UDCs (Union Digital Centers) and E-service delivery for Rural Development in Bangladesh: An Empirical Study

[1]Md. Ruhul Amin, (Ph.D), [2]Mst. Shumshunnahar, (Ph.D)

[1]Associate Professor, Department of Public Administration, Comilla University, Cumilla, Bangladesh.

[2]Associate Professor, Department of Public Administration, Comilla University, Cumilla, Bangladesh.

Abstract: **Information and Communication Technologies (ICT) has changed government service delivery in the 21st century (M. A. Mamun & Begum, 2018). The provision of public services is a top priority for governments. The current Bangladeshi government is aware of this reality and has implemented ICT-based Union Digital Centre (UDC), district, and upazila web portals to provide people faster, easier services as part of developing "Digital Bangladesh" (Hosen et al., 2022). This research's primary objective is to integrate citizens into the larger e-government system. This article's primary purpose is to examine the role of UDC in empowering rural communities and to identify the main challenges of e-service delivery via UDC to local populations. This study utilized both primary and secondary data to achieve its objectives. The study's overall findings suggest that UDCs have the ability to empower the rural community, but it also shows that the poor and marginalized groups are not highly engaged with the services offered by UDCs, which puts them far behind the target of empowerment.**

Keywords: **UDC, Empowerment, E-Service, Rural, Bangladesh.**

1. INTRODUCTION

Information and communication technology (ICT) is becoming a necessary tool for carrying out governmental tasks in the modern, globalised world. By utilising ICT, Union Digital Center (UDC) can deliver various types of information about the government, daily life, and private services to the doorsteps of citizens in rural areas (A. Mamun, 2018). Decentralizing public service delivery and bringing services to millions of ordinary people are the government's top priorities. Following this plan, the Union Digital Centers (UDCs), the lowest tier of Bangladesh's local government system, have been constructed in all union councils as part of the Prime Minister's Office's Access to Information (a2i) Program, with technical and financial help from UNDP and USAID (Hosen et al., 2022).

UDCs promise to give important information and services to people who live in rural areas. A typical rural person's home is about 4 kilometers from a UDC, but a government office at the Upazilla (sub-district) level is about 20 kilometers away. UDCs are basically micro-businesses that are run by two "citizen entrepreneurs," one male and one female, along with local government representatives (Khatun, 2022). UDC typically offers two types of services: free and fee-based. These services include land records, birth registration, telemedicine, passport applications, applications for overseas jobs, and applications for a variety of other government and private services, including mobile financial services, insurance, various kinds of computers, and vocational training (Hosen et al., 2022). Empowerment is a continuous process that gives people power in their own lives and in the society and community where they live. For a country as a whole to grow, especially in developing countries like Bangladesh, rural empowerment is a must. Countries can't grow until they make life better for the people who live there. We all know that people who live in cities are more powerful and have more ICT services available to them than people who live in rural areas. When people in rural areas have more power, they are less likely to move to cities (Ullah, 2017; Tamzid, 2022; Alam & Hoque, 2022).

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An innovative public-private entrepreneurship model was used to come up with the idea of UDCs. The goal was to combine the public sector's model and infrastructure with the private sector's entrepreneurial spirit and efficiency. The UDC is in the building of the Upzailla Parishad. The UDC gets 1% of the total ADP budget to help with logistics, and entrepreneurs pay for day-to-day costs by selling public and private services. Because UDC is a one-stop shop for information and services, it may help the rural community in a big way. Access to information depends on the free flow of information, which is made possible by ICT, just as empowerment depends on the free flow of information. Rural people would fall far behind in the empowerment process unless they have access to accurate information. UDC can be successful in delivering services to disadvantaged and impoverished people, improving the general scene of rural regions as well as the empowerment process of rural marginalized populations in Bangladesh (M. A. Mamun & Begum, 2018).

The study's main purpose is to investigate the possibilities for Union Digital Centers to provide services that are crucial in empowering rural people. The essay also attempts to analyze the primary areas in which UDCs may play an important role in empowering local people.

2. IMPORTANCE OF THE STUDY

Bangladesh is a developing country with a lot of people. Most of the people don't know how to read or write, are poor, and live in rural areas. They are making it hard for people to get government services and information in a timely way. With help from UNDP, the current government in Bangladesh has already set up Union Digital Centers (UDCs) in 4554 unions, which are the lowest level of Local Government in Bangladesh. These UDCs are there to help people at the grassroots level. This study looks at how the Union Digital Centre (UDC) helps bridge the gap between the government and the people of rural Bangladesh and promotes e-governance by providing e-services. By considering the issue from a development perspective, it became clear that one of UDC's functions is to encourage people living in rural areas to adopt an e-governance framework. Furthermore, by making the study's findings public, it would send a clear message that the government recognises the value of rural-area services. Union Digital Centre (UDC) is especially helpful in this context since it provides cheap access to a wide range of online services for those living in rural areas. UDC provides a wide range of public and commercial services, both in-person and online. Modern public administration's use of ICT will broaden its operational scope and make its actions more reliable; they are the pillars upon which growth, development, and good governance rest. The successful deployment of UDC can help Bangladesh develop e-government. The current democratically elected government, which took office in January 2009, has stated its solid commitment to transforming public administration from a context-less nature to a citizen-friendly, responsible, and transparent government by enacting the main election pledge known as Vision 2021Under the current system, all forms of government services are provided manually, which is both expensive and time-consuming. As a consequence, the majority of our rural inhabitants did not obtain services in a timely manner and remained outside of government service centers. Hence, adopting UDC may enhance citizen services by delivering cost-effective and simple services.

3. OBJECTIVES

The major goal of this study was to investigate the influence of UDC on the growth of citizens' socioeconomic conditions in rural Bangladesh. The specific objectives are follows:

❖ To define and appraise the role of UDC as a service delivery mechanism in rural areas and its impacts on intended recipients.

❖ To determine the UDC's efficiency in providing public e-services.

❖ To make recommendations for overcome existing obstacles and make it fruitful.

4. SCOPE OF THE STUDY

UDC's primary purpose is to provide rural residents with the most convenient access to e-services. Regarding the supply of e-services to rural inhabitants, the research has stressed the significance of effective interaction between rural citizens and the government. It has also prioritised increasing the degree of contentment among rural dwellers. Hence, everyone in remote places might profit from e-government. The study will concentrate on providing high-quality public services via the UDC in order to boost rural inhabitants' contentment. It will illustrate if rural residents gain more from the UDC than from conventional service delivery techniques.

5. LITERATURE REVIEW

Bangladesh's administrative divisions, such as the sub-district (Upazila) and the district, are crucial to the delivery of information and services, as is the case in many developing nations. However, the majority of those who receive services reside in remote rural areas, and they must travel there to meet with public officials in order to obtain public information and services, such as copies of public records, welfare benefits, or to receive livelihood services in the areas of education, health, and agriculture, or to learn market prices (Sarker, 2013; Faroqi and Siddiquee, 2011). The time and money spent on visits includes expenses for meals, transport, bribes, lost wages from time not spent working, etc. When they finally arrive at their destination after spending this money and time, they are met with the bitter truth that exists in public offices, such as provider absence, harassment if they refuse to pay bribes, unusual delay, and low responsiveness, for which they are occasionally required to make additional visits and spend more money (Bhatnagar, 2004; 2009). Additionally, since the distribution mechanism is manual, it often takes longer, as it is difficult to provide documents held manually in a random manner immediately upon request (Bhatnagar, 2009; Madon, 2009). Furthermore, for a single service, individuals are required to go to many counters and often provide an unnecessary number of paperwork. Due to these obstacles, many individuals, particularly the uneducated and the ignorant, rely on touts or middlemen to get access to governmental offices and receive services (TIB, 2012; Sarker, 2013). Similarly, since the penetration of telecommunications and ICT in rural and isolated regions of the nation is so low (UN, 2014), individuals lack access to ICT-driven or internet-based services. For photocopying, composing, or printing, they must sometimes travel great distances to subdistrict headquarters or other semi-urban areas (Jabbar, 2009).

Many individuals in rural regions are unaware of the benefits of ICT and the internet (Sarker, 2013) As it is situated in UP, a location closer to them, the UDC has the ability to eliminate all of these issues as a one-stop delivery point or telecentre. It has the potential to lessen barriers like cost, time, and distance, as well as solve issues like middlemen, slow response, lack of accountability, and lack of transparency in the supply of information or services (Sarker, 2013). These advantages were discovered by Bhatnagar (2004) in a variety of shared access e-government programmes. In India, for instance, the Centre for Electronic Governance (CEG) and Indian Institute of Management, Ahmedabad (IIMA) study from 2004 on the evaluation of the project Gyandoot finds advantages of fewer harassments of citizens by government officials, time savings, requests being given priority, quick access, fewer instances of corruption, and so forth.

Heeks (2003), for example, draws the conclusion from certain baseline estimates that the majority of e-government programmes in poor countries fail entirely or in part due to a lack of e-readiness and a significant design-reality gap between project design and actual implementation. In addition to these issues, bridging the digital gap caused by disparities in money, education, geography, gender, age, language, and awareness makes it almost difficult for everyone to have equal access to information and services (UN 2012). Thus, the benefits of these programmes are particularly evaluated in terms of their capacity to incorporate rural people, particularly those who are negatively impacted by the digital divide (UN, 2008; Karim 2011; Bhatnagar, 2004; Heeks, 2003). Although studies of comparable programmes exist in other developing nations to evaluate projected benefits, Bangladesh does not have any other academic research to evaluate UDC's performance in this area.

6. RESEARCH METHODOLOGY

In general, research methodology is the process of gathering data and information in order to achieve the study objectives. It is largely concerned with methods, tools, and techniques of data collection (C. R. Kothari, 2004). The tools used to collect data are often included in the description of a research technique (Aminuzzaman, 1991). The purpose of the study was to find out the effectiveness of UDC's in minimizing gap for e-service delivery between govt. and citizens. This study incorporates both of the qualitative and quantitative research approach which focuses on asking questions.

a. Selection of the Study Area

For the purpose of this study, eight UDCs under two Upazilas of Cumilla district have been selected on the basis of purposive sampling. It is worth mentioning that Cumilla is one of the pioneer districts in terms of UDC's implementation and thus it is valid to choose the study areas.

b. Sources of Data and Sampling

The data was collected from both primary and secondary sources. Secondary data was collected from the existing literatures such as books, newspaper reports, previous research works, seminar papers, reports etc. For primary data a combination of qualitative and quantitative approach applied to achieve the objectives of this study. Data were collected through the Content Analysis, Interview (Face-to-Face Interview) method and Questionnaire Survey.

c. Sample Size

A total 120 (One hundred and twenty) respondents have been selected from the eight strata. The composition of the respondents is as follows:

Table 1: Scenario of respondents

Name of the District	Name of the UPs	Categories of Respondents	No. of Respondents
Cumilla	Laksham	Monitoring Officials	4
		Entrepreneurs	6
		Beneficiaries	50
	Barura	Monitoring Officials	4
		Entrepreneurs	6
		Beneficiaries	50
Total Respondents=			120

d. Data Collection Technique

In this research, different types of data collection procedures conducted to collect the primary and secondary data. The primary data was collected through the semi-structured questionnaire. The secondary data was collected through content analysis from the research articles, text books and dailies while documents survey scheme from various webpage.

e. Data Analysis

The data was collected from both primary and secondary sources. After processing, the collected data were analyzed and interpreted by using some statistical tools and techniques. Moreover, the collected data was categorized, tabulated, analyzed by using SPSS (Statistical Packages for the social Sciences) method. It has also been used MS-Word, Excel for the purpose of analyzing the data.

Historical Background of UDCs in Bangladesh

In Bangladesh, Union Digital Centers (UDCs) are one-stop service delivery hubs that provide information as well as a range of public and commercial services. The Prime Minister's Office (PMO), which created the Access to Information (a2i) programme under its direct control, and the United Nations Development Programme (UNDP) and the United States Agency for International Development provide technical support for its administration (USAID) (Aziz, 2020). Rural populations got benefit from UDCs because they help them through the bureaucratic service delivery process.

Table 2: UDC at a glance.

Sl. No	Union Digital Centre	UDC value
01.	Total number of UDC	4554
02.	Total number of entrepreneurs	9102
03.	Citizens visit to UDC	3.20 million
04.	Total Birth registration	3,40,00,000
05.	Mobile banking service	3700 UDC
06.	Life insurance service	2770 UDC
07.	Telemedicine service	35,000 Citizens
08.	Computer literacy training service	45,000 Citizens
09.	Health service provided	1.45 million
10.	Birth registration	75 million

UDCs started in 2009 as a Quick Win initiative of the Local Government Division and the A2I Program in 30 Union Parishads. The initiative was started in all 4,501 UPs nationwide on November 11, 2010, by the honourable Prime Minister of Bangladesh and UNDP Administrator (Uddin, 2020). Each UDC is run by two young local entrepreneurs, one male and one female. They are supervised by a local advisory committee led by the UP Chairperson. The UP gives the centre both space and useful tools. The basic ICT infrastructure, which includes computers, laptops, printers, and webcams, is being built by the Local Government Division, the Cabinet Division, and the Bangladesh Computer Council (Shakhawat & Bhuiyan, 2007). Entrepreneurs are allowed to build new buildings to help their businesses flourish while

also assuring the center's societal sustainability by providing government information and services (Mursheda & Islam, 2021).

The current government wants to improve it so that people who live in rural areas don't have to go to a lot of different government offices. People will get all the services and information they need to live a peaceful life from UDC. Every citizen will only have to go to one place to get help (Zaman & Sarker, 2021). To make it more successful, the Prime Minister's Office's Access to Information (A2I) has already created a website called E-Totthokosh, which is a compilation of all kinds of national information. As a result, it will now be a center of excellence (Khatun, 2022).

7. ROLE OF UDCS IN RURAL DEVELOPMENT IN BANGLADESH

Bangladesh is a small country that covers 147,570 square kilometres and has 156 million people, of which 76% live in rural areas (BBS, 2011). It has worked hard to meet the basic needs of its people, like giving them food, clothes, a place to live, medical care, and an education, as well as to raise the standard of living. Information, like other fundamental necessities, is a critical component of rural people's development. But Bangladeshi people, especially those who live in the country, can't get the basic information they need (Faroqi, 2016). The Bangladeshi government, international aid agencies, nongovernmental organizations (NGOs), and commercial organizations have taken the initiative to establish and promote community telecentres that provide access to and use of the information, especially for rural residents, in order to address this issue.

Local ICT resource centres, sometimes called telecentres, in the rural areas of Bangladesh show a lot of promise for closing the "digital divide" between underserved and isolated communities. All of Bangladesh's telecentres, like D.NET, Grameenphone's Community Information Centers (GPCIC), Grameen Bank's Digital Centers, and YPSA's Youth Community Multimedia Centre, work to bring the benefits of modern technology to people in rural areas (Sharfaraz & Khan, 2021). These centres can help rural Bangladeshis use the information economy, get information about agriculture, education, health care, the environment, government, jobs, and other services, and grow socially and economically. A number of well-known NGOs in Bangladesh, like the Dhaka Ahsania Mission and the Bangladesh Rural Advancement Committee, have already started to set up community libraries in rural areas. These libraries will use ICT resources to help people learn throughout their lives and support community development. The Bangladesh Telecentre Network (BTN), a group of organisations that work to promote the telecentre movement in Bangladesh, has helped telecenters in the country in the past (Rahman, 2016).

In addition to the 4554 (about) privately operated tele centers, the government has developed Union Digital Centers (UDC) to direct the pro-poor ICT advantages towards effecting fundamental changes in rural communities (M. A. Mamun & Begum, 2018). UDC is one of those with the potential to aid rural residents who would not otherwise have access to information and technology. The main services of UDCs are agro-based information services, government services information, internet services, ICT training, photocopying, printing, telemedicine, and access to information from both public and commercial companies (Ullah, 2017).

UDC is a one-stop service centre that uses ICT and is located at the lowest level of local government, the Union Parishad. The UDC model is similar to the "telecentre" idea used by some businesses, but it is different in that it is based on the Public Private Partnership (PPP) idea instead of models that depend on donations. In order for "Digital Bangladesh" to become a reality, 4554 UDCs have been set up in all Union Parishads across the country. All of them opened for business on November 11, 2010 (Khatun, 2022). Over 9002 young business people work with UDCs, and half of them are women. Entrepreneurs are self-employed people who don't get paid and live off of what they make on their own. The main challenge for UDCs is making sure that residents are getting the benefits of them and keeping them going. Public-private partnerships are made so that they work well and last a long time. Cabinet Division, Bangladesh Computer Council, Dhaka Ahsania Mission, Practical Action, banks (Dutch Bangla Bank, Trust Bank Limited, Mercantile Bank, One Bank Limited, BRAC), life insurance (Jibonbima), telecommunications (Robi, Banglalink), solar energy (Infrastructure Development Company Limited), and the Cyber Cafe Owners' Association of Bangladesh all work together on these projects (Mohiuddin and Hoque, 2013).

Rural information services are importantly provided by UDC. UDC's main goal is to give rural residents the fundamental knowledge they need to live there (Mahiuddin et al., 2013). To enhance livability and the standard of living, it serves as a resource and community hub. Government, information, and commercial services are the divisions made by the

Bangladeshi government of UDC. Services from the government are offered for free. However, to bridge the digital divide between urban and rural areas, information and commercial services are made available at a reasonable cost (M. A. Mamun & Begum, 2018). The government offers services like online birth registration, census data entry, university admission, test results, citizenship certificates, and the Union Parishad citizen charter. Information services are offered in fields like agriculture, education, health, law and human rights, the environment and disaster management, tourism, research and technology, industry and commerce, and employment. Commercial services include banking, life insurance, English lessons, computer lessons, internet browsing, printing, composing, scanning, photocopying, data entry, phone calls, mobile ringtone downloads, video conferences, video shows, processing of passports and visas, medical services, soil testing, arsenic testing, etc (Mursheda & Islam, 2021).

People hope that UDCs will be "centres of service excellence" that make it easy for people to get the information they need (for example, by making it easy to access information) and provide good services that help bridge the digital divide. The digital divide has three levels. It's called the "digital access divide" or the "first-level digital divide" when people don't have the same level of access to IT. The second level of the digital gap is the difference in IT skills, while the third level is the difference in results (Aziz, 2020). The government of Bangladesh expects the Union Information and Service Centre (UDC) to be one of the efficient efforts that would provide rural poor populations with greater access to information.

8. RESEARCH FINDINGS AND ANALYSIS

Primary data from the field is systematically analysed in light of our research goal and analytical framework. The information was gathered in the field by using questionnaires, interviews, and surveys. For this study, 120 people from eight Unions in two upazilas in the Cumilla district were interviewed. Here, we talk about some important findings from the field survey.
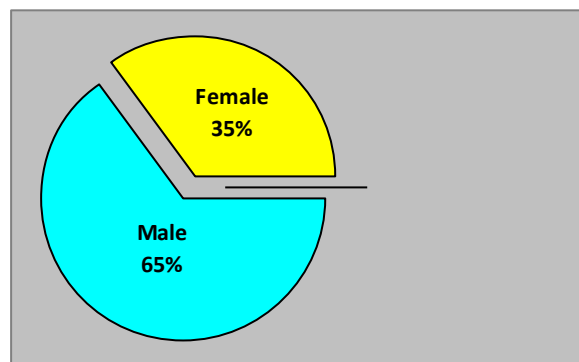
8.1 Scenario of Gender & Age group

Figure 1: Gender basis scenario of respondents.

Most of the people who answered were men, which shows both their current socioeconomic situation and their involvement in social groups. According to the graph above, 30% of the responders were women and 65% were men.
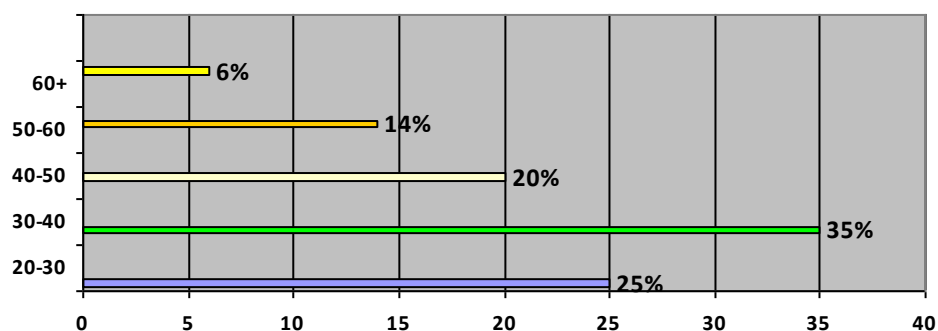

Figure 2: Age of the Respondents.

According to the above figure, 25% of respondents are between the ages of 20 and 30. 35% of respondents were between the ages of 30 and 40. 20% of respondents were between the ages of 40 and 50, while 14% were between the ages of 50 and 60. Finally, 6% of respondents were aged 60 and more.

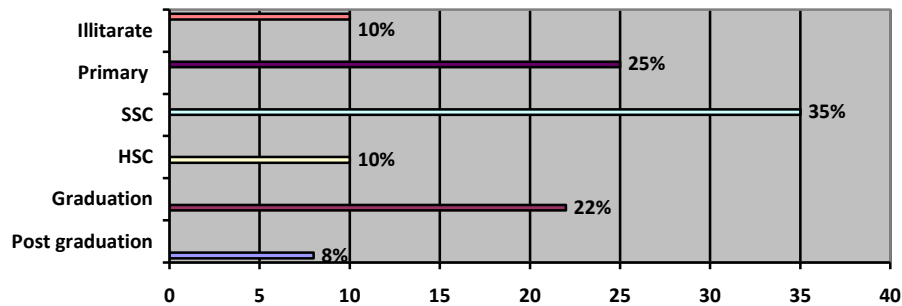### 8.2 Scenario of Educational Status

Figure 3: Educational qualification of the Respondents.

According to the above graph, 30 percent of the people who answered were between college graduates and people with advanced degrees. It's a good thing that there were educated people in the community who knew what UDCs did and how they should be used. On the other hand, 10% of all respondents are illiterate. These are people who can only sign or write their names and cannot read. Another thing: 25% of the people who answered had finished primary school. Also, 35% of the people who answered have finished high school or a secondary level of education. Only 10% of the people polled had more than a high school education. So, most of the people who answered have enough knowledge and experience to deal with civic issues and problems.

8.3 Marital Status
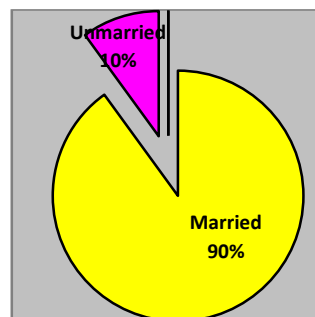
Figure 4: Marital Status of the Respondents.

According to the above graph, the majority of respondents were married (90%) while 10% were unmarried. The respondents were used to go the UDC's for personal, family and business purposes.
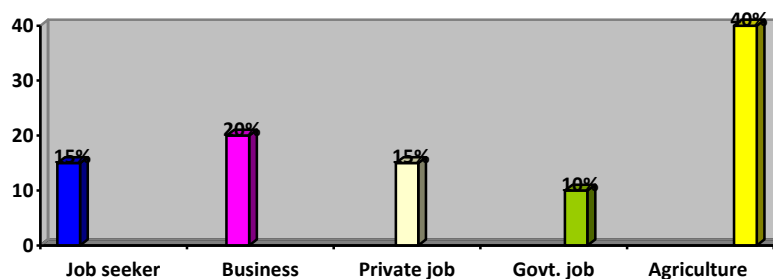
8.4 Occupational Status

Figure 5: Occupational Status of the Respondents.

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According to the above graph, most of the people who answered (40%) work in the agriculture sector. Also, 15% of the people who answered said that they worked in a private job. Most of the time, they worked for nonprofits, private schools, financial institutions, and other similar organizations. Another 20% of those who answered said they ran a variety of businesses, such as small and medium businesses, companies, and so on. Also, 10% of those who replied said they worked for the government. This group of respondents worked in education, health care, office work, and other related fields. Another 15% said they were looking for work and went to UDCs for job-related reasons.

8.5 Frequency of service taken by the people
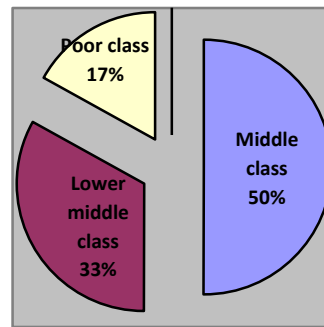
Figure 6: Frequency of service taken by the people.

From the above figure, it has been found that most of the people who taken services from the UDC are middle class which constituted 50% another section is lower middle class which constituted 33% and the rest are poor class which constituted 17%. Here, it is shown that Poor section is very low who taken service from UDC.
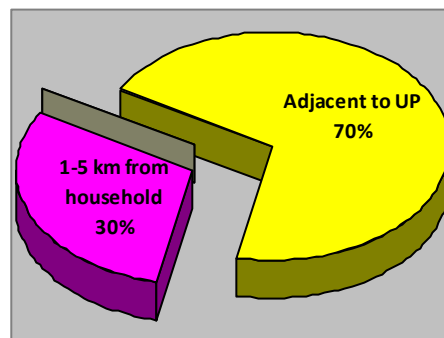
8.6 Location of UDCs

Figure 7: Scenario of UDCs location.

According to this survey, around 70 percent of UDCs were located near to the locality, and 30 percent of UDCs were within 1-5 km of the locality.

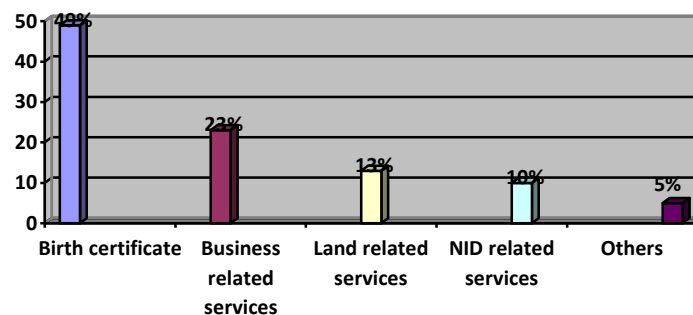### 8.7 The beneficiaries' regular use of services

Figure 8: Scenario of taken services by beneficiaries.

The above number shows that most of the services used by beneficiaries were birth certificates, which made up about 49% of all services provided. Services related to business came in second with a percentage of about 23%, followed by information about real estate with a percentage of about 13%, services related to NID cards with a percentage of 10%, and other services with a percentage of about 5%.
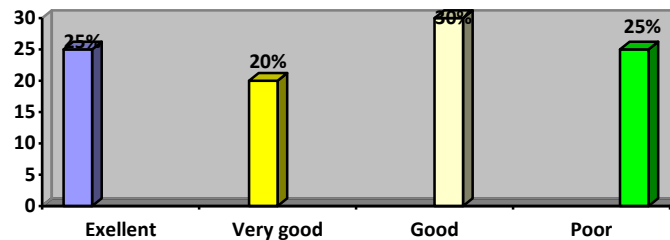
8.8 E-service delivery scenario

Figure 09: Scenario of e-service delivery.

According to the graph above, 20% of respondents said that the delivery of e-services was "Good," and 25% said that the quality of e-services was "Excellent." Another 30% said the quality of the e-service was "Good," while 25% said it was "Poor." From what we've seen so far, it's clear that UDCs help rural people get better e-services and that their services are between "Good" and "Excellent."

8.9 Accessibility of e-service delivery

The opportunity of customers' access to the e-services is one of the most important features for measuring the effectiveness of UDC. If the beneficiaries get the necessary services from UDC then it can be said that the rural peoples have sufficient access to the e-services.
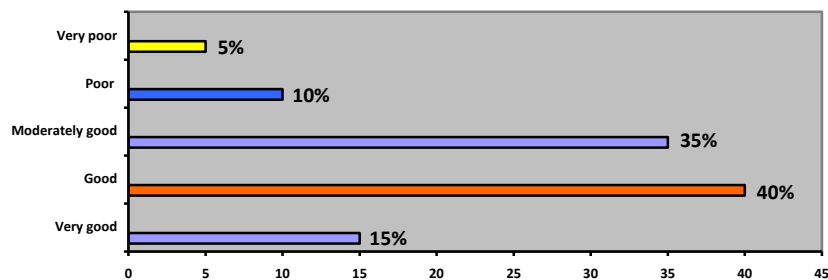

Figure 10: Accessibility of e-service delivery.

According to the graph, 15% of respondents said that e-service accessibility is "very good," while 40% said it is "good." On the other side, 35% of respondents said that the accessibility of e-services is "moderately excellent," while 10% said that the accessibility of e-services was "Poor". Additionally, 5% of respondents said that e-service accessibility was "Very poor."

8.10 Scenario of UDC provided services

When the question has been asked to citizens that why they are using UDCs to receive service than traditional mode and whether UDCs have been able to fulfill their demands, their answer was measured from the following graph.
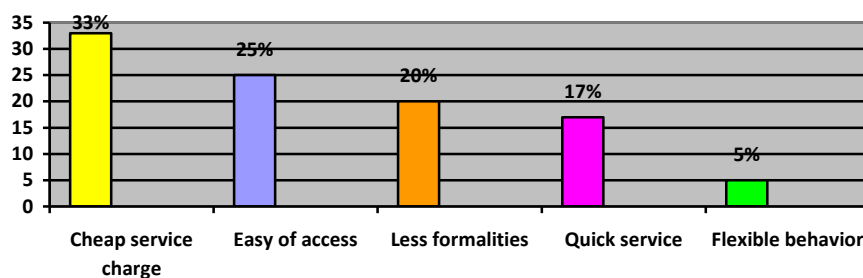

Figure 11: Reasons for using UDC.

The above paragraph shows that most of the people who responded (33%) used the services because they were cheap. Also, 25% of those who answered said that being easy to get to was another reason to go to UDCs. Another 20% of the people asked said that the less formal nature of UDCs was another reason to go there. On the other hand, 17% of respondents said that entrepreneurs' quick service makes them more likely to use UDCs. Also, 5% of those polled said that it was because entrepreneurs were flexible.

8.11 Overview of internet speed

The efficiency of the UDC is highly dependent on internet speed. Online activities including social networking, e-mail, online banking, and online shopping are just a few of the numerous e-services activities that depend heavily on internet speed. When the internet speed was satisfactory, clients were pleased with the service.
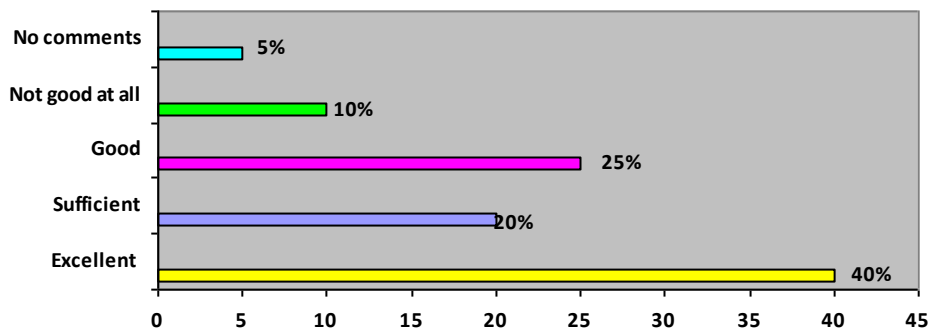

Figure 12: Internet speed of UDCs for e-service delivery.

From the above diagram, 40% of respondents said that the speed of the internet was "excellent." Another 20% of people said that the speed of the internet was "sufficient," and 25% said that the speed of the internet is "good." Again, 10% of respondents said the internet speed is "not good at all," and 5% said they didn't care enough about the internet speed to give their opinion.

8.12 Scenario of electricity supply

To build up effective UDC, frequent supply of electricity is mandatory. In this regard, uninterrupted electricity supply is essential for smooth functioning of UDC respectively.
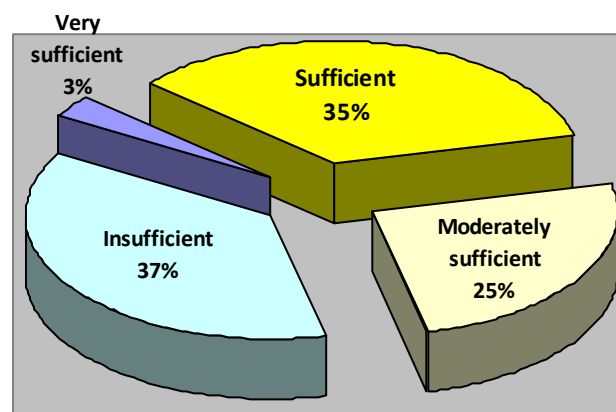

Figure 13: Overview of electricity supply.

From the above pie-chart, maximum respondents (35%) said that existing electricity supply of UDC was 'sufficient' where 3% considered that the electricity supply was 'very sufficient'. Another, 25% respondents argued that the electricity supply is 'moderately sufficient'. On the other hand, 37% respondents replied that electricity supply is 'Insufficient'. From this picture, power supply scenario of UDC's is more or less sufficient which ensures the satisfaction of rural people.
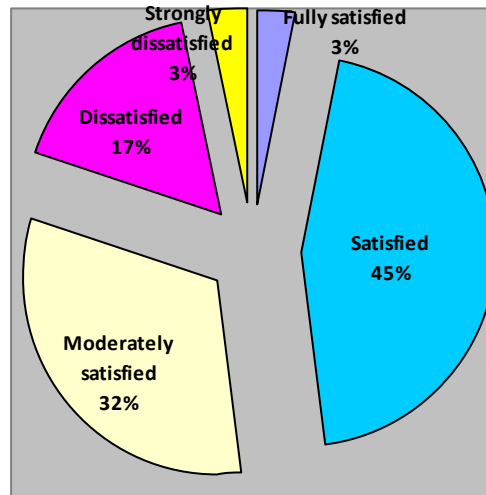
8.13 Availability of equipment

Figure 14: Availability of necessary equipment

In terms of necessary infrastructures/equipment 48% visitors said they are satisfied to a great extent, 32% are moderately satisfied and 20% were dissatisfied or fully dissatisfied. It is noteworthy to say, the equipment's are available in most of the UDC but the main problem is in its proper utilization.
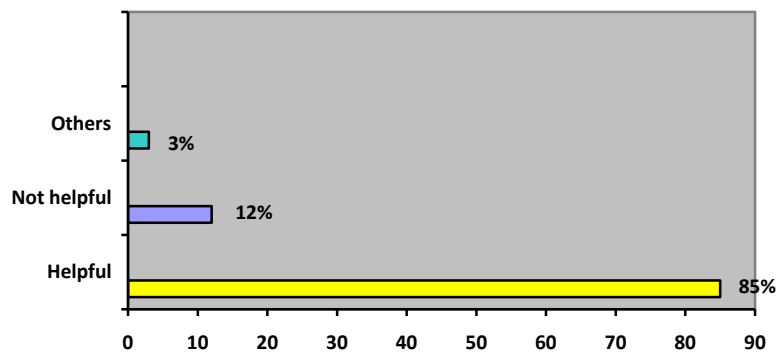
8.14 Scenario of UDC staff's attitudes

Figure 15: Attitudes of UDCs staffs.

From the pie-chart above, it can be seen that the majority of respondents (85%) thought UDC personnel' demeanor and attitude were friendly and helpful. The attitudes of the authorities, according to another 12% of respondents, were in no way helpful. On the other side, 3% of respondents didn't feel any need to react to this question.
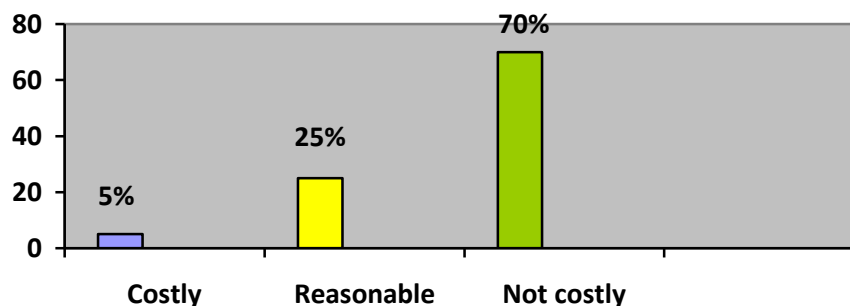
8.15 Perception about service charge

Figure 16: Opinion about UDC's service charge.

From the above diagram, most of the respondents (70%) argued that the service charges of different services of UDC were in low cost. Another, 25% considered that the cost of UDC's services were 'reasonable' which means the service cost were bearable. 5% respondents argued that the service cost of UDC's were costly. The main reason for this kind of answer was that there were more hopes.

8.16 Nature of Users problem

The respondents faced difficulties during getting services from UDC. According to their problem confrontation index has been given here:
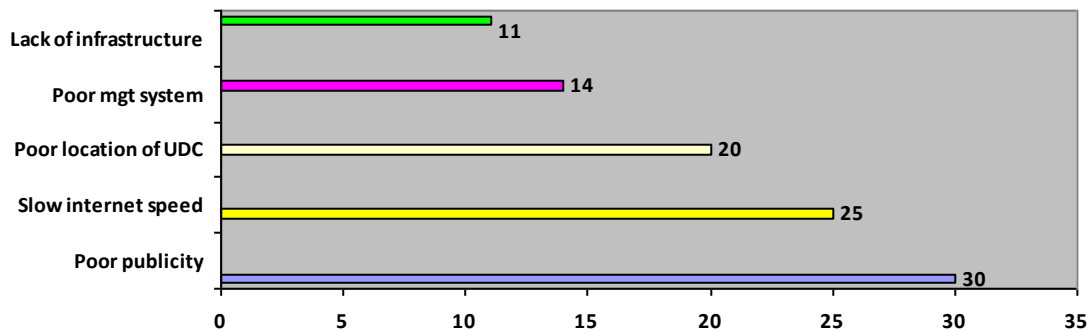

Figure 17: Scenario of Problems faced by the Respondents.

The chart shows that among the issues, "poor service promotion" ranked highest (30%). The respondents identified 'slow internet speed' as a second big issue and rated it second (25%). 20% of respondents also felt that the inadequate placement of UDC's services prevented the majority of people from accessing them effectively. In addition, 11% of the general population was uninterested in using UDC services owing to the weak management structure. In addition, 11% of respondents cited inadequate infrastructure as an issue for UDCs.
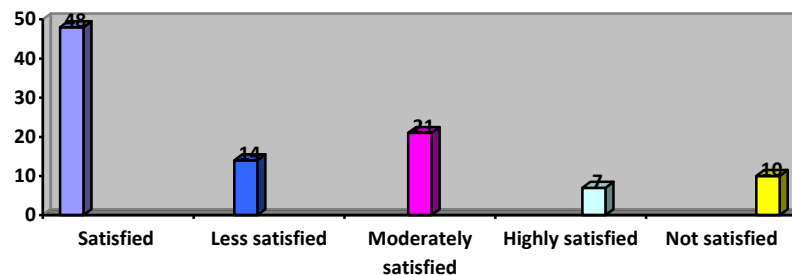
8.17 Level of Citizens' Satisfaction

Figure 18: Respondents level of satisfaction.

In the case of degree of satisfaction, it has been found that 48% of the respondents were satisfied, 14% were less satisfied, 21% were moderately satisfied 7% were highly satisfied and 10% were not satisfied at all. The level of satisfaction is given in the following figure for better understanding.

9. DISCUSSION OF THE FINDINGS

From the above discussion of the findings, my study found some important challenges of UDC's services in local level are given below:

❖ *Lack of Publicity of UDC's general services:* Many citizens are unaware of the UDCs' services because they are not well publicized.

❖ *Network and electricity crisis:* The majority of business owners stated that because of the extremely sluggish network, they suffer greatly and are unable to deliver services on time (Hosen et al., 2022).

❖ *Low level of knowledge of ICT:* Maximum UDCs are administered by people who have limited experience of ICT and other digital services. Users were dissatisfied with the low quality of services if unskilled information officers and inexperienced personnel fail to run the UDCs correctly.

❖ *Bureaucratic interference:* The bureaucratic problem might be a critical aspect in the digitization process's implementation, affecting user engagement and accessibility significantly. UDCs' usual operations are hampered by this sort of issue (Hoque, 2015).

❖ *Insufficient Electronic Resources:* The quantity of computers, scanners, photocopiers, and other electronic devices is insufficient to satisfy the demands of many users at the same time (Begum, 2017).

10. RECOMMENDATIONS

The following are some suggestions for upgrading UDCs in order to enhance citizens' satisfactions:

a. Increase of Infra-Structural Facilities in UDCs (Hosen et al., 2022).

b. Expansion of the branch of UDC into the Ward level to empower the rural population.

c. To operate these institutions successfully, UDCs' staff need to have access to the right education and training opportunities.

d. Awareness building and promotional activities need to start and increase in order to achieve the goals and objectives of the UDCs.

e. Need to ensure Continuous and Uninterrupted Supply of Power (Tipu et al., 2020).

f. Every year, government should allocate sufficient funds to ensure the successful operation of these one-stop information and service centers (UDC) (Saleheen, 2015).

11. CONCLUSION

Overall results demonstrate that UDCs may empower the rural populace in the study area. The study's findings reveal that the poor section uses UDC services at a very low rate, despite the fact that it is well known that UDCs' primary objective is to deliver information services to the doorsteps of Bangladeshi rural residents. As a result, relatively poor people are still far from achieving the goal of empowerment. Most of the respondents are knowledgeable with and aware of the Union Digital Centre's offerings. However, some of the unfavorable comments from non-users reveal that they lack a clear grasp of what a UDC is, what services it offers, and how such services apply to their life. The majority of them choose to utilize traditional media instead of UDCs for their service needs (Abedin et al., 2021).

Even though these are sad results, the results as a whole show that UDCs can help lessen the pain of getting public or private services by cutting down on travel time. Also, because most service providers are picked from within their own communities, there is a friendlier atmosphere when people use the services, which makes it easier for people to get help overall. In the past, it was common for people who gave services to charge extra fees or be rude to the people who got those services. This study shows that, with a few exceptions, beneficiaries have begun to understand and value UDCs, which has opened up new opportunities for rural Bangladeshis (Hosen et al., 2022). Nowadays, it is acknowledged as a highly effective strategy for empowering those rural populations. There are a few e-services-related difficulties, nevertheless, that must be overcome as soon as is practical. It is crucial that service providers, service recipients, and the channel of service delivery collaborate effectively in order to ensure a competitive, lively, active, and socially responsible UDC that will serve as a highly effective platform for the empowerment of the rural population in Bangladesh.

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