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## Digital Rights Project

### **The Yemeni Telecommunications Sector during the War...**

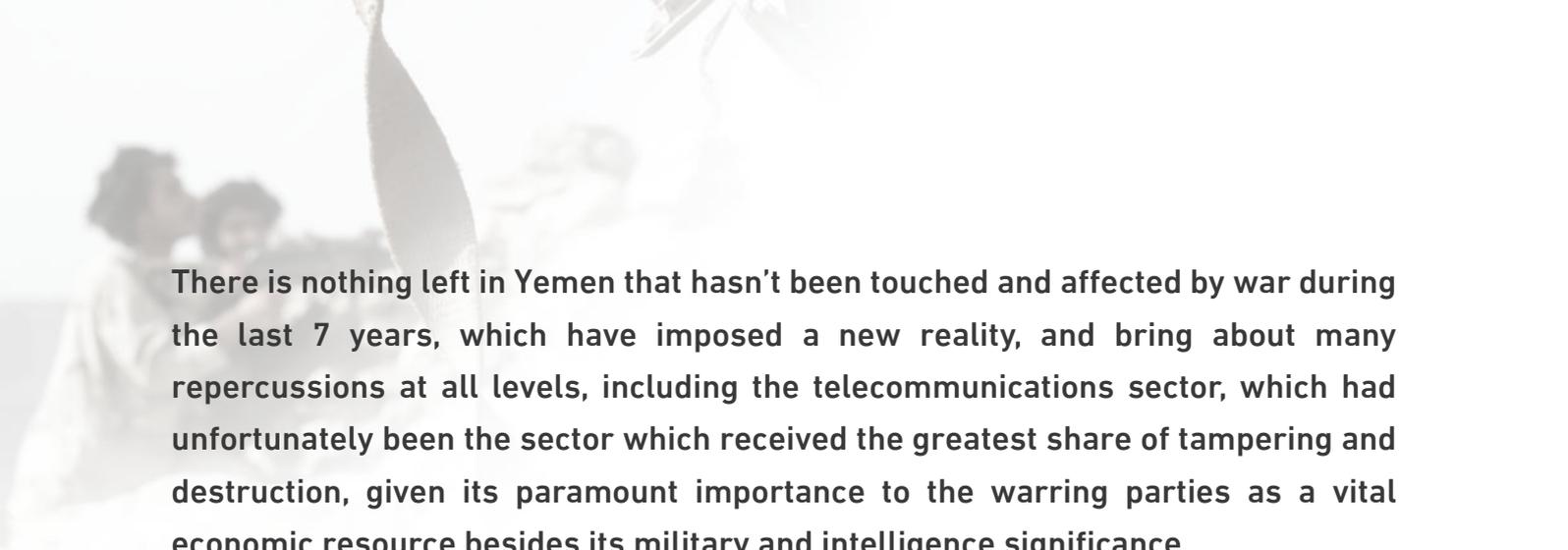
Fragile Infrastructure and Heavy Losses



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**A non-profit human rights window for Sam Organization, supported by Internews, aims to introduce digital rights, and monitor digital violations against users of the digital space**

**Where it works to advocate for the digital rights of Yemenis in order to reach a safe, fair and free digital space. It allows the submission of reports on digital violations, contributes to documenting violations through the window, and the formation of a database on digital violations. The window works by issuing studies and research on digital activity, digital rights and digital security, and planning and managing local and international advocacy campaigns.**



There is nothing left in Yemen that hasn't been touched and affected by war during the last 7 years, which have imposed a new reality, and bring about many repercussions at all levels, including the telecommunications sector, which had unfortunately been the sector which received the greatest share of tampering and destruction, given its paramount importance to the warring parties as a vital economic resource besides its military and intelligence significance.

And “the fate of Yemenis who are captured in the claws of this war has often been represented as mere means of bargaining between the warring parties; while this horrible reality of the war is also reflected in the Internet and the telecommunications infrastructure, as these spaces have become an arena for battles to expand influence and control, in addition to exploiting the Internet connecting or disconnecting to serve military objectives. By consequence, millions of Yemenis are deprived of their rights to communicate, access and share information; and most importantly, they have been denied the right to share their reality and their living experiences with the world, and this further worsens their conditions” according to Access Now (A Foundation active in the field of defending of digital rights of people).

### **The Telecommunications Sector... A Parallel Warfare**

During seven years of war to the present time, the telecommunications sector has been undergoing a process of systematic destruction by all of the warring parties, in an attempt to control and impose their authority on it. According to the American news publication “Foreign Policy”, the horrific civil war in Yemen is paralleled by a second war at the level of information on digital and traditional media and on control over the Internet itself.

“The warring parties - especially the Houthis - have exploited Internet services to promote their claims, block opposition websites, and impose unprecedented censorship on content published on the Internet, in a way that many citizens consider as undermining their right to freely express their opinions, as well as their right to access information and news”, according to Smex (a Lebanese NGO concerned with digital rights).

# Factors of implosion of telecommunications infrastructure

## Sana'a Telecom Infrastructure

### Telecom and Internet subscribers

In a statistic by the Ministry of Telecommunications in Sana'a, issued on April 2022, the number of mobile subscribers reached 17 million and 700 thousand, and the number of Internet and fixed broadband subscribers reached 1 million and 130 thousand.

### Number of Internet Service Users

The number of Internet users in Yemen reached 8.24 million users up to January 2022, making the Internet penetration rate in Yemen at about 26.7% of the total population, according to Data Reportal, the website specialized in "Internet statistics".



The number of Internet and fixed broadband subscribers is **1,129,879**



The number of mobile subscribers is **17,756,380**



Internet penetration rate in Yemen is **26.7%** of the total population,



**8.24 million** Internet users in Yemen up to January 2022,



## Equipment

Telecommunications operates through 183 messaging projects and stations, 189 central projects, buildings, telephone networks and maintenance, 157 km of copper cable extensions, in addition to 321 km of fiber-optic cable extensions.



### Telecommunications operate through:



• **183 messaging** projects and stations



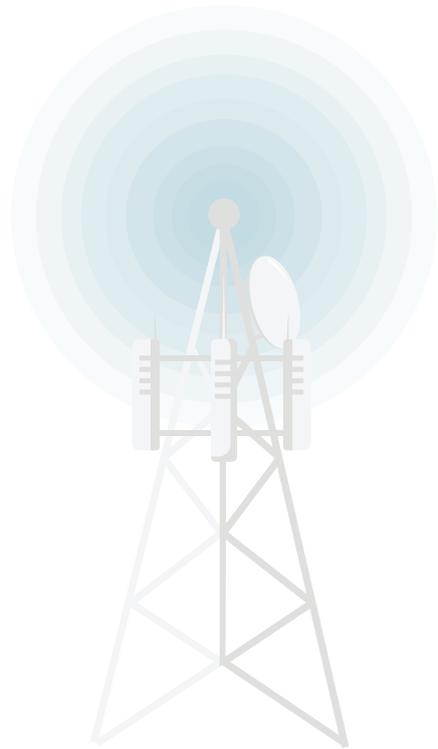
• **189 projects** central projects, buildings, telephone networks and maintenance



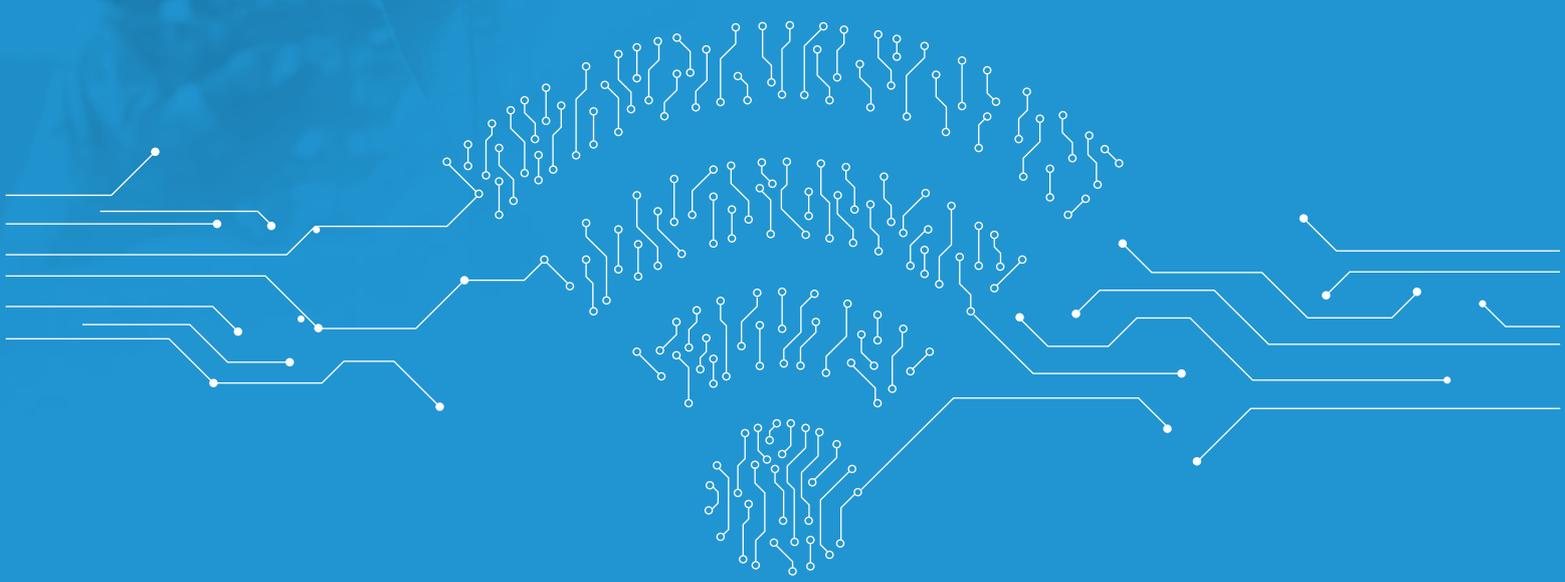
• **157 km copper** cable extensions



• **321 km fiber-optic** cable extensions



Regarding what has been equipped and repaired due the war damage, the Ministry of Telecommunications under the control of the Houthis stated in a report published on 2022/4/12 that the equipping and repairs are represented in preparing 23 sites for the FTTH project, 55 sites for the WiFi project, activating 4G services in the capitals of three governorates, in addition to implementing 127 extensions of VDSL internet exchanges, and conducting 157 km of cable extensions to expand the network, in addition to maintaining and operating 249 thousand telephone lines, and carrying out 3,973 repairs and maintenance operations of cable sectors after being bombed and destroyed.



## What has been repaired and equipped:



**Activating three 4G** services in the capitals of three governorates



**55 sites** for the WiFi project



**23 sites** for the FTTH project



**211 stations** rehabilitated



Telecommunication services have been restored in **64 villages and cities** have restored



**127 expansions** of VDSL internet exchanges



**157 km extension** of cables to expand the copper network



**3973 Repair** and maintenance of cable cuts



**249,000 phone** lines have been maintained and operating



## Aden Net Infrastructure

In an interview with the Minister of Communications in the legitimate government, Engineer “Lotfi Bashir” (published by “Aden Time” website) on February 2020 ,17 said that the legitimate government, represented by the Ministry of Telecommunications - Aden, has worked at establishing and equipping the infrastructure for “Aden Net”, which consists of:

- a) A new international gateway consisting of international systems and 4 media gateways, and it is functioning perfectly.
- b) An international optical transmission network to Al-Wadi’a port, and it has been linked to the Kingdom of Saudi Arabia to be a supplement to land cables.
- c) A new Internet service provider “Aden Net”
- d) Internet Multimedia Subsystem (IMS) to provide Internet services for mobile and landline.
- e) Wireless Internet for all multiple and varied uses WTTx (Wireless to the x..., Variations home, Offices, Banks, Industries, etc.). It is a modern LTE-based system that works in modern cellular devices and other media, in addition to 30 towers of wireless internet stations in Aden, 3 of which were destroyed during the events of the August 2019 war in Aden against legitimate government.
- f) Internet Protocol/ Multi Protocol Label Switching (IP/MPLS) data transmission network, which is a system for linking data transmission between banks, companies, universities and all parties that need to exchange data and information between them.
- g) Network Operational Control (NOC) that allows project engineers to manage and operate communication networks.
- h) AAE 1 submarine cable, starting from the excavations to the construction of the station, to its complete connection during the period from 2016 to 2017, at a cost of \$58 million.
- i) Providing electric generators and batteries as a backup for all the centers and networks in the telecommunications system.
- j) A Disaster Recovery Center (DRC) for all this infrastructure in Hadhramaut, to face any emergency or disaster that occurs to the main network which may lead to functioning interruption, so that the network can be managed from another alternative location.
- k) Information technology centers in the Central Bank of Yemen and the National Bank of Yemen, and they were linked to the new network.
- l) Versatile Satellite Stations (VSAT) for remote areas in both Marib and Al-Jawf.

# Aden Net Infrastructure



Internet service  
provider



International optical  
network



An international gateway  
consisting of international  
system and 4 media exchanges

## The number of “Aden Net” subscribers

There is no specific statistic about the number of “Aden Net” subscribers, but in a statement made by the Director of the Public Relations Department at the Ministry of Telecommunications - Aden, Wajdi Al-Saadi said to “South24 Center” that the number of Aden Net subscribers exceeded twenty thousand, up to February 2022.



Satellite stations for  
remote areas



A Recovery Center (DRC)  
for all this infrastructure  
in Hadhramaut



Control network

## Locations of the “Aden Net” service

Although the company's made repeated promises to develop “Aden Net” services and expand its geographical scope, the network is still limited to the directorates of Aden Governorate.

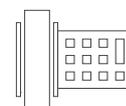
The media official at “Aden Net” explained to “South24 Center” that the company “was faced with several difficulties during the past period, especially the instability of the situation caused by the war in the country and its effect on bringing about the difficulty of importing the equipment needed for expansion, in addition to the degradation of the local currency, which affected the financial resources needed to develop the company effectively and at a faster pace.



Data transmission  
network



30 towers for wireless  
internet stations



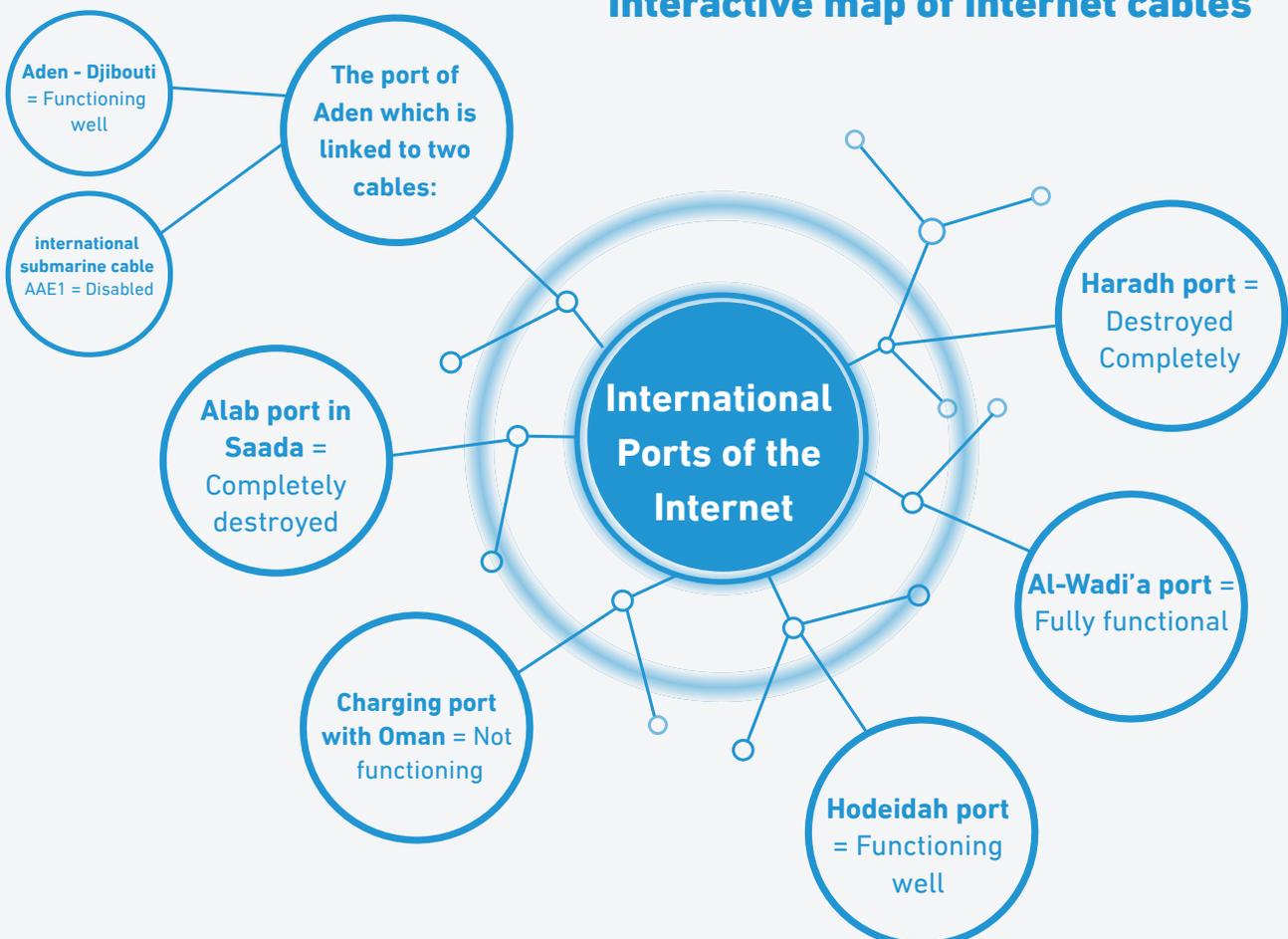
Multimedia Central

## International Internet Ports

Yemen has 7 international internet ports, only three of which are working, while the rest are not functioning, as a result of sabotage acts they have undergone by the warring parties. The Haradh and Alab ports (the two land ports with Saudi Arabia) were completely destroyed by the Houthis during the war, while the Shahn port (a land port with the Sultanate of Oman) was interrupted in 2019, due to Cyclone Luban, and is still not functioning and has not been repaired, in addition to the international submarine cable AAE1, which was operating normally, and was cut off (due to the political division between the authority of Aden and Sana'a), and it is subordinate to the port of Aden, which is connected to another submarine cable (Aden - Djibouti), and it is working well. .

Yemen also owns another land port with Saudi Arabia (Al-Wadi'a port), which is functioning fully. In addition, Yemen has a sea port (Al-Ghaidha port) connected to the international marine cable Falcon, and it is functioning well, and the Hodeidah port, which is a sea port connected to the same cable, which also functions well.

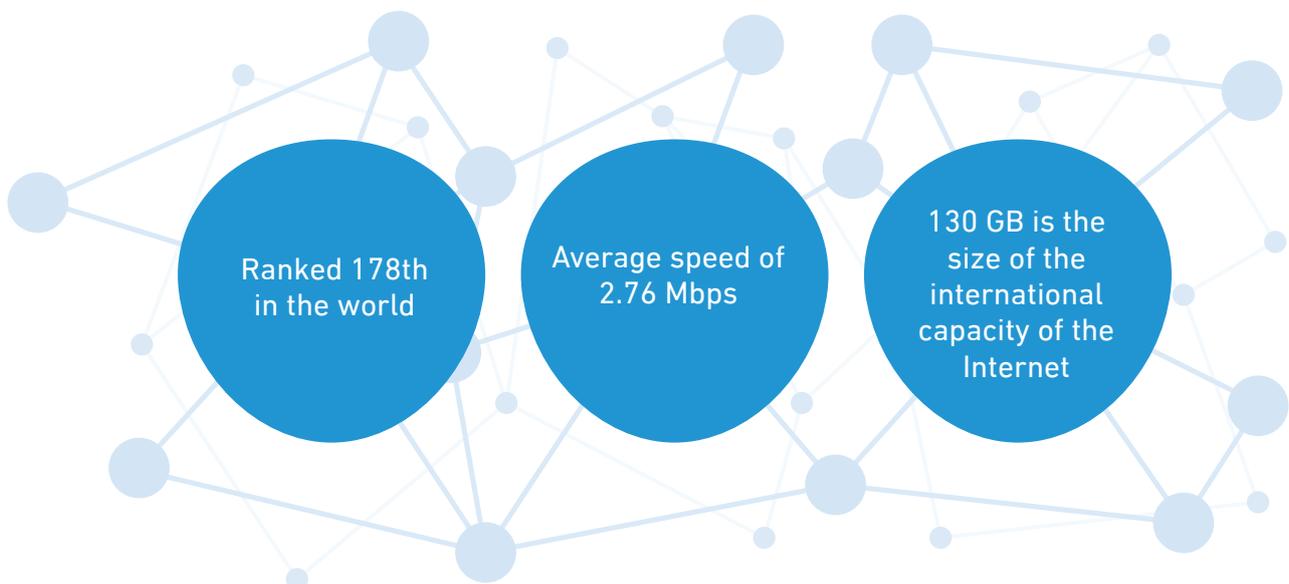
### Interactive map of internet cables



## Internet with a low global rating

Yemen has an international Internet capacity of 130 gigabytes, which is a very low rate, compared to other countries, which aggravate the suffering of Internet users in the country more, and makes their access to the network faced with problems. In a report issued by the Washington Institute in March 2022, the researcher “Justin Alexander” indicated that telecommunications in Yemen are ranked among the last positions in global rankings, and this means low bandwidth and high latency; in addition, the cost of a network connection is among the most expensive in the world. Because Yemen lacks Internet exchange points and data centers to process requests locally, almost all of its Internet traffic must be routed through international systems, which means that Yemenis who access a website like YouTube fetch data from the United States instead of local servers, which slows down the connection speed. Therefore, reliance on routing international internet traffic increases pressure on the limited international bandwidth, which is less than one-tenth of the global average per capita.

All of this contributed to the deterioration in the fixed internet speed in Yemen to a level that it is classified among the worst in the world, with an “average speed of 2.76 Mbps, and a ranking of 178 globally,” according to Speed Test.



## Infrastructure targeting

In an assessment issued by the World Bank, “36 or nearly 25% of the 141 baseline assets in the telecommunications and information technology sector have been partially damaged or destroyed since the beginning of the crisis”.

According to the Telecommunications Institution under the control of the Houthis - 2021/3/30, dozens of land and aerial cables of various capacities were burned and cut off, and the buildings and equipment of the Institution’s branch in Sana'a were severely damaged, in addition to the suspension of a number of relay stations, microwaves, fiber cabins, solar cells and PBXs. As a result of the bombing, in total, 32% of the infrastructure was totally destroyed, while 24% was partially destroyed.



According to the statistics of the Ministry of Telecommunications in Sana’a, 1106 facilities were targeted (706 sites and facilities totally destroyed and 400 partially destroyed) by 2760 air raids, which caused the suspension/closure of 862 sites and facilities; in addition to that, 104 telecommunication stations were seized at Jeddah Airport, Aden Port, Mukalla Port, Al-Ghaydah Port, and 16 containers carrying telecommunications equipment were stopped in the port of Aden, by the coalition.

## Frequent attacks on fiber-optic cables

According to “Access Now”, “Yemen witnessed at least 26 cases of internet blocking between 2016 and 2020, and an increase in network disruptions, as a result of attacks by the warring parties”. During the early years of the conflict, the Houthis caused the destruction of two of the land links with Saudi Arabia through Haradh and Alab, and the Houthis “deprived 80% of users, from accessing the Internet during July 2018, when they cut a fiber-optic cable in the coastal city of Hodeidah while they were fortifying their defenses there,” as reported by Foreign Policy in a report dated November 2018.

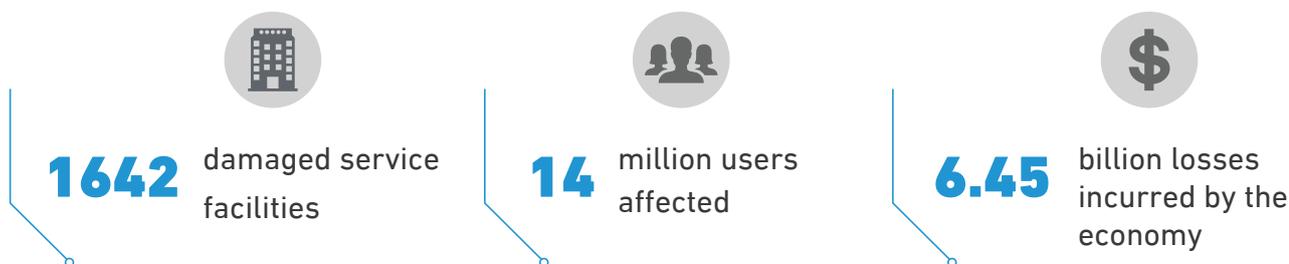
On the other hand, an air raid launched by the coalition aircraft during January 2022, on a telecommunications center in the coastal city of Hodeidah, caused the blackout of the Internet connectivity in all parts of Yemen; then connectivity was restored back after four days of complete interruption, in addition to the repeated attacks launched by the coalition

on telecommunication towers and networks, under the pretext of reducing the logistical capabilities of the Houthis.

The worst still has not come yet, as from time to time, fiber-optic cables are subjected to acts of sabotage that lead to the interruption of internet service in several regions of the country. During May 2022, the cables were subjected to three separate sabotage attacks, which caused the internet connectivity blackout in the eastern governorates, Al-Jawf and Ma'rib, for several hours.

## Ramifications of targeting infrastructure

The warring parties' targeting of the telecommunications infrastructure caused the sector to incur a loss estimated at \$6.45 billion during the seven years, up to April 2022, and caused damage to 14 million users, who suffered from deteriorated telecommunications and Internet services, in addition to the damage of 1,642 hospitals, universities and service facilities were deprived from benefiting from telecommunications services; in addition, 850,000 students and researchers suffered from difficulty accessing information and were unable to communicate with research and education centers via the Internet. Ministry of Telecommunications - Sana'a 2022/4/12



Considering the range and severity of the repercussions, targeting the telecommunications infrastructure is a crime by all standards, which calls for accountability and punishment of those involved, as there is no justification for “turning” the telecommunications sector into a war zone and a military target for the warring parties.

The warring parties must not use the “telecommunications sector” as a stage to settle political and military disputes, but they must take concrete measures that would distance telecommunications from their conflicts.



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