

**Strengthening Food Production Capacity and the Resilience to Drought of Vulnerable Communities**

**EU Funded Action in Support of Smallholder Agriculture for Climate Change Adaptation**

European Union Climate Change Resilience Action

“Strengthening food production capacity and resilience to drought on vulnerable communities”

**Milestone achievements in 2019 for Crops, NRM and Food Processing**

**By Jeffrey Waki, Technical Coordinator Crops**

1. **Introduction**

Under the Crops and Natural Resources Management (NRM) component which included Postharvest and Processing (PHFP) as important sub-component, significant progress has been made in terms of implementing project site activities in the pilot sites throughout the country, from January to December 2019. This also included on-station activities (at Momase Regional Centre (MRC), Islands Regional Centre (IRC) and Southern Regional Centre (SRC)) in stocking and use of farm tools/ equipment and construction of basic facilities for bulking up of planting materials and support on-station research activities. The component had very minimum engagement with the outreach sites.

The component facilitated learning activities through training workshop conducted at various sites for models farmers who would then champion similar training effort to other community members with assistance from the RDO. Distribution of planting materials of selected crops species and cultivars took prominence in all engagements at the various sites. The trainings and distribution of planting stocks were at times accompanied with basic farm tools/equipment and utilities for both RDOs and the farming cluster groupings. With the NRM in particular, most of the training and field activities were especially in the areas of soil fertility management and soil moisture conservation, and were conducted in the Morobe and Madang pilot sites. Watershed management as part of NRM, had a site established in the Kome LLG of Menyamya district as a pilot for PNG country. Detailed survey has been completed and water shed activities planned and beginning execution. Watershed formed part of key messages during the farmer engagement in every visited site in 2019.

The annual report for 2019 is presented highlighting to some detail what has been achieved in line with the activities captured in the Action Design Document (ADD), and what is to be done in 2020. The report covers every pilot site, outreach site and the NARI centres engaged.

1. **Islands Regional Centre - Kerevat**

The IRC takes charge of coordinating the project activities being rolled out at Bali Witu LLG in West New Britain and the Pobuma LLG in Manus province. The sites were upgraded to pilot sites from initial outreach status. IRC is in charge of multiplying the planting materials and distributing to the two sites to volumes required during the life of the project, while site multiplication goes on with initial foundation stock delivered.

**2.1 IRC Centre-level activities**

The main centre-level activities are in planting materials bulking. Various crops/fruit/nuts cultivars/species have been multiplied and continue supplying the four pilot sites. TRICOT research was first conducted at IRC with involvement of staff.

**2.2 Pilot site**

1. **Bali-Witu LLG, West New Britain Province**

**i. Site-specific interventions**

The important interventions identified for Bali-Witu are:

1. Improving of current crops and secure seed systems
2. Sustainable garden systems and nutrient management
3. Poultry farming for household food security and income
4. Food processing, storage and nutritious family diet preparations
5. Financial literacy training

ii. **Achievements**

1. Two government officers from Bali-Witu LLG participated in the TOT workshop conducted in May 2019. The officers were ups-killed with required knowledge and skills in crop management, post harvest and food processing, soil fertility management and soil water conservation. The officers learnt about climate change and its effects and how resilience can be built in drought vulnerable communities in relation to drought situations.
2. Planting materials of crop technologies were distributed at the end of the TOT workshop (Table 1).
3. Standard rural crop nursery structure was designed with inputs from the coordinating team and vetted by NARI to be constructed at the pilot site DAL farm ground.

**Table1.** Planting materials distributed to Bali – Witu in May 2019 during the IRC/SRC TOT workshop conducted at MRC Bubia.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (6 varieties) | Early maturing, drought tolerant, Orange flesh | 60 vines |
| 2 | Cassava (4 varieties) | Lowland low cyanide, drought tolerant | 40 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 40 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 2-3kg |
| 5 | Rice (4 lowland varieties) | High yielding, BPH tolerant | 4kg |
| 6 | Lima bean | Vigorous habit | 10 seeds |
| 7 | Lablab bean | Vigorous habit | 10 seeds |

**iii. Constraints/Challenges**

1. Communication constraint – communication has been an overwhelming challenge for Bali Witu. The site coordinating team at IRC has had hard times in trying to communicate with the RDO and team on the ground.
2. MOU – the progress on the administering of the MOUs have been slow but eventually vetted.

iv. **Recommendations**

Going forward the following should be strongly considered:

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. MOU: The document should be brought along with the first training to be conducted and have it signed by the local government representatives.
3. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
4. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
5. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.
6. **Pobuma LLG, Manus Province**

**i. Site-specific interventions**

The important interventions identified for Pobuma are:

1. Improving of current crops and secure seed systems
2. Sustainable garden systems and nutrient management
3. Poultry farming for household food security and income
4. Food processing, storage and nutritious family diet preparations
5. Financial literacy training

**ii. Achievements**

1. Two government officers from Pobuma LLG namely Ms. Thecla Kanau and Mr. Paul Jete participated in the TOT workshop conducted in May 2019. The officers were ups-killed with required knowledge and skills in crop management, post harvest and food processing, soil fertility management and soil water conservation. The officers learnt about climate change and its effects and how resilience can be built in drought vulnerable communities in relation to drought situations.
2. Planting materials of crop technologies were distributed at the end of the TOT workshop in May (Table 1) and during the farmer training workshop in November 2019 (Table 2).
3. Work has progressed with procurement of building supplies for construction of crop nursery which was designed and vetted by the LLG.

**Table2.** Planting materials distributed to Pobuma in May 2019 during the IRC/SRC TOT workshop conducted at MRC Bubia.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (6 varieties) | Early maturing, drought tolerant, Orange flesh | 60 vines |
| 2 | Cassava (4 varieties) | Lowland low cyanide, drought tolerant | 40 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 40 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 2-3kg |
| 5 | Rice (4 lowland varieties) | High yielding, BPH tolerant | 4kg |
| 6 | Lima bean | Vigorous habit | 10 seeds |
| 7 | Lablab bean | Vigorous habit | 10 seeds |

**Table 2.** Planting materials distributed to Pobuma villagers in November 2019 during the farmer training workshop conducted at Pobuma LLG, Manus.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (4 varieties) | Drought tolerant | 528 vines |
| 2 | Cassava (4 varieties) | Low cyanide, drought tolerant | 528 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 192 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 30 tubers |
| 5 | Banana (plantain) (2 varieties) | Drought tolerant | 132 suckers |
| 6 | Aibika (11 varieties) | Tolerant to collar rot | 440 cuttings |
| 7 | Durian (2 varieties) | Early maturing, High yielding | 12 seedlings |
| 8 | Mangosten | Early maturing, High yielding | 32 seedlings |
| 9 | Galip | Early maturing, high yielding | 200 seedlings |
| 10 | Abiu | Early maturing, high yielding | 22 seedlings |
| 11 | Carambola | Early maturing, high yielding | 32 seedlings |

**iii. Constraints/Challenges**

1. Pobuma is remote and accessed by dinghy at high cost.
2. Nominated RDOs and model farmers were absent during the first model farmer training raising concern on the delivery of the follow up trainings
3. With end of the year account closure, Pobuma LLG could not fully support the recent training
4. Catering cost for the food provided during the training has been very much excessive for rural training.
5. Printing of training materials was not done on time for distribution to the site although funds were remitted into IRC account earlier.
6. MOU – the progress on the administering of the MOUs have been slow but eventually vetted.

**iv. Recommendations**

Going forward the following should be strongly considered:

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. MOU: The document should be brought along with the first training to be conducted and have it signed by the local government representatives.
3. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
4. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
5. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.

**3. MOMASE REGIONAL CENTRE**

The Momase Regional Centre (MRC) takes charge of coordinating the project activities being rolled out at Kome (Menyamya, Morobe), Selepet (Kabwum, Morobe ), Teptep (Rai Coast, Madang) and Watut (Bulolo, Morobe) LLGs.The centre is in charge of multiplying the planting materials and distributing to the four pilot sites to volumes required during the life of the project, while site multiplication goes on with initial foundation stock delivered.

**3.1 MRC Centre-level activities**

The main centre-level activities are as follows:

1. Planting materials bulking

Various crop cultivars/species have been multiplied and continue supplying the four pilot sites. The main crops included, sweetpotato, cassava, taro, African yam, corn and legume crops.

1. On-station research

On-station research is currently under way for legumes. The legumes include cowpea, yard long bean, soyabean and dolichos. Taro aro.

1. Infrastructure development

Four 9000L tanks were purchased along with pipe fittings to supply water to crop nursery and seed garden. A washing area has been constructed with a sink constructed.

**3.2 Pilot Site**

**(1) Kome LLG, Morobe Province**

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Improving current crops and secure seed systems

2. Soil moisture management, nutrient management (sustainability) and;

3. Learning and adopting post-harvest and processing techniques;

4. Micro watershed management

5. Integration of fish and ducks

**ii. Achievements**

1. Foundation Seed Garden (planted with sweet potato, taro and yam) was successfully established in March 2019.
2. The RDO Mr. Isso Angapese participated in the TOT workshop conducted in May 2019. The RDO was ups-killed with required knowledge and skills in crop management, post harvest and food processing, soil fertility management and soil water conservation. The officer learnt about climate change and its effects and how resilience can be built in drought vulnerable communities in relation to drought situations.
3. Planting materials of crop technologies were distributed at the end of the TOT workshop in May (Table 1) and during the farmer training workshop in November 2019 (Table 2).
4. Work has progressed with procurement of building supplies for construction of crop nursery which was designed and vetted by the LLG.
5. Fruitful discussions have been made surrounding the micro watershed model site at the Vaiya village.
6. The cluster farmer groups of Nambawan Bris and Zipa were able to develop crop multiplication .

**Table 3.** Planting materials distributed to Kome in April 2019 during the MRC TOT workshop conducted at MRC Bubia.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (7 varieties) | Early maturing, drought tolerant, Orange flesh | 350 vines, 10 tubers vines |
| 2 | Cassava (4 varieties) | Lowland low cyanide, drought tolerant | 800 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 100 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 25kg |
| 5 | Rice (4 lowland varieties) | High yielding, BPH tolerant | 4kg |

**Table 4.** Planting materials distributed to Kome foundation seed garden in early 2019 during the farmer training workshop conducted at Menyamya district conference centre.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (9 varieties) | Drought tolerant | 140 vines |
| 2 | Cassava (4 varieties) | Low cyanide, drought tolerant | 1600 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 100 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 300 mini sets |

**Table 3.** Planting materials distributed to the LLG foundation seed garden and model farmer groups in Jun 2019 during the watershed management field survey trip.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (2 varieties) | High yielding | 235 vines |
| 2 | Yam (Rotundata African yam) | Drought tolerant | 260 mini sets |
| 3 | Wheat | High yielding | 1.1 kg |
| 4 | Corn | QPM | 1 kg |
| 5 | Mungbean | High protein | 1.1 kg |

**iii. Constraints/Challenges**

1. Security of the multiplication blocks has not been put into place
2. Field casual voluntarily worked on garden maintenance
3. Introduction of legumes as food, feed, cover crops and green manure was resolved. The soils generally are very much depleted of organic matter.
4. Most farmers had to walk almost 2 hours to reach the training centre on a daily basis.
5. MOU – the progress on the administering of the MOUs have been slow but eventually vetted and signed by the Menyamya District CEO.

**iv. Recommendations**

Going forward the following should be strongly considered:

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
3. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
4. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.

**(2) Watut LLG Morobe Province**

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

(1) Improving soil moisture and fertility management for grassland, bush-land and riverside farming improving current crops

(2) Improving low input management systems for producing meat and eggs from village chickens and ducks in mixed flocks, and;

(3) Improving soil moisture and fertility management for grassland, bush-land and riverside farming improving current crops

(4) Improving low input management systems for producing meat and eggs from village chickens and ducks in mixed flocks, and;

(5) Adopting management systems for maintaining crop yield in gardens soils under intensive cultivation.

**ii. Achievements**

1. Foundation Seed Garden (planted with sweetpotato, taro and yam) was successfully established in March 2019.
2. The RDO Mr. Jack Govara participated in the TOT workshop conducted in May 2019. The RDO was ups-killed with required knowledge and skills in crop management, post harvest and food processing, soil fertility management and soil water conservation. The officers learnt about climate change and its effects and how resilience can be built in drought vulnerable communities in relation to drought situations.
3. Planting materials of crop technologies were distributed at the end of the TOT workshop in May (Table ) and during the farmer visit in November 2019 (Table).

**Table 5.** Planting materials distributed to Watut in April 2019 during the MRC TOT workshop conducted at MRC Bubia.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (7 varieties) | Early maturing, drought tolerant, Orange flesh | 350 vines, 10 tubers vines |
| 2 | Cassava (4 varieties) | Lowland low cyanide, drought tolerant | 800 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 100 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 25kg |

**Table 2.** Planting materials distributed to Watut foundation seed garden in early 2019 during the farmer training workshop conducted at Watut station.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (9 varieties) | Drought tolerant | 140 vines |
| 2 | Cassava (4 varieties) | Low cyanide, drought tolerant | 1600 cuttings |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 100 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 300 mini sets |

**iii. Constraints/Challenges**

1. Security of the multiplication blocks has not been put into place
2. Introduction of legumes as food, feed, cover crops and green manure was resolved.
3. Most farmers had to walk almost 1-2 hours to reach the training centre on a daily basis.
4. MOU – the progress on the administering of the MOUs have been slow but eventually vetted and signed by the Watut District CEO.

iv. **Recommendations**

Going forward the following should be strongly considered:

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
3. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
4. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.
5. **Selepet LLG, Morobe Province**

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Adopting of good management practices which increase pig growth and production by improving their nutrition, environmental conditions, reproductive and general health
2. Training and equipping with technology for small-scale processing of garden food crops such as sweet potato, cassava and taro for storage and use as dried products (chips, grates, meals, flour and starch)
3. Trialling and adopting improved practices for improving and managing crop land areas, preventing soil erosion, retaining adequate soil moisture and maintaining soil fertility.

**ii. Achievements**

1. Foundation Seed Garden (planted with sweetpotato, taro and yam) was successfully established in March 2019.
2. At least 4 officers from Kabwum district and the RDO, Mr. Pirepa Muta, participated in the TOT workshop conducted in May 2019. The RDO was ups-killed with required knowledge and skills in crop management, post harvest and food processing, soil fertility management and soil water conservation. The officers learnt about climate change and its effects and how resilience can be built in drought vulnerable communities in relation to drought situations.
3. Planting materials of crop technologies were distributed at the end of the TOT workshop in May (Table ) and during the farmer visit in November 2019 (Table).

**Table 6.** Planting materials distributed to Selepet in July 2019 during the MRC TOT workshop conducted at MRC Bubia.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (16 varieties) | Early maturing, drought tolerant, Orange flesh | 2400 vines |
| 2 | Cassava (7 varieties) | Lowland low cyanide, drought tolerant | 950 ministems |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 80 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 100 miniset |

**iii. Constraints/Challenges**

1. The LLG did not secure a place to establish the foundation seed garden. this was evident during the last visit.
2. Introduction of legumes as food, feed, cover crops and green manure was resolved.
3. Most farmers had to walk almost 1-2 hours to reach the training centre on a daily basis.
4. MOU – the progress on the administering of the MOUs have been slow but eventually vetted and already signed by the DA Kabwum.

iv. **Recommendations**

Going forward the following should be strongly considered:

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
3. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
4. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.

**4. Teptep (Nayudo) LLG, Madang Province**

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Improvement to current crops and secure seed systems.
2. Sustainable garden systems and nutrient management.
3. Poultry farming for household food security and income.
4. Food processing, storage and nutritious family diet preparations.
5. Financial literacy.

**ii. Achievements**

1. The introduction of WHEAT has been first of its kind. People have never seen it.
2. WHEAT seeds were distributed to over 100 people who participated in the training
3. WHEAT has now been harvested milled and consumed. Big celebrations in all Teptep region
4. Foundation Seed Garden (planted with sweetpotato, taro and yam) was successfully established in 2019.
5. The RDO for Teptep, Mr Benny Kium participated in the TOT workshop conducted in May 2019.
6. Planting materials of crop technologies were distributed at the end of the TOT workshop in May (Table ) and during the farmer visit in November 2019 (Table).
7. Mr. Ano Darkop who is the champion farmer had gone on taking lead to conducting the all delivered training

**Table 7.** Planting materials distributed to Teptep in August 2019 during the farmer training workshop in Teptep.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweetpotato (12 varieties) | Early maturing, drought tolerant, Orange flesh | 1200 vines |
| 2 | Cassava (4 varieties) | Lowland low cyanide, drought tolerant | 634 mini-stems |
| 3 | Taro (4 varieties) | TLB resistant, High yielding | 634 suckers |
| 4 | Yam (Rotundata African yam) | Drought tolerant | 20 tubers |
| 5 | Wheat (2 varieties) | High yielding | 4 Kg |
| 6 | Mungbean | Short duration | 100 g |
| 7 | Everlasting bean | Drought tolerant | 100 g |
| 8 | Corn | QPM, high protein | 100 g |

**iii. Constraints/Challenges**

1. The LLG did not secure a place to establish the foundation seed garden. This was evident during the last visit.
2. Introduction of legumes as food, feed, cover crops and green manure was resolved.
3. Most farmers had to walk almost 1-2 hours to reach the training centre on a daily basis.
4. MOU – the progress on the administering of the MOUs have been slow but eventually vetted and already signed by the Madang provincial government.

**iv. Recommendations**

1. Mobile Phone Credits: the implementing team from the centre right through to the RDO and model farmers be given phone credits as and when need arises to communicate work progress.
   1. Action Coordinator – K100.00 (up to 30 days)
   2. Technical Coordinators – K100.00 (up to 30 days)
   3. Site Coordinators – K100.00 (up to 30 days)
   4. Model farmer – K10.00 (up to 10 days)
2. Training content: the centre level coordinator should ensure training packages fully captures the interventions for the pilot site.
3. RDO/Model farmer- facilitated training: the Centre level team should ensure that training is further conducted for other farmers including continuous multiplication and distribution of planting materials.
4. Nursery construction: send a NARI carpenter with building supplies to lay foundation and supervise initial construction phase of the nursery structure.

**3. SOUTHERN REGIONAL CENTRE**

The Southern Regional Centre (SRC) takes charge of coordinating the project activities being rolled out at Misima (Milne bay), Rigo Coast (Central), Lakekemu Titikaini (Gulf) and Kibuli ( Western) LLGs.The centre is in charge of multiplying the planting materials and distributing to the four pilot sites to volumes required during the life of the project, while site multiplication goes on with initial foundation stock delivered.

**3.1 SRC Centre-level activities**

The main centre-level activities is to bulk up planting materials to supply the sites.

**(1) Louisiade (Misima) LLG, Milne Bay Province**

Louisiade islands (Misima) is located in the Solomon Sea and is vulnerable to unpredictable weather patterns (wet & dry periods) and cyclones and Louisiade islands experienced droughts in 1997, 2012 and 2016. Misima is accessible only by air and sea transport. Agriculture is entirely rain-fed. Income is uniformly low but has gradually increased through sale of copra, fresh garden foods, betel nut and fish. There are few sources of non-agricultural income in the district, except on Misima Island where mining operations provide some income through wages and royalties until the mine closure some ten years ago and currently alluvial mining provided major income.

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Improving current livestock production and management system (Village Chicken, Ducks and Local Pigs)
2. Learn about rice production, harvesting and milling and;
3. Do research on pest and diseases of yam and taro for improved production.

ii. **Achievement**

1. Crop demonstration plots (40 x 40) established
2. Crop management practice demonstrated.
3. Distributed planting materials of sweetpotato, cassava, African yam, taro and rice to farming communities
4. Demonstrated crop sanitation and rapid multiplication technology for root tuber and banana crops

**Table 7.** Planting materials distributed to Misima in 2019 during the farmer training workshop.

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivar | Crop attributes | Vol./Qty |
| 1 | Sweetpotato (4 varieties) | High yielding, Early maturing, High dry matter, Orange flesh | 480 vine cuttings |
| 2 | Cassava (4 varieties) | Drought tolerant, Low cyanide | 480 cuttings |
| 3 | Taro (2 varieties) | TLB tolerant, High yielding | 120 suckers |

**iii. Constraints/Challenges**

**iv. Recommendation**

1. More engagement be done on rice training
2. Legume crops will be included in distribution to the sites
3. TRICOT vegetable research will be conducted in the site.

**(2) Oriomo-Bituri LLG, Western Fly**

South Fly District covers the extensive plains and floodplains south and west of the Fly River, from near Lake Ambuve to the Fly River delta. The south of the district covers plains and floodplains of the Oriomo, Pahoturi, Mai Kussa, Kutubura, Morehead and Bensbach rivers. Average rainfall ranges from 1500 mm on the south, to 2200 mm around Suki. There is long dry season in the entire district drought was experienced in 1997, 2012 and 2016. Altitude varies from sea level to 100 m northeast of Wipim.

There are no road access and people in the south between the Oriomo and Pahoturi rivers require less than four hours’ travel to reach Daru by boat. Agriculture is entirely rain-fed. Income are low in the Morehead area and on the south coast between the Oriomo and Pahoturi rivers, and are derived from sales of fresh food, fish and rubber. Wipim and Kondubol areas earn very low incomes from minor sales of fresh food, fish, rubber, betel nut and crocodile.

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. To introduce NARI released food crops, such as cassava, taro, yam, banana, sweet potato and others
2. To learn about rice production, harvesting and milling and;
3. To do research & demonstrations on different ways of keeping wild animals out of gardens.

**ii. Achievement**

1. Crop demonstration plots for bulking and distribution has been established
2. Farmer trainings have been conducted on crop sanitation practices and best management. This is especially for the root tuber and banana crops.
3. Crops have been distributed to farmers who have been urged to further multiply and distribute.

**iii. Constraints/Challenges**

1. Lack of good staffing capacity at SRC is causing a lot of constraint to the project
2. Remoteness of the location means there are many challenging encounters.

**iv. Recommendation**

1. TRICOT diversity vegetable kit has to be brought to the site communities and farmers help evaluate and adopt vegetables into family diet.
2. Legumes crops will be introduced and used as food, as cover-crops and green manure.
3. Continued multiplication of seeds stock should be done on station to send to the sites.
4. African yam is an important drought coping technology that should be brought sites in in some good quantities.
5. Effort may be put into soil fertility and soil moisture conservation and utilization.
6. Rice training and distribution of seeds should be given more emphasis in the months ahead.
7. Research ideas should be an action item on yam and taro as noted in the interventions identified.

**(3) Rigo Coast LLG, Central Province**

Rigo Coast Rural LLG and its villages are located on the coast and coastal flood plains and valleys behind Kwikila and are vulnerable to unpredictable weather patterns (wet & dry periods) and cyclones and Rigo Coast experienced droughts in 1997, 2012 and 2016. Rigo Coast is accessible by road and sea transport. Agriculture is entirely rain-fed. Income from agriculture is low on the coastal plains and are derived from sale of fish, betel nut and fresh food. However, many people commute daily to Port Moresby and this provides them with a source of non-agricultural income.

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Improving current livestock production and management system (Village Chicken, Ducks and Local Pigs)
2. Improving the staple crop (Banana, Cassava, Yam & Sweet Potato) production;
3. Improving soil moisture conservation and water harvesting

**ii. Achievement**

1. Crop demonstration plots for bulking and distribution has been established
2. Farmer trainings have been conducted on crop sanitation practices and best management
3. Crops have been distributed to farmers who have been urged to further multiply and distribute.
4. Farmers took a lot more interest in sanitization of planting materials.

**iii. Constraints/Challenges**

1. Lack of good staffing capacity at SRC is causing constraint to the project implementation.
2. Remoteness of the location means there are many challenging encounters

**iv. Recommendation**

1. TRICOT diversity vegetable kit has to be brought to the site communities and farmers help evaluate and adopt vegetables into family diet.
2. Legumes crops will be introduced and used as food, as cover-crops and green manure.
3. More effort may be put into soil fertility and soil moisture conservation and utilization.
4. Appropriate technologies on water harvesting should be demonstrated.

**(4) Lakekamu – Titikaini LLG, Gulf Province**

Kerema District is in the east of the province and covers the Albert and Staniforth ranges and the large inland plains and swamps of the Tauri and Lakekamu rivers. Average annual rainfall ranges from 1300mm near Kerema to over 3600mm in the Ivori Valley. There are long dry seasons on the coast east of Kerema. Altitude varieties from sea level to over 2700 m on the Morton Peaks north of Kaintiba. Kerema is vulnerable to unpredictable weather patterns (wet & dry periods) and Kakoro – Titikaini areas experienced droughts in 1997, 2012 and 2016. There is a road from Kerema to Port Moresby but the inland areas have no road access and only use the Tauri and Lakekamu rivers to reach Malalaua station and the road to Kerema and Port Moresby. Agriculture is entirely rain-fed. People on the coast around Iokea have high incomes derived from the sales of betel nut and fresh food in Port Moresby market. People from around Kerema and Lakekamu Valley earn low to moderate incomes from the sales of fresh food, betel nut and fish.

**2.3. Pilot site activities for Lakekamu – Titikaini LLG**

**i. Site-specific interventions**

The important interventions, strategies and areas of research identified were:

1. Improving livestock production and management system (village chicken, ducks and local pigs);
2. Learning about rice production, harvesting, and milling;
3. To do research on pest & diseases of yam and taro for improved and increased production.

**ii. Achievement**

1. Farmers are very much appreciative of the NARI released cassava distributed during the first contact to the site. The varieties had acceptable taste preferences with cassava being an important staple crop.
2. Crop demonstration plots for bulking and distribution has been established
3. Farmer trainings have been conducted on crop sanitation practices and best management. This is especially for the root tuber and banana crops.
4. Rapid multiplication of root tuber and banana crops was demonstrated. Yam mini-sett was a very new technique.
5. Crops have been distributed in huge volume to farmers. They have been urged to further multiply and distribute.

**Table 8. Total number of planting materials distributed to the sites in Lakekemu -Titikaini LLG during training visit in November 2019**

|  |  |  |  |
| --- | --- | --- | --- |
| # | Crop & number of cultivars | Crop attribute | Vol./Qty |
| 1 | Sweet potato (4 varieties) | High yielding, Early maturing, High dry matter, Orange flesh | 1000 |
| 2 | Cassava (3 varieties) | Drought tolerant, Low cyanide | 400 |
| 3 | Taro (2 varieties) | TLB tolerant, High yielding | 400 |
| 4 | Corn | OP (yellow) | 1kg |

**iii. Constraints/Challenges**

1. Lack of staff capacity at SRC presents challenge in execution of the activities and managed carefully
2. Remoteness of the location means there are many challenging encounters.

**iv. Recommendation**

1. TRICOT diversity vegetable kit has to be brought to the site communities and farmers help evaluate and adopt vegetables into family diet.
2. Legumes crops will be introduced and used as food, as cover-crops and green manure.
3. Continued multiplication of seeds stock should be done on station to send to the sites.
4. African yam should be continually delivered to the site. There is a huge interest among farming households.
5. African yam is an important drought coping technology that should be brought sites in some good quantities.
6. Effort may be put into soil fertility and soil moisture conservation and utilization.
7. Rice training and distribution of seeds should be given more emphasis in the months ahead.
8. Research ideas should be an action item on yam and taro as noted in the interventions identified.

**Annexes: Selected Photo Gallery**

|  |  |
| --- | --- |
| **IMG_0322.JPG** | **IMG_0495.JPG** |
| **Plate 1. Farmers attending to sweet potato foundation seed garden in Teptep** | **Plate 2. Pig silage demonstration in Teptep** |
| **IMG_0366.JPG** | **IMG_0603.JPG** |
| **Plate 3. Food processing training in Teptep** | **Plate 4. Champion Farmer Mr. Ano Darkop explaining legume crop cover and it importance in Teptep** |

|  |  |
| --- | --- |
| IMG_3109.JPG | IMG_3173.JPG |
| **Plate 5. Delivery of planting materials to Nambawan Bris village Kome LLG, Menyamya** | **Plate 6. Presentation of Hand mill for food processing to Champion farmer at Kome, Menyamya** |
| IMG_3649.JPG | IMG_3657.JPG |
| **Palte 7. African under maturity at Watut** | **Plate 8. Sweetpotato and cassava multiplication at Watut** |