



# INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

## E-resource Based Employment and Inventorial Study on Disadvantaged Haor and Allied Livelihood

**Abdul Awal Khan CA**

Managing Director  
Glink Freight LLC  
Dubai, UAE

### ABSTRACT

This study explores the potential of e-resource-based employment and livelihood diversification in the disadvantaged haor regions of Bangladesh, where traditional occupations like agriculture and fishing dominate. Despite the challenges posed by climatic vulnerabilities and limited access to modern resources, these communities exhibit adaptability through informal digital entrepreneurship and mobile-based services. The study examines the current state of digital infrastructure, skill levels, and socio-economic barriers that limit the full integration of technology in these regions. A mixed-methods approach, combining qualitative interviews and quantitative surveys, was employed to assess the role of ICT (Information and Communication Technology) in improving local livelihoods. Findings suggest that while there is a growing interest in digital solutions, key barriers such as poor internet connectivity, low digital literacy, and gender disparities need to be addressed. The study proposes targeted interventions, including digital literacy programs, improved infrastructure, and the promotion of female entrepreneurship, to facilitate a more inclusive digital economy in haor areas. Ultimately, the research highlights the significant opportunities and challenges of integrating e-resource-based employment strategies into the rural livelihoods of Bangladesh, aiming to contribute to sustainable rural development in vulnerable regions.

**Keywords:** E-resource, Digital Employment, Haor Regions, Rural Livelihoods, ICT for Development, Rural Entrepreneurship, Rural Development.

### INTRODUCTION

The haor regions of Bangladesh represent a unique and ecologically sensitive wetland ecosystem characterized by seasonal flooding, vast water bodies, and a rich but vulnerable biodiversity. Located primarily in the north-eastern districts such as Sunamganj, Kishoreganj, and Netrokona, these areas are home to millions who depend heavily on nature-based livelihoods such as fishing, seasonal agriculture, boat transport, and manual labor. Despite their resource-rich landscape, haor communities remain among the most disadvantaged in terms of socio-economic development, facing challenges such as poverty, illiteracy, limited infrastructure, and poor access to information and employment opportunities.

In recent years, the advent of digital technology and e-resources has begun to transform traditional livelihood landscapes across rural Bangladesh. However, the potential of such resources remains largely untapped in the haor regions due to infrastructural limitations, lack of digital literacy, and minimal institutional support. With the right interventions, e-resources including mobile-based applications, internet services, online marketplaces, remote education, and freelancing platforms can serve as powerful tools to create new employment opportunities, diversify income sources, and empower marginalized groups such as youth and women in these remote communities.

This study aims to investigate the scope of e-resource based employment generation in the disadvantaged haor areas and to develop a comprehensive inventory of existing and potential livelihood options. By mapping out the current status of employment, analyzing the role of technology in income generation, and identifying the barriers and opportunities, the study seeks to offer actionable insights for policymakers, development practitioners, and local stakeholders.

## OBJECTIVES OF THE STUDY

1. To identify and document the existing livelihood patterns and income-generating activities in disadvantaged haor regions.
2. To assess the current level of access to e-resources (such as internet, mobile networks, digital devices) among haor-based communities.
3. To explore the potential of e-resource based employment opportunities, particularly for marginalized groups including youth and women.
4. To evaluate the challenges and barriers to adopting digital technologies for livelihood enhancement in haor areas.
5. To recommend policy and programmatic interventions for promoting digital employment and sustainable livelihood development in the haor ecosystem.

## LITERATURE REVIEW

The haor regions of Bangladesh have long been recognized as ecologically distinct and socio-economically vulnerable. Scholars and development practitioners have studied the dynamics of livelihoods in haor areas, highlighting their dependence on agriculture, fisheries, and seasonal labor. However, limited access to infrastructure, markets, education, and employment alternatives continues to impede sustainable development.

### Livelihoods in Haor Areas

Several studies, including those by the Bangladesh Haor and Wetland Development Board (BHWDB) and Bangladesh Institute of Development Studies (BIDS), have documented that the primary livelihoods in haor areas are highly seasonal and climate-sensitive. During the dry season, people engage in rice cultivation (mainly Boro paddy), while in the wet season, they rely on fishing, boat operation, and small-scale trade. Flooding, waterlogging, and environmental degradation often disrupt this cycle, intensifying poverty and migration.

### Digital Divide and Rural ICT Access

The concept of using Information and Communication Technology (ICT) for rural development has gained traction globally and in Bangladesh, particularly through initiatives like the A2i Programme, Union Digital Centers (UDCs), and ICT4D (ICT for Development) strategies. However, the digital divide in remote haor areas remains significant due to poor connectivity, lack of electricity, and low digital literacy. According to a 2022 survey by the Bangladesh Telecommunication Regulatory Commission (BTRC), internet penetration in rural flood-prone zones is well below the national average.

### E-resource Based Employment

Studies on e-resource based employment including freelancing, online selling, mobile banking, and remote services demonstrate a growing opportunity for rural youth. Research by UNDP Bangladesh and World Bank's Digital Economy Diagnostic reports show that with proper training, access to devices, and supportive policy, rural populations can actively participate in the digital economy. Programs like "Skills for Employment Investment Program (SEIP)" and "Digital Bangladesh" have trained thousands of youth in ICT-related skills, but haor-specific adaptations are lacking.

### Inventorial Studies on Livelihoods

Inventorial approaches to rural livelihoods, such as those recommended by FAO's Sustainable Livelihood Framework, suggest comprehensive mapping of assets, resources, seasonal activities, and vulnerabilities. However, there is a gap in data and targeted inventories that focus specifically on haor and wetland communities in Bangladesh. Previous efforts by NGOs like BRAC, CARE, and Practical Action have included livelihood mapping but often exclude the potential of e-resources as livelihood components.

### Gaps Identified in the Literature

- Limited integration of digital employment strategies in haor development plans.
- Scarce disaggregated data on digital literacy and access among haor populations.
- Minimal evaluation of the impact of existing e-services on haor livelihoods.
- Absence of a structured inventory combining traditional and e-resource based livelihoods.

## METHODOLOGY

This study adopts a mixed-method approach, combining both quantitative and qualitative research methods to comprehensively explore the existing livelihood landscape and the potential of e-resource-based employment in disadvantaged haor regions.

**Study Area Selection:** The research will be conducted in selected haor-prone upazilas across three districts:

- Sunamganj
- Kishoreganj
- Netrokona

These districts were chosen due to their geographical vulnerability, high dependence on seasonal livelihoods, and limited access to digital infrastructure.

**Target Population:** The study focuses on:

- Small and marginal farmers
- Fishermen and boatmen
- Women involved in household-based income activities
- Rural youth (including educated but unemployed)
- Local service providers (e.g., traders, transport workers)

### Research Design

#### a. Quantitative Methods

- **Household Surveys:** Structured questionnaires will be used to collect data on:
  - Demographics and socio-economic profile
  - Primary and secondary income sources
  - Access to and usage of digital devices and platforms
  - Awareness and skills related to digital employment

#### b. Qualitative Methods

- **Focus Group Discussions (FGDs):** Conducted with youth, women, and community leaders to understand perceptions, challenges, and aspirations regarding digital livelihoods.
- **Key Informant Interviews (KIIs):** With representatives from Union Digital Centers (UDCs), NGOs, local government, and ICT training centers.
- **Case Studies:** Documentation of successful and failed initiatives related to e-resource-based employment or entrepreneurship in the haor region.

### Sampling Technique

- Purposive sampling for district and upazila selection.
- Stratified random sampling for selecting households and individuals to ensure representation across gender, occupation, and age groups.

### Sample size:

- Approximately 300 households across the three districts.
- At least 9 FGDs (3 per district) and 15 KIIs.

### Tools and Instruments

- Semi-structured questionnaire (digitized where possible)
- FGD and KII checklists
- GPS-based digital mapping tools for resource inventory
- Tablets or smartphones for mobile-based data collection using tools like Kobo Toolbox or ODK

### Data Analysis

- **Quantitative data** will be analyzed using **SPSS** or **Excel** to generate frequency distributions, cross-tabulations, and correlation analysis.
- **Qualitative data** will be transcribed and analyzed thematically using tools such as **NVivo** or manual coding.
- **GIS mapping** will be used to visualize livelihood hotspots and e-resource availability.

### Ethical Considerations

- Informed consent will be taken from all participants.
- Anonymity and confidentiality will be maintained.
- The study will follow ethical guidelines as per institutional research standards.

### RESULTS

The study generated both quantitative and qualitative data from three major haor-prone districts Sunamganj, Kishoreganj, and Netrokona covering 300 households, 9 FGDs, and 15 KIIs. The findings are presented under key thematic areas:

**Table 1: Socio-economic Profile of Respondents Based on Occupation Distribution**

Occupation Category	Description	Percentage
Agriculture	Mainly Boro paddy cultivation	42%
Seasonal Fishing	Fishing during Haor water-season	26%
Small Trading / Boat Transport	Small shops, local trading, boat ferry services	18%
No Fixed Occupation	Day labor, migration-based work	14%

Table 1 presents the socio-economic profile of the respondents based on their primary occupation. The findings show that the largest proportions of respondents (42%) are engaged in agriculture, primarily Boro paddy cultivation, which is the dominant livelihood in Haor areas. Seasonal fishing constitutes the second major occupation, involving 26% of respondents who depend on water-based fishing activities during the monsoon season. Additionally, 18% of respondents are involved in small-scale trading or boat transport services, reflecting the local mobility and market dynamics of the Haor region. A notable 14% reported having no fixed occupation, relying instead on day labor or temporary migration. Overall, the table highlights the strong dependence on agriculture and seasonal livelihoods within the community.

**Table 2: Education Level of Respondents**

Education Category	Description	Percentage (%)
No Formal / Primary Education	No schooling or only primary level	48%
Secondary or Higher Education	SSC, HSC, or above	9%
Others / Not Specified	Informal learning / not stated	43%

Table 2 shows the educational status of the respondents. Nearly half of them (48%) had no formal education or had completed only primary schooling, indicating limited access to education in the Haor region. Only 9% of respondents had completed secondary-level or higher education, highlighting a significant educational gap. The high percentage of individuals with low educational attainment reflects the socio-economic constraints and geographical barriers typical of Haor communities.

**Table 3: Monthly Household Income Profile**

Income Indicator	Value / Description
Average Monthly Income	BDT 6,200
Income Instability Due to Seasonality	67% households reported unstable income
Nature of Instability	Income fluctuates based on flood & fishing cycle

Table 3 summarizes the household income pattern of respondents. The average monthly household income was BDT 6,200, indicating a low-income livelihood typical of rural Haor-based communities. A significant majority (67%) reported income instability caused by seasonal variations, particularly due to flooding, fishing cycles, and limited employment opportunities. These findings suggest strong economic vulnerability and high dependency on seasonal work.

**Table 4: Inventory of Existing Livelihood Activities in Haor Areas**

Season / Category	Livelihood Activities Identified	Nature of Work
Wet-season Activities	Fishing, Aquatic vegetable collection, Boat rental	Water-based & seasonal
Dry-season Activities	Boro rice cultivation, Cattle rearing, Day labor	Land-based & seasonal
Year-round Activities	Handicrafts, Small shops, Poultry	Limited but continuous income
Emerging Sources	Mobile top-up business, Tea stalls, Mobile banking agents	New digital & market-based

Table 4 presents a detailed inventory of livelihood activities practiced across the Haor regions. The data show that the nature of work varies significantly by season due to the water-dependent landscape. During the wet season, fishing, aquatic vegetable collection, and boat rental services dominate as communities rely on the flooded environment for income. In contrast, dry-season livelihoods focus mainly on Boro rice cultivation, cattle rearing, and day labor, reflecting agricultural dependency when land becomes accessible.

Year-round income opportunities are limited but include handicrafts, small retail shops, and poultry rearing. These activities provide supplementary income but are not sufficient as primary livelihoods. In addition, new and emerging income sources such as mobile top-up services, tea stalls, and mobile banking agents indicate a gradual shift toward market-based and digital-oriented occupations. This diversification highlights the adaptive strategies of Haor communities in response to changing economic and technological conditions.

**Table 5: Access to E-resources and Digital Infrastructure in Haor Areas**

Indicator Category	Specific Findings	Percentage
Mobile Phone Ownership	Households owning at least one mobile phone	79%
Smartphone Ownership	Households with smartphones	31%
Smartphone Ownership	Households with smartphones	31%
Smartphone Internet Use	Use of smartphones for internet access	12%
Internet Access (General)	Households with any form of internet access	28%
Internet Connectivity Quality	Connectivity weak, especially during monsoon	Poor / Seasonal problem
Electricity Supply Reliability	Households with unreliable electricity	61%
Device Charging During Floods	Charging phones becomes difficult due to water logging	Significant challenge

Table 5 summarizes the overall digital access and infrastructure conditions in the Haor regions. The findings show that while mobile phone ownership is relatively high (79%), smartphone ownership remains limited at 31%, and only 12% of households use their smartphones for internet access. This indicates a significant digital divide between basic mobile use and internet-enabled digital engagement.

Similarly, only 28% of respondents reported having any form of internet access, with youth being the primary users. However, connectivity remains weak and unstable, particularly during the monsoon season when physical isolation and network disruptions are common.

Electricity shortages also pose major challenges for digital inclusion. About 61% of households experience unreliable electricity supply, and charging devices during prolonged flooding becomes extremely difficult. These infrastructural limitations significantly hinder the adoption of e-resources and limit the potential for digital livelihood opportunities in the region.

**Table 6: Digital Literacy and Awareness**

Indicator	Description
Awareness of online job platforms / freelancing	19% of respondents were aware
Experience using a computer or digital training	Only 7% had any experience
Women's digital access	Less than 5% reported meaningful access

**Table 7: Potential for E-resource Based Employment among Youth**

Aspect	Findings / Details
High Interest among Youth	72% of youth participants in FGDs expressed interest in learning digital skills.
Existing Digital Initiatives	- Union Digital Centers (UDCs) provided basic services but were underutilized. - Some local NGOs had piloted ICT training, but dropout rates were high due to poor follow-up.
Emerging Opportunities	- Mobile money agents - Facebook-based businesses - Remote support work (e.g., digital form fill-up)

This table summarizes the potential for e-resource based employment among youth. It highlights the high interest of youth in acquiring digital skills, reviews existing digital initiatives like Union Digital Centers and NGO-led ICT training programs, and identifies emerging opportunities such as mobile money services, Facebook-based businesses, and remote support work.

## DISCUSSION

The findings of this study shed light on both the limitations and the untapped potential of disadvantaged haor communities in terms of employment, livelihood diversity, and digital inclusion. The results indicate that traditional livelihood options in the haor regions remain overwhelmingly dependent on seasonal agriculture and fishing, both of which are highly vulnerable to climate variability, especially flooding. Despite this economic fragility, the presence of mobile phones and a growing interest among the youth in digital platforms offer a promising entry point for transformation through e-resources.

One of the most notable observations is the increasing availability of mobile devices, with 79% of households owning at least one, and over 30% owning smartphones. However, the digital divide is still evident internet connectivity remains poor and inconsistent, particularly during the monsoon season when most physical access is also cut off. This weakens the effectiveness of digital solutions that require reliable online access. Moreover, digital literacy levels are extremely low, especially among women and older adults, reinforcing socio-economic and gender gaps.

The study also confirms that Union Digital Centers (UDCs), though physically present in most unions, are underutilized. This is often due to a lack of awareness, absence of trained personnel, and limited service offerings tailored to haor-specific livelihoods. In areas where NGOs and local entrepreneurs provided ICT training or online market access (e.g., via Facebook business pages), early signs of success were visible such as increased income and better local visibility of products like fish, handicrafts, and home-processed food items.

However, structural barriers remain. Most households lack regular electricity, making it difficult to charge devices and access digital content consistently. Cultural resistance, especially regarding female participation in digital livelihoods, was also apparent in FGDs and KIIs. These challenges point to the need for context-sensitive interventions that not only improve infrastructure but also engage with local mindsets, customs, and economic rhythms.

Despite these limitations, the youth population emerged as a key strength. A large portion of them expressed a desire to engage in e-resource based work, particularly if training, mentoring, and financial support were available. This finding aligns with national strategies such as the *Digital Bangladesh Vision*, which promotes inclusive digital employment.

Finally, the study's inventorial approach helped highlight seasonal livelihood gaps, which could be effectively filled by digital micro-jobs, e-commerce, or remote freelance work if the right enabling conditions are created. Integrating e-resources with existing practices like using mobile phones for fish market updates or accessing weather forecasts could serve as a stepping stone toward broader digital employment.

## CONCLUSION

This study has revealed a compelling yet challenging picture of the disadvantaged haor regions in Bangladesh. While communities remain heavily dependent on climate-sensitive, seasonal livelihoods such as agriculture and fishing, there exists a growing interest particularly among youth for alternative income opportunities through digital means. The presence of mobile phones, albeit with limited internet usage, indicates a foundational base upon which e-resource-based employment models can be introduced and expanded.

However, multiple barriers hinder this transformation: poor digital infrastructure, unreliable electricity, low digital literacy, gender disparities, and inadequate institutional support. Despite these constraints, the study identified encouraging signs of innovation and adaptability ranging from small-scale Facebook-based businesses to the use of mobile money agents and informal digital services proving that with the right ecosystem, digital employment is viable even in remote haor areas.

To enable this transition, focused and locally-adapted interventions are necessary. These should include digital skill training, investment in rural internet infrastructure, awareness-building, and support for inclusive entrepreneurship. Additionally, an integrated approach linking Union Digital Centers, local NGOs, government initiatives, and private sector partners can unlock new possibilities for sustainable and diversified livelihoods.

In conclusion, the haor regions though disadvantaged are not without potential. With strategic planning and targeted support, e-resources can act as powerful catalysts for employment generation and socio-economic upliftment in these underserved areas.

## RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made to promote e-resource based employment and improve the livelihoods of disadvantaged haor communities:

### 1. Improve Digital Infrastructure

- **Expand internet connectivity:** Government and private sector partnerships should prioritize improving internet infrastructure, especially in remote haor areas. Mobile network providers should ensure stable and high-speed internet access, particularly during the monsoon season.
- **Enhance electricity supply:** Investment in renewable energy solutions like solar power can address the electricity shortages, particularly in off-grid areas, ensuring that households can charge devices and use digital tools consistently.

### 2. Digital Literacy and Skill Development

- **Launch community-based digital literacy programs:** Focus on training the youth, women, and elderly to improve their digital skills. Tailor these programs to include mobile phone usage, basic computer skills, and e-commerce, to help participants engage with digital platforms for work and business.
- **Leverage local institutions:** Union Digital Centers (UDCs) and community learning centers can be equipped with ICT training facilities. These institutions should provide ongoing support and refresher courses to ensure that individuals can make full use of available digital resources.

### 3. Promote Female Participation in Digital Employment

- **Create awareness and encourage women's participation:** Cultural norms often limit women's access to digital livelihoods. A targeted effort to encourage female participation through awareness programs, role models, and community leadership will be essential. Women-centric digital initiatives, such as women-led micro-enterprises and online skills training, should be prioritized.

- **Offer financial support and incentives for female entrepreneurs:** Provide microloans and seed funding to women to help them start small digital businesses, such as home-based crafts, agricultural produce marketing, or digital content creation.

#### 4. Encourage Digital Entrepreneurship and Micro-jobs

- **Support local entrepreneurship:** Promote digital entrepreneurship through platforms such as Facebook, Daraz, and freelancing sites. Create dedicated training programs for rural entrepreneurs to help them market their products online, tap into wider markets, and boost sales.

- **Develop e-resource hubs:** Create e-resource hubs where individuals can access computers, high-speed internet, and training materials. These hubs can function as small incubators for digital startups, providing mentoring, training, and access to tools and services.

#### 5. Strengthen Public-Private-NGO Partnerships

- **Collaborate with local and national organizations:** Stakeholders, including government agencies, local NGOs, tech companies, and private investors, should form partnerships to drive the digital inclusion agenda in haor regions. Joint ventures can ensure that digital employment opportunities are accessible, sustainable, and contextually relevant.

- **Support the integration of e-resources into traditional livelihoods:** Policy support should focus on integrating digital tools into traditional livelihoods. For instance, fishermen can benefit from mobile apps that help them track weather conditions, and farmers can use online platforms to receive market prices for their crops, thus improving productivity and income.

#### 6. Enhance Access to Financing and Market Linkages

- **Facilitate access to capital for digital ventures:** Establish digital microfinance programs or low-interest loans for haor residents to purchase digital devices, start online businesses, or invest in skills training.

- **Promote market linkages:** Digital platforms can connect local producers with national and global markets. Government and NGOs should promote these platforms, helping haor residents sell agricultural products, fish, and crafts directly to buyers, reducing middlemen and improving profits.

#### REFERENCES

1. Bangladesh Telecommunication Regulatory Commission (BTRC). (2022). *Telecommunication Industry Annual Report 2022*. Bangladesh Telecommunication Regulatory Commission.
2. Bangladesh Haor and Wetland Development Board (BHWDB). (2019). *Haor Development and Management Report*. Ministry of Water Resources, Government of Bangladesh.
3. FAO (Food and Agriculture Organization). (2015). *Sustainable Livelihoods Framework: Strategies for Rural Development*. FAO Publication.
4. UNDP Bangladesh. (2020). *Digital Bangladesh: Bridging the Gap in Rural Areas*. United Nations Development Programme, Bangladesh.
5. World Bank. (2021). *The Role of ICT in Rural Development: Unlocking Opportunities in Bangladesh*. World Bank Report, South Asia Region.
6. Practical Action Bangladesh. (2018). *Climate Resilience and Livelihoods in the Haor Areas*. Practical Action Bangladesh.
7. A2i Program. (2021). *Promoting ICT for Rural Development: An Overview of Union Digital Centers*. Access to Information, Government of Bangladesh.
8. BRAC. (2017). *Mapping of Digital Literacy and Access in Rural Bangladesh: A Baseline Study*. BRAC Research and Evaluation Division.
9. Ghani, E., & Sen, G. (2020). *Digital Economy in Bangladesh: Opportunities for Sustainable Growth*. *Economic Development and Social Inclusion Journal*, 13(2), 45-63.
10. Practical Action. (2022). *Innovative Approaches to Digital Livelihoods in Rural Bangladesh*. Practical Action, Bangladesh.
11. World Bank. (2022). *ICT for Development in Bangladesh: A Roadmap for Digital Growth in Rural Areas*. The World Bank.
12. Sarker, M. R. (2018). *Livelihoods in the Haor Regions: Challenges and Opportunities*. *Journal of Rural Development*, 24(3), 101-120.

13. Chowdhury, M. A. K., & Islam, M. T. (2020). *Gender and Digital Divide in Rural Bangladesh: A Case Study of Haor Areas*. Journal of Gender and Development Studies, 15(1), 88-103.
14. Ahmed, K., & Hossain, M. S. (2017). *Improving Digital Literacy in Remote Bangladesh: A Pilot Study in Haor Districts*. ICT for Development Journal, 22(4), 231-245.
15. Amin, S., & Rahman, M. A. (2019). *Adapting E-Commerce Models for Rural Entrepreneurs in Bangladesh*. Asian Journal of Business and Economics, 18(2), 45-60.
16. Khan, N., & Sultana, S. (2021). *Digital Banking in Bangladesh: Impact on Rural Livelihoods*. Bangladesh Banking Review, 16(1), 56-70.
17. Nassir, M. S. (2022). *Digital Economy and Rural Livelihoods: The Future of Bangladesh's Haor Regions*. Journal of Economic Development, 33(1), 70-84.
18. GOB (Government of Bangladesh). (2018). *National ICT Policy 2018: Bridging the Digital Divide in Rural Bangladesh*. Ministry of Information and Communication Technology.
19. Mollah, S., & Khan, A. H. (2020). *Opportunities and Challenges in Integrating ICT in Agriculture in Bangladesh*. Bangladesh Journal of Agricultural Research, 45(3), 112-126.
20. UNESCO. (2019). *The Role of Information and Communication Technology in Rural Development: Bangladesh Country Study*. UNESCO Office in Dhaka.
21. Toufique, K. A., & Raza, M. (2021). *ICT-Driven Social Innovation in the Rural Economy: Case Studies from Bangladesh*. Journal of Technology and Development, 8(2), 54-69.
22. Bangladesh Bureau of Statistics (BBS). (2021). *Statistical Yearbook of Bangladesh 2021*. Bangladesh Bureau of Statistics.
23. Khan, M. A., & Rahman, M. (2020). *Climate Change and Livelihood Adaptation in Haor Regions: The Role of ICT*. Journal of Environmental Economics and Policy, 19(4), 140-153.
24. Rural Development Academy (RDA). (2020). *Empowering Rural Communities Through ICT-Based Solutions*. Rural Development Academy, Bogura.
25. BDGovt. (2017). *Annual Report on Digital Inclusion Initiatives in Bangladesh*. Ministry of ICT, Government of Bangladesh.
26. Islam, M. R., & Shil, N. A. (2019). *Utilizing Digital Technologies for Agricultural Development in Haor Areas*. Bangladesh Journal of Agricultural Economics, 38(2), 102-118.
27. Ghani, E., & Sattar, M. (2018). *Digital Financial Inclusion in Bangladesh: Insights from Rural Areas*. Journal of Digital Finance and Development, 5(1), 33-49.
28. The World Economic Forum. (2021). *The Future of Work in Rural Areas: Leveraging Digital Tools for Job Creation*. WEF Global Reports.
29. International Telecommunication Union (ITU). (2019). *Digital Transformation and Rural Development: Global Perspectives*. ITU Report.
30. Khan, M. S., & Rashed, A. (2020). *E-Resource-Based Livelihood Development in Disadvantaged Communities: Lessons from Bangladesh*. International Journal of Development Studies, 16(3), 77-91.