



Empowering New Generations to Improve Nutrition and Economic opportunities (ENGINE), Livelihood & Economic Strengthening Sub-Component

Assessment of the performance of FTCs and School Gardens supported by ENGINE to undertake Demonstrations (agronomic & cooking practices) in the previous two years of the project (2011/12 & 2012/13)

**March 2014
Addis Ababa**



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Acronyms

AGP –Agricultural Growth Project

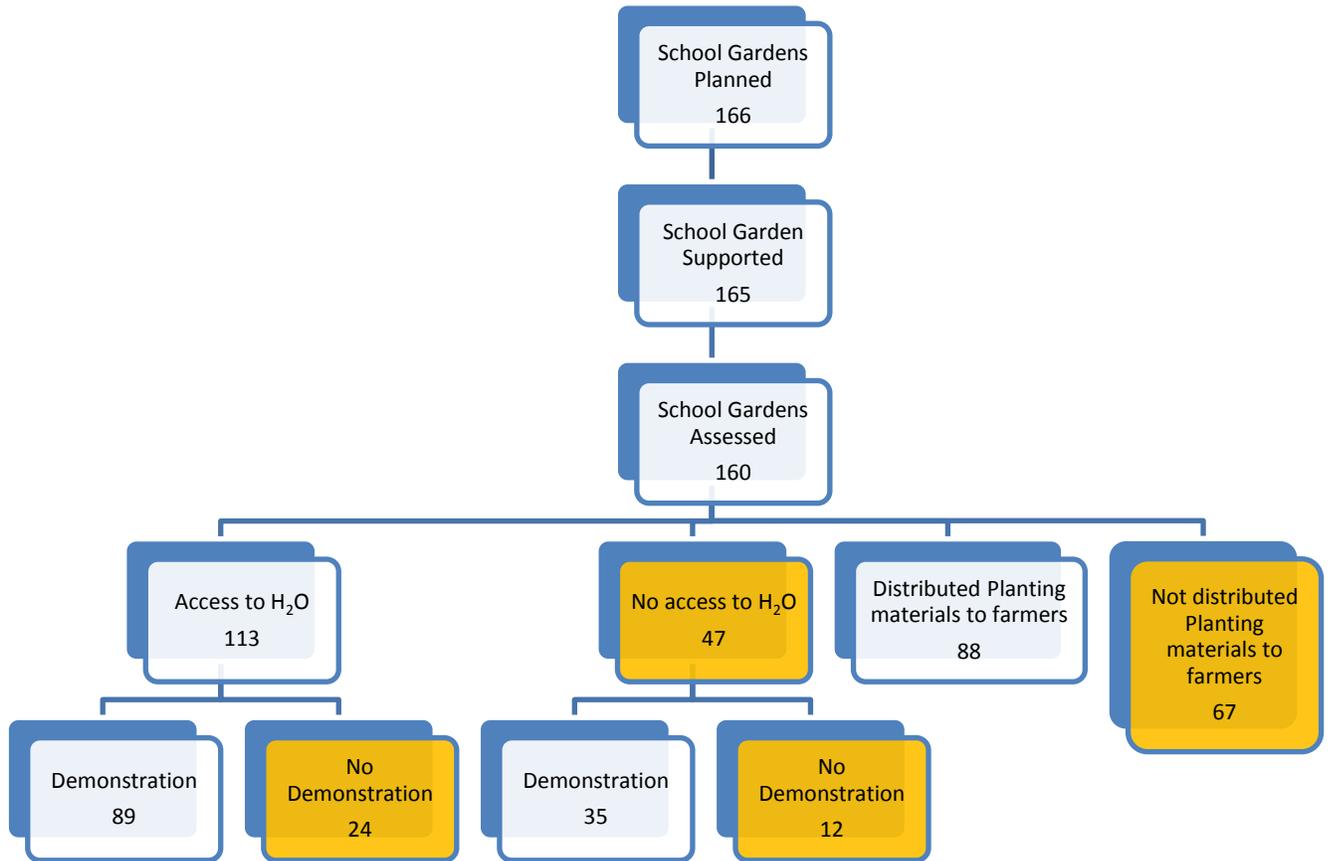
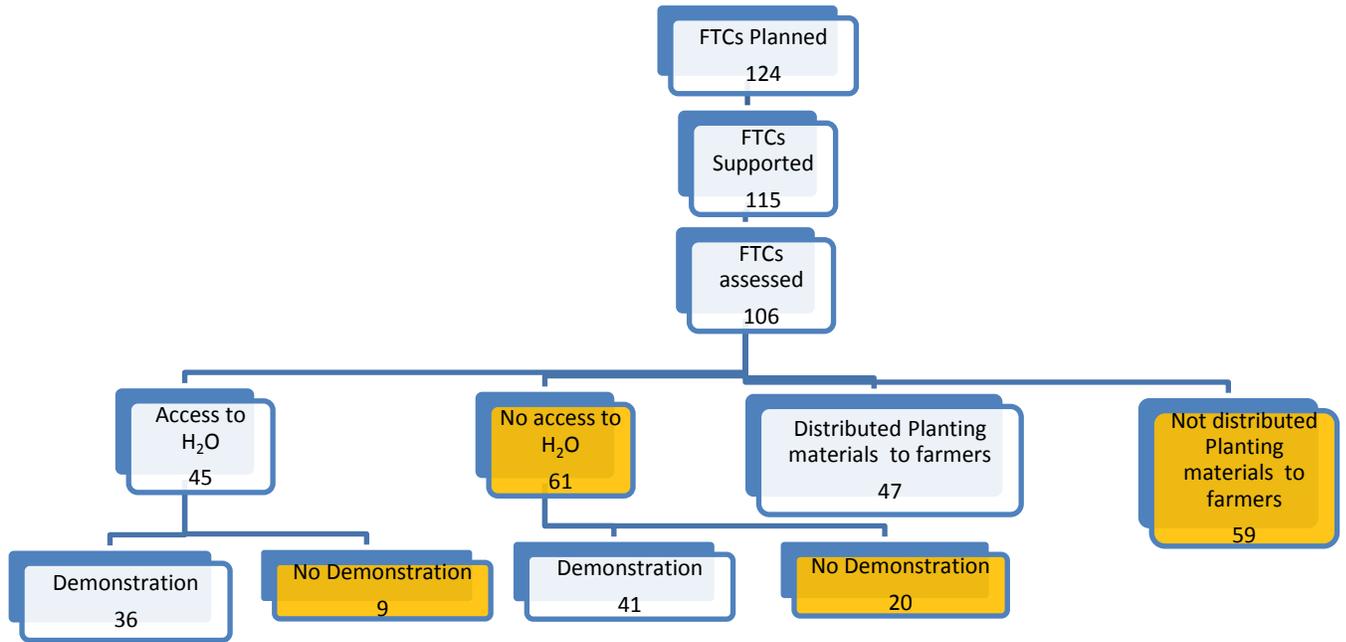
ENGINE Empowering New Generations to Improve Nutrition and Economic Opportunities

ETB Ethiopian birr

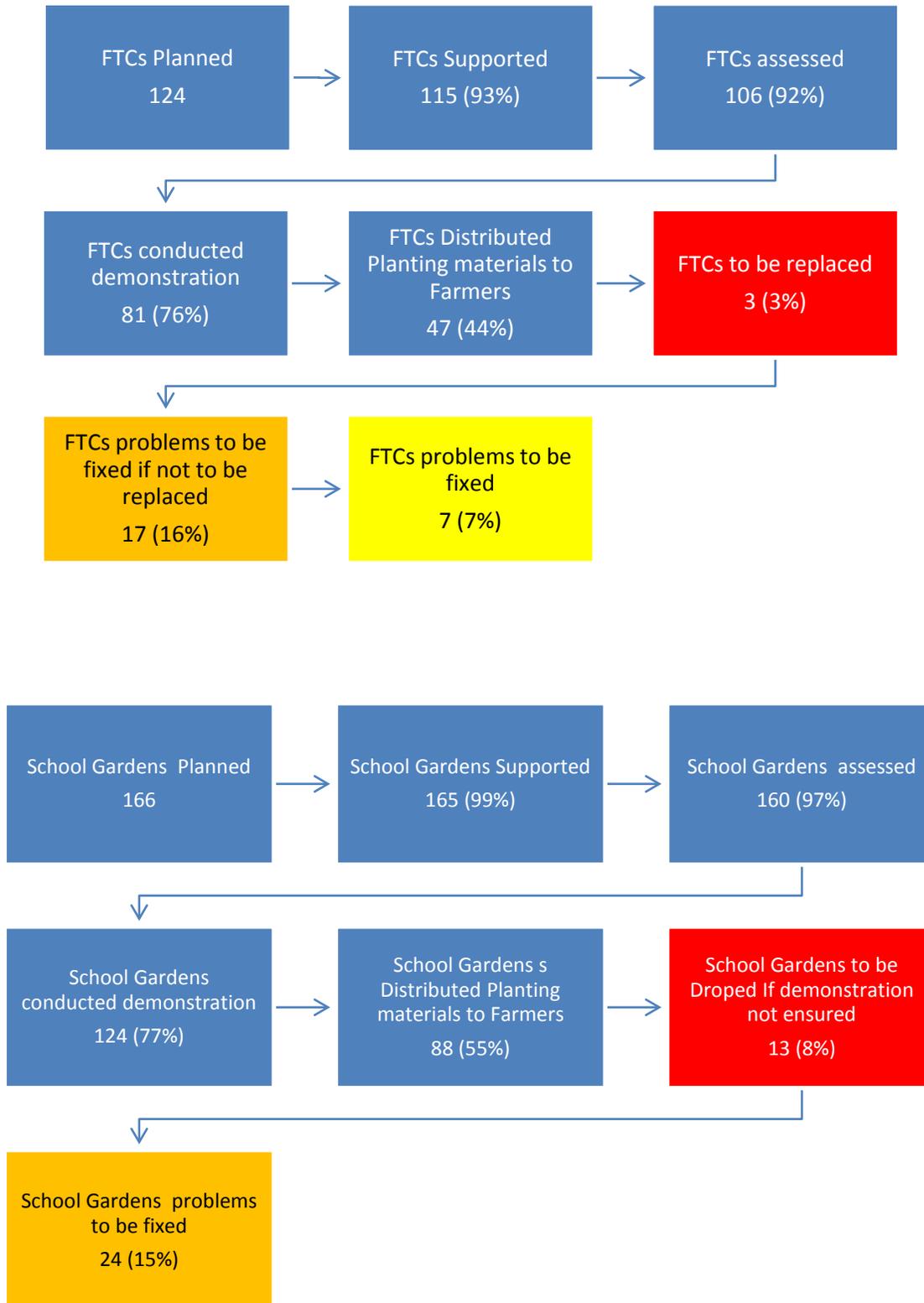
FTC Farmers Training Centre

SNNP Southern Nations Nationalities and People

Pictorial Presentation of Summary of FTCs and School Gardens Assessment Report



Recommended ACTIONS based on the Assessments



Introduction

The livelihood and economic strengthening component of ENGINE aims at improving the dietary diversity of targeted most vulnerable smallholder farmers and the wider community in the project woredas through consumption and income pathways. The project provides vegetable and fruits planting materials based on their nutrition facts, basic farm hand tools and productive livestock to the targeted most vulnerable households and uses FTC farm plots and school gardens as a demonstration sites on the agronomic and cooking practices of vegetables and fruits to reach the wider community in order to impact on nutrition. Accordingly the livelihood component of the program has planned to support 124 FTCs and 166 schools and actually supported 115 and 166 respectively since 2011 cropping season (Table I). This assessment is conducted in 106 FTCs and 160 schools in ENGINE intervention woredas of the four program regions namely: SNNP, Oromia (East & West), Amhara and Tigray.

Table I: Number of FTCs Planned for ENGINE Support in year 1&2 and covered for Assessment

Field Office	# Of FTCs Planned			# of FTCs Covered	Balance
	Year 1	Year 2	Total		
(1)	(2)	(3)	(4)	(5)	(6)= (4)-(5)
Amhara	22	11	33	30	-3
SNNP	18	10	28	24	-4
E/Oromia	16	8	24	21	-3
W/Oromia	18	9	27	20	-7
Tigray	8	4	12	11	-1
Total	82	42	124	106	18

Objectives of the assessment

- To identify areas of weaknesses of some FTCs and schools which failed to carry out the intended demonstration activities as required during the last two program years and to support certain FTCs and schools selectively if improvement in their activities is believed to be achievable provided the required assistance is rendered;
- To substitute some FTCs with new ones and drop some schools if the FTCs and schools are believed to be entirely incapable to undertake demonstrations to the wider communities in the coming years;
- To determine which schools and FTCs can be self-sufficient in accessing planting materials and sustain the demonstrations, while still benefiting from technical assistance and;
- To address the challenges faced so far and promote lessons learned.

Method of data collection and analysis

Livelihood Zonal Coordinators collected data from 106 FTCs and 163 schools using structured questionnaires developed by the livelihood team of ENGINE at the country office. The respective regional and zonal livelihood coordinators are held responsible and accountable for the authenticity of the raw data while the country office livelihood team are accountable for the data analysis and interpretation.

Following the data collection, data editing and coding was done before data entry was carried out. The edited data was then entered into a computer for analysis. Computer software called Statistical Package for Social Sciences (SPSS) was used to analyze the data. Some internal consistency checks were done to assess the data quality before the actual analysis work started. Descriptive statistics: tables were used to present the findings.

Findings of the Assessment

I. Farmers Training Centres (FTCs)

As a rule of thumb, each rural kebele is supposed to have one farmers training centre intended to be used for improved agricultural technologies transfer through training and demonstrations to the rural communities. The FTCs are jointly managed by the woreda office of agriculture and the kebele administration. To reach and address the wider rural communities, ENGINE has used the FTCs in its project woredas as an entry point and provides material, financial and technical support to selected FTCs to promote diversification of agricultural production through demonstration with due emphasis on vegetables and fruits. ENGINE can be considered a pioneer in initiating demonstration and promoting vegetable and fruits production in most of the FTCs where it operates. An attempt is made to assess the performance of FTCs as follows.

I.1. Access to water for irrigation

As indicated on Table 2 below, out of the 106 FTCs where data was collected for this assessment, 45 FTCs or 42% are found to have access to water sources for irrigation. The remaining 62 FTCs or 58%, on the other hand, are known to lack any kind of water source for irrigation. As access to water creates an opportunity for off season cultivation of the crops under consideration it is unfortunate that 58% of the FTCs selected and supported by ENGINE to undertake demonstrations at least two times per year do not have access to water sources for irrigation. It is believed that these FTCs must not be selected for ENGINE support right from the outset as “Availability of water for irrigation” was and still remains the major criterion to select FTC for ENGINE support. Nevertheless if the FTCs in the woreda do not

have access to water and crop cultivation during the rainy season is the last option conducting demonstrations should be ensured at any cost.

Table 2: Number of FTCs which have access to water for irrigation by regions

Region	Number of FTC with access to water for irrigation				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	11	37	19	63.	30
East Oromia	7	33	14	67	21
SNNPR	12	50	12	50	24
Tigray	7	64	4	36	11
West Oromia	8	40	12	60	20
Total	45	42	61	58	106

1.2. Suitability of soil and slope of FTCs for the production of vegetables and fruits

Suitability of soil and slope of FTCs is one of the major criteria to select FTCs for ENGINE support. As depicted on Table3 below, out of the total 106 FTCs assessed, 99 FTCs or 93% are found to possess favorable soil and slope conditions for cultivation of vegetables and fruits. On the contrary, the soil and slope of 7 FTCs or 7% are identified to be unsuitable for vegetable and fruit productions. Unless the soil of these FTCs is not amendable through soil amendment practices they have to be replaced with other FTCs in the respective woredas.

Table 3: Suitability of soils and slopes of FTCs for vegetables and fruits production by region

Regions	Number of FTCs with soil and slope favorable for the production of vegetables and fruits				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	26	87	4	13	30
East Oromia	20	95	1	5	21
SNNPR	22	92	2	8	24
Tigray	11	100	0	0	11
West Oromia	20	100	0	0	20
Total	99	93	7	7	106

1.3. Fence to protect crops from predatory animals

Fence is not only basic but also vital to protect vegetable and fruit crops grown for demonstrations in the fields of FTCs from predatory animals. Due to this fact, the availability of fence is set to be one of the criterions intended to be employed to select FTCs for ENGINE support. According to the assessment outcomes, out of the 106 FTCs selected for ENGINE support, 75 FTCs or 71% are identified to have proper fence to protect demonstration plots from domestic and wild animals. The remaining 31 FTCs or 29% are without proper fences to protect demonstration plots from predatory animals (Table 4 below). The latter FTCs should not have been selected for ENGINE support unless there were proof or promise from the concerned bodies that the demonstration plots of the FTCs selected would be fenced before or immediately after planting the crops supplied by ENGINE for demonstrations. Though ENGINE has no intention to cover expenses of fencing; as the FTCs are assumed to receive support through Agricultural Growth Project (AGP) of the government as part of capacity building still this possibility has to be explored to the extent of resource mobilization on cost sharing basis.

Table 4: Fence situations of FTCs by region

Region	Number of FTC with proper fence				Total
	Yes		No		
	Number	Percent	Number	Percent	
Amhara	22	73	8	27	30
East Oromia	15	71	6	29	21
SNNPR	9	38	15	62	24
Tigray	9	82	2	20	11
West Oromia	20	100	0	0	20
Total	75	71	31	29	106

1.4. Situations of agronomic and cooking practices demonstration events of FTCs

The objective of ENGINE support to the selected FTCs in the project woredas is to conduct agronomic and cooking practices demonstrations of nutrient dense vegetables and fruit crops as many times as possible per year so as to reach the wider communities with the anticipation that they will adapt the same practices at their homestead. As indicated on Table5 below, out of the 106 FTCs supplied with planting materials of nutrient dense selected vegetable crops, 81 FTCs or 76% had carried out demonstrations during the past two years of the project period. The remaining 25 FTCs or 24% did not, however, conduct neither agronomic nor cooking practice demonstrations events during the period under review. Unless they do have justifiable reasons such as total crop failure this is totally unacceptable from the point of view of the project objectives and hence an urgent and appropriate measure to reverse the situation is deemed necessary in consultation with the government counterpart at all levels.

As per the plan an FTC is expected to carry out two demonstration events per cropping seasons. Based on this assumption year one FTC were expected to undertake a minimum of four demonstration events and year two FTCs were also expected to conduct two demonstration events in the last two years of the project period. According to the assessment results, out of the 81 FTCs, mentioned below, which carried out demonstrations, 23 FTCs and 10 FTCs have conducted agronomic and cooking practices demonstration two times respectively in the previous two years of the project period (Table 6) . In terms of frequency the overall performance of demonstration events are found to about 52% (185 events out of the planned 358 events).

Table 5: FTCs agronomic and cooking practices demonstration situations by region

Region	Number of FTCs those conducted Demonstrations to farmers in the year/s the FTC received support from ENGINE				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	20	67	10	33	30
East Oromia	19	90	2	10	21
SNNPR	15	63	9	37	24
Tigray	9	80	2	20	11
West Oromia	18	90	2	10	20
Total	81	76	25	24	106

Moreover, it was found out from the assessment that the frequency of agronomic and cooking demonstration conducted in FTCs varies considerably from FTCs to FTCs. As illustrated on Table6 below, out of the 78 FTCs which carried out agronomic and cooking practice demonstrations, 69 FTCs conducted agronomic demonstrations and 54 cooking demonstrations. The frequency of demonstration events conducted by the 69 FTCs are detailed on Table 6which really demands due emphasis to improve the situation so as to achieve the intended objectives. Amhara and SNNPR are the two regions where the performance of demonstration is on the lower side as compared to the rest regions.

Table 6: Number of FTCs which conducted demonstration events by type and number of events by regions

Region	Types of demonstrations conducted		Frequency of agronomic demonstrations events				Frequency of cooking demonstrations events			
	Agronomic	Cooking	One	Two	Three	Four	One	Two	Three	Four
Amhara	19	20	19	0	0	0	18	2	0	0
East Oromia	16	14	4	8	2	2	7	7	0	0
SNNPR	11	14	5	1	2	3	8	1	2	3
Tigray	8	0	1	5	2	0	0	0	0	0
West Oromia	18	8	9	9	0	0	8	0	0	0
Total	72	56	38	23	6	5	41	10	2	3

I.5. Reasons for conducting demonstrations events less than two times by regions

It was planned and communicated to FTCs that each FTC selected for ENGINE support were and still are supposed to undertake a minimum of two demonstrations one of each of agronomic and cooking practices demonstration to the wider communities per cropping season in their respective areas of operation. To know if this plan was not realized in some FTCs, the reasons for not achieving the target were assessed.

As shown on Table7 most of the FTCs have not fulfilled their commitments to conduct one time each of agronomic and cooking practices demonstrations per cropping season as initially planned. The reasons provided for conducting demonstrations less than two times per FTC are numerous. The major reasons are three. These are “busy on other activities” which was given by 21 FTCs or 75%, “shortage of water for irrigation” which was responded by 20 FTCs or 71% and “lack of finance for labor work on the field” which was expressed by 21 FTCs or 75%. The other reasons are “ delay of seed supply at the time of planting”, “poor management of crops”, “DAs were at vocational training during the summer“, damage of crops due to water logging”, lack of required farm tools and “unfavorable soil for vegetable production”.

Some of the reasons given by the FTCs for the failure to conduct demonstrations as planned could be real bottle necks. These include “shortage of water for irrigation”, “soil not suitable for vegetable production “and “water logging which might arise from the type of soil and topography of the land”. These factors must be critically studied by the field offices to make appropriate corrective measures. The rest shortcomings could be corrected through proper planning and management. Therefore the respective field offices have to consult the zonal a woreda office of agriculture and resolve the problems as top priority task and undertake periodical follow-up thereafter.

Table 7: Number of FTCs which mentioned reasons for not conducting demonstration events less than two times by regions

Reasons for conducting demonstration events less than two times a year	Region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Lack of finance for labor work on the field	6	3	7	0	5	21	75
Busy on other activities	6	4	7	2	2	21	75
Shortage of water for irrigation	5	7	5	2	1	20	71
Shortage of planting materials	3	0	1	0	1	5	18
Delay of planting materials distribution	3	0	0	0	0	3	11
Poor commitment of DAs	0	0	3	0	0	3	11
Lack of required farm tools	0	0	2	0	0	2	7
Poor production due to poor management	0	1	1	0	0	2	7

Water logging causing damage to crops	0	1	0	0	0	1	7
soil is not suitable for vegetable production	2	0	0	0	0		7
DAs were busy with tasks assigned by the gov't	0	0	1	0	0	1	4
DAs were at summer education at the time of harvesting	0	0	1	0	0	1	4
Late plantation affecting growth and development of crops	0	1	1	0	0	2	4
Cancelled to avoid redundancy with cooking demo in the nearby school	1	0	0	0	0	1	4

1.6. Kind of support needed by FTCs from the project by region

FTCs were also asked whether they expect support from ENGINE to resolve the obstacles to conduct demonstrations as planned during the current year. As indicated on Table8 below, the major type of support sought from the project are financial support for labor cost and other activities (54%), additional planting materials(36%), technical support and follow up (26%), and cooking demonstration materials support (24%). These and the rest support requirements could be addressed by the project provided the supports needed are within the limit of the budget earmarked for FTCs. The additional planting materials requirement can be entertained so long as it is within the cropping area limit set in the vegetables and fruits production guideline. But if the request for additional planting material is for commercial type of production, this is not neither the scope nor the intention of ENGINE support of FTCs and should not, therefore, be accommodated.

Table 7: Kind of support needed by FTCs by number of FTCs by regions

Kind of support	Region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Financial support for labor cost and other activities	16	14	14	0	14	58	54
Additional planting materials	15	6	7	2	9	39	36
Technical support and follow up	1	16	2	0	9	28	26
Cooking demonstration materials support	6	16	4	0	0	26	24
Training	0	4	6	0	2	12	11
Farm tools	0	1	0	0	0	1	1
Support of equipment for irrigation	0	0	1	0	0	1	1
Support to establish water source for irrigation	0	0	0	1	0	1	1

I.7. Distribution of planting materials to farmers dwelling in the surroundings of FTCs

As illustrated on Table9 below, out of the 106 FTCs assessed, 44% (47 FTCs) have distributed planting materials to communities in the environs of FTCs. This is encouraging and other FTCs should follow this experience to encompass as many farmers as possible in the surroundings and beyond of every FTC supported by ENGINE in the coming years of the program period.

Table 9: Number of FTCs which distributed seedlings and seeds to the farmers in the vicinity by regions

Region	Number of FTC distributed seedlings and seeds to the farmers in the vicinity				Total
	yes		No		
	Number	Percent	Number	Percent	
Amhara	8	27	22	73	30
East Oromia	15	71	6	29	21
SNNPR	17	71	7	29	24
Tigray	0	0	11	100	11
West Oromia	7	35	13	65	20
Total	47	44	59	56	106

I.8. Source of planting materials for the upcoming season production

Source of planting materials for next season production for 89 FTCs who have planned to produce vegetables in the next production season is detailed on Table 10. Accordingly, planting materials saved from previous year (38 %), market (17 %), project grant (85 %) and AGP (4 %) were sources mentioned.

Most of the FTCs (85%) are expecting project support for planting materials but in order to sustain the demonstration the FTCs are expected to save seeds from the previous harvest for crops that they can save seeds and purchase only those seeds that cannot be recycled from the market with the money earned from the sale of the produce. Therefore FTCs has to be advised on the line in terms of seed provision. Efforts made on self-provision of seeds in SNNPR and East Oromia are quite encouraging while Amhara and Tigray has to work on the reorientation of seed provision for the coming production seasons.

Table 10: Source of planting materials mentioned by FTCs for next production season by regions

Region	Saved from the previous year		Market		Project grant		AGP		Total
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Amhara	1	6	1	6	15	88	0	0	17
East Oromia	11	24	10	22	21	52	0	0	42
SNNPR	19	54	2	6	14	40	0	0	35
Tigray	0	0	0	0	9	100	0	0	9
West Oromia	3	12	2	8	17	65	4	15	26
Total	34	38	15	17	76	85	4	4	129

1.9. Amount income obtained from the sale of vegetable produces

Out of 107 FTCs only 45 FTCs have reported on the income obtained from the sales of the produce. As far as the amount of money they obtained from the sale of their produces it ranges from 45 to 4200 ETB, the detail is indicated on Table 11 below.

Table 11: Amount of money obtained by FTCs after selling their produces

Region	Amount of income obtained from the sale of vegetable products (BIRR)			
	45-1000	1001-2000	2001-3000	3001 - 4200
Amhara	11	0	0	0
East Oromia	3	2	4	1
SNNPR	5	5	0	0
Tigray	7	0	0	0
West Oromia	7	0	0	0
Total	33	7	4	1

1.10. Income utilization of FTCs from the sale of vegetable products by region

When the 45 FTCs which reported on the sale of vegetable products were asked what they did with the money obtained from the sale of produces, 20% of the FTCs purchased planting materials for next production, 22% invest in other activities, 24% deposited the money in the bank, 47% paid for labor, 2% purchased materials for cooking demonstration and 20% responded that they deposited the money in places other than bank (kebele, woreda office of agriculture) (Table 12).

Table 12: Income Utilization of FTCs who sold their Excess Produces

Description	Region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Purchased planting materials for next production season	1	3	3	0	2	9	20
Invest in other activity	2	4	2	0	2	10	22
Deposit in the bank	0	2	1	7	1	11	24
Paid for labor	6	3	5	0	7	21	47
Purchased materials for cooking demo	0	0	1	0	0	1	2
Deposit in places other than bank (kebele, woreda office of agriculture)	3	4	2	0	0	9	20

One can estimated that in order to sustain the demonstrations both agronomic and cooking the minimum operating cost for seeds, labor, and demonstration could be around Birr 1500 per cropping season and with minimum efforts this could be generated from the sales of the produce. Therefore the FTCs should be advised that they have to give top priority for the demonstration rather than investing the income generated from the sales of the produce for other activities.

1.1.1. Major challenges faced by FTCs during the previous production season

In order to draw lessons and plan TA for future production, FTCs were asked to mention major challenges they faced during the previous year production. As indicated on Table 13 below, shortage of money to pay for labor, shortage of rainfall/water and pest problems are quite significant in terms of importance. Most of the problems could be addressed through proper planning and in consultation with the respective office of agriculture at zonal and woreda levels.

Table 13: Major Challenges Faced by FTCs during Previous Production season

Major challenges	Region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Shortage of money to pay for labor	22	10	19	5	17	73	68
Shortage of rainfall/water	13	16	16	5	11	61	57
Pest Problem	6	3	9	5	7	30	28
Shortage of farm tools	0	4	10	2	8	24	22
Delay of seed/seedling supply	4	2	1	7	7	21	20

Lack of commitment of DAs and Woreda office of agriculture	13	1	1	1	3	19	18
Predators	1	6	2	4	4	17	16
Marketing	1	9	0	2	3	15	14
Frost	0	11	0	0	1	12	11
Poor management	0	0	7	1	0	8	7
Suitability of the soil for vegetable production	2	0	1	0	0	3	3
Water logging	0	3	0	0	0	3	3
Fencing	1	1	0	0	0	2	2
Theft	0	2	0	0	0	2	2

Summary and Recommendations (FTCs)

To summarize the assessment results and provide insight of the overall situation of FTCs with respect to demonstration activities of the previous two years of the project period, the following combinations of factors are employed. The assessment is intended to help the project management to take appropriate measures to improve areas of weaknesses for satisfactory performances in the remaining years of the project. The combinations of factors are as follows.

- I. FTCs with no access to water for irrigation, unfavourable soil and slope of land for vegetable production and no demonstration conducted.
- II. FTCs with no access to water for irrigation and no demonstration conducted.
- III. FTCs which have access to water for irrigation but did not conduct demonstrations.

I. FTCs with no access to water for irrigation, unfavorable soil and slope of land for vegetable production and no demonstration conducted

As shown on table 14 below, there are three FTCs which were supported by ENGINE to carry out agronomic and cooking practice demonstrations which:

- Lack water for irrigation;
- Lack favourable soil and slope for vegetable and fruit crops production and;
- Did not conduct demonstrations during the last two years of the program period.

The FTCs are two from Amhara region, North Gondar zone of Takusa woreda and one from SNNP region, Benchimaji zone of Shei Bench woreda. It is believed that these FTCs may need to be replaced by other FTCs which meet the required selection criterion preferably in their respective Woredas. The

field offices are, therefore, advised to take appropriate and swift measures to replace these FTCs so as to pursue the demonstration activities as planned in year three. If the possibilities of replacing these FTCs are remote the field offices have to officially drop them from the support of the project and concentrate the demonstration activities at household levels and schools.

Table 14: FTCs which have no access water for irrigation, unfavorable soil and slope, no fence and no demonstrations conducted

Region	Zone	Woreda	FTC	Action
Amhara	N. Gondar	Takusa	Chemera	Replace
			Serako	Replace
SNNPR	Bench maji	Shei Bench	Shewa bench	Replace

II. FTCs with no access to water for irrigation and no demonstration conducted

Sixty two FTCs do not have access to water for irrigation (Table 2) however; as indicated on Table 15 below, there are 20 FTCs that did not conduct demonstrations of any kind in the previous years of the program period. Out of the 20 FTCs 11 do not have proper fencing. These FTCs should have conducted demonstrations for vegetable crops cultivated in the rainy season, as this is a common practice with FTCs which do not have access to water for irrigation. Therefore these FTCs need to be revisited. The reasons for the lack of water for irrigation must be clearly identified and spelled out FTC by FTC. If there is availability of water in or around the respective FTC's and can be exploited they have to explore how to access AGP financial support to get access to water for irrigation in the upcoming seasons. On the contrary, if water is not available in or around the FTCs which can be exploited easily, it would be good to replace these FTCs with others, preferably in their respective project Woredas, which fulfill the selection criterion of the project. If replacement is not found to be feasible they have to ensure to cultivate vegetable crops and conduct demonstrations during the rainy seasons. Dropping out of the FTCs should be the last resort. Field offices are strongly advised to revisit their respective FTCs and take appropriate actions before it is too late.

Table 15: List of FTCs which have no access to water for irrigation and no demonstrations conducted

Region	Zone	Woreda	FTC	Action
Amhara (7)	AWI	Dangila	Jibana*	Fix problems if not replace
		Guangua	Sigadi	Fix problems if not replace
		Jawi	Work Meda*	Fix problems if not replace
	East Gojam	DebreEliase	Yequgate	Fix problems if not replace
		Enemay	Dimma	Fix problems if not replace
	North Shewa	AntsokiaGemza	Yeken	Fix problems if not replace
	East Oromia (2)	East Gojam	Dejene	Work amba
Arsi		Munessa	Shumbulo*	Fix problems if not replace
W/Arsi		Kofale	Wameгнаabosa	Fix problems if not replace
Gurage		Endegagn	Shawera*	Fix problems if not replace
SNNP (5)	Keffa	Decha	Ermo*	Fix problems if not replace
			Kuti*	Fix problems if not replace
	Sidama Silite	Gorche	MuranchoGorche	Fix problems if not replace
		EnemoreEner	Shafamo*	Fix problems if not replace
	Tigray(2)	Western	QaftaHumera	Bereket
Terkan*				Fix problems if not replace
West Oromia (1)	S/ West Shoa	Wenchi	Dimtu	Fix problems if not replace

** FTCs those who do not have proper fencing*

III. FTCs which have access to water for irrigation but did not conduct demonstrations

As illustrated on Table 16 below, there are nine FTCs which have access to water for irrigation but did not conduct demonstrations. Out of nine FTCs four do not have proper fence. It is not anticipated to find out as many as nine FTCs which have access to irrigation water but unable to carry out a single demonstration in the previous two years of the program period. These need to be discussed with the zonal and woreda office of agriculture and reasons are identified and thereafter fixed without any delay. If some of these FTCs are not interested to conduct demonstrations, it will be good to replace them

with other FTCs which will be eager to undertake the assignment. The new FTCs to be selected should, however, fulfill the selection criterion of ENGINE.

With respect to fencing, AGP could be approached to cover costs of fencing and if the construction of fences are materialized, the field office in collaboration with woreda office of agriculture have to closely follow up the initiation and subsequent progress undertakings of demonstrations once the problems are fixed.

Table 16: FTCs which have access to water but didn't conduct demonstrations

Region	Zone	Woreda	FTC	Action
Amhara (5)	N. Gondar	Alefa	Zabza	Fix Problems
		Metema	Kokit	Fix Problems
		Quara	Dubaba*	Fix Problems
	North Shewa	AntsokiaGemza	Getem	Fix Problems
	SNNPR (3)	Bench maji	Dehub bench	Gedu*
Keffa		Chena	Agaro*	Fix Problems
South Omo		Semn Ari	Walla*	Fix Problems
West Oromia (1)	S/West shoa	Becho	Kobo	Fix Problems

* FTCs those who do not have proper fence

2. School Gardens

ENGINE supports selected schools to establish school gardens with the objectives to expose school communities (teachers, Parents, teacher associations (PTA) and students) to cultivate vegetables and fruits with the nutrition lens and the schools are tasked to organize agronomic and cooking demonstrations in order to materialize the objectives.. To this effect, FAO's School Gardening Manual was customized to train focal teachers in each selected school with the intention to train students and the school communities on school gardening by these teachers. This assessment report focus on how the schools selected are in conformity with the established criteria and the performance of the school gardens over the last two fiscal years with due emphasis on demonstration of agronomic and cooking practices to the wider community. Numbers of schools planned to be selected and engaged for school gardening and number of schools covered for the assessment in caption are detailed on table 17 below.

Table 17 Number of Schools Planned for ENGINE Support in year 1&2 and covered by the Assessment

Field Office	# Of Schools Planned			# of Schools data collected	
	Year 1	Year 2	Total		
(1)	(2)	(3)	(4)	(5)	(6)=(4)-(5)
Amhara	22	22	44	40	-4
SNNP	18	20	38	38	0
E/Oromia	16	16	32	30	-2
W/Oromia	18	18	36	36	0
Tigray	8	8	16	16	0
Total	82	84	166	160	--6

2.1. Access to water for irrigation

As clearly indicated on Table 18 below, out of the 160 schools included in the assessment, 113 schools or 71% are found to have access to water sources for irrigation while the remaining 47 schools or 29%, on the other hand, are known to lack any kind of water source for irrigation. Out of 47 schools which do not have access to water 15 and 12 are located in East Oromia and SNNPR respectively. It is believed that these schools should not be selected for ENGINE support right from the outset as “Availability of water for irrigation” was and still remains the major criterion to select schools for ENGINE support. Since the schools will be closed during the rainy season (July – September) it is unlikely that the school gardening will be able to conduct demonstrations which addresses the intended objectives. Therefore the respective field offices have to discuss with the school community the possibility of availing water for off season cultivation of vegetables and fruits however, if this possibility is very remote they have to drop the schools which do not have water for irrigation from the support of the project.

Table 18: Number of schools which have access to water for irrigation by regions

Region	Number of school with access to water for irrigation throughout the year				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	33	83	7	17	40
East Oromia	15	50	15	50	30
SNNPR	26	68	12	32	38
Tigray	9	56	7	44	16
West Oromia	30	83	6	17	36
Total	113	71	47	29	160

2.2. Suitability of soil and slope of schools for the production of vegetables and fruits

One of the major criterion to select schools is suitability of soil and slope of garden plot. Of the total 160 schools assessed, 98% have favorable soil and slope conditions to cultivate vegetables and fruits. From the selection criterion standpoint, the four schools which don't have favorable soil and slope for vegetable crops production should not have been selected for ENGINE support initially (Table 19).

Table 19: Number of schools which have favorable soil and slope for the production of vegetables and fruits

Region	Schools with soil and slope of the school garden favorable for the production of vegetables and fruits				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	39	98	1	2	40
East Oromia	30	100	0	0	30
SNNPR	35	92	3	8	38
Tigray	16	100	0	0	16
West Oromia	36	100	0	0	36
Total	156	98	4	2	160

2.3. Fence to protect crops from predatory animals

Availability of fence to protect crops from predatory animals is another criterion intended to be employed to select schools for ENGINE support. As indicated on table 20, 37 schools out of the total 160 schools assessed have no proper fence to protect demonstration plots from domestic and wild animals. These schools should not have been selected for ENGINE support unless there were proof or promise from the concerned bodies that the demonstration plots of the schools selected would be fenced before or immediately after planting the crops supplied by ENGINE for demonstrations. The school community should be consulted if they do have a capacity to fence the school garden in this cropping season if not the respective field offices have to consider dropping the schools from the support of the project without any delay.

Table 20: Number of schools with proper fence by regions

Region	Number of school garden with proper fence				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	38	98	2	2	40
East Oromia	12	40	18	60	30
SNNPR	32	84	6	16	38
Tigray	10	63	6	37	16
West Oromia	31	86	5	14	36
Total	123	77	37	23	160

2.4. Situations of agronomic and cooking practices demonstration events at School gardens

The objective of ENGINE support to the selected schools in the project woredas is to conduct agronomic and cooking practices demonstrations of nutrient dense horticultural crops as many times as possible per year so as to reach the wider communities. As indicated on Table 21 below, out of the 160 schools provided with planting materials of horticultural crops, 124 schools or 78% had carried out demonstrations (agronomic or cooking) during the past two years of the project period. The remaining 36 schools did not conduct neither agronomic nor cooking practice demonstrations events during the period under review. The demonstration performance of schools in Amhara Region is quite low (50%) as compared to the rest of the regions. Unless they have encountered crops failure they have to conduct the intended demonstration events and this situation has to be rectified in consultation with the respective schools before extending support in year 3.

Table 21: Number of schools which conducted demonstration events by regions

Regions	Number of Schools conducted Demonstrations				
	Yes		No		Total
	Number	Percent	Number	Percent	
Amhara	20	50	20	50	40
East Oromia	27	87	3	13	30
SNNPR	32	85	6	15	38
Tigray	15	94	1	6	16
West Oromia	30	83	6	17	36
Total	124	78	36	23	160

According to the assessment results, out of the 124 schools which carried out demonstrations, 109 schools conducted agronomic practice and 73 schools conducted cooking demonstration in the previous two years of the project period (Table 22). As per the plan, over the last two fiscal years, around 490 demonstration events were expected to be carried out on the school gardens but the actual performance was 290 events which is 60% of the plan. Hence, concerted efforts need to be exerted to conduct demonstration events as far as the crop stands of vegetables qualify for demonstration so as to transfer the appropriate practices to the intended communities.

Table 22: Number of schools which conducted demonstration events by type and number of events by regions

Region	Types of demonstrations		Number of agronomic demonstrations conducted					Number of cooking demonstrations conducted			
	agronomic	cooking	One	Two	Three	Four	Six	One	Two	Three	Four
Amhara	20	20	209	0	0	0	0	20	0	0	0
East Oromia	25	15	8	14	3	0	0	8	5	2	0
SNNPR	23	28	8	7	2	6	0	13	7	2	6
Tigray	10	9	7	1	2	0	0	7	2	0	0
West Oromia	31	1	20	7	3	0	1	1	0	0	0
Total	109	73	63	29	10	6	1	49	14	4	6

2.5. Reasons for conducting demonstrations events less than two times by regions

It was planned and communicated that each school selected for ENGINE support are supposed to undertake a minimum of two demonstrations one of each of agronomic and cooking practices demonstration to the wider communities per year in their respective areas of operation. To know why this plan was not realized in some schools, the reasons for not achieving the target were assessed.

As clearly shown on Table 22 above most of the FTCs have not on in carried out one time each of agronomic and cooking practice demonstrations per year as initially planned. The top three major reasons provided for conducting demonstrations less than two times per schools were: busy on other activities (89%), lack of finance for labor work on the field (61%), and delay of seed supply (47%) (Table 23). Except the second reason the rest could be solved with proper planning while the second one could be solved by mobilizing the community and allocating cash from the sale of produce from the last harvest. The project could also extend financing at the initial establishment of the school garden.

Table 23: Number of schools which mentioned reasons for not conducting demonstration events by regions

Reasons for conducting demonstration events less than two times a year	Number of schools by region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Busy on other activities	9	8	8	0	9	34	89
Lack of finance for labor to work on the field	7	6	5	0	5	23	61
Delay of seed supply	5	0	0	4	9	18	47
Lack of commitment of school staff	3	1	4	2	2	12	32
Lack of required farm tools	4	0	0	2	1	7	18

Delay of harvesting due to late sowing	1	0	1	0	2	4	11
The school was closed at the time of harvesting	0	0	2	0	1	3	8
Vegetable products were damaged by pest	0	0	2	0	0	2	5
Poor production due to shortage of water	1	0	0	0	1	2	5
No focal person to coordinate the activity (trained focal persons resigned from the school)	0	0	2	0	0	2	5
Shortage of planting materials	0	0	0	0	1	1	3
Predators damaged the planted vegetables	1	0	0	0	0	1	3
PTA members were not active in mobilizing the community for demonstration	0	1	0	0	0	1	3
Poor production due to salinity of soil	1	0	0	0	0	1	3
Poor production since the soil is rocky	1	0	0	0	0	1	3
Vegetable products were stolen before demonstration	1	0	0	0	0	1	3
Poor production since the school garden is rocky	1	0	0	0	0	1	3

2.6. Kind of support needed by schools from the project by region

Schools were also asked whether they expect support from ENGINE to resolve the obstacles to conduct demonstrations as planned during the current year. As indicated on table 24 below, additional planting materials (43%), additional farm tools (32%), technical support and follow up (24%), financial support (22%) and training (10%) were major kinds of support mentioned. The listed support could be further assessed on need basis and addressed by the project and school community as far as the schools are committed to achieve the intended objectives in promoting diversification of diet in the rural settings.

Table 24: Kind of support needed by schools by number of schools by regions

Kind of support which the schools needs from the project	Number of schools by region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Additional planting materials	37	4	16	8	5	70	42
Additional farm tools	29	3	1	2	17	52	32
Technical support and follow up	4	15	7	4	10	40	24
Financial support	0	4	11	0	20	35	21
Training since the previously teachers left the school	4	0	10	0	3	17	10
Cooking demonstration materials support	3	13	0	1	0	17	10
Support of equipment for irrigation	0	0	6	1	7	14	8
Support to establish water source for irrigation	2	2	0	3	1	8	5

2.7. Distribution of planting materials to farmers dwelling in the surroundings of Schools

As illustrated on Table 25 below, out of the 163 schools assessed, 56% (88 schools) have distributed planting materials to communities in the surrounding. This is encouraging and other schools should follow this experience to encompass as many farmers as possible in the surroundings. Unfortunately this was not performed in Tigray Region.

Table 25: Number of schools which distributed seedlings and seeds to the farmers in the vicinity by regions

Region	Number of schools distributed seedlings and seeds to the farmers, school community, students in the vicinity				
	yes		No		Total
	Number	Percent	Number	Percent	
Amhara	22	55	18	45	40
East Oromia	19	61	12	39	31
SNNPR	26	70	11	30	37
Tigray	0	0	16	100	16
West Oromia	21	68	10	32	31
Total	88	57	67	43	155

2.8. Source of planting materials for the upcoming season production

Source of planting materials for next season production for those 153 schools which have planned to produce vegetables in the next production season is indicated on Table 26 below. Accordingly, project grant (86%), planting materials saved from previous year (50%) and market (11%) were among the sources mentioned by schools. In order to sustain the school garden the source of planting materials supply has to skew towards on saved seeds from previous harvest and from the market rather than the project grant. Income generated from the sale of the produce indicates that the school gardening could be sustained as far as it is managed properly. The current practice of West Oromia, SNNPR and East Oromia is quite encouraging while that of Tigray and Amhara needs a shift in thinking how to sustain the school gardening after the closure of the project.

Table 26: Source of planting materials mentioned by schools for next production season by regions

Region	Saved from the previous year		Market		Project grant	
	Number	Percent	Number	Percent	Number	Percent
Amhara	3	9	2	6	27	84
East Oromia	17	34	3	6	30	60
SNNPR	22	36	3	5	36	59
Tigray	0	0	0	0	16	100
West Oromia	35	53	9	14	22	33
Total	77	50	17	11	131	86

2.9. Amount of income obtained from the sale of vegetable produces

Those schools who sold their produces after conducting cooking demonstrations were asked on their income utilization. As shown on Table 27 below, 82 schools reported that the acquired amount of money ranging from 75 to 14,000 ETB. Schools those who generated Birr 1500 and above from the sale of the produce could sustain the school gardening from financial point of view. Schools those who received fruit seedling will have a sustainable flow of cash once the trees start fruit bearing as far as the orchard are managed properly.

Table 27: Amount of money obtained by schools after selling their vegetable products

Region	Amount of money obtained from the sale of products (BIRR)				
	75-300	301 – 600	601-1000	1001-3000	3001- 14000
Amhara	10	3	3	0	0
East Oromia	2	1	1	8	6
SNNPR	3	3	6	0	6
Tigray	3	2	0	3	0
West Oromia	6	5	5	6	0
Total	24	14	15	17	12

2.10. Income utilization of schools from the sale of vegetable products by region

When the 83 schools those who sold their vegetable products were asked what they did with the money obtained from the sale of produces: 41% paid for labor, 34% deposited the money in the bank, 33% invest in other activities, 30% of the schools purchased planting materials for next production while the balance is spent on different types of expenditures as detailed on table 28. Schools should be advised to give priority on the use of the cash obtained from the sale of school garden produce for the subsequent production rather than on other expenses.

Table 28: Income Utilization of schools who sold their Excess Produces

Money obtained from the sale of school garden produce was used for	Amhara	East Oromia	SNNPR	Tigray	West Oromia	Total	Percent
Purchased planting materials for next production season	7	2	8	0	8	25	30
Invest in other activity	5	10	9	0	3	27	33
Deposit in the bank	0	8	4	8	8	28	34
Paid for labor	2	13	10	0	10	35	41
Bought educational materials for OVC	0	0	0	0	1	1	1
Other school expenses	0	0	6	0	0	7	7
Purchased materials for cooking demonstration which are not available in the school	0	0	3	0	0	3	4

2.11. Major challenges faced by schools during the previous production season

In order to draw lessons and plan TA for future production, schools were asked to mention major challenges they faced during the previous year production. As indicated on Table29 below : shortage of money to pay for labor (38%), delay of seed supply (35%), and shortage of water (32%), are the top three problems indicated. Problems pertained to financial issues could be solved with proper planning and resource mobilization while problems related to technical and management could be overcome through consultation with the respective sector offices particularly woreda and zonal office of agriculture.

Table 29: Major Challenges Faced by schools during Previous Production season

Major challenges the school faced during the previous production season	Number of schools by region					Total	Percent
	Amhara	East Oromia	SNNPR	Tigray	West Oromia		
Shortage of money to pay for labor	7	18	24	3	11	63	38
Delay of seed/seedling supply	21	0	11	11	15	58	35
Shortage of rainfall/water	6	7	17	9	13	52	32
Plant disease	14	3	13	6	9	45	27
Pest problem	6	20	6	7	3	42	25
Predators	6	12	3	3	12	36	22
Shortage of farm tools	19	5	1	7	3	35	21
Marketing	6	9	8	2	0	25	15
Poor commitment of school	1	11	3	2	4	21	13
Frost	0	13	1	1	0	15	9
Lack of awareness about school gardening since inputs were provided far behind school teachers were trained	7	0	0	3	0	10	6
Water logging	2	7	0	0	0	9	5
Fencing	0	5	0	1	0	6	4
Suitability of soil for production	1	0	1	0	0	2	1
Shortage of time due to business on educational activities	0	0	0	0	2	2	1
Lack of commitment of PTA members	0	1	0	0	0	1	1
Theft	1	0	0	0	0	1	1

Summary and Recommendation on School Gardens

The results of the assessment of schools garden are summarized and evaluated based on the following factor combinations.

- I. Schools with no access to water for irrigation and did not conduct demonstrations.
- II. Schools which have access to water for irrigation but did not conduct demonstrations.

I. Schools with no access to water for irrigation and did not conduct demonstrations

Even though 46 schools do not have access to water for irrigation (Table 18) as shown on Table 30 below, there are 13 schools that did not conduct demonstrations in the previous two years of the project period. If the respective field offices are sure and believe that these schools have no chance to get access to water for irrigation, or not in a position to undertake demonstration on crops cultivated during the raining season it will be pointless for the project to support and work with them. Furthermore production of vegetable using rainfall during the rainy season in the schools will not be feasible since schools normally close during this period. Therefore the possibility of undertaking demonstrations in schools for the vegetable crops cultivated in the rainy season needs to be ensured by the schools. If this is not ensured schools which will not have access to water for irrigation be dropped or abandoned from ENGINE support.

Table 30: Schools which have no access to water and didn't conduct demonstration events

Region	Zone	Woreda	School	Action
Amhara (5)	Awi	Jawi	Jawi	Ensure, if not drop
	AWI	Jawi	Work meda	Ensure, if not drop
	North Shewa	EfrataGidim	Yimlowa	Ensure, if not drop
		Kewot	Tera Primary school	Ensure, if not drop
	West Gojjam	South Achefer	Azena	Ensure, if not drop
East Oromia (3)	Arsi	LemunaBilbilo	Shalemegen*	Ensure, if not drop
	Bale	Agrfa	Elina*	Ensure, if not drop
		Gasara	NakeNagawo*	Ensure, if not drop
SNNPR (4)	Keffa	Decha	Chena secondary school*	Ensure, if not drop
			Gone Woja*	Ensure, if not drop
	Sout OMO	Debub Ari	Ayda	Ensure, if not drop
	Special Woreda	Basketo	SasaMakessa	Ensure, if not drop
Tigray (1)	West	Tsegedie	Kuhlen	Ensure, if not drop

* Schools with no proper fence

II. Schools which have access to water for irrigation but did not conduct demonstrations

As indicated on Table 31 below, there are 24 schools which are supported by the project but did not conduct any kind of demonstrations in the previous two years, even though, they have water for irrigation. These schools need to be critically revisited. This is more so in Amhara region where the majority are found. Unless these schools have serious problems beyond their control which will hinder them from producing vegetables for demonstration purposes, they need to be convinced and encouraged to initiate production for subsequent demonstrations. Their water source for irrigation should be valued very highly. The construction of proper fence for three schools should also be a problem to be solved in consultation with the school community.

Table 31: Schools which have access to water but didn't conduct demonstration events

Region	Zone	Woreda	School	Action	
Amhara (16)	Awi	Guangua	Fachena*	Fix the problem	
	East Gojjam	DebreEliase	TejaGotser	Fix the problem	
	N.Gonder	Metema	Meka full cycle elementary school	Fix the problem	
			Takusa	Robegebal full cycle elementary school	Fix the problem
			Tanazuriya full cycle elementary school	Fix the problem	
	North Gondor	Alefa	Gamawber full cycle elementary school	Fix the problem	
	North Shewa	AntsokiaGemaza	Ambowuha	Fix the problem	
		EfrataGidim	TachignawSaramba	Fix the problem	
		Kewot	KuriBiri Primary school	Fix the problem	
		Tarmaber	TadeseDamte P/School*	Fix the problem	
	West Gojjam	Bure	Denbule	Fix the problem	
			Shaquu	Fix the problem	
		Jabitehinane	Geray	Fix the problem	
		North Achefer	Quinzila	Fix the problem	
			Tankkuaber	Fix the problem	
	Wonberma	Belemma	Fix the problem		
SNNPR (2)	Gedeo	Gedebe	Gedeb 01	Fix the problem	
	Special	Basketo	Zabashalshala	Fix the problem	
West Oromia (6)	East Wellega	WayuTuka	Dire InjifenoBoneya	Fix the problem	
	East Wollega	GutoGida	Tinfa	Fix the problem	
	H/G/Wollega	Jima Geneti	BikilaNegero	Fix the problem	
	Jimma	Gera	Gera	Fix the problem	
	S.W. Shewa	Becho	Tulu Bolo*	Fix the problem	
		Woliso	Gambela	Fix the problem	