Asrayon: A Resilient Rehabilitation Program in Southern Parts of Bangladesh

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Abstract: In Bangladesh, among the other causes of poverty landlessness is considered one of the major of them. After the independence of Bangladesh, different government at different times introduced a variety of a rural rehabilitation program in order to improve the quality of life of the rural poor by giving access to khas² land and housing facilities. Asrayon project is one of them which is aiming to provide housing facilities as well as self-employment to rural poor. Since 1997 to 2018 about 2,84,597 families were rehabilitated under the asrayon project in three phases. The asrayon-2 project has been taken about 2.5 million landless, homeless, fragile families for the purpose rehabilitation program for the year of 2010-2019 (amended). Under this project, about 1.2 million families supposed to be rehabilitated in the southern part of Bangladesh. Wheres the southern part (coastal zone) of Bangladesh has been facing wind-related natural disaster like tornado, cyclone, sidr with storm surges in the last few decades. These disasters cause a large scale of damage to socio-economic condition, destruction of infrastructures-residents and death, injuries to humans and animals. Even the asrayon project faced huge infrastructure damage and loss of human life due to Sidr (2007) and Aila (2009). But a very few studies have been carried out yet to find the cause. Observing this gap and realizing the importance of government rehabilitation program this study attempts to evaluate the Asrayon project as a resilient rehabilitation for rural poor in the southern parts in Bangladesh.

Keywords: Rehabilitation Program, Asrayon Project, Resilient Housing, Coastal Zone

1. Introduction

Bangladesh is one of the most densely populated countries with a population of 162.9 million and has a density of 1106 per square kilometer. About 24.9 percent of rural people living under the poverty line (UNDP,2016) and about17.7 percent of rural households were under the tendency of landlessness in 2014, increasing from 11.9 percent in 2000 and 9.3 percent in 1988. (BIDS,2014). Landlessness in Bangladesh has increased at most the same rate of population growth in the past few decades. (Farid, S.M., 1993).At the time span of 1960 to 1984 the number of rural households increases 2.2 percent per year with the increase in a number of rural households at 2.2 percent. (Nayega, 2004) Moreover, About 28.67 million households in Bangladesh, 4.48 million households are absolutely landless. It has been reported that about 3.28 million landless households in the total number of 25.26 households in rural areas. (BBS,2011) Again the census 2011 reveals that from 1981 to 2011, within the last three decades the total number of agricultural land ownership decreased from 61.30 percent to 48.25 percent. (BBS,2011) As a result, there is a close correlation can be found in poverty and landlessness. Due to the climacteric circle of poverty, the marginal landlord becomes landless and gradually homeless. Besides natural disasters like cyclone, tornado, river erosion are also responsible for landless and rootless families in Bangladesh. When the annual cyclone roars in thousands of people are swept away. (Faisal, 2012) From 1920-2010 in the last 100 years, about 503 cyclones occurred in the zone of Bay and Bengal and about 21 percent of them affected the coastal zone of Bangladesh, amounting the severe cyclone once in every three years. The cyclone of 1991 strikes material damage of 1.5 billion US dollar and human casualties numbered 140,000. (McCurthy and Paul, 1994) In November 2007, cyclone Sidr struck the coast region and causes 1.7 billion US dollars materials damage

and about 5,000 fatalities happened. (JDNLA, 2008) About 3 million people were displaced by the cyclone Sidr alone. From 2008-2014 it is estimated that about 4.7 million people in the coastal zone become displaced and most of them become rootless because of disaster. (NRC,2015). But housing is a basic need and it is a fundamental responsibility of the government to provide shelter to the people. Keeping that in mind the Government of Bangladesh have taken a lot of initiatives and enacted laws and policies to help the rural poor by giving access to the land and land-based services in order to reduce the vicious circle of poverty. At the time of the independence of Bangladesh (1972), the government established a "cluster village" program to give access to "khas" (Khas land means the land owned by government which is under direct control of Ministry of Land.) lands. (project proforma, 2002) The initial project was followed by some other government initiatives like "Abason Prokolpo", " Asrayon Prokolpo". At present, the "Asrayon Prokolpo" a rehabilitation program is carried out by the ministry of land and by the office of prime minister. Over 2,64,000 families have been rehabilitated so far in three phases across the country from 1997 to 2010. (BBS, 2015) The government undertook Asrayon-2 program for providing shelter for around 250,000 families at a cost of 4.28 billion taka within the year 2019 and about 60 percent of the work completed in the year of 2018. But this program arises some question about the site selection, beneficiaries selection, credit system, and the barrack design, natural disaster management problems and so on. (Latif, 2004) But a very few studies have been carried out yet to find the causes and discussed the important issues like what extent the rehabilitation program works as resilient housing and improving the quality of life of rural people in the coastal zone of Bangladesh.

Observing this gap, this study will evaluate the performance of the rehabilitation program as a resilient housing aiming for

the development of the quality of life. Resilient is a multidimensional term having the social, economic and physical aspects. Due to the limitations of scopes, this study will only focus on physical aspects and partly social aspects.

2. Approach

2.1 Asrayon

Asrayon is a project under the rural rehabilitation program of Government for shelter and self-employment of landless poor in rural areas of Bangladesh which is administrated and financed by Prime minister office with the help of Ministry of Land Local Government and Armed forces. In 1997 the project "proforma 1997⁵" was immediately launched after the cyclone when the prime minister visited the cyclone-affected areas and felt the urgency of taking permanent steps to reduce the problems by building houses and shelters which should be capable of withstanding at the of cyclone and storm. Keeping that in view, the Asrayon project was launched. The main objectives of the project were the alleviation of poverty by providing shelters and by imparting training facilities on skill development for income generation activities. (Mallick, B., and Z. Sultana, 2013) The project was also designed to provide basic education, primary health care, and family planning education. This project was designed to provide shelter for 50,000 families in phase 1. The successive government also keep the basic concept of the programme and built it as a name of "Abasa Prokolpo". Phase-2 and phase-3 (2002-2010) also provided shelter over 1,10,000 families at a cost of 17.71 billion taka.

To implement the program three task forces were formed at the central, districts and Upazila level. Upazila administration is the primary authority. Eleven departments and local government, as well as local social elites, are directly involved in the process. District level administration is the next level authority and about 18 departments work simultaneously to make the process run. There is a central advisory committee for guidance and supervision of Asrayon activities. (PP Asrayon,2000)

Each family rehabilitated in the Asrayon project has got a room (0.08 acres of dwelling space) for living with an attached kitchen has a total of 261 sq.ft. Each dwelling barrack consists of 10 rooms for 10 families and 2 blocks of latrines and a tubewell. Each of the villages comprises with a community center, prayer space, graveyard, pond and provision of primary school. (PP Asrayon,2000)

2.2 Approach of the Study

Before going into methods and data analysis it will be useful to include a general description of the study area. Asrayon project implanted all over the country on the basis of availability of "khas" land. About 3,00,000 families were rehabilitated during 1997-2017. The number and size of the Asrayon project vary from region to region and district to districts. There are 19 coastal districts in Bangladesh and about 60 percent of the rehabilitation program done there. (Asrayon, 2010) There was no specific rule followed to select the study area, rather it was chosen randomly. Though some facts can be considered as the most affected area like Barguna, Satkhira, Bola, Patuakhali.(BBS,2011) This study will only focus on Barguna district which has an area of 1831.31 sq. km and population of 1,79,968, is bounded by Payra, Bishkhali and Baleshwar river. (BBS, 2011) Barguna is divided into 5 upazilas, 38 unions, 238 mouzas, and 560 villages. (Banglapedia, 2010) Barguna districts are always affected by storm surge, coastal flooding and other hazards associating with cyclone. This study area has faced numerous cyclone and storm surges for a long timespan. (1870-2010) Therefore, a numerous Asrayon project can be found in the area. From 2002-2010 about 1840 families were provided with shelter in Asrayon project phase-2 and 750 families in phase-3. (Arayon, 2010) The total number of household is 1.93 in urban areas and 98.07 in rural areas and about 91.08 percent housing structure is "Kutcha". For these reasons 3 Asrayon projects, two of them in Barguna Sadar (Kumrakhali, 280 families and Potkakhali, 260 families) and one in Amtali Upazila (Mollapara, 190 families) have been selected for research.

Out of 730 households in three Asrayon projects about 370 (53%), households were selected randomly for a questionnaire survey. This study is mainly based on primary data which was collected from the questionnaire survey of the rehabilitated poor, interview of the related officials, local people and authorities. A good amount of secondary data was collected from related research. Information collected from the questionnaire survey and secondary sources was organized, processed and analyzed in Statistical Package for Social Sciences software. The graphical presentation was completed in BibTeX, MS word software.

3. Materials And Analysis

3.1 Evaluation of Asrayon project in terms of Housing Condition

Housing provides shelter, safety, security, comfort and decent living to people. (Latif, 2005) All activities whether it's social or economical depends much on this. Housing condition is a physical aspect which affects the quality of life and quite necessary to create resilience. Better housing condition creates better opportunities for resilience so it's a prime factor to evaluate the Asrayon project. From the analysis (table 1 and 2) it is a fact that the housing condition of the rehabilitated people gets quite better comparing to their past experience.

Before the project, 93% of the rehabilitated people's housing structure was "kutcha" means the roof materials were either thatch or straw, walls were made of bamboo, mud or straw, floors were mostly mud and there was no provision for the foundation. But after the project, CI sheet was used as roof material and for walls enclosure, floors were concrete casting and steel framework was provided for roof safety. About 93% of the rehabilitated people acknowledge that their present housing condition is better than before. Over 95% of the respondents acknowledge that their housing materials are better than before. A table is given below to examine the scenerio.

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	F	0]000		
	Roof			
Materials	Before		After	
	f	%	f	%
CI Sheet	5	5	100	100
Straw/ Thatch	95	95	0	0
Bamboo	0	0	0	0
Clay/Mud	0	0	0	0
Concrete	0	0	0	0
Total	100	100	100	100

 Table 1: Roof, Wall, Floor structure before and after the project

Source: Field Survey, March 2018

 Table 1: Roof, Wall, Floor structure before and after the project

Materials Walls				
materials	Walls Before After			or
	f	%	f Aji	%
CI Sheet	2	2	80	80
Straw/ Thatch	70	70	0	0
Bamboo	15	15	20	20
Clay/Mud	13	13	0	0
Concrete	0	0	0	0
Total	100	100	100	100

Source: Field Survey, March 2018

Wheres, all of the respondents acknowledged that the floor materials were mostly mud and clay before the project and "Pucca" (Concrete casting) floor was provided as for material.

3.2 Evaluation of Asrayon project in terms of improving the quality of life

It was noted before that, resilient is a multidimensional term which includes social, economic and physical aspects. This study mainly focuses on physical and partly social aspects. To asses the improvement of the resilience and social dimension (the quality of life) some indicators such as household characteristics (roof materials, walls, plinth), adequacy of land, shelter and workplace distance, education, healthcare and family planning, water supply and toilets facilities, cyclone shelter, disaster management knowledge were evaluated. All these social, economic and physical indicators mainly indicate the quality of life. In fact, lack of access to these facilities poor are not only left vulnerable but also they can be misguided, dominated and ever exploited by so-called elites of the society. (Latif, 2005) So the Asrayon project starts as intending to reduce the poverty and improving the above issues by giving access to these services to the rural poor. Asrayon project has a lot of scopes to work as a resilient program and this study will try to evaluate this on the basis of above physical and social aspects.

3.3 Evaluation of Asrayon project in terms of Adequacy of Lands

In this project is one of the major factors that would facilitate the settlement as well as it will help the beneficiaries to increase the income generation activities. According to the documents, there should be the provision of allotting at least 8 decimal of lands for each family and also right to use the pond as well as agricultural land for cultivational purposes. In the light of such provision, land location and the sufficiency of the awarded land is taken under consideration to see how far this would meet the satisfaction.

Therefore, the second set of questionaries was on the adequacy of land which affects the income generation. In the questionnaires, there was a question about whether the provision of agricultural land provided to the beneficiaries and all the respondents assert that they were not provided with any agricultural land. From the analysis, it was found that 18 percent of the beneficiaries acknowledged that the land was adequate wheres the 82 percent assert that it was not enough.



Source: Field Survey, April 2018

There was a set of questions about the work distance from the project area and it has received a mixed response. the project site located in Barguna Sadar most of the respondents' shoe positive attitude, on the other hand, the respondents of Amtali Upazila (Mollapara) stated that the workplace is located more than 5-7 km from the project site.

 Table 4: Distance between project location and workplace in Barguna Sadar



From table 4 (above mentioned) it can be stated that the benefices from Barguna Sadar project are satisfied with the project location and the distance between the project site and workplace easily fits their requirements.

 Table 5: Distance between project location and workplace in Amtali Upazila(Mollapara Project).

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The distance between the project area and workplace is more than 5-7 km which hinders the income generation activities.

3.3 Evaluation of Asrayon project in terms of Literacy and Child Education

Education is the backbone of the nation. Long term social and economic benefits come from child education. It will not only bring benefits to the family but also the nation. Education improves the quality of life by eliminating all types of ignorance and superstition and illuminates a nation. That's why the Government should prioritize education. The Asrayon project in Amtali Upazila (Molla para) does not have a school. The near most school location is about 2 km from the project site. But the Barguna Sadar Asrayon has an elementary school which is not currently running. Though the near most primary school location is about 500 meter from the site location. The Asrayon project impact on the literacy rate is examined below.

Table 5:	Literacy rate	of the Asrayon	Project

			,	5	
	Level Of Literacy				
Age Group	Illitera	te	Literate		
	Population	%	Population	%	
0-5	45	90	5	10	
6-10	7	8.7	75	91.3	
11-20	12	16	63	84	
21-30	25	61	16	39	
31-40	32	64	18	16	
41-60	11	48	12	52	
Above 60	18	75	6	25	
Total	150	43	200	57	

Source: Field Survey, April 2018

The average literacy rate at Barguna is 56.3% and the literacy rate of the population 5+ is 85.6% (BBS,2011), where the literacy rate in the Asrayon Prokolpo is about 91% which is much better than the national level literacy rate (78.6%). From the table, it is noticed that the literacy rate of 6-10 age is the highest and most of them got admitted after coming to the project.

Another factor can be noticed, the literacy rate is higher age group is relatively low than the other age groups and most of them are getting educated as because they only get credit from the project if they recognize their own signature.

So it is clear that the attitude towards education is changed among the project people. It is not only because of Asrayon project but also seminars, training, workshops provided by NGO's and other government programs.

3.4 Evaluation of Asrayon project in terms of Health and Family Planning Services

Lack of knowledge of family planning, healthcare and sanitation and limitation of the access to these services cause severe health damage, child mortality, malnutrition, and population growth. Poor health and defective sanitation system cause great damage to life which also affects the income generation activities. So a good healthcare knowledge and proper sanitation not only saves lives but also gives the resilience to the community. The beneficiaries in the Asrayon project were deprived of these services, but when they moved into this project different organization, NGO, Government regularly monitored the selected project area.

Table 6: Access to health care and family planning services



It was found from the field survey that, about 92 percent of beneficiaries were getting the healthcare and family planning services and training, 25 percent of the respondents replied that they were getting these services before coming to this project. It should be mentioned that the beneficiaries from the three different projects came from different locations and the facilities were not the same for those areas. But it is clear that they were getting better services after coming to this project.

3.4 Evaluation of Asrayon project in terms of Water Supply and Toilet Facilities

The rehabilitated people acknowledged that there has been a significant change found in water supply and toilets facilities in the asrayon project. This is stated in the following table.



Source: Field Survey, April 2018

From this field survey, it was found that over 85 percent of the beneficiaries used tube-well water for drinking, cooking wheres the other 15 percent use pond/river/well water for cooking and drinking. Pure drinking water is one of the major factors for good health care and the Asrayon project ensured that most of its beneficiaries provided with this service.

The toilet facilities are also a very important aspect of a hygienic lifestyle. Only 12 percent of the rehabilitated people used sanitary latrines and the rest 88 percent used "kutcha" or open latrine which is unhygienic, lack of water supply and sanitation system. But after the project, 100 percent of the households used water siled sanitary latrine.

Table 8: Types of toilets used before the Asrayon project



Source: Field Survey, April 2018

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 Table 9: Types of toilets used after the Asrayon project

Source: Field Survey, April 2018

From the field survey, it is quite clear that the Asrayon project made a significant change in water supply, sanitation, toilets facilities, which is quite a necessary factor for the quality of life and eventually the resilience.

3.5 Evaluation of Asrayon project in terms of Social Life Status

Man is a social being. All men live in a together and format a society. So all men are the members of the society but their social status is not the same. Different factors like education, health and wealth status, house and housing, honesty and dignity, family and family background, moral status and other some indicators of social status. (Latif, 2005) Most of the people who rehabilitated in the project were homeless and rootless as they were floating in the society. But after the project the had an identity, a shelter, and better economic condition, education facilities which creates a better scope for social status. A questionnaire survey was performed in the project area to realize the condition and from this, a table is formatted below.

 Table 8: Present Social life compared to the previous condition

Name of	Social Status of the household in			Number
the Village	percentage			of the
	Improved Deteriorated Not Changed			Total
	(%) (%) (%)		Households	

Barguna	80	15	5	70
(Potkakhali)				
Amtali	75	15	10	30
(Mollapara)				
Total	79	15	6	100
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Source: Field Survey, April 2018

From the above-mentioned table, it is clear that social life status increased for a lot of respondents. About 15% of them claimed that they had an better social status before considering the other relative issues. Over 6% of the rehabilitated people claimed that their social status remained almost the same before the project. But it is important for a resilient community to develop a better social status and Asrayon project plays a crucial role in it.

3.6 Evaluation of Asrayon project in terms of Disaster Resilience

Every year 3-4 cyclone hit Barguna at different time period with different intensity. Most of the people live in this area under the poverty line. So the natural disaster affects the socio-economic life as well as the physical structure of their shelter. The Sidr and Aila two major cyclones hampered the socio-economic life of the residence of Barguna Sadar and Amtali Upazila. A table is given below to analyze the situation.

Bargu	na	
	Name of cyclone	
Impacts of Cyclone	Sidr	Aila
Affected unions	17	17
Affected paurashava	2	2
Affected people	4,50,000	1,25,000
Number of dead	175	7
Number of injured	2350	784
Affected crops	60%	45%
Affected educational institutions	215	52
Affected religious institutions	1120	625

Source: Uno office, Barguna, and Amtali, May 2018

From the table, it is clear that a huge amount of physical damaged occurred due to these cyclones. A questionaries survey was designed to find out the damages and about 82 percent of the respondents stated cyclones damaged their structure and most of them were unaware about the storm or how to cope up with it. Even 57% of them did not go to the cyclone shelter.

 Table 10: Impacts of Cyclone Sidr and Aila in the Asrayon

 Project

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The Asrayon project also faced huge damage due to this cyclone. About 37% of roof structure got damaged or lifted away, 12% of the house structure damaged in such a way that they needed a huge recovery. Moreover, 52% of the houses flooded by storm surges. 12% of the rehabilitated people severely injured. 67% of respondents stated that their crops and utensils were washed away. Some of them lost their cattle and poultry farm. Though the Asrayon project made some great change in social and economic aspects. But when it comes to disaster management and disaster resilient housing system it needs a major change. The climatic condition in the southern parts is different from the other parts in Bangladesh so the housing design consideration should be taken into account as well as an effective disaster management system should be introduced.

3.7 Evaluation of Asrayon project in terms of Barrack and Toilet Designing

The Asrayon project provides barrack housing. Each of the barracks consists of 10 rooms and one room for each family. So 10 families own a barracks. There are two blocks of latrine is provided one for male and other for. A tubewell is also provided for drinking. The major problem lies in the barracks housing as because 10 families own the barrack so there no sense of actual belongingness could be established. Moreover, the privacy of the room is greatly hampered because everything is audible from the other room. Attached toilet creates another social problem. In our culter, it is not quite usual for women to go to a toilet when a man goes to the attached one. Most of the habitats are Muslim and the Muslim do not permit it. About 98 percent of the habitats stated that separate housing could do solve the problem. A table is mentioned below.



Table 11: Response to separate House and Toilet.

4. Recommendation

Asrayon is a rural rehabilitation program which aims to alleviate the poverty of rural homeless and rootless people.

(Latif,2005) This project was designed to provide shelter, skill-oriented training for income generation activities, Child education, health care, and family planning services, pure drinking water facilities, women empowerment and so on in order to create a better quality of life for the rehabilitated people. The Project was quite successful as a result Asrayon Project -2 was initiated by the government from 2010-2019. But the project lacked many other social and physical issue that needs to be solved. As mentioned before that this study would only discuss the social and the physical issues of the project and identified some shortcomings. This research assumes that if this shortcoming could be removed or reduced at a significant level then a resilient housing could be noticeable. Keeping mind following this the recommendations is to be made:

4.1 Site Selection, Improvement of Design and Minimum Land Allotment

Site selection is the most important of all. A feasibility study should be performed before the recommendation for the site. An initial environmental examination (IEE) survey should also be made before the project.

The individual house can solve the barrack housing problems as well as disaster resilient structure should be introduced. Minimum 4-6 decimal of land should be provided each family (depends On family sizes) for housing purposes and 8-10 decimals of land should be provided (on the availability of lands) for cultivation, animal husbandry or Poultry farming.

4.2 Training Mangement, Credit management, Services, and Co-ordination

Need-oriented training services should be introduced. There should also be needed some region oriented fresh courses so that the rehabilitated people proper training, like fish cultivation, wood course training, handicrafts training for the southern part. There should be provision for credit for income generation activities and a strong committee should coordinate the whole project. Services like water supply, electric services, and toilet facilities need to be improved.

4.3 Cyclone Management

By analyzing the existing conditions it is clear that cyclone management system needed to be updated and improved. By creating cyclone shelter cannot solve the problems (Mallick, 2003) A resilient system should be introduced by creating the cyclone resilient community.

5. Conclusion

Asrayon is a project for shelter and self-employment for the rural poor in Bangladesh. This study has evaluated the impacts of the project improving the resilience by considering the social, economic and physical factors. It is found from the study that this project made a positive impact on the social status by improving the quality of life but when the natural disasters like a cyclone, storm surges, coastal flooding hit the coast zone their shelters, assets and even lives get hampered and destroyed due to some physical and social shortcomings. Asrayon project must solve these issues to build up a resilient community.

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