

Paper ID: URP 0145

## **Analyzing the Potentiality of The Farmers of Rajshahi to Tackle Famine Threat**

**A. B. Salim<sup>1</sup>, S. S. Disha<sup>2</sup>, H. M. H. Rahman<sup>3</sup>, S. S. Sammo<sup>4</sup>, Md. A. Wakil<sup>5</sup>, A. Das<sup>6</sup>**

<sup>1</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [bintesalimamrina@gmail.com](mailto:bintesalimamrina@gmail.com) )

<sup>2</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [mahmudsadia97@gmail.com](mailto:mahmudsadia97@gmail.com) )

<sup>3</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [h.r.rupom@gmail.com](mailto:h.r.rupom@gmail.com) )

<sup>4</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [samisammo0002@gmail.com](mailto:samisammo0002@gmail.com) )

<sup>5</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [mawakil@urp.ruet.ac.bd](mailto:mawakil@urp.ruet.ac.bd) )

<sup>6</sup> Department of Urban & Regional Planning, RUET, Bangladesh ( [anutosh@urp.ruet.ac.bd](mailto:anutosh@urp.ruet.ac.bd) )

### **Abstract**

A famine is characterized by a severe scarcity of food and other basic needs where starvation, death, and destitution are visible in communities. At that crucial time, farmers can shield the entire country from this threat. The country's output is completely dependent on the skill and capacity of its farmers. Like many rural communities, rural areas of Rajshahi are also facing challenges like the high price of pesticides, the high price of fertilizers, insect attacks, lack of sufficient rainfall, and loss of agricultural land. Unlike various research studies, this study involves the local community using PRA tools like pair-wise ranking, cause-effect diagram, seasonal diagram, and dream map to explore the current resources of the farmers and their cropping strategy, and possible solutions to tackle famine threat. According to many participants, the Unwillingness of cultivating crops, the Alternation of agricultural land to the pond, the high price of fertilizer, the lack of sufficient rainfall, insect attack, and high land rent creates Less production, loss of agricultural land, and low market value of crops. This study recommends effective strategies for public investments in agri-food systems, private sector investments, use of technologies to increase food production. This study can be useful for potential ways to tackle famine threats.

**Keywords:** *Famine; Barind Track; PRA; FAO'S Strategic framework; Food Production.*

### **1 Introduction**

Famine threatens undernourished individuals, leading to apathy and resistance to change. Drought is the primary cause, causing widespread food scarcity, leading to excess mortality and illness. (GRÁDA, 2007) Food security has made great contributions to world peace since ancient times. Famine is the most extreme manifestation of food insecurity (Deng, Xu, Zeng, & Qi, 2019). The famine of 1770, also known as Chhiyattarer Manvantar, was Bengal's worst in the 18th century (Ahmed, et al., 2000) 1978-1979 drought in Bangladesh reduced rice production by two million tons, affecting soils, crops, and management. (Brammer, 1987). Rajshahi is in the Barind Track region, with higher temperatures and less rainfall, primarily used for rice production. The region faces drought challenges, with high-yielding varieties (HYV) (Alam, Saadat, Rahman, & Rahman, 2013). Overuse and groundwater withdrawal in the Barind tract is causing a semi-arid zone with low to moderate groundwater potential. This affects land use, urban growth, and irrigation. Farmers' livelihoods rely on agricultural work and livestock and farmers change their farming strategy which is identified under the objective of proposing potential ways to tackle famine threats.

#### **1.1 Rationality of the Study**

Famine poses a threat to people who are inadequately fed, leading to apathy and a lack of belief in a better lifestyle. Ensuring food security is crucial during famine, and cropping strategy is crucial. Farmers may change farming patterns

due to environmental issues or geographical location, but certain areas contribute significantly to food production. Identifying farmer resources and farming strategies can help increase food production and create more food security.

## 2 Literature Review

### 2.1 Case study 01

The 1978-1979 drought in Bangladesh reduced rice production by two million tons, affecting three crop seasons. Farmers used new practices like irrigation, famine millets cultivation, and transplanting direct seeded crops. They adjusted crop rotations to compensate for losses and take advantage of reduced flood levels or market prices. This drought highlights the importance of flexible production plans, monitoring environmental factors, and recording farmers' disaster-mitigating practices for pragmatic research, extension, and development programs. (Alam, Saadat, Rahman, & Rahman, 2013)

### 2.2 Case study 02

The debate on famine or no famine in Yemen is emotive and often fundraising. However, there is no evidence to support a famine declaration in Yemen, and there is no evidence of people dying due to food insecurity. Claiming famine heightens skepticism about the response's foundation and fails to address the issue of food security. Cries of famine lead to agencies like World Food Programme (WFP) increasing food distributions, which does not fix the underlying problem of food security but increases the risk of food diversion. Investment in markets and production would be more sustainable to solve systemic food security problems. A nuanced, realistic, and honest analysis and debate are needed to address food security in Yemen. This study discusses the need to involve all residents in the decision-making process and explore innovative approaches to farming strategies, crop production, and overcoming famine situations.

## 3 Study Area Profile

### 3.1 Study Area Details

we took Godagari, Paba and Bagmara upzila as they contribute the most in potato, rice and paddy production in Rajshahi. As paddy, rice and potato are considered as the food security crop.

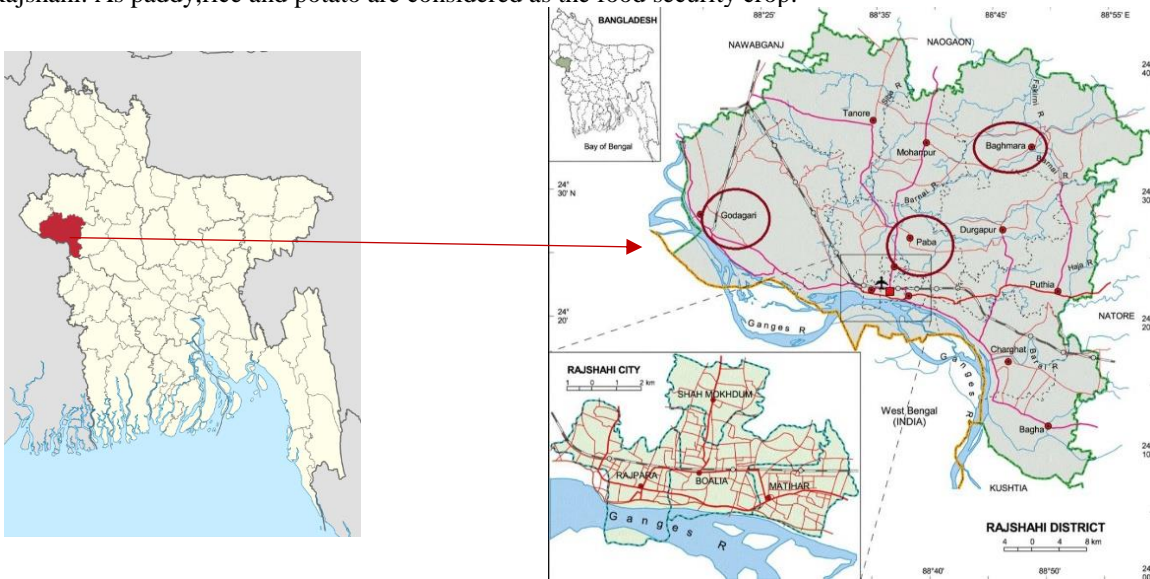


Figure 3.1: Map of Bangladesh and all upzila of Rajshahi.

## 4 Methodology

This study uses various PRA methods to analyze the social fabric of a community, including resource maps, seasonal diagrams, cause-effect diagrams, and dream maps. These tools help create a shared understanding of the community's

social fabric, aiding in sustainable development outcomes. The SWOT analysis measures internal and external factors, focusing on strengths and weaknesses to develop strategies for coping with famine threats. The study aims to analyze farmers' current resources and cropping strategies in a famine situation, using primary and secondary data from field surveys, questionnaires, and PRA tools. This comprehensive approach ensures effective and sustainable development outcomes.

## 5 Result and Findings

### 5.1 Demographic Scenario:

The participatory survey analyzed community social aspects to assess famine threat and potential. Despite some respondents' disinterest, important views were gathered, including the importance of Paba union sites, as noted by Wazed Ali (60). *“Our union has the best thing for potatoes, can you guess that? We have cold storage in our area. And here the local farmers get a lot of privileges. And another best thing is that we have a local market for farmers in our area, so we don't need to go far away to sell our product. We sell it in our Market.”*

The social map provides insight into respondents' social status, livelihood, household conditions, social commodities, and needs, thereby influencing the economic condition and living standard of the study area, as noted by Kamal Mia (48) -*“I only cultivate paddy, at first I used to cultivate a few more vegetables also. But the land for cultivation is decreasing day by day, as the fisheries scope is increasing, so many people are changing their field, and converting it into ponds, so I am also thinking the same, that why I have stopped cultivating vegetables ”*

That represents that the total land area for crop collection is losing and the scope for the fisheries is growing and many of the farmers of Baragachi union are changing their sector.

While taking interviews regarding possibilities, we were asking for the availability of croplands. As its sufficient or not, then One of our respondents Joynab Hossein (54) one of the farmers of Godagari union said that, *“I can produce more crops than now, but I have only a few lands of my own, and I can't afford the rented lands, so I just cultivate my own”*

This respondent has also drawn his piece of land according to his purpose in our resource map.

But on the measures of availability of lands, one of our respondents of Godagari union named Abdul Awal (56) claimed that-

*“Our place is known for paddy production, we have huge space for cultivation, and all of our lands are filled with crops.”*

And as Godagari area plays an important role in crop production and generates a significant role in the total crop production of Rajshahi. The Following Fig 5.2 shows the resource map of the Study areas.

### 5.2 Cause Effect Diagram

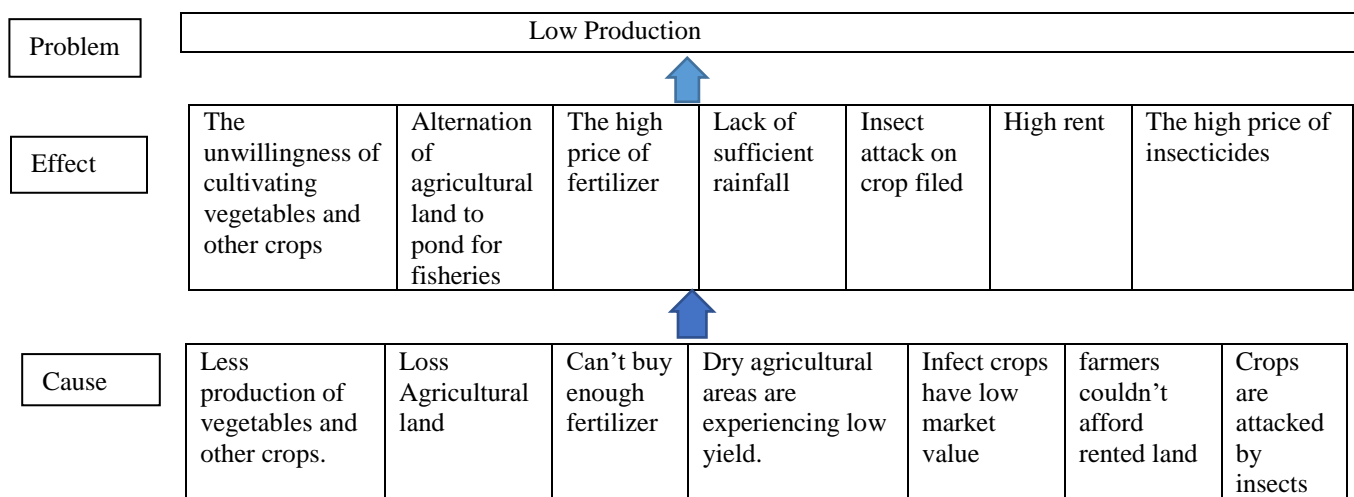


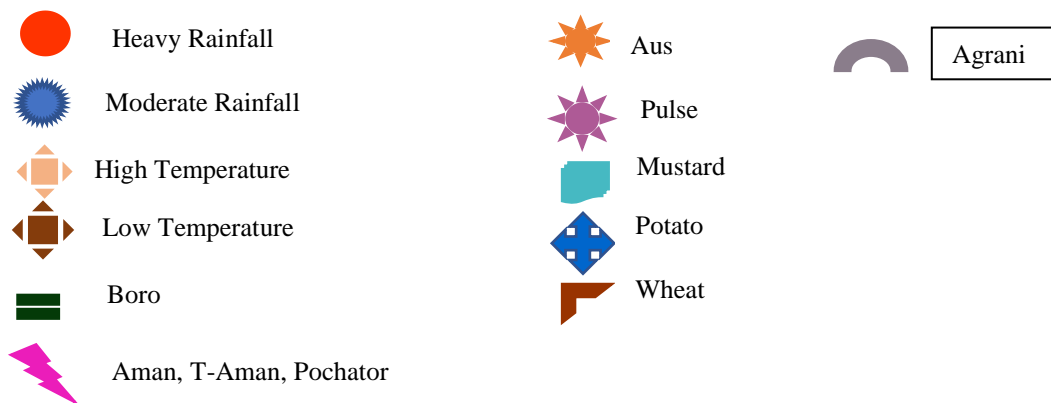
Figure 5.2: Cause-effect Diagram

### 5.3 Seasonal Diagram

A seasonal diagram helps identify agricultural periods and climate conditions, highlighting natural resources and local knowledge. Farmers currently practice Amon, Aush, and Boro Dhan rice, which require high maintenance and high pesticide use. During famine, they switch to Guti Sorna rice, which doesn't require high maintenance, high pesticides, and requires a shorter growth period. This resource map helps understand the perception of natural resources in their community.

	March	April	May	June	July	August	September	October	November	December	January	February
Rainfall												
Temperature												
Rice												
Pulse												
Mustard												
Potato												
Wheat												

Figure 5.3: Seasonal Diagram



### 5.4 Pair-Wise Ranking

The participatory survey revealed common constraints in food production, but their level was not officially recognized. Participants were informed about these constraints and compared using vocal opinion or matchsticks. A pairwise ranking method was prepared. The major constraint was lack of sufficient rainfall for land cultivation, followed by high fertilizer and land rent prices, insecticide prices, and loss of agricultural land.

Problem	The high price of fertilizer (1)	Lack of sufficient rainfall (2)	Insect attack (3)	High land rent (4)	The high price of insecticides (5)	Loss of agricultural land (6)	Frequency
The high price of fertilizer (1)	X	2	1	4	1	1	3
Lack of sufficient rainfall (2)		X	2	2	5	2	4
Insect attack (3)			X	4	3	6	1
High land rent (4)				X	5	4	3
High price of insecticides (5)					X	6	2
Loss of agricultural land (6)						X	1

Figure 5.4: Pair-wise Ranking

### 5.5 Dream Map

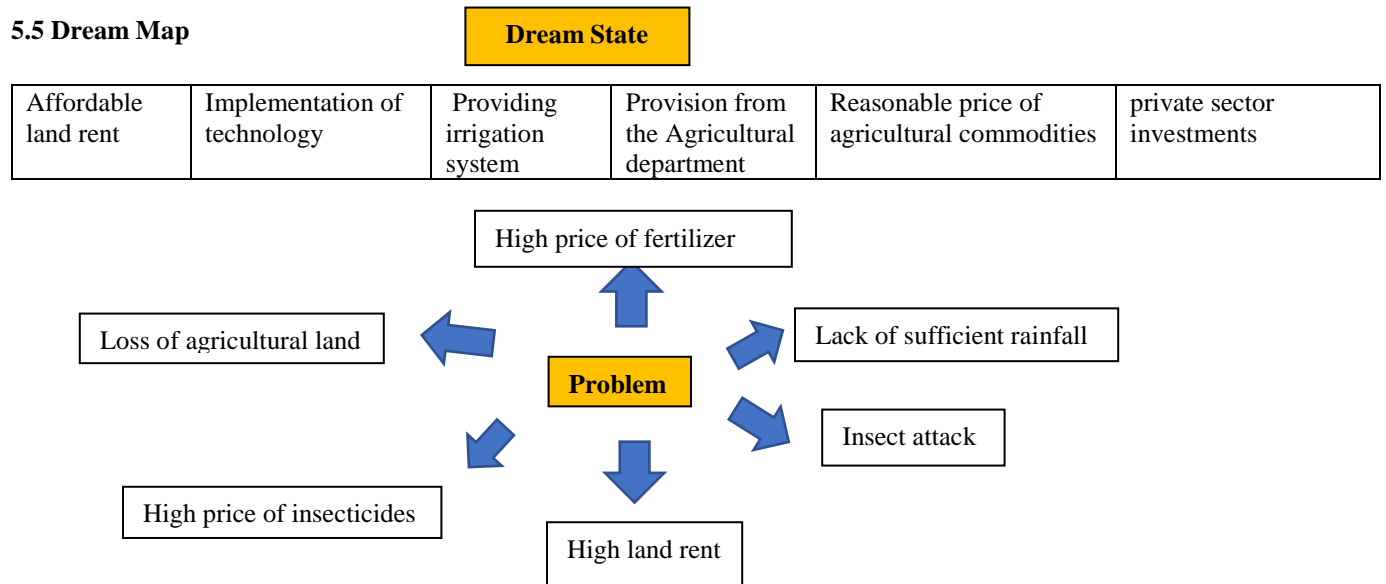
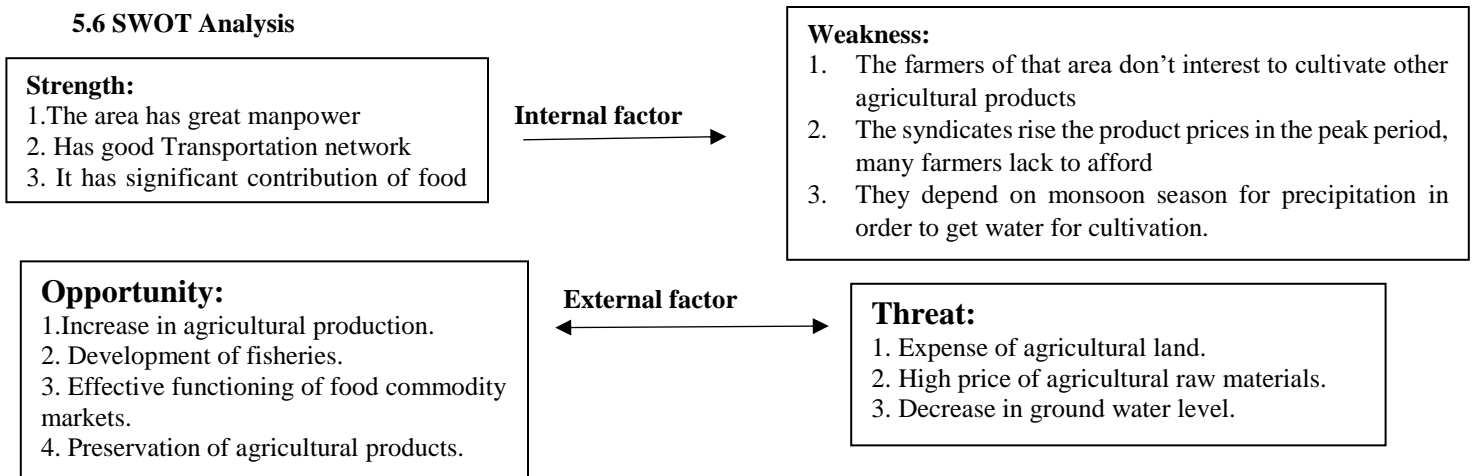


Figure 5.5: Dream Map

## 5.6 SWOT Analysis



## 6: Conclusion

The Barind tract in Bangladesh is facing severe drought and crop failure, causing food insecurity and apathy. The region relies heavily on water for crop production, with high-yielding varieties being cultivated during the dry season. This study aims to assess cropping tactics, boost food production, identify crop failure issues, and determine seasonal crop cultivation patterns. Farmers are responsible for food production, and using technology can help increase food output. The study uses local expertise and public opinion to identify resources and agricultural tactics of farmers, demonstrating the importance of improving rural development approaches.

## References

- Ahmed, Raisuddin, Haggblade, Steven, Chowdhury, & Tawfiq-e-Elahi. (2000). *Out of the shadow of famine: Evolving food markets and food policy in Bangladesh*. Baltimore, London: International Food Policy Research Institute.
- Alam, A. T., Saadat, A. H., Rahman, M. S., & Rahman, S. (2013). SPATIO-TEMPORAL VARIATION OF AGRICULTURAL DROUGHT IN THE BARIND REGION OF BANGLADESH: AN APPLICATION OF A MARKOV CHAIN MODEL. *Irrigation and Drainage*, 63(3), 383-393.
- BBS. (2011). *Bangladesh Population and housing Census*. Bangladesh Bureau of Statistics (BBS), Statistics and Informatics Division (SID), Ministry of Planning.
- BBS. (2013). *District Statistics*. Bangladesh Bureau of Statistics (BBS).
- Brammer, H. (1987, March). Drought in Bangladesh: Lessons for planners and administrators. *Disasters*, 11(1), 21-29.
- Deng, X., Xu, D., Zeng, M., & Qi, Y. (2019, February). Does early-life famine experience impact rural land transfer? Evidence from China. *Land Use Policy*, 81, 58-67.
- GRÁDA, C. Ó. (2007). Making Famine History. *Journal of Economic Literature*, XLV, 5-38.
- Kumar, S. (2008). *Methods for Community Participation: A Complete Guide for Practitioners*. India, New Delhi.
- Masum, A. A., Alam, M. Z., & Chowdhury, A. (2013, Nov-Dec). Potential Rainwater Harvesting For Irrigation In Godagari. A. A. Masum et al *Int. Journal of Engineering Research and Application*, 3(6), 173-175.