Rural Broadband Challenges in Iraq: An Examination of the Intersection Between Rural Broadband Policy Issues and Rural Iraqi Communities' Experience Waiting for Fixed Broadband Connections

Abstract

Building upon analyses of Iraqi telecommunications documents and in-depth interviews with members of five different communities in rural Iraq that lack reliable broadband connectivity, this exploratory research examines the intersection between the policy issues and the experiences of Iraqis regarding broadband connections in rural Iraq. Findings suggest that the Iraqi rural broadband policy has failed in the following areas: freedoms in allocating money and mapping and an unrestricted time frame. These failures occur because of favoring private telecom companies over public interest. Further, the policy failure has been impacting rural Iraqis in the following aspects: exclusion from broadband service, social isolation, waiting without hope, and slow and intermittent connectivity. Finally, this research provides unique and rare information about the Iraqi telecom sector, which suffers from a dearth of scholarly research, that could contribute to closing the knowledge gap in the telecom field.

Keywords: Iraqi telecommunication, Iraqi rural broadband, policy failure, social exclusion theory, regulatory capture theory

Executive Summary

The lack of accessibility to broadband connections in Iraqi rural areas has been a policy problem for over a decade. Unlike urban cities that are provided with a reliable connection, rural communities have had over 11 million Iraqi residents *waiting* for wireline broadband connections and the necessary steps from policymakers and government officials for many years;

despite billions of dollars spent to fix the issue, nothing has changed (Haddad & Rossotto, 2017). The problem was compounded because of COVID-19, as the lockdown made it necessary for Iraqis to study and work online from home. Unfortunately, there is a lack of scholarly research on the inability of Iraqi telecommunications to address such a critical problem.

This paper uses a qualitative research method and theories of policy failure and technology maintenance and conducts thematic coding analysis to answer the research question concerned with the policy failure and the waiting experience of rural Iraqis for fixed broadband. To address this question, I rely on two methods: analysis of secondary documents of Iraqi telecommunications and in-depth interviews with members of five different communities in rural Iraq that lack fixed broadband connectivity. Both the documents and the interviews will be analyzed using thematic coding analysis, which is predicated on the identification of patterns and themes (Herzog et al., 2019).

Due to the paucity of published material related to Iraqi telecommunications, this manuscript conducts exploratory research examining the intersection between the policy failure of the Iraqi rural–urban digital divide and the waiting experience of rural Iraqis for fixed broadband. Further, this paper highlights the global implications for the telecommunications sector represented by a crisis of public financing.

The expected findings are the following: Waiting for a fixed broadband connection is an irksome experience that might affect the rural communities' residents' lives, including aspects like education, work, and health. Further, the end of the Iraqi rural residents' experience of waiting

for fixed broadband is fully controlled by government officials and policymakers. Lastly, a crisis regarding the telecom finance budget might exist due to the inappropriate allocation of funds for rural broadband projects.

Introduction

The appearance of ISIS in 2014, followed by COVID-19, forced many Iraqis to rely on the Internet to do their daily activities remotely, such as work or attending school (Alsabah et al., 2021). These sudden crises heavily impacted over 11 million rural residents' areas, which account for about 28 percent of the total Iraqi population, and possibly as many as 60% of rural Iraqis who lack broadband connections (Ahmad & Saeed, 2021; Abdulridha & Gadder, 2020; Haddad & Rossotto, 2017; The World Bank, n.d).[1] In a nutshell, a major percentage of Iraqi rural residents' areas' important daily Internet activities (e.g., work, education, shopping, etc.) are acutely impacted by the lack of a broadband connection.

Supplying the rural areas in Iraq with the basic infrastructure for technology, such as electricity and landline phone service, was a critical policy concern during the time of President Ahmed Hassan al-Bakr in the 1970s (Badeeb, 1990). In the period from 1998 to 2003, Iraqi policymakers' discussions focused on providing rural areas with infrastructure for landline phone service (Abubakr & Kaya, 2021). In recent years, rural broadband connectivity has become the main concern for Iraqi policymakers. Unlike urban cities in Iraq, which enjoy reliable connections (Haddad & Rossotto, 2017), rural cities still lack the basic infrastructure to provide fixed broadband connections (e.g., wireless broadband connections) (Johni, 2020). As many

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[1] The Iraqi ministry of communication illustrated that the rural areas in Iraq are scattered places with a population of 3000 or less and are located outside the urban cities (Ministry of Communication, 2011).

economists illustrate, one of the main rural broadband connection problems lies in market failure due to the unwillingness of the private market to build up infrastructure in rural areas because of the high investment costs and low return on profits(Ali, 2020; Pickard, 2015).

Accordingly, this research analyzes current rural broadband policies as implemented by the Ministry of Communications of Iraq, the agency responsible for Iraqi telecommunications regulation. Building on the critical political economy and theories of policy failure and social exclusion, I argue that the Iraqi rural broadband policy has failed in the following three areas: freedom in allocating money, freedom in mapping, and unrestricted time frame. These failures occur because of favoring private telecom companies over public interest. Further, the failure of the Iraqi rural broadband policy has been impacting rural Iraqis in the following four aspects: exclusion from the broadband service, social isolation, waiting without hope for a broadband connection, and slow and intermittent connectivity.

This article examine the intersection between the policy failures and the experiences of rural Iraqis regarding broadband connections. I start with a literature review to explore the Iraqi rural broadband connection before discussing the method and theories. Then, I will analyze the Iraqi rural broadband policy failure. Next, I will analyze the experience of Iraqis in rural areas in regard to broadband connection service. Finally, I will conclude with recommendations for rural broadband policy improvement in Iraq.

Literature Review

Rural Broadband Connection in Iraq

The lack of infrastructure availability appeared to be one of the critical aspects that have impacted the broadband connection in rural Iraqi areas since the fall of Saddam's regime in 2003 (Haddad & Rossotto, 2017). In 2020, the Ministry of Communications of Iraq reported that about

60 % of rural Iraqi residents lack access to a broadband connection due to the lack of infrastructure, which is a major part of this issue (Alsabah et al., 2021; United Nations, 2020). Besides, the Ministry of Communications of Iraq reported on the affordability issue of broadband connection in rural Iraqi areas (Freedom of the house, 2022). The Ministry of Communications of Iraq found that Iraqis in rural areas paid about 170 thousand Iraqi dinars, about $116 per month, which is more than twice the subscription each month in urban areas, which is estimated to be equivalent to about $50 (Freedom of the house, 2022).

Very few scholars explored the subject of broadband connections in rural areas of the Kurdistan Region of Iraq (KRI). Scholars shed light on the benefit of connecting the rural areas in KRI with the broadband connection that is represented by economic growth, job creation, and the increase in the rate of rural education (Haddad & Rossotto, 2017). Other scholars touch on the KRI government's plans to deploy broadband in rural areas in order to give more rural people access to a reliable Internet connection from home (Ahmad & Saeed, 2021). In addition, very few scholars discuss the benefits of the investment of foreign companies in broadband projects in the rural areas of KRI (Abbas Zadeh & Kirmanj, 2017; Demir, 019). Despite the literature that covered the KRI government's plans for a broadband connection in the rural areas and its impact on the economic, social, and educational aspects, few scholars explored the broadband subsidy projects that helped supply more of the rural areas of KRI with a fixed broadband connection. For instance, some studies assessed the KRI government policy regarding subsidy programs in rural areas and their impact on the accessibility and affordability of broadband connections (Al-Sabah et al., 2021).

The findings and research gaps of these studies clearly indicate the need for more research on the rural broadband connection policy in Iraq. A more in-depth scholarly

investigation needs to explore the abandoned area of research in the telecommunication sector and its policies in Iraq. Therefore, the objective of this study is to fulfill these information gaps by focusing on the rural broadband policy and deployment in Iraq.

Regulatory Capture

Since the fall of Saddam's regime back in 2003, a lot of policies and regulations have changed in different sectors, including the communication one (Katsos et al., 2019; Rittich, 2018). This change in Iraqi policies and regulations turned in the direction of aiming to deregulate the market. (Katsos et al., 2019; Rittich, 2018). Yet, many scholars have argued that the updated or changed policies and regulations after 2003 have fallen in favor of the industry side, not for the sake of serving the Iraqi citizens' interest (Khedir, 2022; Chilmeran & Pratt, 2019). The Iraqi policies' favoring of the industry led to failure in addressing critical issues such as providing Iraqis access to essential services like technology, which are required for their daily activities. Telecommunications could be one of the sectors of Iraqi society that have policies that fail to address the needs of Iraqi citizens, such as the need the broadband connections in rural areas. Therefore, the regulatory capture theory is chosen for this research as it could provide a suitable theoretical framework to cover the Iraqi rural broadband connection issues.

Carpenter and Moss (2014) defined regulatory capture theory as "the result or process by which regulation, in law or application, is consistently or repeatedly directed away from the public interest and toward the interests of the regulated industry, by the tent and action of the industry itself" (p. 13). Horwitz (1989) illustrates that regulatory capture occurs when government officials protect the interests of telecommunication industries, as in the example of how AT&T's interests remained protected under the FCC policies until 1980. Further, scholars have also linked the regulatory capture theory to policy failure. Ali (2020) mentioned that "at its

broadest, policy failure, or the more specific, regulatory failure, occurs when established policies and regulations fail to accomplish a stated goal. For instance, regulation, which is meant to uphold the public interest, fails when it is captured by industry interests." (p. 6).

Regarding the literature about regulatory capture, this study falls within the direction of Carpenter and Moss (2014), Ali (2020), and others, which the government officials and telecommunication industry view as a chronic problem that goes against the public interests. Thus, it can be assumed that the experience of rural Iraqi residence areas when it comes to broadband connection is impacted by broadband policies that favor the telecommunications industry and deny rural Iraqi communities the broadband service they need.

Social Exclusion

Social exclusion theory suggests that groups of people are excluded from receiving access to services like technology, education, healthcare, and others based on variant factors, such as geographic location, social class, and race (Reddick et al., 2020; Freedman et al., 2016; Helsper, 2017; Fraser, 2010). Social exclusion theory provides a theoretical framework that helps in exploring the experiences of groups that are excluded from accessing services (Levitas, 1998; Maxwell et al., 2013). Further, scholars use the social exclusion theory to examine the indicating factors of exclusion of those who don't have access to services. For instance, a study by Reddick et al. (2020) examines the "indicator for exclusion" in communities that do not have access to a broadband connection (p. 3). In addition, social exclusion theory offers a framework to examine the intersection between policy and its impacts on socially excluded groups (Sen, 1995). Reddick et al. (2020) find that "social exclusion may not occur with deliberate motivation to exclude groups of people, but an unintended outcome as a result of social processes or policy decision makings" (p. 3).

With the literature discussed above in mind, social exclusion theory will be used as a theoretical framework in this paper, especially with regard to exploring the experiences of rural Iraqi communities when it comes to broadband connections. The social exclusion theory framework can also help investigate the intersection between policy issues and the experiences of rural Iraqi residents. This study follows the direction of Sen (1995) and Reddick et al. (2020) and uses the social exclusion theory to explore rural Iraqi communities as groups that are excluded from accessing broadband connectivity, and rural broadband policies could impact this issue.

Despite the universal experience of rural broadband connection having issues and the universal confession of the rural broadband policy problems, few scholarly works explore their junction in the Iraqi telecommunication sector. Therefore, to fill this research gap, building upon theories of regulatory capture and social exclusion, this study raises the following questions regarding the Iraqi rural broadband policy and the experience of rural Iraqis with broadband connection:

RQ1: What are the primary objectives of the Iraqi rural broadband policy?

RQ2: How does the Iraqi rural broadband policy compare with the experiences of rural Iraqis regarding broadband access?

Method

This paper conducted a thematic coding analysis (T.A.) to address the research questions concerned with the policy and the experience of rural Iraqis with broadband connection. T.A. focuses on the identification of patterns and themes (Ali, 2020). Herzog et al. (2019) mentioned that T.A. is "one of the most straightforward ways of deducing patterns of meaning— referred to as themes— from qualitative data. In its essence, T.A. consists of analytical constructions of: (a)

codes, (b) themes in qualitative verbal expressions, and (c) patterns of recurrence, evolution, or association with these themes." (p. 358). Besides, hermeneutic analysis was used to interpret the findings of this study.

To address the research questions of this study, this paper relies on two primary methods:

First, to answer RQ1 related to the Iraqi rural broadband policy, this manuscript conducts an analysis of secondary documents of the Iraqi telecommunications sector related to the Iraqi Ministry of Communication regarding the rural broadband connection policies between 2012 to 2021. This paper analyzed the following main rural broadband policies: the National Internet Project (NIP) (Freedom of the house, 2022; National Internet Project, 2021). The NIP policies were selected for this study because they considered the main actions taken by the Iraqi ministry of communication, which aimed at closing the urban–rural digital divide in terms of access to a broadband connection. These policies also represent the history of the rural broadband policies taken from 2012 to 2021 (Alsabah et al. 2021).

Second, to answer RQ2 related to the Iraqi's rural experience of broadband connection, this paper conducted analysis through online interviews of Iraqi rural residential areas of different counties in the following five cities: Ramdai county, Al Anbar city; Rumaitha county, Al Muthanna city; Boquba county, Diyala city; Kut county, Waist city; and Dhi Qar county, Al Nasiriyah city. These five counties were chosen because of their rural location and the lack of reliable broadband connection. In this case, the interviews help the researcher examine "the meaning of the participants' words and actions" by triggering them to tell their stories with details instead of directly answering the questions (Mathews & Ali, 2022, p. 5).

Iraqi Rural Broadband Policy Findings

Freedom in Allocating Money

One of the main problems of these policies is that the ministry gives the telecom companies too much freedom in asking for monies from the $170 million allocated for the NIP project. Not surprisingly, when the Iraqi Ministry of Communications gives the freedom to telecom companies to allocate the money, areas with a high population density that could return a profit (i.e., Baghdad and Basra) for these telecom companies were chosen to receive the money rather than rural areas.

Freedom in Mapping

The other main problem in these policies is that the Ministry of Communications of Iraq allows telecom companies the freedom to decide on the regions they want to provide broadband connection. Giving the telecom companies the freedom to choose the rural areas that will be provided with broadband connection means there is no guarantee these companies will choose the rural areas with fewer populations, which might not be profitable.

Figure (1). Unserved wrongly mapped rural areas (Umm Qasar, Al Fao, and Al- Zubair) mapped as "served" with broadband connection in Basra city. *(accessed December 2022). Source: Satellite. Pro.*

Unrestricted Time Frame

One of the major problems found in the Iraqi rural broadband connection policy is allowing telecommunication companies to work with minimum restrictions on the time frame they were allowed the broadband projects to serve the unconnected areas. The Ministry of Communication of Iraq mentioned that security is the main reason behind not restricting the time frames given to telecom companies to finish establishing a broadband connection in unconnected areas (i.e., rural areas) (Freedom of the house, 2022; Alsabah et al. 2021).

Figure (2). The red stars show the areas left without broadband connection due to the claim of security threats mentioned by telecom companies, based on the NIP report of 2021. *(accessed December. 2022). Source: Satellite.Pro.*

Findings of Rural Iraqis' Broadband Experiences

Exclusion from the Broadband Service

The majority of the participants indicate that their waiting for a reliable broadband connection is "pointless" because they feel they are "excluded from receiving reliable broadband service." Ahmed Hashim, who is in his late 40s, from Baquba county, mentioned:

> In fact, I feel that our rural areas with a small population density have been excluded from reliable broadband services in addition to other services such as health and education. Looking at broadband services in Baghdad and the rest of the major cities with high population densities, we find that high-quality broadband services are available there, such as high-speed Internet. I don't know why we are excluded from getting the same broadband service that is available in the big cities.

Social Isolation

Many of the participants in this study indicated that they are socially isolated from the rest of their friends or relatives who live in different provinces of Iraq, or some of them live in European and Arab countries. For instance, Maryam Rasheed mentioned that "I and even my friends and relatives feel that we are socially isolated when the Internet service is interrupted or when the Internet services are poor. That is why I hope that Iraqi politicians will be serious about improving Internet services in our rural areas."

Hopeless Waiting

Waiting for broadband connection to be established connection was the answer from the majority of the five Iraqi rural counties that were interviewed in this paper. Residents of these Iraqi rural areas describe their waiting for broadband connection as "waiting without hope" over

more than a decade. Ahmed Hashim, from Baquba county said: "Our waiting for a reliable broadband service in Baquba county is pointless."

Intermittent and Slow Internet Service

Many of the participants in this study indicated that they suffer from a very slow Internet speed, in addition to the continuous interruption in the Internet service in their rural areas. Specifically, the participants in this study indicated that a weak Internet speed is not a new problem, as the problem of slow Internet speed has been around for several years. In addition, the participants in this study indicated that the Internet service in their rural areas is interrupted almost every day.

In addition, the participants in this study indicated that they pay high subscription fees for the Internet service in their rural areas, but despite that, they are provided with a slow and intermittent Internet service almost every day. Besides that, the participants explained that they do not know what the real reason behind the poor Internet service is in rural areas or the interruption of this service, which is almost a chronic problem in their areas. For instance, Saif Wael Nawar said, "[I] personally do not know what is the real reason behind the intermittent and repeated Internet services every two or three days. This is a real and major problem that we face when we use the Internet."

References

Abbas Zadeh, Y., & Kirmanj, S. (2017). The para-diplomacy of the Kurdistan region in Iraq and the Kurdish statehood enterprise. *The Middle East Journal*, 71(4), 587-606. https://doi.org/10.3751/71.4.14.

Abdulridha, J. N., & Gadder, G. R. (2020). The problems of organization and legal responsibility (civil and administrative) in the field of telecommunications in Iraq. *Cuestiones Políticas*, 370-377. https://doi.org/10.46398/cuestpol.382e.29.

Abubakr, M., & Kaya, T. (2021). A comparison of E-government systems between developed and developing countries: Selective insights from Iraq and Finland. *International Journal of Electronic Government Research*, 17(1), 1. https://doi.org/10.4018/IJEGR.2021010101.

Ahmad, S. S., & Saeed, B. I. (2021). LoRa: A proposed connectivity technology for internet of things applications in the Kurdistan region of Iraq. *Kurdistan Journal of Applied Research* (Online), , 20-34. https://doi.org/10.24017/science.2021.2.3.

Al-Hashimy, H. N. H., Said, I., Yusof, N., & Ismail, R. (2022). Evaluating the impact of computerized accounting information system on the economic performance of construction companies in Iraq. *Informatica* 46 (7), 13-24. doi:10.31449/inf.v46i7.3920.

Allagui, I. (2017). Internet in the middle east: An asymmetrical model of development. *Internet Histories*, 1(1-2), 97-105. https://doi.org/10.1080/24701475.2017.1305715.

Ali, C. (2020). The politics of good enough: Rural broadband and policy failure in the United States. *International Journal of Communication* (online), 5982.

Almasri, S., & Alshomrani, S. (2013). Testing the usability of the HSPA wireless broadband in the middle east: Jordan and Saudi Arabia as case studies. *International Journal of Computer Science Issues*, 10(1), 805.

Al Nashmi, E., Cleary, J., Molleda, J., & McAdams, M. (2012). Internet political discussions in the Arab world: A look at online forums from Kuwait, Saudi Arabia, Egypt, and Jordan. In Jason Hughes (Ed.), *Internet Research Methods,* 18 (2), 1 https://doi.org/10.1177/1748048510380810.

Alsabah, R., Aljshamee, M., Abduljabbar, A. M., & Al-Sabbagh, A. (2021). An insight into internet sector in Iraq. *International Journal of Electrical and Computer Engineering*, 11(6), 5137. https://doi.org/10.11591/ijece.v11i6.pp5137-5143.

Anderson, J. W. (2000). Producers and middle east internet technology: Getting beyond "impacts". *The Middle East Journal*, 54(3), 419-431.

Anwar, M., Nawzad, S., & Qadir, B. (2018). Customer perceptions on internet services in kurdistan region of Iraq. International Journal of Social Sciences & Educational Studies, 5(1), 28-51. https://doi.org/10.23918/ijsses.v5i1p28.

Badeeb, S. M. (1990). the impact of military power in Iraq since the 1958 revolution. *American-Arab Affairs*, (34), 17.

BMI Country Industry Reports. (2018). *Iraq telecommunications report - Q4 2018*. Retrieved from https://www-proquest-com.ezaccess.libraries.psu.edu/docview/2116191117?pq-origsite=summon&accountid=13158.

Carpenter, D., & Moss, D. (2014). Introduction. In D. Carpenter & D. Moss (Eds.), *Preventing regulatory capture* (pp. 1–22). Cambridge, UK: Cambridge University Press.

Chilmeran, Y., & Pratt, N. (2019). The geopolitics of social reproduction and depletion: The case of Iraq and Palestine. *Social Politics*, 26(4), 586-607. doi:10.1093/sp/jxz035.

Demir, A. (2019). A benchmarking of service quality in telecommunication services: Case study in Kurdistan region of Iraq. *International Journal of Social Sciences & Educational Studies*, 5(3), 216-231. https://doi.org/10.23918/ijsses.v5i3p216.

Durkheim, E´ . (1965). *The elementary forms of religious life*. Free Press.

Fraser, N. (2010). Injustice at intersecting scales: On 'Social exclusion' and the 'Global poor'. *European Journal of Social Theory*, 13(3), 363-371.

Fitch Solutions Country Industry Reports. (2020). *Iraq Telecommunications Report - Q4 2020*. Retrieved from https://www-proquest com.ezaccess.libraries.psu.edu/docview/2447621200?pq-origsite=summon&accountid=13158.

Freedman, G., Williams, K. D., & Beer, J. S. (2016). Softening the blow of social exclusion: The responsive theory of social exclusion. *Frontiers in Psychology*, 7, 1570-1570. doi:10.3389/fpsyg.2016.01570.

Freedom of the house (2022). *Freedom on the net 2022*. Retrieved from https://freedomhouse.org/country/iraq/freedom-net/2022.

Habibi, F., & Zabardast, M. A. (2020). Digitalization, education and economic growth: A comparative analysis of middle east and OECD countries. *Technology in Society*, 63, 101370. https://doi.org/10.1016/j.techsoc.2020.101370.

Haddad, M., & Rossotto, C. M. (2017). Developing broadband in frontier markets: Opportunities and challenges in the Kurdistan region of Iraq. Info (Cambridge, England), 19(2), 126-138. https://doi.org/10.1108/DPRG-09-2016-0043.

Harvey, David. (2019). *Spaces of Global Capitalism*. Verso.

Hassan, A. M. (2020). The impact of corruption on the human security of societies in transition (Iraq case study since 2003). *Review of Economics & Political Science* : REPS, https://doi.org/10.1108/REPS-06-2019-0092.

Helsper, E. J. (2017). The social relativity of digital exclusion: Applying relative deprivation theory to digital inequalities: The social relativity of digital exclusion. *Communication Theory*, 27(3), 223-242.

Herzog, C., Handke, C., & Hitters, E. (2019). Thematic analysis. In H. Van den Bulck, M. Puppis, K. Donders, & L. Van Audenhove (Eds.), *The Palgrave handbook of methods for media policy research* (pp. 385–402). Cham, Switzerland: Palgrave Macmillan.

Heshmati, A., Al-Hammadany, F. H., & Bany-Mohammed, A. (2013). Analysis of internet usage intensity in Iraq: An ordered logit model. *Journal of Knowledge Management, Economics and Information Technology*, 3(3).

Heshmati, A., & Al-Hammadany, F. H. (2014). Multinomial logit model of choices of internet modes in Iraq. Business and Economic Research, 4(2), 114. https://doi.org/10.5296/ber.v4i2.6123.

Horwitz, R. B. (1989). *The irony of regulatory reform: The deregulation of American telecommunications*. Oxford, UK: Oxford University Press.

Jawad, L. A., & SpringerLink . (2021). *Tigris and Euphrates rivers: Their environment from headwaters to mouth* (1st 2021. ed.). Springer International Publishing.

Johni, R. A. (2020). Measurements to design a coverage area by using high altitude platform systems. *Telkomnika*, 18(4), 1695-1700. http://telkomnika.uad.ac.id/index.php/TELKOMNIKA/article/view/14541.

Khedir, H. H. (2022). Not to mislead peace: On the demise of identity politics in Iraq. *Third World Quarterly*, 43(5), 1137-1155. doi:10.1080/01436597.2022.2047919.

Katsos, J. E., & AlKafaji, Y. (2019). Business in war zones: How companies promote peace in Iraq. *Journal of Business Ethics*, 155(1), 41-56. doi:10.1007/s10551-017-3513-7.

Levitas, R. (1998). Delivering social inclusion. *The inclusive society? Social exclusion and new labor* (pp. 159–177). London: Palgrave Macmillan UK. https://doi.org/10.1057/9780230511552.

Macrotrend. (n.d.). *Iraq Rural Population 1960-2022*. https://www.macrotrends.net/countries/IRQ/iraq/rural-population#:~:text=Iraq%20rural%20population%20for%202021,a%201.57%25%20increase%20from%202019.

Mathews, N., & Ali, C. (2022). "Come on f—er, just load!" Powerlessness, waiting, and life without broadband. *Journal of Computer-Mediated Communication*, 2 (18), 1-11. https://academic.oup.com/jcmc/article/27/6/zmac020/6763233.

Maxwell, J. A., Spielmann, S. S., Joel, S., & MacDonald, G. (2013). Attachment theory as a framework for understanding responses to social exclusion: Attachment and social exclusion. *Social and Personality Psychology Compass*, 7(7), 444-456. doi:10.1111/spc3.12037.

Ministry of communication. 2011. Preparatory Survey Report on the construction and Development of the Telecommunications Network for Major Provinces in Iraq. Retrieved from https://openjicareport.jica.go.jp/pdf/12025037.pdf.

Nabeel, G. (2022). *Inequality in Internet Access Is Greatest in MENA Region, Report Says. Al-fanarmedia*. Retrieved from https://al-fanarmedia.org/2022/02/inequality-in-internet-access-greatest-in-mena-region-report-says/.

National Internet Project. (2021). *Quick information about the National Internet Project*. Retrieved from https://insm-iq.org/en/archives/327.

Parker, E., Hudson, H., Dillman, D., & Roscoe, A. (1989). *Rural America in the information age*. Lanham, MD: University Press of America.

Pickard, V. (2015). *America's battle for media democracy*. Cambridge, UK: Cambridge University Press.

Reddick, C. G., Enriquez, R., Harris, R. J., & Sharma, B. (2020). Determinants of broadband access and affordability: An analysis of a community survey on the digital divide. *Cities*, 106, 1. doi:10.1016/j.cities.2020.102904.

Rittich, K. (2018). Occupied Iraq: Imperial convergences? *Leiden Journal of International Law*, 31(3), 479-508. doi:10.1017/S0922156518000316.

Sallet, J. (2019). Broadband for America's Future. Evanston: *Benton Institute for Broadband & Society*. https://www.benton.org/sites/default/files/BBA_full_F5_10.30.pdf.

Satellite.Pro. (2022). *Screen Captured of Broadband Connection in Basra's Areas*. Retrieved from file:///var/folders/8w/l4rqb7_n5gn_krx08tqtct_r0000gn/T/TemporaryItems/NSIRD_screencaptureui_dZPiop/Screen%20Shot%202022-11-21%20at%2010.13.00%20AM.png.

Satellite.Pro. (2022). *Iraq Map on Satellite*. Retrieved from https://satellites.pro/Iraq_map#33.394759,43.725586,7.

Sen, A. K. (1995). *Inequality reexamined*. Oxford University Press.

Sorokin, P., & Merton, R. (1937). Social time: A methodological and functional analysis. *American Journal of Sociology*, 42, 615–629. https://doi.org/10.1086/217540.

The World Bank. (n.d). *Rural population (% of total population) - Iraq*. Retrieved from https://data.worldbank.org/indicator/SP.RUR.TOTL.ZS?locations=IQ.

The World Bank. (n.d). *Secure Internet Servers-Iraq*. Retrieved from https://data.worldbank.org/indicator/IT.NET.SECR?locations=IQ.

The World Bank. 2018. *Iraq Reconstruction and Investments*. Retrieved from https://documents1.worldbank.org/curated/en/846201597292562703/pdf/Iraq-Reconstruction-and-Investment.pdf.

United Nation. 2020. *Iraq eTrade Readiness Assessment*. Retrieved from https://unctad.org/system/files/official-document/dtlstict2020d7_en_0.pdf.

Williams, B. G. (2020). Who defeated ISIS? the pentagon's war maps. *Middle East Policy*, 27(3), 152-193. doi:10.1111/mepo.12519.

Zeitoun, M., Elaydi, H., Dross, J., Talhami, M., de Pinho-Oliveira, E., & Cordoba, J. (2017). Urban warfare ecology: A study of water supply in Basrah. *International Journal of Urban and Regional Research*, 41(6), 904-925. https://doi.org/10.1111/1468-2427.12546
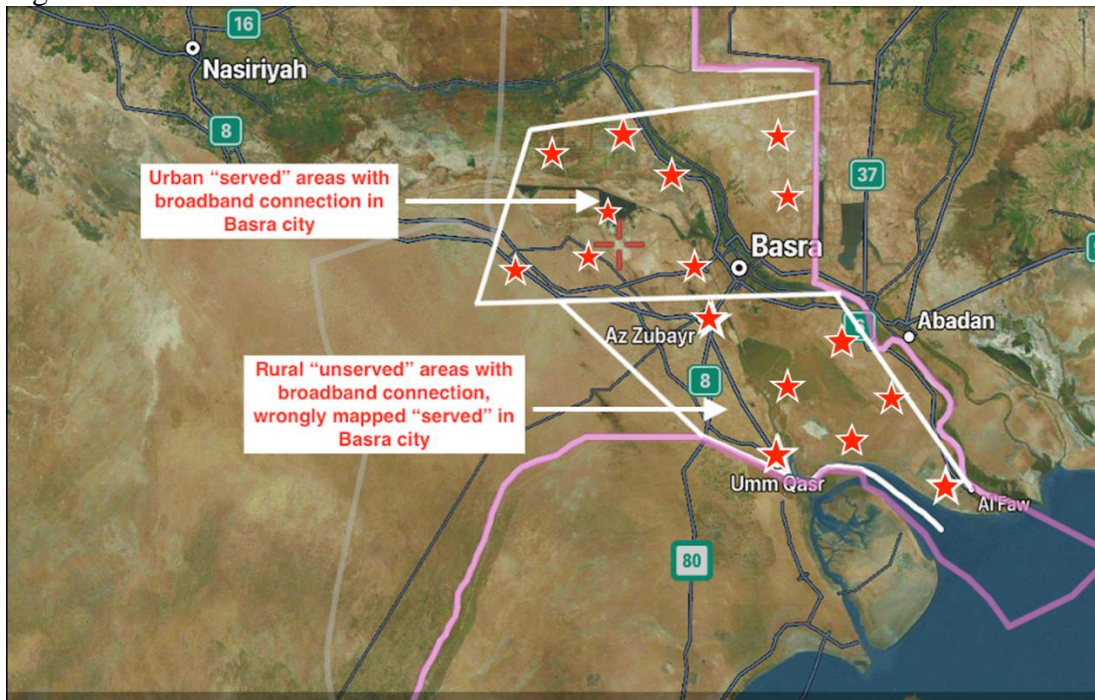
Appendix

Figure 1

Figure 2

Iraqi Rural Broadband Connection: 2024 PTC