

Full Length Research Paper

Impact of microcredit on poverty alleviation among rural women: A case study of Panchagarh District in Bangladesh

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Although women constitute almost half of the total population of Bangladesh, they experience adverse situations in terms of socio-economic inequality and gender disparity. Especially, rural women are the most deprived section of the society and a majority of them are extremely poor. They have very limited access to economic and income generating activities outside their home and consequently, the less opportunity to contribute to their families and get out of poverty. MFIs are contributing significantly to poverty reduction in Bangladesh by creating income generation and self-employment opportunities for the poor people by providing microcredit. This study attempts to assess the role of microcredit programme in reducing poverty of rural women. The study is based on empirical data collected through interview from the two groups of rural women e.g. 'with credit' and 'without credit' rural women. The 'with credit' respondents are the members of microcredit programme of Grammeen Bank, one of the largest MFIs in Bangladesh. The findings demonstrate that, the 'with credit' women have a much lower percentage of poverty in terms of its incidence (80%), intensity (28%) and severity (12%) compared to the 'without credit' respondents (99, 59 and 37% respectively). It was also found that educational attainment of the respondents and income earners in the family contribute positively to reduce poverty situation among the 'with credit' households more, as compared to 'without credit' households. Therefore, it can be concluded that microcredit programme helps the rural women to reduce their poverty more effectively.

Key words: Rural women, poverty alleviation, microcredit, Bangladesh.

INTRODUCTION

Bangladesh is one of the most densely populated countries in the world with an estimated population of 150 million (Saifullah and Abul, 2001). Poverty is one of the major social problems in Bangladesh that is epidemic throughout the country (Ahsan, 2005). About 18.7% of the population of this land starved country are ultra poor or hardcore poor needing to spend more than 80% of

their income on food (Haque and Yamao, 2009). Often even 100% of their income is not enough to get two square meals a day (Khan, 2007). About 80% of the population of the country live in rural areas and women constitute almost half of the total population (BBS, 2006). But women, especially, rural women suffer not only from abject poverty but also socio-economic inequality and gender disparity prevalent in the society. They are the most deprived section of the society and majority of them are extremely poor. Moreover, a large number of the hardcore poor in rural areas are the widowed, divorced

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and abandoned women who have no bread earner, asset or source of income as well as have no choice but to work in other people's house for very nominal wage or resort to begging for their survival (Haque and Yamao, 2009). They have very limited access to economic and income generating activities outside their home due to a number of social, cultural and religious constraints.

Consequently, they have the less opportunity to contribute to their families and get out of poverty. They also suffer from lack of access to fund, lack of technology-based knowledge, market knowledge and lack of support from family members. In this situation, microcredit programme has emerged as an important financial instrument to alleviate poverty, especially in rural areas of Bangladesh. Under microcredit programme, MFIs provide small loans to the very poor in order to undertake self-employment and other financial and business activities giving them the ability to care for themselves and their families and thus, achieve a level of independence. Especially, one of the purposes of the microcredit programme is to provide loan facilities to the rural poor women to engage themselves in activities that generate income. Consequently, rural women can contribute to increase in total household income and help their families get free of poverty. Micro credit programme is a unique among the development interventions mainly because of its social transformational effects and ability to reach a diverse group of mass poor in rural areas (Dulal, 2007).

Over the last two decades, microcredit became an important tool for alleviating poverty in Bangladesh (Khandker and Chowdhury, 1996). Microcredit is crucial for the poor to create self-employment and reduce their poverty situation (Ahsan, 2005). Poor persons with access to credit can make investments in enterprises that bring them out of poverty (Shastri, 2009). By using the loans provided by numerous MFIs, rural women engage themselves successfully in various productive activities to earn money. The additional money earned by women increases household's disposable income, that improves the consumption patterns and livelihoods of the rural families (Hossain and Sen (1992); Navajas et al., 2000). It increases economic well-being of the poor families, as well as improves food security and nutrition status which ultimately contribute to good health. When the borrower families enjoy the financial solvency, they tend to invest higher in education for their children. As a result, literacy rate becomes higher. In a study, Khandker (1998) found that 10% increase in borrowing from a microfinance institution reduces the probability of being below the poverty line by 0.3% for males and by 0.2% for females. Another study conducted by Khandker (2003) also revealed that, microfinance helps to reduce extreme poverty (18%) much more than moderate poverty (8.5%). Holcombe (1995) conducted a study on the microcredit programme of Grammen Bank (GB), one of the largest MFIs

working in Bangladesh and found that after joining GB, only 21% of the female members considered themselves as unemployed, while this number was 50% before joining. Ali (2008) conducted a comparative study on poverty reduction among the borrower women of GB and non-borrower women and found a sharp reduction in the number of GB's members living below the poverty line (20%) compared to non-borrowers (56%). A recent internal survey on impact of microcredit on poverty reduction conducted by Grameen Bank found that, 68% of its borrower families have crossed the poverty line and the remaining families are moving steadily towards the poverty line from below (GB, 2009).

This paper presents a case study on how microcredit programme contributes to the poverty reduction of rural households. The paper also provides facts and comparisons of the incidence, intensity and severity of poverty among the 'with credit' and 'without credit' respondent's households. This paper also discusses relation of poverty with different characteristics in terms of education, household size, earning member and occupation of 'with credit' and "without credit respondents households.

METHODS

Selection of the study area

This study is employed into two study areas with the aim of comparing socio-economic status of the two groups of rural women, e.g. 'with credit' and 'without credit' rural women. One study area is selected as the primary source of data regarding socio-economic status of 'with credit' rural women. 'With credit' respondents are the members of Grameen Bank, Satmera Branch under the Panchagarh District. For 'with credit' study area, four villages under Satmera Union of the same district, namely Pokhi Laga, Vitor gor, Chand para, and Madhuban guchchho gram are chosen.

The other study area which includes two villages under the same union of the same district, namely Goal para and Jamader para is undertaken for 'without credit' rural women. These villages were selected as the study area of this research because (1) they are remote and underdeveloped areas and far away from the capital city of the country, (2) majority of the people in these villages are poor, (3) literacy rate is very low compared to other parts of the country, (4) there is no research conducted particularly with the rural women. Furthermore, the villages selected under both the study areas have similar characteristics with respect to topography (soil and climate conditions), demography, economic and cultural conditions. The map of Bangladesh and the study areas are shown in Figures 1 and 2.

Survey design, sampling method and data collection

Deriving an accurate information is highly dependent upon the survey method. The direct face-to-face interview is the most commonly used approach and is employed in this study. The data for this study is taken to reflect the objectives of the study. Data was collected through interview from the selected samples of Pachagarh Districts with two groups ('with credit' and 'without credit') of rural women. In this study, sampling design was followed by "purposive

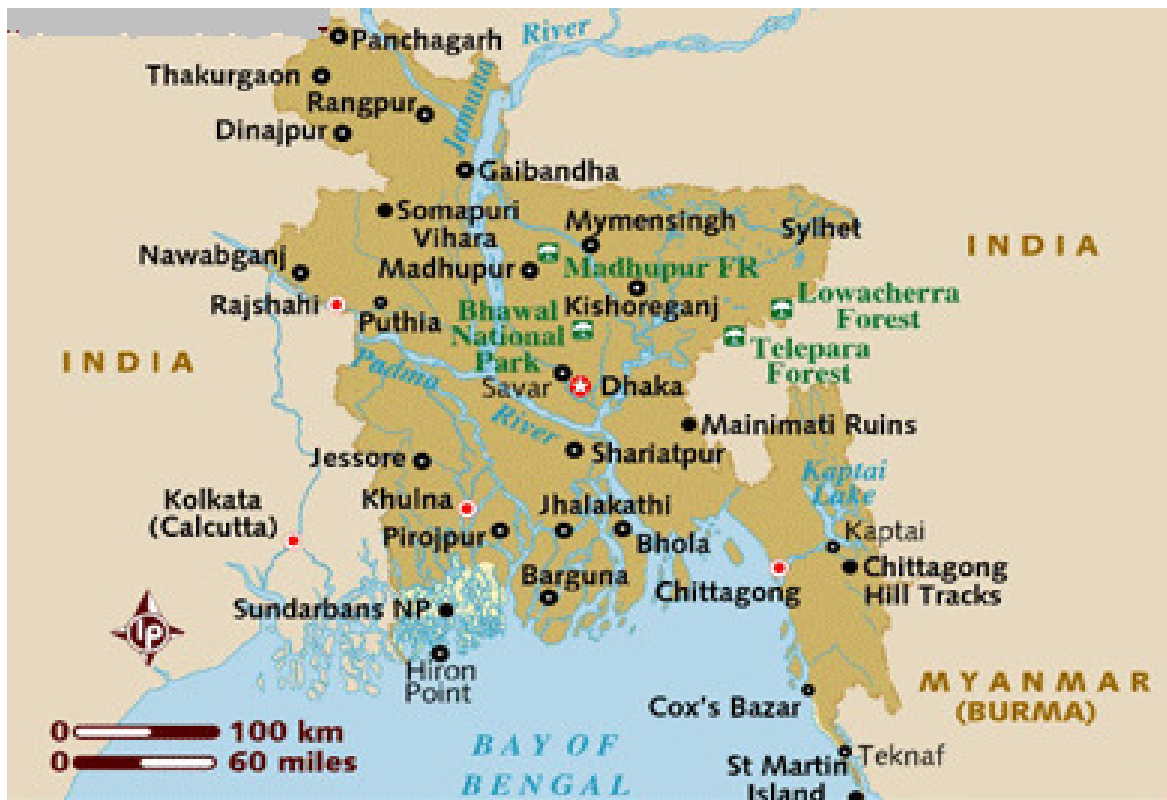


Figure 1. Map of Bangladesh.



Figure 2. Map of the Study Area: Panchagarh District of Bangladesh.

stratified random sampling" method. In the first stage of the survey and sampling, the study was purposively selected the samples of the rural women in the Panchagarh District. Then, the samples were divided into two groups i) with credit and ii) without credit rural women.

Grameen Bank members are chosen for 'with credit' respondents. For the with credit samples, this study has selected 200 samples randomly from the listed (about 700) rural women of Grameen Bank members in the Pokhi Laga, Vetur gor, Chand para, and Madhuban guchchho gram. For the 'without credit' samples, this study has selected 100 samples randomly from the total rural women (900) from the Goual para and Jamader para villages, who do not bear loan or credit. The data were collected by the researcher herself using a pre-tested interview schedule and the period was from 1st April 2008 to 30 June 2008. The survey schedule was designed in accordance with the objectives of the research.

In conformity with the objectives of the study, a comprehensive survey schedule was prepared, that included all the important factors related to socio-economic characteristics, awareness and women empowerment, poverty and vulnerability of 'with credit' and 'without credit' rural women. A draft schedule was prepared and tested from the four selected 'with credit' and 'without credit' rural women. The survey schedule was finalized after making necessary correction, modification and adjustments.

Data analysis

After survey of the study, all the data were coded directly on questionnaires and then entered into personal computer. Several analyses of the data have been carried out in the core of this study. Simple descriptive statistics such as sums, means, percentages, frequency distributions and cross-tabulations were used to analyse primary data for this paper. This study utilised the Statistical Package for Social Science (SPSS) to analyse the data. This study also conducted a measurement of poverty to determine the incidence, intensity and severity of poverty of 'with credit' and 'without credit' rural women. The study has followed the poverty measurement that has been proposed by Foster et al. (1984). They proposed a class of poverty measures that satisfies all the criteria for an ideal poverty measure. It has extra advantage of having additive decomposability. This is known as the FGT index and is given by Malik (1996) and Shirazi (1995).

$$P_{\alpha} = \frac{1}{n} \sum_{i=1}^m \left(\frac{z - y_i}{z} \right)^{\alpha} \quad (1)$$

Where,

P_{α} = level of poverty
 n = population size
 m = number of poor
 z = poverty line
 y_i = per household income

And where, α has a normative value that can be set at different levels is defined as the mean of the squared proportionate poverty gap (again mean is formed over the entire population, counting the non-as having a zero poverty gap). The parameter determines the weight given to the severity of poverty. If the value is taken $\alpha = 0$, then society does not distinguish among the poor and simply considers the number, P becomes the head-count ratio that is,

$$P = M/N \text{ ----- (1)}$$

If $\alpha = 1$, each poor is weight by his relative distance from the poverty line. The society is indifferent between an absolute in income accruing to a person who is near to the poverty line and the same incremental income accruing to the person who is further away from the poverty line. In this case, the poverty measure reduces to which is a measure of the aggregate poverty gap which shows the

$$P_1 = \frac{1}{n} \sum_{i=1}^m \left(\frac{z - y_i}{z} \right) \quad (2)$$

percentage of total income needed to be transferred from the non-poor to the poor households to lift them above the poverty line. By using poverty Equation 1, the FGT index can be calculated. In the recent analysis of trend project- 1989 to 94, BIDS showed that the FGT index declined from 13.5 in 1989 to 9.6 in 1994, indicating improvement in economic condition at the lower end of the poverty scale. An improvement in the distribution of income among the poor, even when the poverty gap ratio remains unchanged is considered desirable by some from the welfare point of view. In some recent empirical studies on poverty $\alpha = 2$ is used. This is a measure of the severity of poverty, and is estimated by

$$P_2 = \frac{1}{n} \sum_{i=1}^m \left(\frac{z - y_i}{z} \right)^2 \quad (3)$$

The poverty measures are poverty incidence, poverty gap index and the severity of poverty.

DESCRIPTION OF POVERTY INDICATORS

Given the poverty line of 2008, the present study made an attempt to examine a) the incidence, b) the intensity or depth and, c) the severity of poverty among 'with credit' and 'without credit' respondent's household on the basis of the Foster et al. (1984) model, that is, after the poverty line has been specified, the incidence, depth as well as severity of poverty were assessed based on household income.

$$P = \frac{1}{N} \left\{ \sum_{i=1}^M \left[\frac{z - y_i}{z} \right] \right\}^{\alpha} \quad (4)$$

Where, Y_i is the income per beneficiary household, Z is the poverty line of 2008, N is the number of households in the sample, M is the number of beneficiary households having income below the poverty line and α can be interpreted as a measure of inequality aversion.

The headcount index or incidence of poverty

The headcount index is one of the basic methods of measuring poverty. When $\alpha = 0$, the equation reduces to M/N , that is, the number of poor households in the sample population. This is commonly used as a measure of the incidence of poverty and is called the head count ratio. It is expressed in percentage, and is known as head count index. This index measures the incidence of poverty by indicating the proportion of the population whose per capita income is below the poverty line. In other words, the head count index is the proportions of the population whose income is below the

Table 1. Poverty indicators of 'with credit' and 'without credit' household.

Poverty indicators	With credit household (%)	Without credit household (%)
Incidence of poverty	79.50	99.0
Intensity of poverty	27.60	58.70
Severity of poverty	11.53	37.10

Source: Field Survey, 2008

poverty line, that is, the proportion of the population who has no command over goods and services, to meet their basic needs, as they cannot afford to buy a basic basket of goods and services.

The poverty gap index (PGI) or intensity of poverty

Poverty gap has been defined in sample terms as "the distance of the poor below the poverty line, as a proportion of the line". When $\alpha = 1$, the poverty gap ratio is produced, which shows the shortfall of the poor households income from the poverty line expressed as average of all households in the sample. In other words, the poverty gap index captures the mean aggregate income shortfall relative to the poverty line across the whole population.

Square poverty gap index or severity of poverty

The squared poverty gap index "measures the severity of poverty by giving more weight to the poorest of the poor". When $\alpha = 2$, the squared poverty gap ratio is obtained which measures the severity of poverty. In the present study, all the three measures have been used to estimate the incidence, the depth, and the severity of poverty among 'with credit' and 'without credit' respondent's household.

Recently announced by the World Bank in 2008, poverty line of \$1.25 a day / person. Thus, the estimated current rural beneficiary households have been expressed in real terms, to make it comparable to the poverty line income of 2008 which was fixed at Tk. 12600 per month per household (World Bank, 2008).

RESULTS AND DISCUSSION

Incidence, intensity and severity poverty of 'with credit' and 'without credit' respondent's household

Table 1 indicates that the incidence, intensity and severity of poverty among the 'with credit' households are 79.5, 27.6 and 11.53% respectively. On the other hand, 'without credit' households suffer a higher level of poverty in terms of its incidence (99.0%), intensity (58.70%) and severity (37.10%) than the 'with credit' households.

Relation of poverty with different characteristics of 'with credit' and 'without credit' respondents

Poverty and education

The relationship between poverty and education could be

viewed in a circular pattern of cause and effect. Poverty tends to contribute towards low educational achievements which in turn contribute towards the perpetuation of poverty through lack of access to higher education and skills training, which lead to low paying jobs and slower vertical mobility up the occupational ladder (Chamhuri, 2004). Table 2 provides a summary of the results of the cross-tabulation analysis of the pertaining relationship between the education levels and poverty situation of respondent's. From Table 2, we can see that the incidence of poverty among the women with no education under 'with credit' group is much lower (22.0%) than that of the respondents with no education under 'without credit' group (59%). Similarly, women with primary school and SSC experience under 'with credit' group face lower severity of poverty (4.15 and 2.51%) compared to the 'without credit' women with primary school and SSC experience. Table 2 suggests that, educational attainment of the respondents contribute positively to reduce poverty situation among the 'with credit' house-holds more, as compared to 'without credit' households. Siwar and Norshamliza (2008) also found that, higher incidence of poverty was related to lower educational levels and higher levels of education were related to lower incidence of poverty. The reason is that, attainment of high educational level may be implied for a larger set of employment opportunities and higher wages (Khanam, 2005).

Poverty and household size

Household size of a family determines the potential dependency on the family and consequently affects poverty situation of that family. In the developing countries like Bangladesh, high mortality rates prevail among the infants and children due to various diseases, malnutrition and many other reasons. High mortality rates among the infant and children are linked closely to high fertility rates. In a high mortality environment, parents generally tend to have more children to replace the ones that they lose. One of the potential reasons for this type of tendency is that, poor families living with inadequate incomes and limited access to employment, health, education and social services have to rely on their children for their future security and support (Todaro, 1989). Meier (1989) opines that, the poor households consider children as

Table 2. Pattern of poverty by levels of education.

Level of education	'With credit' respondents	'Without credit' respondents
Head count ratio $\alpha = 0$		
No Schooling	22.0	59.0
Primary School	28.0	28.0
Secondary School Certificate (SSC)	22.0	12.0
Higher Secondary Certificate (HSC)	7.5	-
Total	79.5	99.0
Single poverty gap $\alpha = 1$		
No Schooling	8.68	34.64
Primary School	9.86	17.46
Secondary School Certificate	6.65	6.60
Higher Secondary Certificate	2.40	-
Total	27.59	58.70
Squared poverty gap $\alpha = 2$		
No Schooling	3.95	21.84
Primary School	4.15	11.23
Secondary School Certificate	2.51	4.03
Higher Secondary Certificate	1.02	-
Total	11.63	37.10

Source: Field survey, 2008.

their assets, which are not subject to left. Thus, the poor households have a number of children and usually the more the children, the more the demand for basic needs e.g. food, health, shelter, education and other facilities. But, the income of poor families is low and insufficient, to meet the basic needs of the household.

Consequently, it becomes difficult for the poor to support and maintain a large family and they cannot take proper care of their children. Therefore, large household size pushes the poor families into deeper poverty. With the view of the above, it is expected in Bangladesh that, a household with large family size has a greater probability of being poor. Table 3 provides a summary of the results of the cross-tabulation analysis of pertaining relationship between the household size and poverty. The estimates of the decomposed FGT measure shows that, the intensity of poverty gradually increases the higher household size. For example, here we can see that 'with credit' households those that have 5 and more family members suffer much lower incidence, intensity and severity of poverty (26.5, 8.50 and 3.47% respectively) than that of 'without credit' households having 5 and more family members (47, 58.71 and 17.64% respectively).

Poverty and number of earning member

Table 4 displays the results of the cross-tabulation

analysis about the relationship between the number of earning members and the poverty situation of the respondents. Generally, it can be assumed that the more the income earners in a household, the higher the household income which ultimately contributes to a reduction of the household's poverty. This is reflected by the findings of Table 4, where we can see that the incidence, intensity and severity of poverty among the 'without credit' households having one income earner are much higher (44, 25.36 and 15.71% respectively) than that of the 'with credit' households having one income earner (21, 7 and 2.9% respectively). On the other hand, the 'with credit' households having four income earners face lower severity of poverty (0.43%) compared to 'without credit' households those have four income earners (0.47%).

Poverty and occupation

Table 5 summarizes the results of the cross-tabulation analysis about the relationship between occupation of respondent's and poverty. In terms of occupation, the maximum respondents are farmers who are engaged with agricultural work (Table 5). Among the farmers of 'with credit' respondents, the incidence, intensity and severity of poverty are 51.5, 17.62 and 7.19% respectively. On the other hand, the farmers of 'without credit'

Table 3. Pattern of poverty by number of family member.

Family member (No.)	'With credit' respondents	'Without credit' respondents
Head count ratio $\alpha = 0$		
2	12.5	4.0
3	19.0	20.0
4	21.5	28.0
5 and above	26.5	47.0
Total	79.5	99.0
Single poverty gap $\alpha = 1$		
2	4.19	2.14
3	7.23	12.14
4	7.68	16.72
5 and above	8.50	27.71
Total	27.60	58.71
Squared poverty gap $\alpha = 2$		
2	1.72	1.32
3	3.10	7.47
4	3.27	10.66
5 and above	3.47	17.64
Total	11.56	37.09

Source: Field Survey, 2008

Table 4. Pattern of poverty by number of earning member.

Earning member (No.)	'With credit' respondents	'Without credit' respondents
Head count ratio $\alpha = 0$		
1	21.0	44.0
2	43.0	42.0
3	12.5	12.0
4	3.0	1.0
Total	79.5	99.0
Single poverty gap $\alpha = 1$		
1	7.0	25.36
2	15.11	26.25
3	4.48	6.41
4	1.0	0.68
Total	27.59	58.7
Squared poverty gap $\alpha = 2$		
1	2.90	15.71
2	6.37	17.20
3	1.83	3.72
4	0.43	0.47
Total	11.53	37.10

Source: Field survey, 2008

Table 5. Pattern of poverty by category of occupation.

Occupation	'With credit' respondents	'Without credit' respondents
Head count ratio $\alpha = 0$		
Farmer (agriculture work)	51.5	46.0
Small business	23.5	7.0
Daily labour	0.5	14.0
Housewife	2.0	31.0
Private servant	2.0	1.0
Total	79.5	99.0
Single poverty gap $\alpha = 1$		
Farmer	17.62	26.72
Small business	7.88	4.34
Daily labour	0.09	7.93
Housewife	1.07	18.95
Private servant	0.99	0.76
Total	27.65	58.7
Squared poverty gap $\alpha = 2$		
Farmer	7.19	16.56
Small business	3.13	2.97
Daily labour	0.008	4.96
Housewife	0.67	12.04
Private servant	0.53	0.58
Total	11.53	37.11

Source: Field survey, 2008

group face the incidence, intensity and severity of poverty of 46, 26.72 and 16.56% respectively. The other occupations are low paying jobs in the services like daily labour and private servant. The poverty patterns among the daily labour and private servants of 'with credit' group are (0.5, 0.09, 0.008%) and (2, 0.99, 0.53%) respectively. Conversely, the daily labour and private servants of 'without credit' group suffer from the incidence, intensity and severity of poverty of (14, 7.93, 4.96%) and (1, 0.76, 0.58%) respectively.

Conclusion

The study suggests that, the rural women after joining the Grameen Bank's microcredit programme, have been able to engage themselves with income generating activities and consequently reduce significantly their poverty situation. It is reflected by the findings of the study. The results show that, the 'without credit' women have a higher percentage of poverty, in terms of its incidence (99%), intensity (59%) and severity (37%) compared to the 'with credit' respondents (80, 28 and 12% respectively). It was

also found that, the level of education positively influences the poverty situation of rural women. Furthermore, the study suggests that, the more the income earners in a household, the higher the household income which ultimately contributes to a reduction of the household's poverty.

For example, with one income earner, the severity of poverty is higher among the 'without credit' households (15.71%) than it does among the 'with credit' households (2.9%).

On the other hand, the borrower households with four income earners face lower severity of poverty (0.43%) compared to non-borrower households (0.47%). Therefore, it is obvious that the microcredit programme of Grameen Bank, has a significant impact on promoting income generation activities and consequently poverty alleviation of rural women. Not only Grameen Bank but also other MFIs working in Bangladesh are contributing substantially to poverty reduction, by providing microcredit to the poor people. Finally, it can be concluded that, microcredit programmes play a positive and important role in reducing poverty among the rural poor families.

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