road, traffic, connectivity to government centers, agriculture production potentials, road class category
- Annual Road Maintenance Programming registering and providing summary reports of maintenance categories on routine, periodic, spot, bridge repairs which also includes upgrading and rehabilitation or re-construction plans
- Contract Management including registering of contracts, contract details, physical progress, financial progress and various progress reports
- Mapping using online external map and editing GIS maps

The system was already installed at the DoWH but the server is still based in Nepal which was developed by ILO for a Nepal project
Trainings already conducted for DoWH and provincial Division of Works for East and West Sepik but DoWH still to procure a server for PNG since the Nepal server is temporary
The initial task is for DoWH, Provincial, and District Administrations to start conducting an inventory of all their road networks for uploading to the system before the system can be useful to perform all features of the RuTIMS and CSM

Date: 14 2 2023 h 10 00
Venue: Maprik District Office
Participants:
Informants: 2 Maprik District administration, 1 Ambunti-Dreikikir District administration

The new District Administrator was recently appointed and officially started the day before the visit, February 13, 2023
Of the 10 districts in East and West Sepik Provinces, only these 2 districts in ESP have civil engineers in the district administration
Both are graduates of civil engineering from the PNG University of Technology (UniTech) in Lae with 1 from the National Polytechnic Institute which is affiliated with UniTech and both have experiences working with DoWH after graduation practicing their civil engineering degree as field engineers and supervisors in national highway implementation
As district engineers, both are now implementing and supervising the infrastructure projects within their districts through local contractors funded under the DSIP and some from the Public Investment Program (PIP) allocated by the national government through the DNPM

Both are always invited by ILO for trainings but could not attend all due to tight work schedule but only 1 in Maprik is informed by ILO during field visits to join them and the other in Ambunti was not involved hence not aware of the ILO road implementation scope
Maintenance policy is "As the Need Arises" with fund source from the DSIP (PGK10 million/yr., PSIP (PGK5 million/yr., and LLGSIP (PGK500,000/yr.)
The use of PSIP in district level infrastructure works is however upon the discretion of the provincial governor while the LLGSIP is in coordination with the LLG president and ward councillors
The District Development Authority (DDA) composed of LLG presidents plus 2 sector representatives headed by the District Administrator has the sole authority to approve the use of DSIP through a DDA resolution
For the site visit to Balif – Araseli Road in Maprik, please see the road profile

Date: 14 02 2023 h 11 30
Venue: Warabung village (not project)
Participants_
2 informants + Not project cocoa producers' group FGD

There are 150 families in this cocoa cluster group. They are interested in cocoa production renovation
They got polybags and 6,860 seedlings from Maligani community that has 424 members. They have established a seed nursery with its support. Training on cloning, grafting. They grafted 5,800 budsticks that will be transplanted in 3 months. The pod bored pest is the main problem. Its management training will be done when transplanting. They need ponds to store water for dry season.
They have droughts spell of 3-6 months of little rain from time to time. During such season the cocoa beans dry and are not harvested.
They use Lambda,10 WP (synthetic parathyroid lambda-cyhalothrin) powder purchased in shop in Wewak and mixed gr 100 with water L 1 to control grasshoppers in the seed nursery.
Middlemen pay wet bean PGK/kg 1.00. They need that a cocoa factory purchase directly from them at an higher price.

Date: 14 02 2023 h 12 30
Venue: Maprik school ITC department resource centre.
Participants:
Informants: 3 ITU + FGD

Date: 14 02 2023 h 14:30
Venue: Albinama village Vanilla producers' group
Participants:
FGD

Some farmers have 100 vines of vanilla, some other 1,000 vines. Vanilla takes 8-9 months to grow. There are people stealing the vanilla from orchards near the road.
They produce vanilla and some cocoa. The project trained them on the pollination of vanilla
The Fire rot mushroom disease affects vanilla (it was identified by the University of technology) and reduces the production and changes the aroma. They have to prune the Glyricidia supporting trees to reduce the moisture and mushroom infestation. They need solar drying equipment to improve the curing of vanilla. The project is manufacturing 200 pieces, 10-20 per district.
Buyers come when the price is high, when it is low the farmers go to Wewak to sell the vanilla.
Papindo co. pays PNG/kg 190 for grade A cured vanilla. It is the only purchaser. The street buyers buy at PNG/kg 70 and resell to Papindo co. They also go to the border with Indonesia (it was closed during the Covid-19 pandemic) to sell.

Date: 14 2 2023 h 15:00
Venue: Albinama village road rehabilitation
participants:
FGD

They have problem with community that boycotts the works

Date: 14 2 2023 h 16:30
Venue: Missim village Vanilla producers' group
Participants;
FGD

The members of the group are 1,000
Since 1993 to 2004 vanilla price grew, ince 2007 it dropped, especially since 2017. They have decreased the production of vanilla.
The Project came in 2020 to assist the rehabilitation of the vanilla blocks
The Fire rot mushroom disease strongly affects the production. They need assistance. They have sprayed the vines with a bio solution (lemon, garlic, chilli) and they improved the health status of 95% of the vines.

They sell vanilla to Papindo and Gotfried co. at a very low price. A local company that exports to Canada pays more

Date: 15 2 2023 h 15 20
Venue: Nuku District administration, Aiti cocoa producers' cooperative
Participants:
Informants: 4 District administration + 2 producers' cooperative + FGD

The project is repairing roads through 9 RMG each made of 3 people. Each RMG is in charge of km 6, they work continuously. Most widows are members. They are monthly paid in their accounts (PGK 400-600).
Famers produce cocoa, vanilla and fish in Nuku district. They have created 74 cocoa producers' groups. Most groups still have to receive project assistance.
The cocoa pod borer is main problems for cocoa production. This pest spread in 2017. The cocoa trees have decreased from 12 to 6 million. They need improved varieties.
The project is distributing planting materials. They have received 10 improved varieties out of 18 made available by the Cocoa board. They have established 5 budwood gardens (budsticks) and nurseries. A Cocoa board officer has to inspect and certify the before distributing the clones. One only seed nursery has been certified in 2022.
The fermentary owner faces fluctuation of price depending on the variety. Bad roads hamper the sale of cocoa, transport from farm to fermentary is expensive. To transport cocoa to a factory storage costs PGK 200, two ways trip PGK 400. West Sepik transport cost is higher than that of East Sepik.
They held a gender mainstreaming workshop to prompt farmers to share the benefits of production among family members, including women.
Vanilla producers' group faces challenges: vanilla pod falls after pollination, the price is low. The increase of vanilla price to PGK/kg 1,600 in 2017 was temporary. Now the price is PGK/kg 150. They have invested in vanilla without getting a reward-
MiBank established 27 agents, Mama bank established mini-branches. MiBank registered farmers in 2020 but has not yet open accounts with farmers. There are not yet banking services in Nuku districts.

Date: 15 2 2023 h 15 20
Venue: Nanaha – Tau Road, Nuku District (see road profile)
Participants:
FGD

Date: 16 2 2023 h 10 30
Venue: Wainam agro Ltd. / Cocoa farmers' group, Yarasi village, Palai LLG
Participants:
FGD

Their group has 5,500 members, 7 clusters, 7 bud gardens.
They received 80,000 clones. Polybags, tools and established budwood garden and seed nursery in 2020. Cocoa board certified their budwood garden in 2022
They transplanted the 80,000 cocoa grafted trees, also selling the to farmer outside their group cluasters.
The improved varieties are cocoa pod borer tolerant. The black spot affects them. There are beetles reproducing on Glyricidia and ants, especially in the rainy season. The pod borer is still present in old cocoa trees.
They did financial literacy training, MiBank has an agent here. Their cocoa farmers' group and individual farmers have bank accounts
They asked the construction of cocoa storage and dryer to the project Innovation fund.
They aim at organic production, no spraying chemicals. The Cocoa board Research centre is studying the control of pod borers with ants in Experimental plot near Wewak.
Fermenteries use 6 m^3 1 wooden boxes, moving beans along them. Then they dry the beans to 7.5% of moisture. Their bags are stamped with the Cocoa board code that is unique for each fermenter, stating their district, location, unit. The exporters do not care for color or aroma of dry beans, they purchase them as complying with minimum standard

Date: 16 2 2023 h 13 45
Venue: Kefam village, Lumi sub-district, Fatima junction
Participants:
FGD

The Cocoa producers' group is made of 61 clusters and 63 fermentaries. Most fermentaries closed for the pod borer epidemics years ago. The fermentaries still active are 9
The Cocoa group is splitting into 2 groups due to internal division. Some clusters are made of 10 people, more or less a family. Their maximum number is 25 people per cluster while they should be 50 members.
They received 2 training on bud garden / seed nursery and block management. They need more training and advise, work tools. They planted rootstocks not grafted with budsticks because the bud garden has not yet been certified by the Cocoa board. The certification is need to distribute the improved clones. The pod borer is the main problem. They use the tolerant clones provided by the Cocoa board

through the project. The clones of improved varieties cost PGK 5. A few farmers can afford to pay for their cost.
The Cocoa board has established new requirements that obliges the fermenteries owners to adopt combined solar and firewood drying system.
They sell cocoa dry beans to 4 major exporters in Maprik and Wewak. When the price was high exporters had storage points in the Districts. They want to establish their own storage facility to improve linkage with market.
They are not concentrating on the improvement of the road.

Date: 16 2 2023 h 16 00
Venue: Lumi Mama bank Mini branch
Participants:
3 informants

Date: 16 2 2023 h 16 20
Venue: Lumi, West Wape sub district meeting centre, Cocoa and vanilla farmers' group
Participants:
1 West Wape administration informant + FGD

The Cocoa and vanilla farmers' group has established 61 small clusters of farmers of which a few remain. Their members are 1,280.
In the years 2020-2022 they underwent 3 trainings on cocoa and 1 on vanilla in 2022 and received the initial extension assistance and materials. A cluster of the group purchased 533 rootstock, 86 bud sticks from other village seed nursery, and grafted 233 clones. They have a target of 37,000 clones as per the contract signed with the project 6 months ago They need more training, clones, work tools, office transport to bring the cocoa to the main road.
130 fermentaries out of 270 are working in East and West Sepik provinces. Flavor of PNG dropped from 90%. Fermentaries are fine. They need the drying equipment.
Coco board requests that the fermentaries adopt combined solar and firewood drying system. The project has signed an agreement with cocoa board to build 8 combined dryers.
The project made training on vanilla. They will distribute vanilla husbandry and curing materials.
For site visits to Walkasa – Maimai – Wanwan Road, Nuku District, please see road profile

Date: 20 2 2023 h 12 00
Venue: Date: 20 2 2023 h 12 00 poor
Venue: Kaup village
Participants:
Simeon, chairman
the fishers pertain to the agricultural cooperative (cocoa, vanilla, copra) made of two villages, the bigger practicing coastal fishing and the smaller riverine fishery with canoes. The bigger village has 30 canoes. They have 5 canoes. NFA licensed them to fish. Best fishing time is February to June. Later the Western wind makes more dangerous the navigation.
The project provided 6 Solar panels for a total KW 5 with batteries lasting 2 days and fridge reaching – 18^{o}.
they are waiting the delivery of the aggregators (for catching fish) and training, the colding storage boxes, one L 200 and a L 800, and one boat with motor HP 40. The NFA will licence the boat operator and crew.
The mackerel fish gest the best price. They sell fish to internal villages and supermarkets in Wewak where they go by road. The boats landing in Wewak connect the islands to the city. Their cooperative purchases fish from fishers, store and sell it. Also women fish by boat. They also do aquaculture
The project drafted the fishery plan and that the cooperative has finalised.
The women knot bags, a task that takes one month, and sell them in Wewak
The project staff visited them one month ago. A local project trainer is training cocoa farmers' groups in a near village. She will train the cooperative in the near future.
They restarted producing copra a few years ago after discussing with a purchaser. They pay kina/bag 20 to transport a copra bag to Wewak.

Date: 21 2 2023 h 9 30
Venue: FAO office
Participants :
2 informants

The local authorities participate to the PSC meetings. They implement the Programme acceleration plan through high level coordination meetings of the programme components. The Programme coordination mechanism is made of technical inter-agency monthly meetings and quarterly review. FAO will hire a procurement officer soon.
The 6 resource centres have to be established, the computers have been purchased and have to be installed. The 2 already existing resource centres will get new project computers to expand activities.

The project assists the NFA in establishing the Fishery management information system and the Cocoa market information system (database on producers, fermentaries, licences, etc.). They are building the Cocoa system on the basis of the existing databases. The NFA and Cocoa board should pay for the software licence.
The leaders of the producers' groups have variable capacities. They train 5 people per cluster in 3 clusters of each producers' group. The trainees train the other cluster groups. They apply the same cascade approach to the establishment of the seed nurseries. The project doesn't fund the second level training.
They made the quality assessors' training for the fermentation of 400 fermentaries and trained the representatives of 200 fermentaries.
They made demonstrations on making chocolate juice. The programme signed a Letter of agreement with the Cocoa board for training (a) the fermentaries, (b) farmers, on the use of the combined dryers and for establishing 8 combined dryers. They are training vanilla producers on the water boiling practice to kill vanilla at 62°-63°, followed by sun drying and stirring it at night to complete the curing. This technique is more effective than sun drying. The export companies purchase cured vanilla and recure the low cured one.
The Innovation fund supports registered businesses, as fermentaries, cooperatives, business groups. The FAO project assists them in developing business plans. It procures the goods for the beneficiaries. They selected 25 applicants out of over 75 on the basis of their capacities. The Assessment and review committee is in charge of the selection of applicants. 10 selected applicants have been included as farmers' groups in the project routine training and technical assistance activities.
Roads connecting production areas prioritized by FAO on VC to nearest national or provincial roads leading to market centers although some of these road links are in bad shape that needs improvement but not under the coverage of STREIT

Explore the possibility of including boat landing sites with ramps along shorelines as needed by farmers bringing products to Wewak urban shores.

Date: 21 2 2023 h 14 00
Venue: In-farm Demonstration site of the Binatang resource centre of the Department of Higher education, research, science
Participants:
3 farmers

Madang city research, training centre. The demonstration is done in collaboration with Czech university. The Fire ants lay eggs under the pebbles. they are more active in the rainy seasons. They parasitise the Cocoa pod borer.

Date: 22 2 2023 h 9 00
Venue: Programme office
Participants:
4 FAO informants

The project M&E officer ct M&E officer has developed the Streitmis system in 3 months using PHP and Mi-SQL freeware. He is training the two M&E local staff on its maintenance. They have to be trained on programming.
The 100 PSC members and key stakeholders have access to it online. The project updates their list.

They made 2 impact assessments:
The 200 bud gardens in 2021
The 400 fermentaries in 2022

There are 5 budstock gardens in Nuku and Lumi

Wape agriculture marketing group is goring from 50 to 61 clusters. But 9 clusters left the group and want to establish a new group.
The 30 GPS-referenced data collection tablets are used by project staff. They use one with local authorities so that they learn how to use them. They collect data from mobile phones too.
They use the drone to remote sensing the extension of cocoa plantations during field visits.
Gender, SME staff

Communication strategy is made of:
Corporate communication, not addressing political options
Communication for development
Visibility
Social listening, including the feedback from stakeholders through a call centre and the monitoring of communication

The ants demonstration plot has no visibility boards as the experiment is lasting 6 months

They have active social media communication

Date: 22 2 2023 h 19 30
Venue: Golden Medallion, Vanimo

Participants:
Informants: 4 WSP administration, 1 FAO

Briefing on programme activities in West Sepik Province
The programme has taken speed in the last period, the procured goods are arriving in Vanino programme office
It should create champions that will be its legacy in fostering local development

Date: 23 2 2023 h 11 00
Venue: Port Moresby
Participant:
1 WSP Governorate

Appreciation of the programme

Date: 23 2 2023 h 11 00
Venue: NPMC, Port Moresby
Participants:
1 informant

MTE debriefing

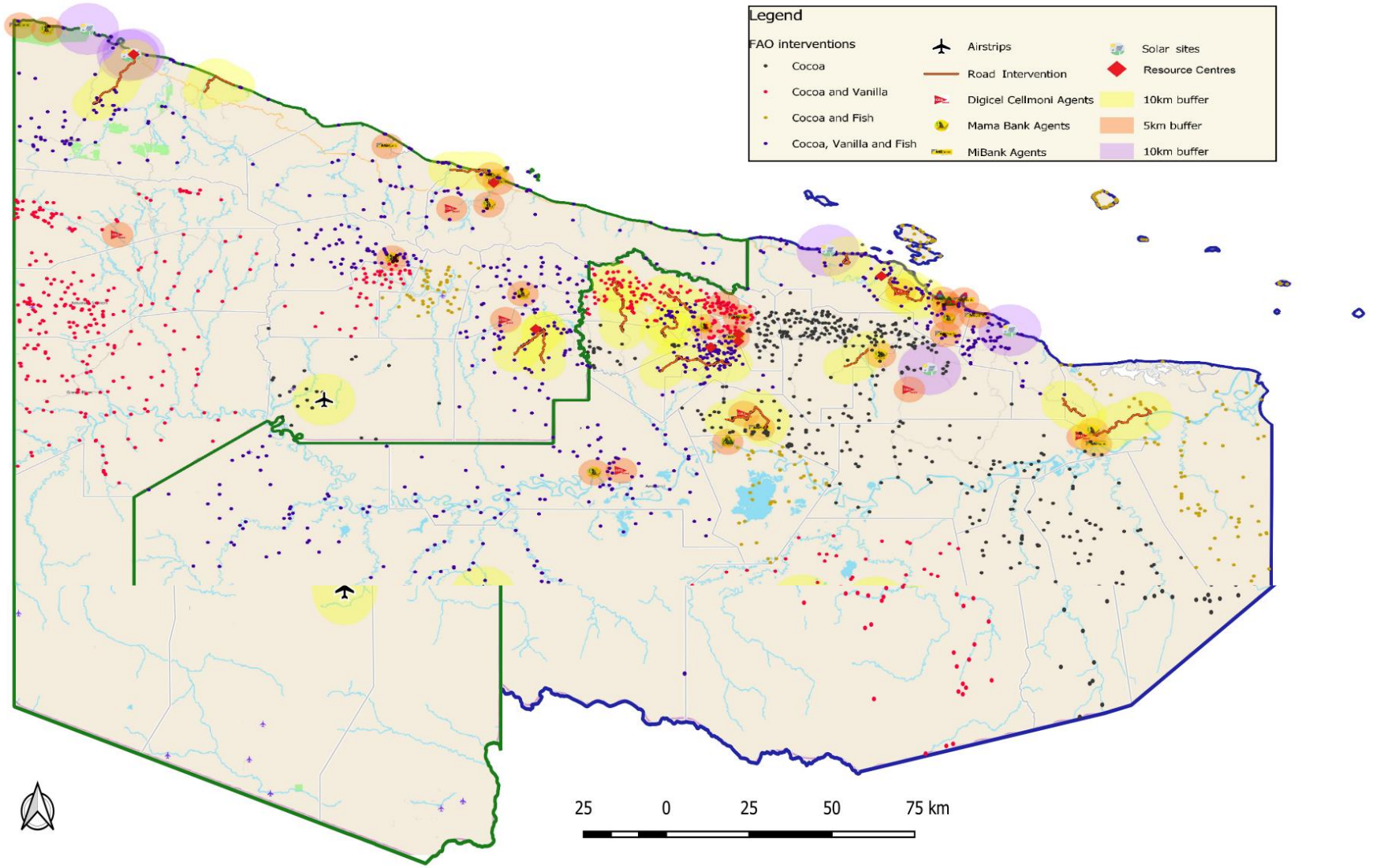
Date: 23 2 2023 h 12 00
Venue: UNDP, Port Moresby
Participants :
All UN agencies

MTE debriefing

Date 23 2 2023 h 14 30
Venue: EU Delegation, Port Moresby
Participant:
1 informant

MTE debriefing

19. Intervention sites maps



20. Visited roads profiles

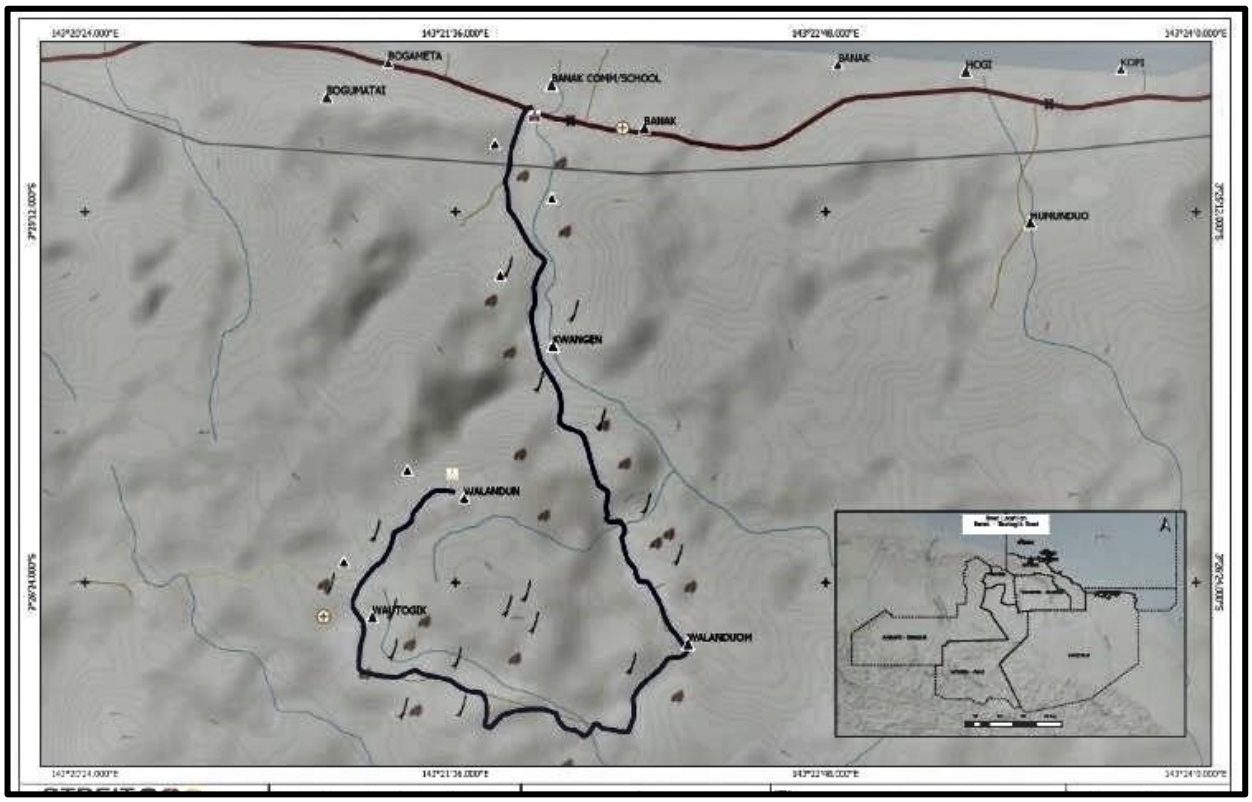
STREIT PNG MTR Mission
Date of site visit: December 13, 2022
Road #1

INFORMATION	
Road Name: BANAK – WAUTOGIK ROAD	**Location:** Wewak District, East Sepik Province
Category: Rehabilitation and Specific Maintenance of **7.80km** road	
Scope of Work: clearing and grubbing of existing road surface, sub-grade preparation, embankment, gravel surfacing (subbase course) and compaction, 600m concreting, road crossings (pipe and box culverts), roadside drainage canals, stone masonry and gabion works, causeway, traffic signs	
Target beneficiaries/road users: 2,400 inclusive of farmers in 965ha of **Cocoa** and 5.56ha of **Vanilla** within LLG Boikin and Dagwa	
Community contribution: • community members are engaged by contractor as paid labor for rehabilitation works with 7 females of the 20 workers residing in Banak Village • organized RMG is composed of community members and paid on a monthly basis	
Contractor and Contract Cost: • under contract by **Hiawani Limited** with total contract cost of rehabilitation works is at **PGK 2,036,596.45** or US$ 578,578.54 translating to about PGK 261,102.11 per kilometre • unit cost is within or even lower than current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation *(info gathered from DAL)*	
Economic challenges: *(prior to STREIT interventions)* • difficulty of transporting farm products from production areas to nearest all-weather roads or market sites • either transported by headloads or through expensive transport cost by working animals	
Environmental challenges: *(current)* • adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works	
Socio-economic issues: *(prior to STREIT interventions)* • farmers carry farm products by head loads by walking 6 to 7 km from the farm to nearest existing all-weather roads and market centers • patients are carried by stretchers and school children needs to wake up at 4am to walk and avoid being late for classes	
IMPLEMENTATION	
Date: • works started in **June 17, 2022** and target completion date is on June 17. 2023 • accomplishment as of **December 2022** is at **30%**	
Supervision: • contractor has deployed 1 field engineer and 1 site engineer to supervise works on a daily basis • ILO field engineers are exercising due diligence in supervising and monitoring work progress periodically	
Contractor's challenges: • adverse weather condition: rainy days until April 2023 with less than 2 months left to complete work during dry season (May and June) • difficulty to comply with ILO stringent quality control procedures and requirements for progress payment but slowly getting used to the system and procedures and says it is easier to bid locally with PNG DoWH but happy for learning the ILO procedure • needs closer guidance from ILO engineers to ensure compliance to procedures and maintain quality assurance requirements • declared that roads are more durable under STREIT than those implemented by DoWH	
Sustainability Measures: • RMG already organized and trained doing some part of the road like drainage ditch not covered by the contractor • road maintenance policy under RuTIMS to be fully established by EOP • maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government	
Observations: • completed portion of rehabilitation works were observed to be of good quality and generally according to approved plans and specifications	

- contractors' works are generally according to accepted engineering practices and ILO field engineers are exercising due diligence in supervising and monitoring work progress
- possible extension beyond contract time due to rainy season to end by April 2023; 2 months from contract completion date by June 2023

Expected Outcomes:

- improved road condition for all-weather accessibility as long as maintained regularly since only gravel surfaced
- generation of 16,000 person days employment worth PGK1,500,000 in the local economy
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities



Road Alignment

Before	On-going Rehabilitation
	

STREIT PNG MTR Mission
Date of site visit: December 14, 2022
Road #2

INFORMATION	
Road Name: MUNJI – HARIPMOR ROAD	**Location:** Yangoro - Saussia District, East Sepik Province
Category: Rehabilitation and Specific Maintenance of **6.50km** road	
Scope of Work: clearing and grubbing, sub-grade preparation, embankment, gravel surfacing (subbase course) and compaction, road crossings (pipe culverts), roadside drainage canals, stone masonry and gabion works, causeway, traffic signs	
Target beneficiaries/road users: 2,236 inclusive of farmers in 886ha of **Cocoa** and 4.44ha of **Vanilla** within LLG Sausso and Yangoru	
Community contribution: • community members are engaged by contractor as paid labor for rehabilitation works with 5 females of the 22 workers • organized RMG is working on side drains composed of 3 members with 2 females and paid on a monthly basis	
Contractor and Contract Cost: • under contract by **Kaystar Construction Limited** with total contract cost of rehabilitation works is **PGK 1,169,852.27** or US$ 332,344.40 translating to about PGK 179,977.27 per kilometre • unit cost is within or even lower than current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation *(info gathered from DAL)*	
Economic challenges: *(prior to STREIT interventions)* • difficulty of transporting farm products from production areas to nearest all-weather roads or market sites • either transported by foot/headloads or through expensive transport cost by working animals	
Environmental challenges: *(current)* • adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works	
Socio-economic issues: *(prior to STREIT interventions)* • cocoa and vanilla farmers carry farm products by foot/headloads from the farm to nearest existing all-weather roads and market centers • school children crosses rivers without river crossing structures • government basic services not reaching the villages	
IMPLEMENTATION	
Date: • works started in **June 17, 2022** and target completion date is on June 17. 2023 • accomplishment as of **December 2022** is at **45%** covering 2km of gravelling, 5 of 6 pipe culverts, etc.	
Supervision:	

- contractor has deployed 1 project engineer to supervise works on a daily basis
- ILO field engineers are exercising due diligence in supervising and monitoring work progress periodically

Contractor's challenges:

- adverse weather condition: rainy days until April 2023 with less than 2 months left to complete work during dry season (May and June)

Sustainability Measures:

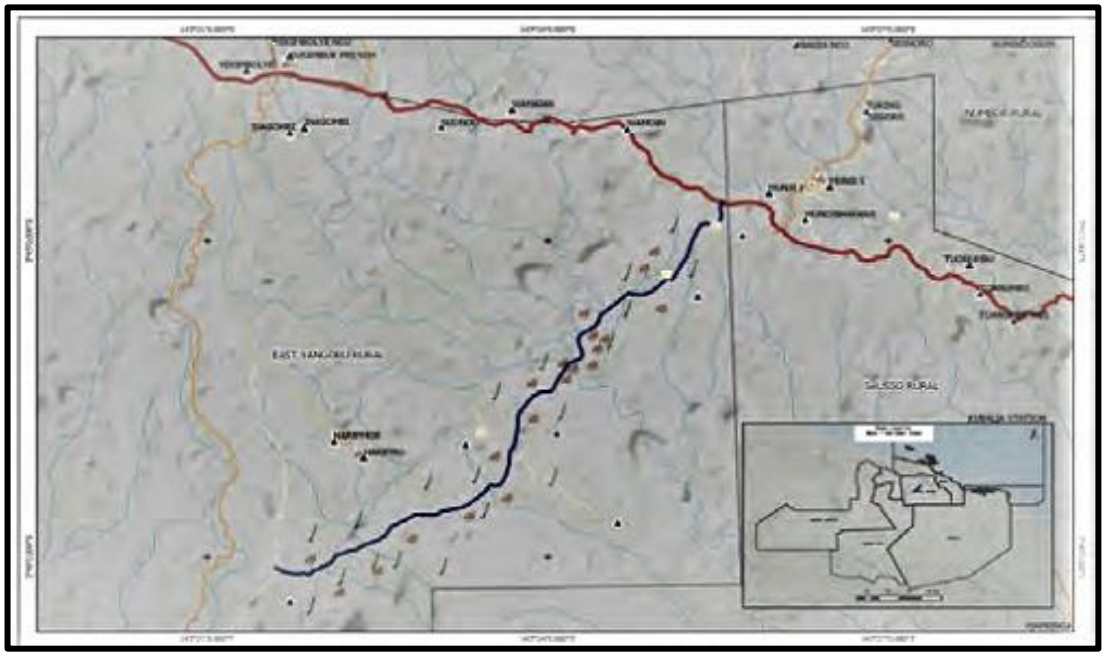
- 3 RMG members (cocoa and vanilla farmers) already working on side drainage ditch not covered by the contractor at the rate of 30m per day
- satisfied with their work and able to pay for school tuition of children and progressively build frame and roofing for house from wages received
- road maintenance policy under RuTIMS to be fully established by EOP
- maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government

Observations:

- rehabilitation works were observed to be of good quality and generally according to approved plans and specifications
- contractors' works are generally according to accepted engineering practices and ILO field engineers are exercising due diligence in supervising and monitoring work progress
- possible extension beyond contract time due to rainy season to end by April 2023; 2 months from contract completion date by June 2023
- ward councilors satisfied with road works saying that the first time work was done well but still concerned with sustainability
- governor committed to extend road up to the "waterfront" and passenger vehicles starting to ply the road

Expected Outcomes:

- improved road condition for all-weather accessibility to about 2,236 users
- generation of 12,000 person days employment for local community
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities



Road Alignment

Before	On-Going Rehabilitation

STREIT PNG MTR Mission
Date of site visit: December 13, 2022
Road #3

INFORMATION	
Road Name: YAWASORO – NIENGWANJIE ROAD	**Location:** Wewak District, East Sepik Province
Category: Road Maintenance of **10.0km** road	
Scope of Work: clearing and grubbing, patching of potholes, selective roadside drainage canals	
Target beneficiaries/road users: population served is 554 inclusive of farmers in 425.25ha of **Cocoa** and 1.11ha of **Vanilla**	
Community contribution: • organized RMG doing maintenance work above is composed of 8 community members with 5 males and 3 females • individual bank accounts with MiBank for payment of wages on monthly basis	
Maintenance Cost: • RMG maintenance contract amount per month is at PGK 5,824.00 with a rate of PGK 28 per person per day and based on work performance as per work plan given at the start of every month by the ILO field engineer • Cost of maintenance works for 312km involving 161 RMGs for CY 2021 is PGK 755,027.24 from July 2021 for 6 months and for CY 2022 is PGK 1,394,090.88 for 1 year inclusive of PPE and hand tools translating to an average unit cost of PGK 6,888.20 per kilometre for 1.5 years or PGK 4,592.13 per kilometre per year	
Economic challenges: *(prior to STREIT interventions)* • difficulty of transporting farm products from production areas to nearest all-weather roads or market sites since the road is impassable by vehicles • either transported by headloads or through expensive transport cost by working animals	
Environmental challenges: *(current)* • adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works	
Socio-economic issues: *(prior to STREIT interventions)* • farmers carry farm products by head loads by walking 10 km from the farm to nearest existing all-weather roads and market centers • patients are carried by stretchers and school children needs to wake up at 4am to walk and avoid being late for classes	
IMPLEMENTATION	

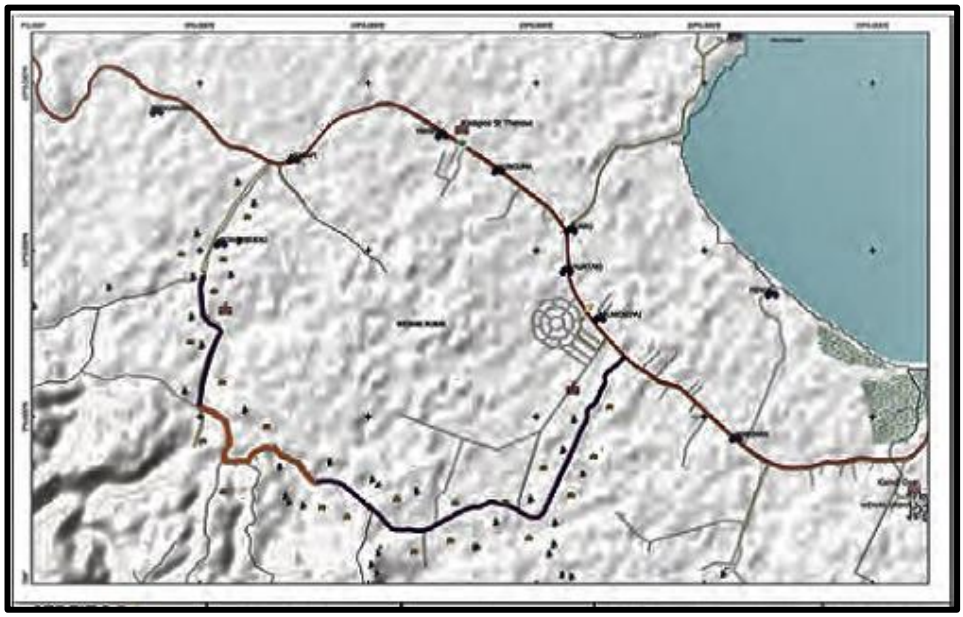
Date:
- maintenance works started since July **2021** until end of 2022 with available budget from STREIT Programme
- distance worked and completed is 7.50km generating 2,400 person days as of December 2022

Supervision:
- ILO field engineers visit site twice a month with 1st visit issuing monthly work plans and instructions and 2nd visit for work measurement and evaluation as basis for payments of monthly wages

Observations:
- maintenance works need closer guidance from ILO engineers to ensure proper procedures like patching of potholes that needs squaring of edges based on ILO labor-based methods but were not adopted in actual patching works
- routine maintenance has been on-going since July 2021 since the road had no maintenance before with thick vegetation along the carriageway and tall grasses along roadsides making it in-operational and impassable to all types of vehicles
- road is currently clear of vegetation and pot holes patched and is now plied by vehicles
- the same road is proposed for rehabilitation to commence January 2023 hence advised to discontinue patching pot holes since these will be covered by the rehabilitation works providing base courses for the whole stretch of road
- instead, the RMG can work on other items to be assigned to them that will not be covered by the contractor with the following scope of work: clearing and grubbing, scarifying and reshaping of existing road earthen and gravel surface, earthworks and embankment, re-gravelling, retaining structures, roadside drainage canals, traffic signs

Sustainability Measures:
- RMG already organized, trained, and doing maintenance of the road like drainage ditch not to be covered by the incoming contractor
- road maintenance policy under RuTIMS to be fully established by EOP
- maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government

Expected Outcomes:
- improved road condition for all-weather accessibility
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities



Road Alignment

Before	On-Going Maintenance

STREIT PNG MTR Mission
Date of site visit: February 14, 2023
Road #4

INFORMATION	
Road Name: BALIF – ARASELI ROAD	**Location:** Maprik & Ambunti-Drekirkir Districts, East Sepik Province
Category: Rehabilitation and Specific Maintenance of **12.80km** road	
Scope of Work: scarifying and reshaping of existing road surface, gravel surfacing (subbase course) and compaction, concreting, road crossings (pipe and slab culverts), roadside drainage canals, retaining structures (stone masonry and gabion works, traffic signs	
Target beneficiaries/road users: 5,157 inclusive of farmers in 695ha of **Cocoa** and 13.33ha of **Vanilla** within LLG Bumbita Muhian and Drekirkir	
Community contribution: • community members are engaged by contractor as paid labor for rehabilitation works with 9 all male workers and plans to add 5-10 unskilled workers to catch-up on delayed implementation • organized RMG is working on selected road drainage section composed of community members and paid on a monthly basis	
Contractor and Contract Cost: • under contract by **Midway Pacific Limited** with total contract cost of rehabilitation works is at **PGK 1,537,631.40** or US$ 436,827.10 translating to about PGK 120,127.45 per kilometre • unit cost is much lower than current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation *(info gathered from DAL)*	
Economic challenges: *(prior to STREIT interventions)* • difficulty of transporting farm products from production areas to nearest all-weather roads or market sites • either transported by headloads or through expensive transport cost by working animals	
Environmental challenges: *(current)* • adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works	

Socio-economic issues: *(prior to STREIT interventions)*
- farmers carry farm products by head loads by walking about 10 km from the farm to nearest existing all-weather roads and market centers

IMPLEMENTATION

Date:
- works started in **June 17, 2022** and target completion date is on June 17, 2023
- contractor stopped for 3 months (Nov.-Dec 2022 and Jan. 2023) due to internal problem and just resumed February 2023
- accomplishment as of **February 2023** is only at **28%** hence could not finish by target completion date of June 17, 2023

Supervision:
- contractor has deployed 1 field engineer to supervise works on a daily basis
- ILO field engineers are monitoring delayed implementation progress periodically

Contractor's challenges:
- adverse weather condition: rainy days until April 2023 with less than 2 months left to complete work during dry season (May and June)
- encountered issues in approved quarry site: access needs repair since impassable and waiting for weather to improve; alternate quarry site not good
- road roller still under repair and still to continue unfinished road gravelling
- subject to liquidated damages unless contract time extended with complete documentation
- needs closer guidance from ILO engineers to ensure compliance to procedures and maintain quality assurance requirements
- the whole of Maprik District has no electricity with indefinite schedule of resumption since generator set spare parts still to be imported from abroad

Sustainability Measures:
- RMG already organized and trained doing some part of the road like drainage ditch not covered by the contractor
- road maintenance policy under RuTIMS to be fully established by EOP
- maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government

Observations:
- there is still no substantial completed portion of rehabilitation works hence quality could not be assessed
- contractors' works are still on-going at slow pace due to continuing rains and wet grounds
- ILO field engineers need to closely monitor work progress and quality
- contract time will definitely be extended beyond June 2023 given the slow pace of implementation

Expected Outcomes:
- improved road condition for all-weather accessibility as long as maintained regularly since only gravel surfaced
- generation of 17,000 person days employment worth PGK1,090,000 in the local economy
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities

Road Alignment

Before	On-going Rehabilitation
	
	
	

STREIT PNG MTR Mission

Date of site visit: February 15, 2023

Road #5

INFORMATION	
Road Name: NANAHA – TAU ROAD	**Location:** Ambunti-Drekirkir District, East Sepik Province
Category: Rehabilitation and Specific Maintenance of **14.50km** road	
Scope of Work: scarifying and reshaping of existing road surface, gravel surfacing (subbase course) and compaction, concreting, road crossings (pipe and slab culverts), RCC causeway, roadside drainage canals, retaining structures (stone masonry and gabion works), traffic signs	
Target beneficiaries/road users: 1,587 inclusive of farmers in 909ha of **Cocoa** and 135ha of **Vanilla** within LLG Drekirkir and Kawanga	
Community contribution: • 2 community members engaged by contractor and additional 10 to 20 unskilled labor from community will be engaged once full operation starts • organized RMG is working on vegetation control and selected road drainage section composed of 2 men and 2 women community members and paid on a monthly basis	
Contractor and Contract Cost:	

- under contract by **Lovely Brothers Limited** with total contract cost of rehabilitation works at **PGK 1,906,340.72** or US$ 541,574.10 translating to about PGK 131,471.80 per kilometre
- unit cost is much lower than current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation *(info gathered from DAL)*

Economic challenges: *(prior to STREIT interventions)*

- difficulty of transporting farm products from production areas to nearest all-weather roads or market sites
- farm products transported as headloads

Environmental challenges: *(current)*

- adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works

Socio-economic issues: *(prior to STREIT interventions)*

- farmers carry farm products of 16kg by head loads for 8-9hrs for 30km from farm to Nanaha and 2 days from Ablatak to Masalaga passing through Nanaha Tau road

IMPLEMENTATION

Date:

- contractor is based in Maprik and just mobilized on February 07, 2023 with target completion date on January 03, 2024 of which he is confident to complete the contract
- progress for 1 week as of **February 2023** is only **5%** for mobilization and initial grading works

Supervision:

- contractor has deployed 1 project engineer and 1 site engineer to supervise works on a daily basis
- ILO field engineers will monitor work progress periodically once implementation is in full operation

Contractor's challenges:

- adverse weather condition: rainy days until April 2023 with less than 2 months left to complete work during dry season (May and June)
- other than the weather, no other issues mentioned since work is still to start

Sustainability Measures:

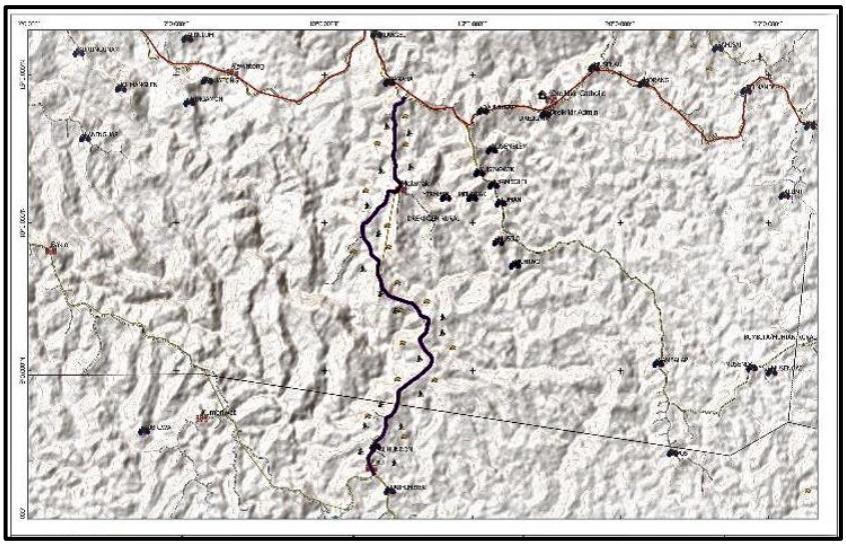
- RMG already organized and deployed since June 2022 doing some part of the road like drainage ditch not covered by the contractor
- road maintenance policy under RuTIMS to be fully established by EOP
- maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government

Observations:

- there is still no completed portion of rehabilitation works hence quality could not be assessed
- contractors' works are still to start within the next few weeks
- ILO field engineers will monitor work quality and progress periodically
- contract has high chance of completion by January 2023

Expected Outcomes:

- improved road condition for all-weather accessibility as long as maintained regularly since only gravel surfaced
- generation of 17,000 person days employment worth PGK1,100,000 in the local economy
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities



Road Alignment

Before	On-going Rehabilitation
	
	


STREIT PNG MTR Mission
Date of site visit: February 16, 2023
Road #6

INFORMATION	
Road Name: WALKASA-MAIMAI-WANWAN ROAD	**Location:** Nuku District, West Sepik Province
Category: Rehabilitation and Specific Maintenance of **15.85km** road	
Scope of Work: subgrade preparation of existing road, gravel surfacing (subbase course) and compaction, concreting, road crossings (pipe culverts), rigid pavement, RCC causeway, roadside drainage canals, retaining structures (stone masonry and gabion works), traffic signs	
Target beneficiaries/road users: 1,939 inclusive of farmers in 750ha of **Cocoa** and 17.80ha of **Vanilla** within LLG Nuku Central	
Community contribution: • contractor still mobilizing and in the process of recruiting unskilled labor from the community • 2 RMGs with 3 members each from the community working on landslide clearing, roadside ditching, vegetation control, etc. deployed since the middle of 2021 and paid on a monthly basis	
Contractor and Contract Cost: • under contract by **Western Sons Limited** with total contract cost of rehabilitation works at **PGK 2,726,618.61** or US$ 774,607.60 translating to about PGK 172,026.40 per kilometre • unit cost is much lower than current estimated cost of PGK 500,000 per kilometre for unpaved rural road rehabilitation *(info gathered from DAL)*	
Economic challenges: *(prior to STREIT interventions)* • difficulty of transporting farm products from production areas to nearest all-weather roads or market sites	
Environmental challenges: *(current)* • adverse weather condition i.e. longer period of wet season and heavy rainy days due to climate change which is unfavourable especially for road works	
Socio-economic issues: *(prior to STREIT interventions)* • farmers carry farm products by head loads or other expensive means of transportation due to bad road conditions	
IMPLEMENTATION	
Date: • contractor mobilization is in progress since January 03, 2023 from Lumi with just completed road from Lumi to Vanimo funded under AusAID • target completion date is January 03, 2024 and contractor is confident it can complete contract on time • unskilled labourer still for recruitment from Nuku wards where TVET trained youth an women are available • overall progress as of **February 2023** is only **5%** with 40% of mobilization completed and hope to start work by EO February	
Supervision: • contractor will deploy 1 project engineer and 1 site engineer to supervise works on a daily basis • ILO still recruiting site engineer since previous one left in November 2022 to monitor work progress periodically once implementation is in full operation	
Contractor's challenges: • adverse weather condition: rainy days until April 2023 with less than 2 months left to complete work during dry season (May and June) • other than the weather, no other issues mentioned since work is still to start	

Sustainability Measures:

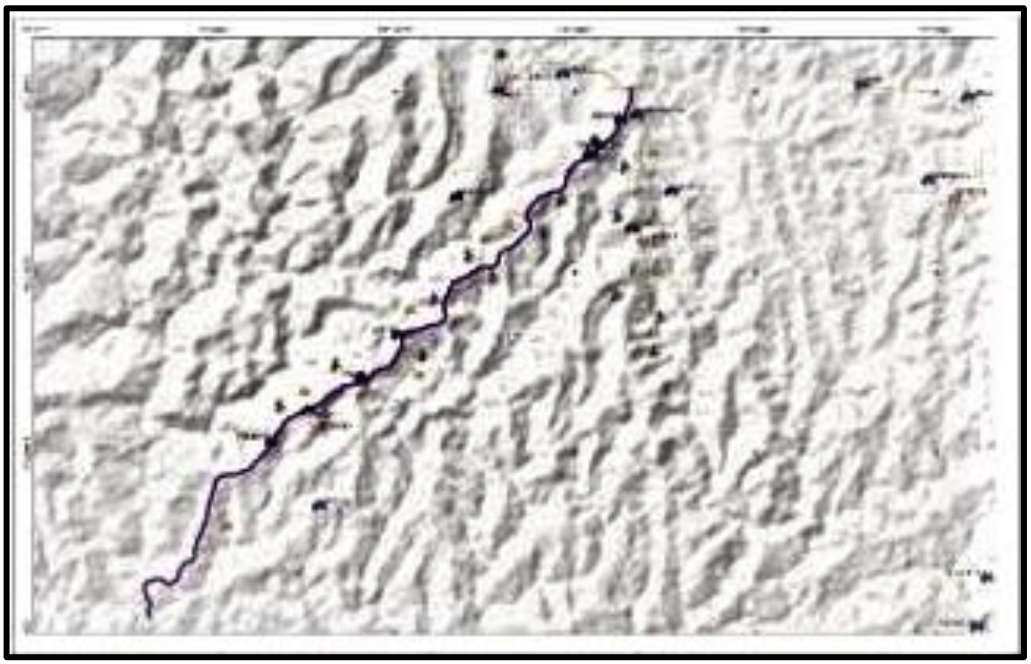
- RMG already organized and deployed since middle of 2021 doing some part of the road like drainage ditch not covered by the contractor
- road maintenance policy under RuTIMS to be fully established by EOP
- maintenance budget usually sourced out from District Support Improvement Project (DSIP) of PGK10 million allocated annually by national government

Observations:

- there is still no completed portion of rehabilitation works hence quality could not be assessed
- contractors' works are still to start by the end of February 2023
- ILO field engineers will monitor work quality and progress periodically once recruitment is done
- contract has high chance of completion by January 2023

Expected Outcomes:

- improved road condition for all-weather accessibility as long as maintained regularly since only gravel surfaced
- generation of 25,000 person days employment worth PGK1,200,000 in the local economy
- enhanced access to basic social services (health, education, security), economic opportunities, market accessibility, and job opportunities



Road Alignment

Before	No on-going Activities yet

21. Conclusions concerning specific components

Rural roads, rural airstrips and fishers' jetties rehabilitation and maintenance

A. *Completion of activities*
ILO cannot complete remaining works of 94% of Rural Road Rehabilitation, 5 Airstrip Improvement and Maintenance since it has not started yet, and waterways clearing since this is still for scoping and community consultations by EO May 2024 (original programme completion date)

B. *Information management*
The establishment of RuTIMS will not only benefit the programme intervention area but the PNG as country in the long term for the National DoWH, Provincial Division of Works, and hopefully engaged District Engineers to manage their respective road network, planning their maintenance needs, prepare annual road maintenance program, monitor on-going construction and rehabilitation works, among others.

C. Road maintenance system
The sustainability of the operation and maintenance of the completed rural transport infrastructure depends on the following factors:

- the establishment of RMGs is only one of the elements necessary to sustain the completed rural roads and needs to be compensated to continue working on a regular basis,
- engaging community services is an opportunity to complement the works done by the RMGs that have only 3-4 members per group as part of sustainability mechanism; however, this needs additional capacity building to these communities and guidance on this; the Local road users' committees can work with District Engineers and spearhead gathering community service volunteers and trained RMG members can provide coaching and guidance to community members in doing the works,
- raising community awareness, responsibilities, and developing their sense of ownership is usually achieved and part of institutional development works which has proven to be effective in programs and projects like the programme,
- the District administrations where the roads are located are the primary authorities in charge of the operation and maintenance of these facilities but they often lack the civil engineers with the technical expertise to perform such tasks.

D. Capacity building

The training of the stakeholders through the engagement of UNITECH and TVET have proven to be effective to the satisfaction of the training participants and skills learned have been applied through the engagement in works by contractors and actual maintenance works.

Information and communication technology. The programme has assisted the elaboration of the e-Agricultural provincial strategies whose implementation is lagging behind. The adoption of FinTech solutions for the payment of cocoa and vanilla is being tested at a small scale, although with positive results. The design of improved IMF of the Cocoa board and NFA is under way. There are some concerns about their sustainability as this requires the acquisition of external operation and maintenance services no cost recovery approach to pay for is being formulated.

The procurement of the equipment of the resources centres is ongoing. Some training of farmers on financial literacy is already being conducted. It is too early to assess their impact. The delayed delivery of the activities of this component means that the elaboration of training programme supportive to the strengthening of the value chains could be late to produce an impact by the programme end.

Access to financial services. The farmers, fishers and their communities received the finance access points initiatives warmly and updated targets has exceeded the initial plan of 20,000 subscribers which has created a positive story for the program. The partner banks are struggling to consolidate their coverage of the remote districts. The uneven ICT services coverage hampers the competition in the more remote districts, a situation that could likely result in the sharing of the districts served by these banks. That, however, are able and willing to invest more in this field due to their strategic commitment to invest in the remote banking technology in the intervention areas.

Renewable energy. The programme has performed a feasibility study and assistance in drafting the solar energy sub-policy, to set the framework for the promotion of such technology in the intervention areas. The planning of the creation of solar energy systems has progressed in parallel with and quite independently from the elaboration of the mentioned programming documents. The exploration of other alternative sources of renewable energy was not pursued convincingly, possibly due to the fact that the programme resources are insufficient to the purpose. However, due to the demonstration nature of this component, such weakness means that the programme progress in this field is incomplete – notably, because it doesn't test alternative solutions, that should have been its main contribution in this field -.

The procurement and delivery of the solar systems equipment is still underway but will likely be completed by the programme end. The sustainability of the solar energy systems to be installed in the schools and health centres is likely as these entities already have the financial resources to perform their services and thus to pay for running these systems. The assistance to the producers to adopt solar production equipment powered by solar energy systems is in the procurement and installation phase. The contribution of this action to the efficiency of the value chains is potentially positive, as it is directed to improve the efficiency of post-harvest processing and storage, thus improving the marketability of the harvest.

22. Graphs