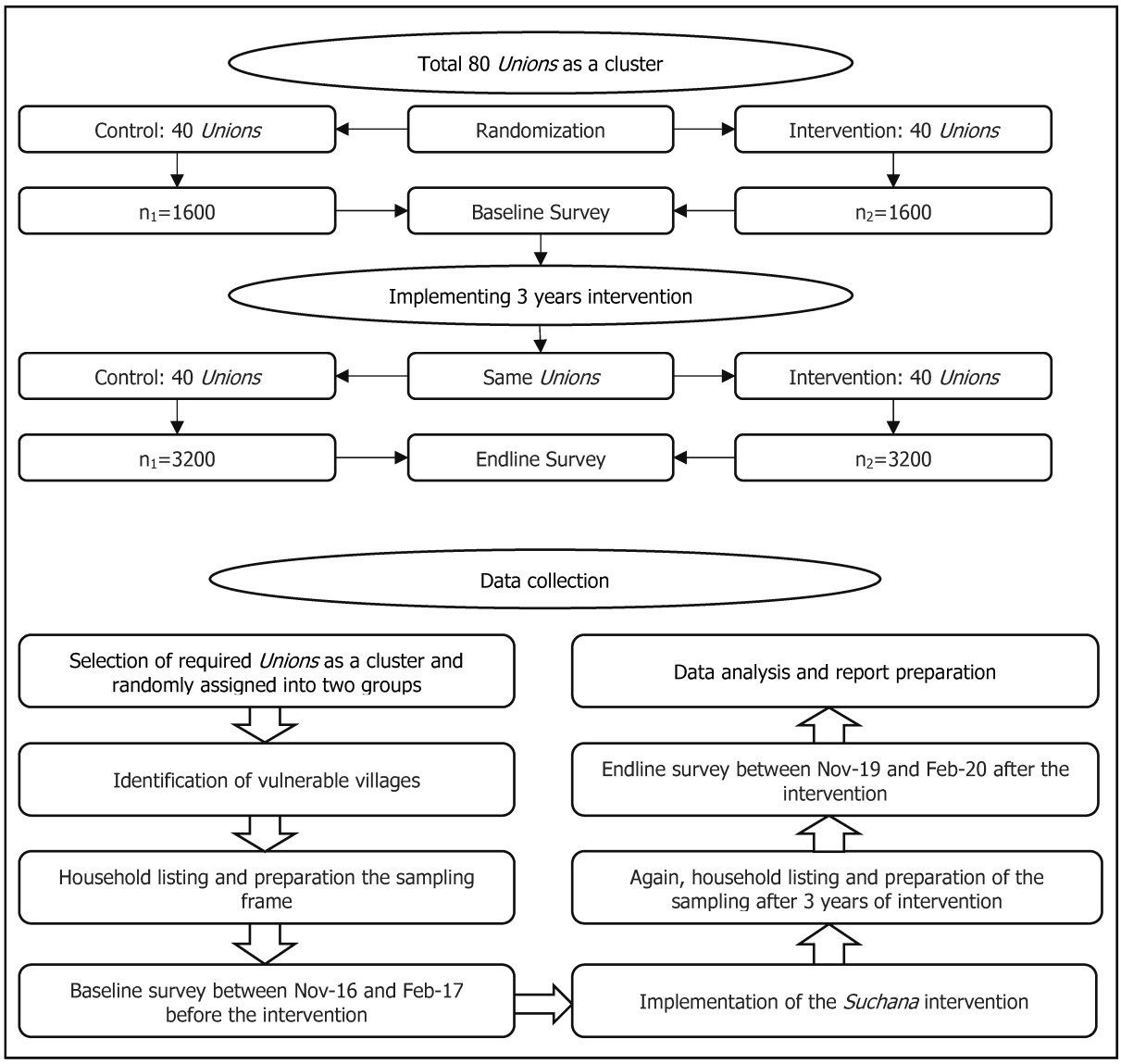
Appendix 1. Sample size calculation

```
clustersampsi, binomial samplesize p1(0.47) p2(0.41) k40) rho0.01)alpha(0.05) beta(0.8)
```

Output of the STATA command for sample size calculation

```
Sample size calculation to determine number of observations required per cluster, for a two-
sample comparison of proportions (using normal approximations) without continuity correction.

For the user specified parameters:
       p1: 0.4700
       p2: 0.4100
       significance level:  0.05
       power:  0.80
       number of clusters available:  40
       intra cluster correlation (ICC):  0.0100
clustersampsi estimated parameters:
       Firstly, assuming individual randomisation: sample size per arm: 1071
       Then, allowing for cluster randomisation: average cluster size required:  38
       sample size per arm:   1520
```



Supplementary Figure 1. The evaluation diagram of *Suchana* programme

Appendix 2. Data collection

The Suchana data collection software contained built-in validation rules. As the data were entered at the interviewer level and the records were uploaded to a server at the icddr,b using the built-in internet connectivity of the devices, maximum validation rules were set in the data system to prevent errors during data entry, which reduced the data entry burden. This allowed the data analysis team to review the

consistency of the data every day. Data were synchronized to the central server "Web Service" developed in Asp.Net based on the C# (C Sharp) code. Activities such as editing (after receiving any feedback from field staff members), updating, range checks, duplication checks, consistency checks, frequency checks and cross tabulation were regularly performed during the data entry period. In case of any unusual observations, the issues were discussed and resolved.

Appendix 3. Equation of logistic and probit regression

$$\text{logit}(y)= \beta_0+ \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15} + \beta_{16}X_{16}$$

$$\text{probit}(y)= \beta_0+ \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \beta_5X_5 + \beta_6X_6 + \beta_7X_7 + \beta_8X_8 + \beta_9X_9 + \beta_{10}X_{10} + \beta_{12}X_{12} + \beta_{13}X_{13} + \beta_{14}X_{14} + \beta_{15}X_{15} + \beta_{16}X_{16}$$

Where,

x1: Less than four ANC visits by a skilled service provider
x2: Unskilled birth attendant/facility
x3: Mother involved in income-generating activities
x4: Maternal BMI <18.5
x5: Maternal education: no schooling
x6: HH severe food insecurity
x7: Monthly income <15000 BDT
x8: Did not involve with aquaculture
x9: Having unhygienic latrine
x10: Soap was unavailable in hand washing place
x11: HH size≥7
x12: HH dietary diversity score <7
x13: Child's age>18
x14: Child's sex was male
x15: Childhood illness in the last 15 days
x16: Lacked access to mass media

and

$$\text{logit}(y) = \log[y/(1-y)]$$

Supplementary Table 1. *Suchana* inclusion criteria for registration of enrolling as vulnerable households

Vulnerable household verification questions	Inclusion criteria
Step 1 • Households currently participating/member of any livelihood, food security or asset transfer program	If "NO" go ahead for next questions
Step 2 • Ability to afford three (3) full meals per day for all family members round the year • Households monthly income BDT 7,500 or more • Household productive asset value worth BDT 15,000 or more (excluding land, pond and homestead) • Ownership of homestead land 10 decimals or more • Ownership of cultivable land 50 decimals or more (excluding homestead or pond)	If anyone is "NO" go ahead for next questions
Step 3 • Households have married women with in child bearing age (15 to 45 years) • Households have pregnant women (including abandoned or widowed woman) • Households have 0-23 months old children • Households have adolescent girls (15-19 years)	If anyone is 'Yes' go ahead for registration of enrolling as vulnerable Household
Sampling frame was prepared for collecting data from mother-child pair if the households had 0-23 months old children	

Supplementary Table 2a. Predictive ability of various indicators for the adjusted prevalence of stunting and adjusted prevalence difference (effect size) in the fitted multiple logistic regression model.

	Prediction of adjusted stunting [% (95% CI)]	Prediction of adjusted prevalence difference as effect size*	p-value
At least four ANC visits by a skilled service provider			
Yes	51.64 (50.05, 53.23)	Reference	
No	47.99 (45.46, 50.53)	3.65 (1.07, 6.22)	0.006
Birth attendant/facility			
Skilled	51.87 (50.23, 53.51)	Reference	
Unskilled	49.42 (47.48, 51.36)	2.45 (0.55, 4.35)	0.012
Mother involved in income-generating activities			
No	54.55 (50.90, 58.19)	Reference	
Yes	50.59 (49.08, 52.11)	3.95 (0.40, 7.51)	0.029
Maternal BMI			
BMI ≥18.5	54.04 (52.01, 56.07)	Reference	
BMI <18.5	49.01 (47.21, 50.81)	5.03 (2.66, 7.41)	<0.001
Maternal education was primary completed			
Yes	54.66 (52.58, 56.74)	Reference	
No	48.21 (46.67, 49.75)	6.45 (4.49, 8.40)	<0.001
HH food insecurity			
Below severe	53.03 (50.91, 55.15)	Reference	
Severe	50.36 (48.63, 52.09)	2.66 (0.11, 5.22)	0.041
HH monthly income ≥15000 BDT			
Yes	51.31 (49.79, 52.84)	Reference	
No	48.58 (45.86, 51.30)	2.73 (0.17, 5.30)	0.037
Involved with aquaculture			
Yes	51.22 (49.72, 52.72)	Reference	
No	46.99 (43.30, 50.69)	4.23 (0.73, 7.73)	0.018
Hygienic latrine			
Yes	52.67 (50.94, 54.4)	Reference	
No	48.36 (46.5, 50.23)	4.31 (2.34, 6.28)	<0.001
Water and soap available in handwashing place			
Yes	52.64 (50.71, 54.58)	Reference	
No	48.54 (46.74, 50.33)	4.10 (1.83, 6.38)	<0.001
HH size			
Below seven	53.86 (51.98, 55.74)	Reference	
Seven or above	49.41 (47.70, 51.13)	4.44 (2.43, 6.46)	<0.001
HH dietary diversity			
HDDS ≥7	53.92 (51.25, 56.60)	Reference	
HDDS <7	50.10 (48.70, 51.50)	3.83 (1.63, 6.02)	<0.001
Child's age			
Age ≤18 months	56.72 (54.77, 58.67)	Reference	
Age >18 months	46.59 (44.82, 48.35)	10.1 (7.94, 12.32)	<0.001
Child's sex			
Female	53.25 (51.17, 55.34)	Reference	
Male	48.40 (46.78, 50.03)	4.85 (2.59, 7.10)	<0.001
Childhood illness in the last 15 days			
No	54.90 (52.04, 57.77)	Reference	
Yes	50.49 (48.94, 52.05)	4.41 (1.48, 7.34)	0.003
Access of mass media			
Yes	51.51 (49.88, 53.15)	Reference	
No	48.13 (45.39, 50.88)	3.38 (0.42, 6.34)	0.028

*Differences in the predicted values of stunting between the two groups were calculated using the Stata "*adjrr*" package

Supplementary Table 2b. Predictive ability of various indicators for the adjusted prevalence of stunting and adjusted prevalence difference (effect size) in the fitted multiple probit regression model.

	Prediction of adjusted stunting [% (95% CI)]	Prediction of adjusted prevalence difference as effect size*	p-value
At least four ANC visits by a skilled service provider			
Yes	51.64 (50.05, 53.23)	Reference	
No	47.99 (45.46, 50.53)	3.65 (1.08, 6.22)	0.007
Birth attendant/facility			
Skilled	51.87 (50.23, 53.51)	Reference	
Unskilled	49.42 (47.48, 51.36)	2.45 (0.54, 4.35)	0.011
Mother involved in income-generating activities			
No	54.55 (50.90, 58.16)	Reference	
Yes	50.59 (49.08, 52.11)	3.93 (0.39, 7.48)	0.024
Maternal BMI			
BMI ≥18.5	54.04 (52.01, 56.07)	Reference	
BMI <18.5	49.01 (47.21, 50.81)	5.03 (2.66, 7.40)	<0.001
Maternal education was primary completed			
Yes	54.66 (52.58, 56.74)	Reference	
No	48.21 (46.67, 49.75)	6.45 (4.49, 8.41)	<0.001
HH food insecurity			
Below severe	53.01 (50.89, 55.12)	Reference	
Severe	50.37 (48.64, 52.10)	2.64 (0.09, 5.19)	0.042
HH monthly income ≥15000 BDT			
Yes	51.32 (49.79, 52.84)	Reference	
No	48.56 (45.84, 51.28)	2.75 (0.19, 5.32)	0.035
Involved with aquaculture			
Yes	51.22 (49.73, 52.71)	Reference	
No	46.99 (43.28, 50.69)	4.24 (0.73, 7.74)	0.018
Hygienic latrine			
Yes	52.67 (50.94, 54.4)	Reference	
No	48.36 (46.5, 50.23)	4.31 (2.34, 6.28)	<0.001
Water and soap available in handwashing place			
Yes	52.64 (50.71, 54.58)	Reference	
No	48.53 (46.74, 50.33)	4.11 (1.83, 6.39)	<0.001
HH size			
Below seven	53.86 (51.98, 55.73)	Reference	
Seven or above	49.41 (47.70, 51.13)	4.44 (2.43, 6.46)	<0.001
HH dietary diversity			
HDDS ≥7	53.90 (51.23, 56.57)	Reference	
HDDS <7	50.10 (48.71, 51.50)	3.79 (1.60, 5.98)	<0.001
Child's age			
Age ≤18 months	56.72 (54.76, 58.67)	Reference	
Age >18 months	46.59 (44.83, 48.35)	10.1 (7.93, 12.3)	<0.001
Child's sex			
Female	53.25 (51.17, 55.33)	Reference	
Male	48.41 (46.78, 50.03)	4.85 (2.60, 7.10)	<0.001
Childhood illness in the last 15 days			
No	54.90 (52.04, 57.75)	Reference	
Yes	50.50 (48.94, 52.05)	4.40 (1.47, 7.33)	0.003
Access of mass media			
Yes	51.51 (49.88, 53.15)	Reference	
No	48.13 (45.40, 50.86)	3.38 (0.42, 6.34)	0.028

*Differences in the predicted values of stunting between the two groups were calculated using the Stata "*adjrr*" package