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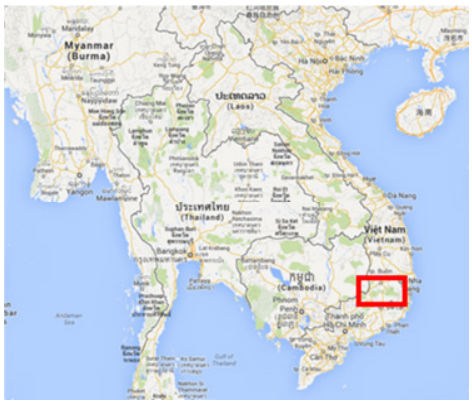
Water Saving Irrigation Technique in the Coffee Production at Household Level

Case Study Background Data		
Tool Category: Adaptation on the farm		**Details:** Planting Density 1001-2000 Soil Type: Basaltic Soil Shade Regime: 21-30% Farming System: Intense intercropping system Yield Range (kg cherry/ ha) >10000 ⦸ rain : 1,600 mm/y
Variety: Robusta		
Purpose: - Irrigation		
Climatic risks: - Drought		
Dates of implementation 01.11.13 - 20.11.13	Altitude: 570 m GPS: 12°48'35.0"N 108°05'17.5"E	Slope of plots: 0^0-8^0 ⦸ age of trees: 16-20 years
Nr. Farmers: 17	⦸ area under Coffee: 1.5 ha/farmer	Tested with smallholders

Results	
100 % of the interviewed coffee farmers, who were trained in the new water saving irrigation technique, have reduced the water amount used for irrigation by 30% in 2012 -2013 crop.	
Pros & Advantages + Learnings	**Cons, Disadvantages + Things to take into account**
- Almost all the farmers under c&c have accepted the new irrigation technique introduced by the project - This tool helps farmers save a lot of money spent on labor and fuel. There is no extra cost for farmers to adopt the tool - No negative influence on yield levels through decreased irrigation	None

Acceptability	High	**Effectiveness**	High
Affordability	High	**Timing / Urgency**	High

Description of fieldwork

Nr.	Step	Picture
1	A sensitization on irrigation was conducted. After the training, the trainees were able to: - Be aware of the importance of water for coffee production - Identify right times for irrigation - Calculate the water amount needed for each irrigation round - Adopt the tool in the trainees' own farms - Transfer the knowledge and skills learnt to trainees' group members.	
2	Practical session (on farm): the trainees were taught how to measure the water amount. - A barrel with volume of 200 l and a stopwatch are prepared - The time needed for filling in the barrel is measured by the stopwatch and then farmers can control the water amount needed for each tree - Trainees were given recommendations on the optimal irrigation scheduling required to break the 4,000 kg/ha barrier. For example, with average rainfall in November and December of the previous year, a total of about 150 mm (455 liter/plant/irrigation round x 3 rounds) from January to April is sufficient. In case of high rainfall in November-December, a total of 80 - 120 mm over these months (circa 300 liter/plant/irrigation round x 3 rounds) is adequate.	

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Appendix

Implementation Framework

This study was carried out by the EDE Consulting AP under the umbrella of c&c. 17 farmers and 3 agronomists participated in the field study.

Case Study Methodology

- 3 semi-structured interviews were conducted with three key informants (1 agronomist – head of the district Agriculture & Rural Development Division; 1 extension staff member from the District Extension Station and 01 trainer from the Provincial Extension Center)
- 2 focus group discussions were carried out with the participation of 17 coffee farmers in total.
- Main data collected: the irrigation water utilization situation in Cu M'gar district – a main coffee producing area in the Central Highlands of Vietnam; the water amounts used by interviewed farmers for coffee irrigation in the past (before the project) and at present (after the training and the awareness campaign on water saving carried out by the project)
- Data analysis: the data collected from the field were compared with the data recorded by farmers in their FFB (farmer field books); the amount of water used for irrigation in 2011-2012 crop was calculated and compared to the one used in 2012-2013 crop

Main findings of the Case Study

- Lack of water for irrigation will become one of the biggest challenges for the coffee production in the future.
- The water saving irrigation tool was introduced in time when a severe drought occurred in the locality. In the beginning, some farmers were not convinced about the irrigation water amount recommended by the project but they had no choice than trying the practice introduced by the Project.
- Farmers normally look at immediate benefits. When they see that adopting the tool, no extra costs are incurred but in contrary, they can save a lot of money, they would try it at once.
- In the past, the interviewed farmers used 558.8 litres of water/ round/ tree on average but for the 2012-2013, the water amount used for irrigation was remarkably reduced down to 360 l/tree/round while the yield remains the same (from 3 tons – 3.5 tons of coffee bean/ha). (See the enclosed list for more details)

Conclusions & Recommendations:

- The water saving irrigation technique will become a common practice for the farmers in the project's area in the future since seeing the normal growth of their gardens with less water irrigated and the stable yield in 2012-2013 crop, they are completely convinced about the effectiveness and efficiency of the tool.

- The replication of this practice outside the project area is urgently needed to deal with the irrigation water shortage situation in the dry season.

Acceptability					
Leading Question: To what extent did farmers readily accept this tool as useful for implementation and implement it as planned?					
High	☒	**Low**	☐	**Don't Know**	☐
High: *Farmers readily accepted this tool for implementation and continue to implement it as planned.*			**Low:** *Farmers generally did not accept this tool; Or the tool was met with resistance later on, even though farmers initially accepted it.*		
Please Comment:					
If there was resistance to adopting this tool, why?			No resistance.		
If farmers discontinued tool implementation later on in the process, even though they initially accepted it, Why?			-		
Did this tool have any external issues or impacts (positive or negative) which influenced its acceptability? (community, value chain?)			-		
Any other comments:			Farmers readily accepted the tool since the region was affected by a drought-thus methods for saving water were welcome.		

Affordability					
Leading Question: Are the costs of the tool affordable to farmers taking into account the initial investment, maintenance costs and the availability of inputs?					
High	☒	**Low**	☐	**Don't Know**	☐
High: *The initial investment and the maintenance costs of this tool are affordable to farmers from their regular operations and the time it takes to recover the investment is reasonable to farmers. Inputs (e.g. labor, electricity..) are available when they are necessary so that no extra costs are incurred from timing related issues.*			**Low:** *The initial investment or the maintenance costs of this tool go beyond what is affordable to farmers from their regular operations or the amount of time it takes to recover the investments are unreasonable to farmers.*		
Please Comment:					
Are there any external costs? (to society or environment?)			No external costs associated. The decreased irrigation do not influence yield.		

If costs are high because inputs are not available, what inputs? And why?	-
Any other comments:	-

Effectiveness					
Leading Question: Does the tool provide the expected benefits to farmers?					
High	☒	**Low**	☐	**Don't Know**	☐
High: *The objective of the tool has been met for the farmers.*		**Low:** *The tool did not fulfill its objective entirely.*			
Please Comment:					
What benefits did farmers expect from this tool?		Decreased production costs without consequences on yield.			
If the objective has not been met, why?		-			
Have there been any significant external issues which influenced the effectiveness (positive or negative) of this tool? Please explain.		-			
Any other comments about effectiveness		This tool helps farmers save a lot of money spent on labor and fuel. There is no extra cost for farmers to adopt the tool			

Timing / Urgency					
Leading Question: Is the amount of time that this tool takes to implement (from starting implementation until benefits accrue) reasonable to farmers?					
High	☒	**Low**	☐	**Don't Know**	☐
High: *The tool takes a reasonable amount of time to implement (taking into account the coffee growing season, inputs necessary, preparation time and implementation time); And this tool accrues the effects expected within a reasonable amount of time.*		**Low:** *It takes too long to implement this tool (taking into account the coffee growing season, inputs necessary, preparation time and implementation time); Or it simply takes too long for this tool to accrue benefits.*			
Please Comment:					
If implementation takes too long why?		Does not take much, costs savings are immediate.			
Any other comments about timing:		-			

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Water amount used for irrigation

No.	TÊN	Adress (Commune)	Area	Water irrigated (l/tree/round)before the project	Water irrigated (l/tree/round) after training provided by c&c
1	Lê Minh	Tiến Đạt	1	500	390
2	Nguyễn Văn Mai	Tiến Thịnh	1,2	500	350
3	Bùi Văn Trung	Tiến Thịnh	7	600	300
4	Võ Văn Lâm	Tiến Cường	1,2	600	300
5	Trần Văn Hưng	Tiến Cường	1	500	400
6	Lê Minh Quang	Tiến Thịnh	1	500	380
	Đỗ Thanh Định	Tiến Cường	1,2	500	350
8	Mai Văn Phúc	Tiến Cường	1	500	350
9	Nguyễn Minh Thuận	Tiến Cường	6	600	370
10	Võ Duy Lương	Tiến Đạt	3	500	370
11	Nguyễn Văn Đại	Tiến Thịnh	1,5	500	400
12	Đỗ Á	Tiến Cường	1	500	350
13	Trần Văn Thành	Tiến Cường	3	600	350
14	Trịnh Ngọc Thi	Tiến Đạt	2,5	700	370
15	Võ Tri Phương	Tiến Thịnh	1,7	600	350
16	Đỗ Văn Giác	Tiến Đạt	2	600	360
17	Nguyễn Văn Hóa	Tiến Thịnh	1,5	700	380
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