1. **Annex 1: QUESTIONNAIRE**

Dear sir/madam, this questionnaire will take only a few minutes. The process will take only a few minutes to talk to you about your cocoa business in general. I will be in charge of the process but you will be in charge of the content. Please be assured that this information will be strictly confidential and will only be used for academic purposes. Thank you.

<u>Location and Biography</u>

1. Name of Cocoa community…
2. Is there a cooperative in the community?
3. Do you have friends and/or family in your cooperative?
4. Distance from house to cooperative meeting grounds (minutes of walk)

<u>Socio-economic characteristics</u>

5. Age of respondent in years………………………………
6. Gender …………… [1] male [0] female
7. Where do you stay…….. [1] hamlet [2] community [3] other, specify
8. Household size……………………………….
9. Is there electricity in this community? .... [1] yes [0] no
10. Do you own a TV/radio in your household…………. [1] yes [0] no
11. Years of formal education (in years)…
12. How long have you been into cocoa farming (in years)…

<u>Farm characteristics</u>

13. What is your cocoa plot size (in acres)…
14. Are you the owner of your farm ? [1] yes [0] no
15. Do you have hybrid cocoa plants on your farm? [1] yes [0] no
16. What is the age of your farm?
17. How much cocoa beans did you harvest during the last cocoa season from your farm (in bags)

Cooperative Status

18. Are you a member of any cocoa cooperative or FBO?……..[1] yes [2] no
19. How would you rate your level of activeness in the cooperative's activities on a scale of 1-10? Highest is 10
20. How well do you feel recognized as an active member of your cooperative; on a scale of 1-10? Highest is 10

Additional livelihood

21. Are you aware of climate change? [1] yes [0] no
22. If yes, from where? [1] government [2] TV/radio [3] internet [4] cooperatives [5] friends and family
23. Are you aware of any additional livelihood practice? [1] yes [0] no
24. Have you adopted any form of additional livelihood to complement your cocoa farm – as taught by the government, cooperative or through any other medium? [1] yes [0] no
25. How did you learn these additional livelihood skills? [1] government [2] TV/radio [3] internet [4] cooperatives [5] friends and family

Please Indicate Your Level Of Agreement With The Statement Related To Trust In Your Community.

Trust Statements

26. Most people in my community, farmer association or cooperative can be trusted. [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

27. Most people in my community, farmer association or cooperative have trust in me [ ] Strongly Disagree [ ] Partly Agree [ ] agree nor disagree [ ] Partly Agree [ ] Strongly Agree

Reciprocity Statements

28. If I work hard, I expect it will be repaid [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

29. To help somebody is the best strategy to be certain that s/he will help you in the future [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

30. If someone does a favor for me, I am ready to return it [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

31. The way I treat others depends much on how they treat me. [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

Education, Training and Information

32. Access to information about good agricultural practices has improved over the last 3 years. [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

33. Service from extension agents have improve over the last 3 years [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

34. Access to relevant market information have improved over the last 3 years [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

35. Opportunity for further training has increased over the last 3 years [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

36. You have better chance to mutually share experience with other farmers than 3 years [ ] Strongly Disagree [ ] Partly Agree [ ] Neither agree nor disagree [ ] Partly Agree [ ] Strongly Agree

2. Annex 2 - Test of Multicollinearity

Pearson square correlation matrix was performed to test multicollinearity between the variables used in the models in this study. In all tables (table 1 and table 2), none of the correlation matrix shows a value greater than or equal to 0.8 or less than or equal to -0.8 **($-0.8 \leq X \leq 0.8$).** This means that all variables used in the models are independent of each other enough to be used to estimate parameters for the model. Table 1 and Table 2 are for regression models used to assess other factors that influenced ALS (obj 1b) and productivity (obj 2b) respectively.

Table 1 - Pearson Test of correlation – probit regression model (obj 1b)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1-Distance	1.00												
2-Age	-0.18	1.00											
3-Gender	-0.05	0.01	1.00										
4-Education	0.06	-0.16	0.06	1.00									
5-Farm size	-0.09	0.16	0.26	-0.16	1.00								
6-Land ownership	0.04	0.17	-0.18	0.02	-0.06	1.00							
7-Access to extension	0.01	-0.01	0.02	0.13	-0.03	0.23	1.00						
8-Access to credit	-0.01	-0.01	-0.05	0.02	0.02	0.12	0.25	1.00					
9-Reciprocity	0.13	-0.06	0.00	0.02	-0.05	-0.08	0.03	0.07	1.00				
10-Trust	-0.04	0.04	-0.08	-0.08	0.13	0.15	0.12	0.15	0.17	1.00			
11-Capacity building	-0.02	0.06	0.04	0.01	0.08	0.00	0.31	0.21	0.20	0.33	1.00		
12-Access to Information	-0.13	0.08	0.10	0.05	0.06	-0.08	0.27	0.13	0.12	0.23	0.63	1.00	
13-Acceptance	-0.03	0.07	0.09	-0.01	0.05	-0.06	0.21	0.15	0.21	0.28	0.71	0.68	1.00

Table 2 - Pearson test of correlation - linear regression (obj 2b)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1Age	1.0															
2Gender	0.0	1.0														
3Household size	0.0	0.0	1.0													
4Education	-0.2	0.1	0.0	1.0												
5Experience	**0.7**	0.0	0.0	-0.2	1.0											
6Farmsize	0.2	0.3	0.1	-0.2	0.3	1.0										
7Landownership	0.2	-0.2	0.0	0.0	0.2	-0.1	1.0									
8Labour	0.1	0.0	0.0	0.0	0.1	0.1	0.0	1.0								
9Fertilizer application	0.0	-0.1	0.1	0.1	0.0	-0.1	0.1	0.0	1.0							
10Accesstoexension	0.0	0.0	0.1	0.1	0.1	0.0	0.2	-0.1	0.3	1.0						
11Accesstocredit	0.0	-0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	1.0					
12Hybrid	-0.1	0.1	0.0	0.2	-0.1	0.0	0.0	-0.1	0.3	0.2	0.1	1.0				
13Ageoftrees	0.3	0.2	0.1	-0.1	0.3	0.2	-0.2	0.1	-0.2	-0.3	-0.2	-0.1	1.0			
14Accesstoinformation	0.1	0.1	0.0	0.1	0.1	0.1	-0.1	-0.1	0.2	0.3	0.1	0.1	0.0	1.0		
15Als participation	0.0	-0.1	-0.1	0.2	0.1	-0.1	0.1	0.0	0.3	0.4	0.2	0.2	-0.2	0.1	1.0	
16Coop participation	0.1	0.0	0.0	0.2	0.2	0.0	0.3	0.0	0.5	0.6	0.3	0.4	-0.3	0.3	0.6	1.0