Final Component Report

Component/ Expected Project Result:	**Crop Improvement Component**

1. Achievement of the planned output and milestones and include outputs not achieved and why?

The description of the achievements for all outputs and corresponding milestones is done by project site as listed below.

1.1 Selected PNG sites

Hisiu and Yule Island			
O4	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Hisiu and Yule Island communities**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Baseline data collected, interested farmers and suitable sites for sweetpotato on-farm demonstration plots identified	Sep-13	Jun-14
M2	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Dec-14	Dec-14
M3	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-15	Mar-15
M4	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest of early maturing varieties	May-15	July-15
M6	Farmer-preferred SP varieties disseminated in the community to interested farmers	May-15	July-15

Activities for **M1** for all sites at Hisiu and Yule Island were dependent on identification of appropriate sweetpotato varieties for soil moisture deficit for the lowlands sites from the results of the Bubia on-station screening work. The sweetpotato germplasm assembled at Bubia was subjected to a screening and grouping for time to maturity or phenology grouping work. The early maturing group of varieties was subjected screening for tolerance to soil moisture stress. The sweetpotato varieties were also subjected to Enzyme-linked Immunosorbent Assay (ELISA) screening for known viruses after which the varieties free of known viruses were multiplied at and Bubia **M2** and transported to the site for the planting in the on-farm demonstration plots at selected sites in Hisiu and Yule Island **M3**. At harvest planting material from the demonstration plots were distributed **M4&M6**.

MURUKANAM			
O5	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Murukanam community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Sufficient drought tolerant SP planting material (cuttings) generated from on-station evaluation.	Dec-14	Dec -14
M2	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-15	March -15
M3	Participatory evaluation of selection and evaluation of varieties and practices conducted with participating farmers at Harvest.	May-15	July 2015
M5	Farmer-preferred SP varieties disseminated in the community to interested farmers	May-15	July 2015

Sweetpotato germplasm assembled at Bubia was grouped into phenology grouping screened for known viruses, bulked and planting material planted in the 3 on-farm trials in Murukanam **M1** & **M2**. Participatory evaluation of the varieties was done at harvest **M3** and planting materials distributed to other farmers **M5**.

MURUKANAM			
O6	**Farmer preferred Taro varieties identified and available to the Murukanam community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Interested Farmers or community groups identified and baseline established and base line data collected	1-Aug-13	Sep-13
M2	First evaluation trials established in farmers field and maintained	1-Oct-13	Nov-13
M5	Participatory evaluation and selection of taro varieties conducted with participating farmers/groups at harvest	Apr-14	Jun-14
M6	Second evaluation trial with promising hybrid taro accessions established and maintained	Feb-15	Mar-16
M9	Participatory evaluation and selection of taro varieties conducted with participating farmers/groups at harvest	Apr-15	
M10	Farmer-selected Taro accessions disseminated in the Murukanam Community	Apr 15	

The 34 taro varieties were assembled at Bubia in Lae and while planting material for the on-farm trials were being multiplied, interested members of selected communities were selected **M1** for the participatory evaluation and selection of the taro varieties. Two lots of on-farm demonstration plots were planted **M2** & **M6,** however only one was facilitated**.** The **M6** activity was to have utilized hybrid and was rescheduled to 2016. A participatory evaluation and selection activities implemented **M5** was successfully implemented concurrently with further distribution of the farmer preferred taro varieties **M10** was conducted.

DERIN			
O3	**Farmer-preferred excess moisture tolerant sweetpotato varieties identified and available to the Derin community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Sufficient planting of excess moisture tolerant SP planting material (cuttings) generated from on-station evaluation.	Dec-14	Dec-14
M2	Demonstration trial comparing excess moisture tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-15	March-15
M3	Participatory evaluation of selection and evaluation of varieties and practices conducted with participating farmers at Harvest.	May-15	July-15
M5	Farmer-preferred SP varieties disseminated in the community to interested farmers	May-15	July-15

M2 was delayed due to the slow start after the 2014/2015 festive season. M1, M3 and M5 were successfully implemented to plan.

DERIN			
O4	**Farmer preferred Taro varieties identified and available to the Derin community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Interested Farmers or community groups identified and baseline established and base line data collected	Aug-13	Sep-13
M2	First evaluation trials established in farmers field and maintained	Oct 13	Nov-13
M5	Participatory evaluation and selection of taro varieties conducted with participating farmers/groups at harvest	Apr-14	Jun-14
M6	Evaluation trial with promising hybrid taro accessions established and maintained	Rescheduled to 2016	Mar-16
M9	Participatory evaluation and selection of taro varieties conducted with participating farmers/groups at harvest	Rescheduled to 2016	
M10	Farmer-selected Taro accessions disseminated in the Derin Community (target???)	To be rescheduled	

		for 2016	

M1, M2 and M3 were successfully facilitated. This was made possible with the use of varieties assembled at Bubia from South Pacific Community, Fiji. Activities M6, M9 and M10 were rescheduled to later dates owing to hybrid taro planting material not available and lack of capacity.

KOPAFO			
O6	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Kopafo community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Jul-13	Feb-14
M2	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Aug-13	Feb-14
M4	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest of early maturing varieties	Sept-13	July-14
M6	Farmer-preferred SP varieties disseminated in the community to interested farmers	Mar-14	July-14

All activities M1, M2, M4 and M6 were successfully implemented. This was due to the availability of the appropriate sweetpotato varieties in NARI Aiyura from previous sweetpotato project on commercial varieties for use in the mid-altitude highlands with soil moisture deficit condition. Besides, there were new cadet intakes by NARI who had some time to facilitate these activities.

TAMBUL			
O7	**Farmer-preferred excess moisture tolerant sweetpotato varieties identified and made available to the Alkena/Kerepia communities**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Establishing base line data through a rapid assessment on the number of SP varieties and other related information on SP production and utilization.	Sep-13	Aug-13
M2	Sufficient planting material of Excess Moisture tolerant SP varieties (on-station evaluation) in form of cuttings generated	Jul-14	Nov-13
M3	Demonstration trial comparing Excess Moisture tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Aug-14	Jan-14
M5	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest of early maturing varieties	Jan-15	May-15
M6	Bulking plots established in the community as e.g. an example of a community gene bank?) using best-practice in bulking practices	Apr-15	May-15
M7	Farmer-preferred SP varieties disseminated in the community to interested farmers	Apr-15	May-15

All activities M1, M2, M3, M5, M6 and M7 were successfully implemented. This is due to appropriate sweetpotato varieties, cleaned of known viruses made readily available at NARI Aiyura from previous sweetpotato project on commercial varieties for use in the high altitude highlands in excess soil moisture condition.

1.2. Pilot sites in Solomon Island

ARULIGHO			
O1	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Aruligho community**		
Milestones		Expected date of achievement	Actual date of achievement
M 1	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Nov-13	Jan-13
M 2	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-14	Feb-14
M 3	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	May-14	Aug-14
M 5	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Aug 2014 Dec 2014 Apr 2015 Aug 2015 Dec 2015	Aug 2014 Dec 2014
M 6	Virus status of the SP varieties in the field established.	Feb-15	Aug-15
M 7	Generating cleaning materials through sprouts	Apr-15	Aug-15
M 8	Time to maturity of the different SP varieties established.	Sep-15	

Activities **M1**, **M2**, **M3** and **M5** were successfully completed. The known virus infestation status of the sweetpotato varieties **M6** was done after the on-farm demonstration plots and the related activities were completed. This was basically due to non-availability of ELISA kit. Activity **M7** was to run a second round of on-farm trial using the varieties free of known viruses. The on-farm trial was planted and abandoned due the project ending.

HUNDA/KENA			
O2	**Farmer-preferred excess moisture tolerant sweetpotato varieties identified and available to the Hunda / Kena community**		
Milestones		Expected date of achievement	Actual date of achievement

M1	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-14	Jun-14
M2	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	May-14	Sep-14
M3	Bulking plots established in the community using best-practices (to replant every three months)	Jun 2014 Oct 2014 Feb 2015 Jun 2015 Oct 2015	Jan 2015
M4	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Aug 2014 Dec 2014 Apr 2015 Aug 2015 Dec 2015	

Activities **M1**, **M2** and **M3** were completed. However, there was no further distribution of the planting material **M4** due to inconclusive results from the on-farm trial owing to use of planting material from the field and may have high loads of viruses impacting on yield. Beside, the farming system on Hunda/Kena which is mainly under approximately 50% shade also influences the yield of sweetpotato.

BUMA			
O4	**Farmer-preferred excess moisture tolerant sweetpotato varieties identified and available to the Buma community**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jan-14	May-14
M2	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	May-14	Aug-14
M3	Bulking plots established in the community using best-practices (to replant every three months)	Jun 2014 Oct 2014 Feb 2015 Jun 2015 Oct 2015	
M4	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Aug 2014 Dec 2014 Apr 2015 Aug 2015 Dec 2015	Aug-14

Activities **M1**, **M2** and **M4** were completed. Activity **M3** was not implemented owing to the inconclusive harvest results from the on-farm demonstration plots. There was no information on the time to maturity of the varieties used beside the planting material were from field sprouts that is likely to be infected with viruses.

1.3. Pilot Sites in Vanuatu

SIVIRI			
O6	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Siviri communities**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Apr-14	Jul-15
M2	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jun-14	Jul-15
M3	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	Oct-14	Jul-15
M5	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Jan 2015 Apr 2015 Jul 2015 Oct 2015	Jul-15

All activities M1, M2, M3 and M5 were completed. This was made possible by the national staff. Beside the activities were complementing the ongoing national program.

MALAFAU			
O5	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Malafau communities**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Assemble appropriate sweetpotato varieties on-station	Dec-13	2013
M2	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Apr-14	2013
M3	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Jun-14	2013
M4	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	6/10/2014 to 6/07/2015	2013
M6	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Jan 2015 Apr 2015 Jul 2015 Oct 2015	July/August 2014

All activities M1, M2, M3, M4 and M6 were completed. This was made possible by the national staff. Beside the activities were complementing the ongoing national program.

MIDDLEBUSH			
O6	**Farmer-preferred drought tolerant sweetpotato varieties identified and available to the Middlebush communities**		
Milestones		Expected date of achievement	Actual date of achievement
M1	Assemble appropriate sweetpotato varieties on-station	Dec-13	
M2	Sufficient planting material of drought tolerant SP varieties (on-station evaluation) in form of cuttings generated	Sep-14	
M3	Demonstration trial comparing drought tolerant sweetpotato varieties with local varieties and planting techniques established and maintained to harvest	Aug-14	
M4	Participatory evaluation of varieties and practices conducted with participating farmers at Harvest	Dec-14	
M5	Bulking plots established in the community using best-practices (to replant every three months)	Dec-14	
M6	Farmer-preferred SP varieties disseminated in the community to interested farmers (continue distribution to end of project).	Apr-15	

All activities M1, M2, M3, M4, M5 and M6 were completed. This was made possible by the national staff. Beside the activities were complementing the ongoing national program. The period of drought and the Tropical Cyclone Pam influenced both the fast tracking of the activities and the spread of the distribution of the planting materials.

2. Modifications in implementation plans at sites for this component and overall component plan and reasons for modifications

Modification:1 Time to maturity grouping of sweetpotato germplasm in Papua New Guinea

Reasoning: There are three major physiological growth phases in sweetpotato and they at the both above ground and below ground establishment, the storage root initiation and the bulking phases. This development phases are critical under stress condition. Sweetpotato cultivars at short maturity duration synchronies establishment phase with late maturity varieties while the initiation and bulking are delayed in late maturity varieties.

Modification:2 Use of clean of known viruses in PNG and use of root sprouts in SI and Vu.

Reasoning: The tissue culture laboratory in the Solomon Islands was not operational to cater for the use of tissue culture planting material in the on-farm trials. Vanuatu did not opt to receive the infrastructure. The next best option was the use of root sprouts for the on-farm demonstration plots.

Modification:3 Use of tolerant sweetpotato cultivars to excess soil moisture, soil moisture deficit and soil saline conditions from in-vivo screening for on-farm demonstration trials in PNG.

Reasoning: Use of tolerant sweetpotato cultivars to soil moisture deficit and soil saline conditions from in-vitro screening was not progressing for the resultant varieties for on-farm demonstration trials in PNG.

3. Achievements for the overall component objectives and results including consolidated indicator information

A summary of component related activities per result category A1 to A4 and A6 for the sweetpotato component is given in this section of the report.

Crop Diversification-SWEETPOTATO			
A1	**Source alternative sweet potato varieties, crops and crop varieties from national and international collections which are tolerant to precipitation excesses or deficits or saline soil conditions**		
MILESTONE		Expected date of achievement	Actual date of achievement
M1	Collection of SP varieties and accessions sourced from different national and international collections assembled at Bubia	Q3-13	Q4-13
M2	Other crops and crops varieties from national and international collections sourced and assembled at Bubia	Q3-13	Q3-13
M3	On-Station screening and selection on good storageroot yield of climate ready SP varieties introduced from CePaCT-SPC	Q3-14	Q4-14
M4	Collection of SP and other crop varieties available for pilot site testing assembled in SI	Q2-14	Q4-14
M5	Collection of SP and other crop varieties available for pilot site testing assembled in Vu	Q2-14	Q4-14
A2	**Screening of indigenous germplasm, locally bred and imported varieties of sweet potato and other crops/crop varieties under simulated conditions (in vivo and in vitro) to assess tolerance to drought, moisture excess and salinity condition , and to identify promising varieties**		
MILESTONE		Expected date of achievement	Actual date of achievement
M1	Tissue culture lab at Bubia operational	Q1-12	Q1-12
M2	Tissue culture lab at SI rehabilitated	Q4 12	N/O
M3	All SP accessions initiated and maintained in TC (Germplasm collections, collections from CePaCT, popular farmer varieties)	Q1 14	Q4 14
M4	Protocols for in vitro screening of SP for drought and salinity standardized	Q2-14	A
M5	Best-bet SP accessions for tolerance to drought identified for in vivo testing	Q2-14	A
M6	Best-bet SP accessions for tolerance to salinity identified for in vivo testing	Q2-14	A
M7	Phenology grouping of PNG SP accessions established	Q4-13	Q1-14
M8	Protocols for screening of SP accessions for drought, excess moisture and salinity established	Q1-14	Q3-14
M9	Best bet SP accessions with tolerance to soil moisture deficit identified for validation at pilot sites	Q3-14	Q4-14
M10	Best bet SP accessions with tolerance to soil moisture excess identified for validation at pilot sites	Q3-14	Q4-14
M11	Best bet SP accessions with tolerance to soil salinity identified for validation at pilot sites	Q4-14	Q4-14
M12	PT popular farmer varieties available for re-distribution	Q3-15	Q2-15
M13	Rainout shelter constructed at Bubia	Q1-15	
A3	**Validation and piloting of sweet potato adaptability to different stresses at pilot sites and introduction of other crops and crop varieties in target communities in PNG, SI and Vu**		
MILESTONE		Expected date of achievement	Actual date of

			achievement
M1	Implementation of pilot site activities completed	Q4 2015	Q4 2015
A4	**Piloting of selected improved cultivation practices for priority staple crops in target communities in PNG, SI, Vu according to expressed needs**		
MILESTONE		Expected date of achievement	Actual date of achievement
M1	Implementation of pilot site activities completed	Q4 2015	Q4 2015
A6	**Assessment of existing mechanisms for provision of quality seed to farming communities in PNG, SI, Vu and recommendations for improvement**		
MILESTONE		Expected date of achievement	Actual date of achievement
M1	Desktop review of seed supply systems in PNG, SI, Vu	Q3-15	
M2	Stakeholder workshop on seed supply systems held in PNG	Q4-15	
M3	Stakeholder workshop on seed supply systems held in SI	Q4-15	
M4	Stakeholder workshop on seed supply systems held in Vu	Q4-15	
M5	Policy brief submitted to relevant Government bodies in PNG, SI, Vu	Q4-15	

A2M2, "Tissue culture laboratory in SI rehabilitated" was not completed and operational, A2M4, 5 & 6 were unsuccessfully implemented due to lack of capacity. A2M13Rainout shelter constructed at Bubia was incomplete also due to lack of capacity. Activity 6 was not implemented due to lack of capacity.

4. Technical Reports and other type of publication

The majority of the publications are trip reports, news letters, posters and the news paper in all PNG, SI and Vu. One scientific poster was presented at scientific conference ISRR in Canberra, Australia. Two publications in scientific journals and two technical reports are still planned.

Source		Reference and title
Newspaper article in PNG (The National), one newspaper article each in SI and Vu		
Articles in NARI Nuis		
Project newsletter articles		
Poster presentations at Morobe Show, NARI Innovations shows		
Survey Report		Wilfred Wau (2013) *Sweetpotato Diseases Survey.*
Cadetship project report		Wilfred Wau (2016) SWEETPOTATO VIRUS DISEASE MANAGEMENT *Papua New Guinea*, NARI cadetship report.
Planned publications	Journal article	Screening of sweetpotato varieties for tolerance to saline soil condition
		Screening of sweetpotato varieties for

		tolerance to excess soil moisture condition
		Screening of sweetpotato varieties for tolerance to soil moisture deficit condition
		Screening of sweetpotato germplasm for phenology grouping
	Technical NARI reports	Protocols for screening of sweetpotato for tolerance to soil moisture deficit condition, saline soil condition and excess soil moisture condition
		Sweetpotato single nod rapid multiplication technique
		Photographic phonotype characterization of sweetpotato germplasm

5. Lessons learnt and relevant or notable observations as part of implementation

There was little knowledge on past and current activities at the pilot project site selection. There were other organizations implementing similar innovations for example increase diversity of staple food crops for food security. Availability of this information would inform on introduction of unique and appropriate improved technologies.

The successful demonstration of improve cultivation techniques for sweetpotato relied on the use of pathogen tested (PT) sweetpotato planting material. The use of improved cultivation practices (i.e. single tip cutting planted horizontally as oppose to more than 3 tip cuttings planted vertically at 45° angle) enhance the effect of the use of clean material.

Implementation that is depending on a chain of actions was challenging. This is especially where modification to initial ideas in the writing stage of the proposal. The sweetpotato component was meant to use hybrid lines for adaption to the stress environs. The change to use of sweetpotato PT material allowed for the use of chain actions that lack capacity to ensure timely implementation of activities to ensure facilitation of the next action.

-

ANNEX 1 Consolidated indicator information for Crop Diversification component (including sweetpotato)

RI 4.1 # of farmers participating in learning activities on the use of improved varieties and cropping practices (yam, potato, rice, SP, breadfruit, cassava, vegetables, wheat)											
pilot site	1. Murkanam	2. Derin	3. Kopafo	4. Tambul	5. Hisiu	6. Aruligho (SI)	7. Hunda/Kena (SI)	8. Buma (SI)	9. Middlebush (Vu)	10. Esema (Vu) (Malafau)	11. Siviri (Vu)
Learning activity 1	Yam mini-sett and nursery Training (3 demo sites)	Taro on-farm trials and participatory evaluation	Value addition to staples (sweet potato and cassava) into food products	Wheat on-farm trial (1 variety) Q2/14	Yam mini-sett and nursery Training (3 demo sites)	On farm Cassava varietal evaluation	Sweetpotato evaluation trial	Yam minisetting and nursery training 1 % 2	Rice varieties (NR1 & 15) On-farm evaluation	On-farm evaluation Cassava	On-farm evaluation Cassava
Total no. of community members	61	4 families	35	8	39	25	n/a	58	21	8	7
no. of male community members	37	n/a	20	4	21(13-Yule & 8-Hisu)	17		11	16	8	6
no. of female community members	24	n/a	15	4	18 (9-Yule & 9-Hisu)	8		47	5	0	1
Leaning activity 2	Yam production technique demonstration trail (3 demo sites)	Taro beetle management training	Yam mini-sett and nursery Training (3 demo sites)	SP on-farm variety trial (Q2/14)	Yam production technique demonstration trail (3 demo sites)	Yam Minisetting, nursery & production systems	Yam minisetting and nursery training	Cassava varietal evaluation on-farm	On-farm evaluation Cassava	On-farm evaluation Yam	On-farm evaluation Yam
Total no. of community members	29	27	30	?	18	25	n/a	58	4	8	7
no. of male community members	22	18	26	?	13	17		9	2	8	6
no. of female community members	7	9	4		5	8		49	2	0	1
Leaning activity 3	Cassava variety evaluation demonstration		Yam production technique demonstration trial (3 demo sites)	Improved clones of PLB tolerant potato (Q4/14)	Rice paddy field development training and demonstration only at Yule Island site	SP planting and Evaluation	Yam participatory evaluation	SP evaluation trial establishment	On-farm evaluation Yam	On-farm evaluation SP	Techniques of planting SP in drought conditions
Total no. of community members	15		18	18	19	12	32	24	2		23
no. of male community members	12		13	18	19	4		6	1		22
no. of female community members	3		5	0	0	8		18	1		1
Leaning activity 4	Taro beetle Management		Cassava variety trial - 3 demonstration sites (Q1/14)	On-farm evaluation of cold tolerant maize	Upland & irrigated rice cultivation practice training at Hisu & Yule Island	**Use of clean sweet potato plantin material**	Cassava on-farm evaluation trial	Yam evaluation at harvest	set up SP demo plots comparing # of vines	On-farm evaluation of yam trial on non-staking; staking & miniset size	
Total no. of community members	27		3 model farmers	3 model farmers	89	12		20	21	3	
no. of male community members	17		3	3	59 (19-Yule & 40-Hisu)	4		6	14	2	
no. of female community members	10		3	3	30 (All Hisu)	8		14	7	1	
Leaning activity 5	Taro On-farm trial and participatory selection		On-farm trial on drought tolerant varieties and use of PT material		Rice pest & disease control training			Cassava field day evaluation	Farmers field day - evaluate and compare each yam treatment (minist/density/non-staking & staking) using # of tuber per planting hole, yield (weight), type of Variety (wailu) & soil type	On-farm evaluation of high and low density of yam	
Total no. of community members	3 families		7		69			67	18	7	
no. of male community	n/a		6		36 (14 - Yule & 22			23	15	6	

ANNEX 1 Consolidated indicator information for Crop Diversification component (including sweetpotato)

members					Hisu)						
no. of female community members	n/a		1		33 (7-Yule & 26-Hisu)			44	3	1	
Leaning activity 6	Yam production technique demonstration trial harvest & farmer Field Day.				Cassava variety on farm evaluation trails (4 demo sites)			Time to maturity trial	Hands-on training on setting up a rice trial plot using recommended planting technique		
Total no. of community members	111				58			4	17		
no. of male community members	71				40			0	10		
no. of female community members	40				18			4	7		
Leaning activity 7					Farmers trying out Yam rotundata				Hands-on training on setting up a rice trial plot using recommended planting technique		
Total no. of community members					3				24		
no. of male community members					2				19		
no. of female community members					1				5		
Leaning activity 8					Vegetable production						
Total no. of community members					5						
no. of male community members					4						
no. of female community members					1						
Leaning activity 9					Rice Post harvest training						
Total no. of community members					15						
no. of male community members					9						
no. of female community members					6						
RI 4.2 # and list of names of improved varieties, new crops and type of improved practices selected by >50% of participating farmers as appropriate for adoption into respective systems based on three priority criteria											
pilot site	1. Murkanam	2. Derin	3. Kopafo	4. Tambul	5. Hisiu	6. Arulígho (SI)	7. Hunda/Kena (SI)	8. Buma (SI)	9. Middlebush (Vu)	10. Esema (Vu)	11. Siviri (Vu)
1. Type of crop intervention (crop variety, crop species, crop practice)	Taro	Taro	Cassava flour, cassava starch, dried sweet potato and cassava chips	LB resistant potato varieties		sweetpotato varieties	Sweetpotato	10 Sweetpotato cultivars	Yam	Yam varieties	
List of accession names/nos.	top rated: NT02, BL/SM/136 (dry conditions), BL/SM/148; but farmer will keep most other accessions for further evaluation	top rated: NT01, NT01, Numkowe, BL/SM/148 but farmers will keep most other accessions for further evaluation;	n/a	Sequia (common var); NP1, NP3, NP4		1. treating of planting materials 2. one vine per mound 3. evaluation of different varieties **SP Varieties:** Kaulogu, vekeoli, Tangarare, Vona vona, Nambo, LD02, Aruligho white, Aruligho purple	Tangarare, Kaulogu, LD02, Buma Pepol, Vekeoli, Nambo, Vona vona, maruana, tumanisi	Tangarare, Kaulogu, LD02, Buma Pepol, Vekeoli, Nambo, vona vona, Rabaul 36	Name of yam varieties - Wailu	soft yam/rotundata/wailu	

ANNEX 1 Consolidated indicator information for Crop Diversification component (including sweetpotato)

		some kept as suitable for swamp cultivation									
major criteria (3 most important)	growth form, corm shape, corm size, taste (overall, acridity); some tolerance to dry conditions	growth form, corm shape, corm size, taste (overall, acridity)	Ease of processing; not requiring expensive equipment; products can be stored and used long after the harvest season.	(1) reduced LB infection, (2) yield or weight, (3) uniform growth		1. High yielding 2. pest&disease resistant 3. early maturing	High yielding, early maturing and good taste	High yielding, early maturing and good taste	yield (weight) per treatment; # of tubers per hole & type of treatment used that is non-staking/density/miniset size	High yielding/growth preformance on local conditions/type of technology adopted	
2. Type of crop intervention (crop variety, crop species, crop practice)	improved yam practices (Q4/14)			Wheat varieties		Cassava	Yam	Yam	Rice	Low & High density of Yam. Name of yam is Wailu	
List of accession names/nos.	The yam cultivation practice of using large mini-sett size and planted at low density with staking was selected by the farmers as best practice for Murukanam.			5 varieties (Qianmai, 4 others)		Cassava planting training 1. MAL/SPC – 01 2. MAL/SPC – 02 3. MAL/SPC – 03 4. MAL/SPC – 04 5. MAL/SPC – 05 6. MAL/Local	1. Plant density trail - Mini-sett nursery (*D. rotundata*) 2. Yam staking trail - Mini-sett nursery (D. rotundata 3. Yam mini-sett size trail - Mini-sett nursery (D. rotundata)	1. Plant density trail - Mini-sett nursery (*D. rotundata*) 2. Yam staking trail - Mini-sett nursery (D. rotundata 3. Yam mini-sett size trail - Mini-sett nursery (D. rotundata)	type of production - upland practices; NARI 1 & 15 rice varities	High yielding/growth preformance on local conditions/type of technology adopted	
major criteria (3 most important)				(1) high yielding (2) locally available (3) easy to sow		High yielding, early maturing and good taste	resist common yam disease, large tubers, white flesh	resist common yam disease, large tubers, white flesh	yield/growth rate/resilient		
3. Type of crop intervention (crop variety, crop species, crop practice)	Yam production technology			Maize varieties		**Yam**	Cassava	Yam			
List of accession names/nos.; crop practice				Lufa, V15, V16		1. Plant density trail - Mini-sett nursery (*D. rotundata*) 2. Yam staking trail - Mini-sett nursery (D. rotundata 3. Yam mini-sett size trail - Mini-sett nursery (D. rotundata)	Cassava varietal evaluation with 8 varieties 1. MAL/SPC – 01 2. MAL/SPC – 02 3. MAL/SPC – 03 4. MAL/SPC – 04 5. MAL/SPC – 05 6. MAL/Local	1. Strip muching of yam production 2. No muching (Control)			
major criteria (3 most important)				n/a		Large tubers, White flesh	High yield, white or yellow flesh, disease and pest resistant and taste good	high yields			
4. Type of crop intervention (crop variety, crop species, crop practice)						sweetpotato varieties		Cassava			
List of accession names/nos.; crop practice						Bakua, Maruana, LD02, Aruligho white, Aruligho Purple, Spade, Tumanis,		Cassava varietal evaluation with 8 varieties 1. MAL/SPC – 01			

ANNEX 1 Consolidated indicator information for Crop Diversification component (including sweetpotato)

						Nambo, Ranoga White		2. MAL/SPC – 02 3. MAL/SPC – 03 4. MAL/SPC – 04 5. MAL/SPC – 05 6. MAL/Local			
major criteria (3 most important)						**Virus-free**		, large stems, white or yellow flesh, disease and pest resistant			
5. Type of crop intervention (crop variety, crop species, crop practice)								sweetpotato varieties			
List of accession names/nos.; crop practice								Bakua, Maruana, LD02, Aruligho white, Aruligho Purple, Spade, Tumanis, Nambo, Ranoga White			
major criteria (3 most important)								Virus free			
RI 4.3 # of planting material units (Yam, SP, Taro, rice, corn, wheat, potato, cassava, vegetables) distributed to # of primary and secondary users (within or in surrounding communities) against target											
pilot site	1. Murkanam	2. Derin	3. Kopafo	4. Tambul	5. Hisiu	6. Aruligho (SI)	7. Hunda/Kena (SI)	8. Buma (SI)	9. Middlebush (Vu)	10. Esema (Vu)	11. Siviri (Vu)
1. Crop species	Taro		Cassava		Cassava	cassava	Cassava	cassava	Yam (wailu)	Cassava	Cassava
no. of units target/actual	102	102	10var x 10 cuttings =100		10var x 10 cuttings =100	> 144 cassava cuttings have been distributed to > 3 farmers	10var x 10 cuttings =100	180 cuttings	21	10var x 10 cuttings =100	10var x 10 cuttings =100
no. primary users	3	4	3		6	3	3	4	5	1	1
no. secondary users	5	5				8		23			
2. Crop species	Yam (*D. rotundata*)		Yam (*D. rotundata*)		Yam (*D. rotundata*)	Yam (*D. rotundata*)	Yam (*D. rotundata*)	Yam (*D. rotundata*)	Rice	Yam (*D. rotundata*)	Yam (*D. rotundata*)
no. of units target/actual	690 minisetts		690 minisetts		240 minisetts	750 plantlets	750	1050 plantlets		690 minisetts	690 minisetts
no. primary users	3		3		2	3	12	17	47	1	1
no. secondary users						> 20					
3. Crop species			SP		Rice	sweetpotato	Sweetpotato	Sweetpotato		Yam (D.rotundata and wailu)	sweetpotato
no. of units target/actual			8var X 10cuttings		20kg of seeds	192	128	240		500	3217
no. primary users			6		3	3	6	3		7	33
no. secondary users											26
4. Crop species						sweetpotato		sweetpotato			
no. of units target/actual						231		231			
no. primary users						3		4			

ANNEX 1 Consolidated indicator information for Crop Diversification component (including sweetpotato)