

Exploring the Economic Condition of the Blacksmiths and the Possibility of Emergence of Blacksmithing

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Abstract

The blacksmith industry began its journey in 1947 at Kamarpara, Mohonpur upazila in Rajshahi, and despite once being a leading business in the upazila, blacksmithing is diminishing at an alarming rate. However, various factors contribute to the industry's decline, including inadequate raw materials, high commodity prices, time-consuming processes, low wages, hard work, and a lack of proper chemical knowledge. Consequently, blacksmiths are shifting to alternative occupations. This study aims to identify the economic condition of blacksmiths, highlight the challenges associated with the profession, and generate opportunities within Kamarpara region using PRA tools. A group of four facilitators will utilize tools such as semi-structured interviews, social maps, resource maps, mobility maps, service and opportunity maps, cause-effect diagrams, and trend analysis to achieve optimal results. The final solution will be derived from the opinions of blacksmith workers and input from local individuals. The study will not only aid researchers in analyzing the current state of the blacksmith business and people's occupations but also facilitate further research and development.

Keywords: Blacksmith industry, decline, challenges, opportunities, Participatory Rural Appraisal (PRA).

1. Introduction

The Indian subcontinent has had blacksmiths for more than 3,000 years. The sociologist said that they are from the Sutra community and the Hindu religion. But people of other religions work in this sector to make a living (Tripathi, V. 2014). Now, most blacksmiths can be found in the rural areas of Bangladesh. Blacksmiths use tools to hammer, bend, and cut metal, usually wrought iron or steel. Blacksmiths make things like knives, gates, grilles, railings, farming tools, cooking tools, and weapons etc in shops, forges, or smithies (Mylnikov, V. 2020).

Kamarpara is known for its blacksmithing industry and well-organized, large community. The reason for choosing this area is that blacksmith items are manufactured and supplied to different portions of this country regularly as well as it influences the irony product of Rajshahi city. This skill has been passed down through their families for many years. Their primary source of income comes from working as blacksmiths. They sit in their yards, open spaces, and by the side of the road, pound hammering appears similar to the stone tools used by chimpanzees and capuchins, but axe hammering has not yet been documented in other nonhuman primates in natural conditions (Gumert et al., 2009). However, due to numerous issues, those working in this industry are losing faith in their businesses. Because of this, the children of blacksmiths are getting involved in other jobs apart from blacksmithing. The main objectives of this study are to identify the economic condition of the blacksmiths and the challenges associated with this profession and to explore the opportunities involved in this sector.

Exporting iron and manufacturing products helps the economy and makes it easier to do business in the area. But it is dissatisfying that the number of blacksmiths in Mohonpur is slowing down every year since the business used to be one of the most important in the city. The research investigates the reasons for the shift in occupational patterns through time as well as the processes behind the shift. This study is also being performed to enlighten and encourage people to join this industry so that they grasp the interest of this business, and the business becomes more convenient to others. Take the proper steps to help blacksmiths and their families stay alive and protect this old job. We used PRA tools to find out from other people what the solution was. We encouraged them to know

that efficiency can be improved by the public's acquisition of information on industry risk and by loan guarantees partially covering losses on projects that fail (Boadway et al., 1999).

2. Literature Review

The blacksmith industry has a rich history that dates back to 1947 when it commenced its journey in Kamarapra, Mohonpur upazila in Rajshahi. This industry is best characterized as being in an "endangered" position because it is currently dealing with numerous challenges as a result of the rapid development of new technology and other factors (Anigbogu & Onyima, 2014). This literature review examines the various factors contributing to this decline and proposes a research study that aims to identify the economic condition of blacksmiths, highlight the challenges associated with the profession, and generate opportunities within the Kamarapra region.

Blacksmiths struggled to access and purchase necessary raw materials due to their high cost, limiting their business activities and affecting their ability to work with the right quantities (Adu, Donkor, & Kwasiselormeyamenakpor, 2014). (Fening et al., 2023) examines the factors affecting the performance and growth of the blacksmithing industry in Ghana, focusing on socio-demographic profile, expertise, marketing, advertising, record keeping, ICT use, finance, TQM, and Covid-19 impact. The study finds challenges like market competition, low technology adoption, communication tools, customer knowledge management, financial access, and Covid-19 impact. Moreover, the main reasons for occupational change among the Blacksmiths (Kami) of Batulechour-16, Pokhara include insufficient land, economic constraints, a desire for higher income, a decline in traditional skills brought on by industrialization and modernization, and caste-based discrimination, which forces them to take on new professions (Sunar, 2018).

The research aims to provide a holistic understanding of the current state of the blacksmith business and the livelihoods of the people involved and to address these issues and generate opportunities within the Kamarapra region, this study proposes the use of Participatory Rural Appraisal (PRA) tools. PRA is a participatory research approach that enables local people to plan and carry out sustainable action by facilitating their analytical skills (Campbell, 2002).

The outcomes of this study are expected to not only inform policy and decision-making but also serve as a valuable resource for further research and development in the blacksmithing sector and the government at all levels should make an effort to encourage blacksmiths to manufacture high-quality goods by providing, and subsidizing as necessary, the infrastructure and enabling environment that will offer momentum that will facilitate people's shift from traditional to modern blacksmith (Oladimeji, 2013).

3. Methodology

The first method for this study involves selecting a suitable study area required for the research. An appropriate study area profile needs to be identified to enhance work efficiency and ensure satisfactory data collection. Conducting a comprehensive literature review is important, though the limitation of academic sources involving Blacksmiths. After that, data collection involves gathering primary data through questionnaires, physical surveys, and Participatory Rural Appraisal (PRA) approaches, complemented by secondary data from journals and research articles. The number of blacksmith people in Kamarapra is around 170 and for 90% confidence level, the sample size is 49, indicating the number of people we need to do questionnaire survey through Simple Random Sampling method. A questionnaire survey with limited sample size and a specific community requires careful planning to reduce biases that could distort the results' accuracy and representativeness. Participatory Rural Appraisal tools such as semi-structured interviews, social and resource mapping, cause-effect diagrams, process maps, and trend analysis should be employed for effective information gathering. The collected data should be analyzed and discussed to obtain significant results and insights. Finally, the results and findings should be presented, indicating the potential for further improvements and future research.

4. Data Collection and Analysis

4.1 Analysis of the current situation

From semi-structure interview, we got to know from blacksmiths that, the study area has 30 households involved in blacksmithing, with both large and small workshops. Workers live in semi-pucca houses with shared sanitation and water systems. Small workshops use basic tools, while large workshops use heavy machines. The market experiences peak sales during holidays, but modern industry has led to a decline in traditional blacksmithing jobs. Limited resources and government support have hindered growth, with some blacksmiths obtaining loans from NGOs or Islamic banks. The next generation may be less interested in blacksmithing due to physical effort and low wages.

4.2 Analysis of livelihood patterns, and social features of Kamarpara

Sketching the specified area illustrates the relative placement of the blacksmith worker's residence. It displays the social facilities and infrastructure in the area. This tool locates the demographic information associated with 9 participants. They found the participation of community members in creating a social map to be of great interest. They immediately agreed to draw, with the active participation of the social people in the neighborhood. This helped us a lot in completing the social map drawing.

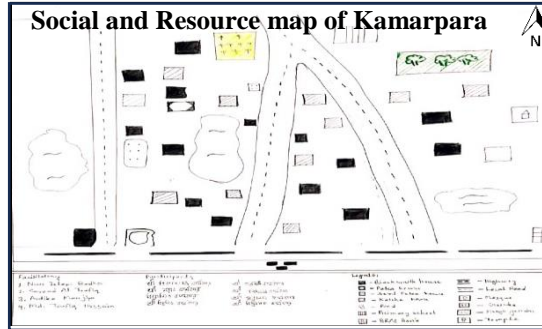


Figure 1: Social and resource map of Kamarpara

4.3 The Relationship between Kamarpara and Surrounding areas

This diagram shows how the Kamarpara is connected to the closest market and acknowledges the relationship among the villagers, market, and economic dependency.

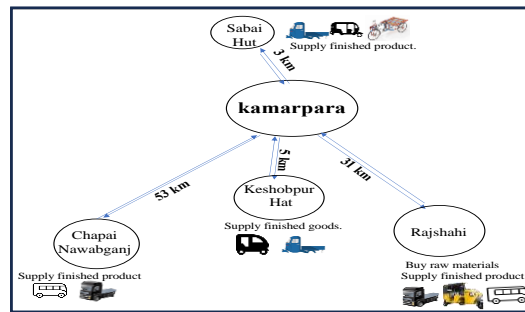


Figure 2: Mobility map of Kamarpara and surrounding areas

From Rajshahi, raw materials for blacksmithing are purchased, and the final products of blacksmithing goods are distributed from Kamarpara. Scarabs are made from tyre rings, holos and iron products from cars. Chapai Nawabganj is where wholesalers in the district sell the most items, with fifty shops in Keshobpur and eight to nine in Sabai hut, Rajshahi. These bazaars are crucial for the sale of consumer goods and contribute significantly to the economy in the area.

4.4 Making process of Blacksmith item

According to community participants, the preparation process for these ancient blacksmith items is done in several steps.

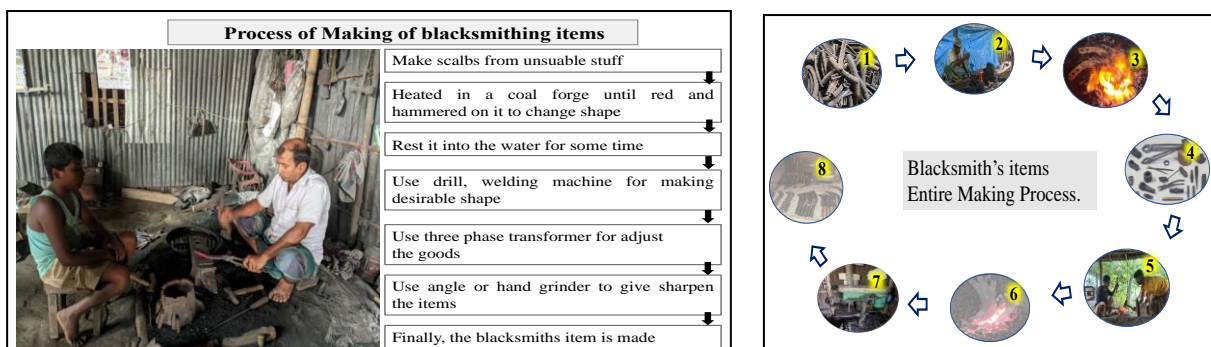


Figure 3: Making Process of blacksmith items

4.5 Changes in occupational pattern, the machine uses, and household numbers

4.5.1 The Changes in occupational pattern

The following table shows changes in the occupational pattern of study areas:

Table 1: Occupational pattern changes in the study area in few decades

Occupation Periods (1 decade)	Blacksmith Industry	Agricultural Activity	Mango Business	Betel Leaf Business	Cattle Farming
1980 - 1990	OOOOOO	OOOOO	OO	OOOOO	OO
1991 - 2000	OOOOO	OOOOO	OOO	OOOO	OOO
2001- 2010	OOOO	OOOO	OOOOO	OOO	OOOO
2011 -Present	OOO	OOO	OOOOOOO	OO	OOOOO

Here, "O" represents the percentage of the occupational pattern in different sectors. Over 30% of people relied on blacksmithing between 1980 and 1990. The blacksmith industry is declining decade by decade and at present, only 15% of people rely on blacksmithing which can be decreased furthermore. The factors influencing to adopt a new occupation includes raising their social status, inability to meet their family requirements, lack of equal right and opportunities, industrialization, modernization, globalization, commercialization, and even migration (Sunar, 2018).

4.5.2 Trend Analysis of Household Numbers

The community of blacksmith workers is reducing in Kamarpara area as they are changing their occupation. Many blacksmiths do blacksmithing in the Rajshahi city corporation area for better wages, better lifestyle, and facilities and some change their profession to do other work.

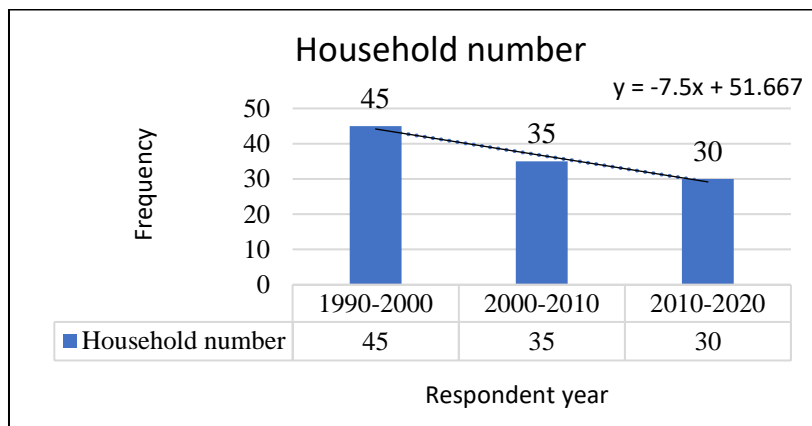


Figure 4: Household numbers in the Kamarpara

The trend analysis is about how the household numbers of blacksmith workers are reducing day by day. From last 3 decades the household numbers decreased from 45 to 30 and so many blacksmith shops closed during the COVID-19 pandemic. The whole country is in lockdown; all blacksmithing activities are closed, and sales are very limited. So, the sales of this product are decreasing. Raw materials and labor wages are increasing. Many blacksmith shops closed during the COVID-19 pandemic, and some workers became jobless and changed their professions or went to the capital or Rajshahi city for a better lifestyle.

Using regression analysis formula, the equation for households will be;

$$y = -7.5x + 51.667 \dots\dots\dots (1)$$

According to equation (1), if the trend goes like this for household numbers, in 2050-60, there will be no existence of Blacksmith in Kamarpara.

4.5.3 Change of Machine Uses

During the process of making blacksmith items, raw materials are heated in a coal forge with a hapor or blower machine in a center grate of 1200 degrees. The hapor is used to give air flow to the coal so it can burn, and it controls the air pressure with the blacksmith's feet. It can't be powered by electricity, and it is difficult to maintain. This machine, unlike the blower machine, does not require any hands or feet to control the air pressure; it has a

control to provide continuous air pressure in the coal to burn iron items by electricity, but due to a lack of electricity and cost, some of the blacksmiths in Kamarpara use hapor.

Table 2: Changes in Blower and Hapor machine use

Period (1 decade)	Blower Machine	Hapor Machine
1990-2000	OO	OOOOO
2000-2010	OOOO	OOO
2010-2020	OOOOOO	O

Here, in table 2, “O” represents the percentage of machinery usage. The trend analysis represents the change in machine use during the period from 1990 to 2020. The shift has been noticeable in the last twenty years, when most people relied on blower machines for technological advancement and other factors.

4.6 Reason for the changes in occupational patterns and affected blacksmithing

A cause-and-effect diagram, also known as a "fishbone" or "Ishikawa diagram," is a popular PRA method. It has been used for the study and analysis of a wide range of problems. It identifies the causes and effects of a problem or phenomenon. The related blacksmith problems are presented through the cause-and-effect diagram, showing the impacts on the other profession.

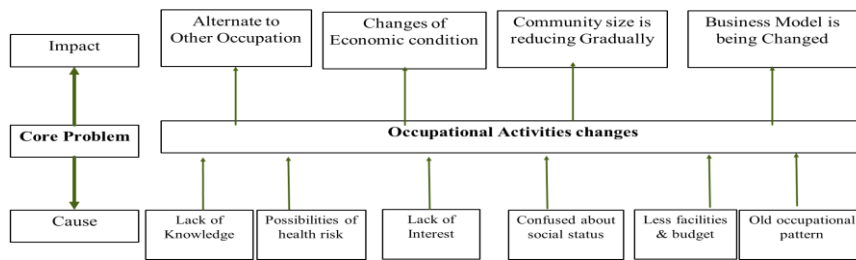


Figure 5: Cause and effect of occupational pattern changes in Kamarpara

Figure 5 shows the cause and effect of occupational pattern changes in the study area. Blacksmithing, a traditional profession in Bangladesh, is experiencing occupational pattern changes due to advancements in technology, health risks from burning coal and iron, and the increasing focus on social status, career opportunities, and job opportunities. As a result, blacksmith workers are relocating to other professions due to financial constraints and limited resources. This shift has consequences such as changing occupations, economic conditions, community reduction, and business models. The shift in occupational patterns is driven by factors such as health risks, social status, and the need for innovation.

4.7 Service and Opportunity Map



Figure 6: Service and Opportunity map in the study area

Figure 6 shows the service and opportunity map to show the nearest and farthest facilities present in or outside of the study area. The participants were asked to draw the nearby services which includes the raw materials they purchased, hut, schools etc and estimate their distances.

5. Recommendation

Changing occupational patterns badly affects both the blacksmithing business and the economy of Kamarpara in Mohonpur upazila. There are some recommendations that can be helpful for blacksmith workers and the industry:

- The government should take the right steps to protect this old profession and help blacksmiths and their families. And for this, the government should initiate effective strategies by providing bank loans with low interest and encourage local non-governmental organizations to do the same.
- Provide training centers for blacksmithing work with modern technology and proper strategies which can motivate people to get involved in this sector.
- “A blacksmith union” should be formed for proper management of blacksmithing activities.
- Steps should be taken for easy accessibility to make it easier for blacksmiths to get the raw materials they need, so they can do their jobs.
- Should provide adequate electricity facilities, as modern blacksmithing work needs them.
- Earning a High School Diploma is the minimum requirement for individuals to qualify for blacksmith apprenticeships in Govt. projects.

By following these recommendations and executing them properly, the blacksmith industry can get back to its glory and a lot of people can be motivated to involve in this sector.

6. Conclusion

The blacksmith industry is a significant industry whose impact is economically positive and creates employment opportunities for people. Although the blacksmith industry was once a leading industry, it is gradually decreasing day by day at an alarming rate. Kamarpara is famous for blacksmithing, and this industry is also decreasing in this area. People are changing their occupations and losing interest in blacksmithing. As a result, there are now only a few households visible here. So, the study was focused on identifying the economic condition of the blacksmiths, the challenges associated with this profession, and the opportunities involved in this sector. To overcome this situation, government, different organizations, as well as the people of Kamarpara should adopt effective strategies that may be fruitful, effective, and helpful for them. The results and effective strategies of this research will provide valuable insights to policymakers, planners, and government regarding the improvement of the economic condition, quality of life, and establishment of their profession in an effective way.

References

- Tripathi, V. (2014). Recently Discovered Iron Working Site in Vindhya-Kaimur Region, India. *Isij International*, 54, 1010-1016.
- Emeriewen, K., & Kalilu, R. (2015). Emerging Trends in Blacksmithing in Benin City, Nigeria. *Journal of Science and Technology of the Arts*, 7, 70-76. <https://doi.org/10.7559/CITARJ.V7I2.153>.
- Gumert, M., Kluck, M., & Malaivijitnond, S. (2009). The physical characteristics and usage patterns of stone axe and pounding hammers used by long-tailed macaques in the Andaman Sea region of Thailand. *American Journal of Primatology*, 71. <https://doi.org/10.1002/ajp.20694>.
- Boadway, R., & Sato, M. (1999). Information Acquisition and Government Intervention in Credit Markets. *Journal of Public Economic Theory*, 1, 283-308. <https://doi.org/10.1111/1097-3923.00013>.
- Anigbogu, K. C., & Onyima, B. N. (2014). New Technology and Challenges of the Blacksmithing Industry in Awka: Implication for Entrepreneurship Development. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.2466839>.
- Adu, C., Donkor, E., & Kwasiselormeyamenakpor, F. (2014). *The Assessment of the Blacksmithing Industry in Ghana (A Case Study of Suame Magazine, Kumasi)*. Arts and Design Studies. Retrieved from <http://www.iiste.org/>
- Fening, P. A., Agyei, I. K., & Adala, C. E. (2023). Technological Advancement and Survival of SMEs In Ghana: The Case of The Blacksmithing Industry in Kumasi Metropolis. *Social Science Journal*.
- Sunar, H. P. (2018). Changing Occupational Pattern and Expectation of Blacksmith (Kami)(A Study of Batulechour-16, Pokhara Municipality, Kaski).
- Campbell, J. (2002). A critical appraisal of participatory methods in development research. *International Journal of Social Research Methodology*, 5(1), 19–29. <https://doi.org/10.1080/13645570110098046>.
- Oladimeji, Y. (2013). Potentials Of and the Socio-Economic Benefits of Blacksmithing Production in Promoting Agricultural Development and Poverty Alleviation in Kwara State, Nigeria. *International Journal of Modern Engineering Research (IJMER) Www.ijmer.com*, 3(6), 3809–3817.