Mapping Public Infrastructure in Afghanistan

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VOXMAPP

CONTEXT

Afghanistan faces an armed conflict that has brought great destruction to the country. International aid organizations, the government, locals and other donors have been actively financing the **rebuilding of the country,** a difficult task in a country where access is limited. In the face of these changing dynamics, Afghanistan **lacks data and centralized information** on its public infrastructure system. This poses a great challenge to planification and resource distribution for both the government and international actors. The **Mapping Public Infrastructure (MPI)** project comes as a response to this problem with, at its core, the objective of creating the **first centralized dataset of Afghanistan public infrastructures.**

ABOUT THE PROJECT

The MPI project has been carried out by VoxMapp in partnership with **Integrity Watch Afghanistan** and with funding from the Special Inspector General for Afghanistan Reconstruction (**SIGAR**) since **2018** in the **province of Kapisa**. The pilot phase started with the district of **Mahmood-e-Raqi** and was later expanded to 3 more districts: **Hisa-e-Awal-e-Kohistan, Nijrab,** and **Hisa-e-Duwum-e-Kohistan.**

During 24 months, 89 enumerators collected a variety of **infrastructure data** in the field, which included: GPS coordinates, images, answers to the questionnaires, water quality tests, metadata, etc.

In total, **7,883 infrastructures** were mapped and the data collected became the first centralized detailed information on schools, hospitals, government buildings, water pumps, mosques, bridges, etc.

The large variety of data collected allowed VoxMapp to carry out different types of analysis in order to explore and compare the conditions andresources of the infrastructures, donors and budgets, population access and availability, among others.

Additionally, the data collected can be **updatable,** which allows the inclusion of a dynamic component to the project.

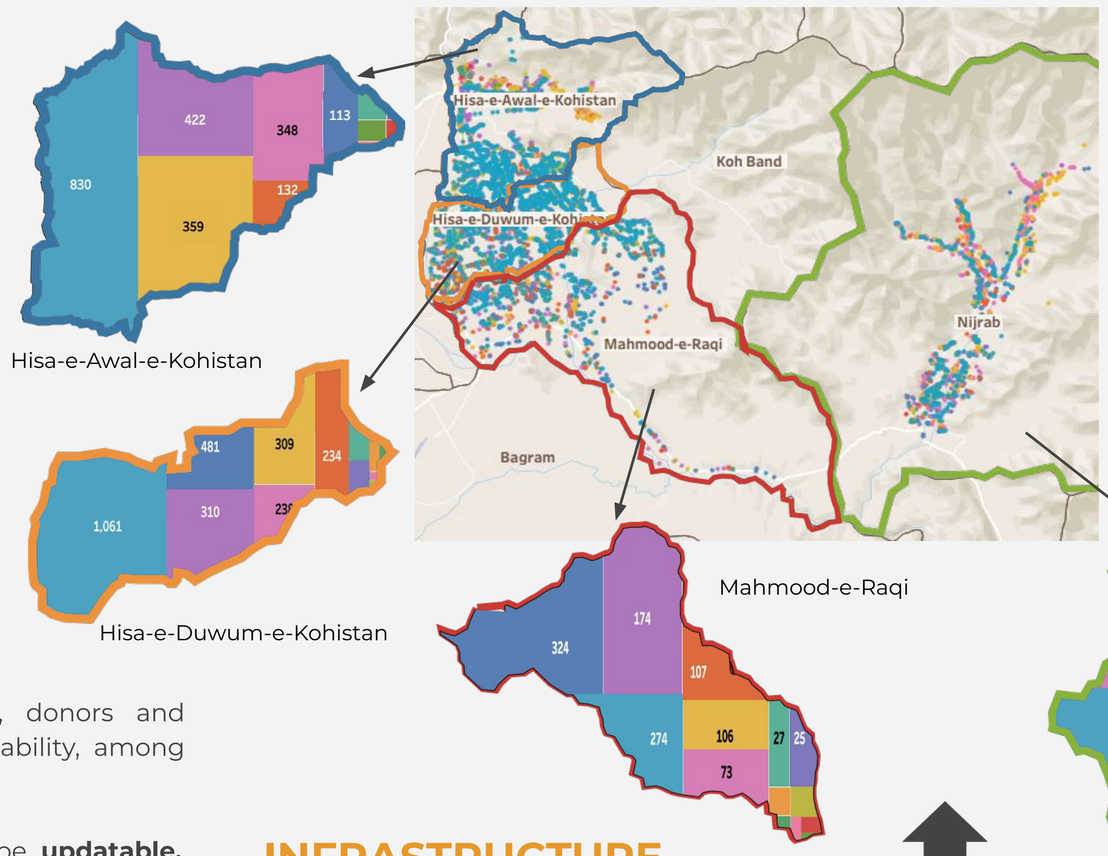

Figure 1: Geographical location of infrastructures and number of infrastructures by type and district

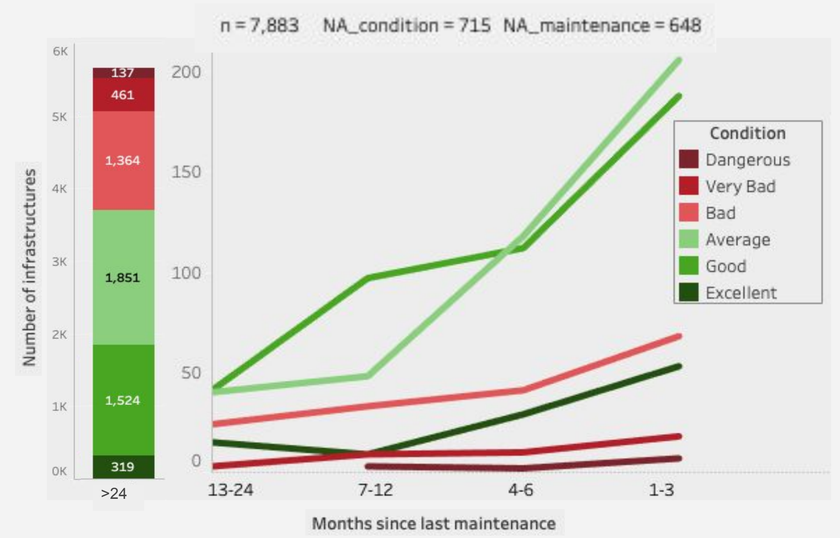

Figure 3: Number of infrastructures by condition and last maintenance

CONDITION AND MAINTENANCE

Most of the infrastructures' general condition was rated of average quality (30.23%). The sum of **"good" and "excellent"** rated infrastructures was **31.92%**, while the the rest **28.79%** was reported as **"bad", "very bad" or "dangerous"**. It is important to note that 162 **(2.06%)** infrastructures were reported to be in **dangerous conditions**. Half of these infrastructures correspond to bridges (40) and water pumps (44). Mahmood-e-Raqi is the district with less dangerous infrastructures with only 15 reported.

In Figure 3, a **positive relationship between maintenance and condition** can be observed when the infrastructures have had maintenance at least within the two last years. However, this relationship does not hold when it exceeds two years since last maintenance, which is the case of 76% of all infrastructures.

INFRASTRUCTURE

The most common type of public infrastructure in Afghanistan is **bridges** which represent **31.61%** of them all, especially in the district of Hisa-e-Duwum-e-Kohistan. Afterwards, in descending order: water pumps (15.27%), retaining walls (13.18%), irrigation canals (13.07%), roads (12.72%), mosques (7.51%) and power plants (2.45%) are the most abundant types of public infrastructure. On the other hand, schools (1.31%), electric poles (1.17%), markets (0.46%), government buildings (0.42%), historical monuments (0.33%), hospitals (0.27%) and parks (0.18%) only make 4.14% of all the infrastructure in Kapisa. Finally, the infrastructure related to **security and justice institutions**, such as the court and police stations are the **least common** ones and make only 0.06% of the total with only 4 police stations and 1 court building.

KEY FINDINGS

2% of all infrastructure is in a dangerous condition

68% of all infrastructure has never been renovated

7% of all infrastructure has regular maintenance

DATE OF CONSTRUCTION

The construction dates of the infrastructures show that "active" or more **frequent construction** started during the same year of the beginning of the war in **2001,** with **more than 90%** of the infrastructure being built after this year. The recent years between 2014-2017 are marked with the highest number of completed constructions, especially during **2016** when **883 infrastructures** were built. This happened due to an increase of the U.S non-military aid to Afghanistan under the President Obama's administration.

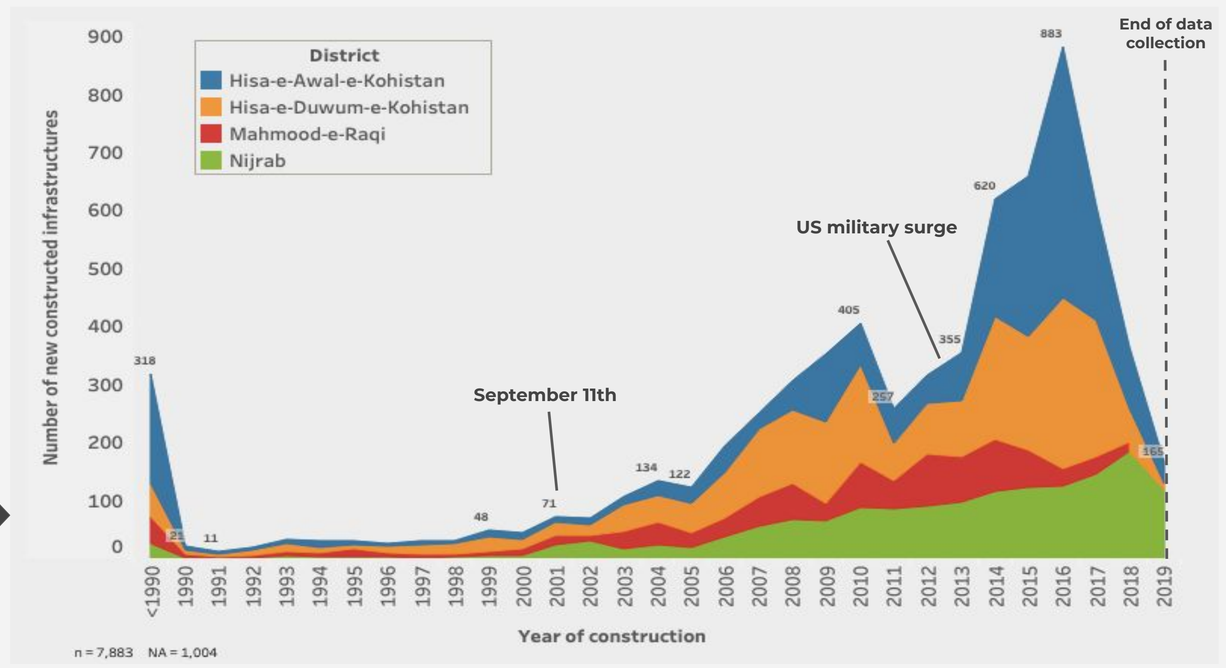

Figure 2: Yearly number of new infrastructures constructed by district

TOP 5 DONORS IN KAPISA

- **1,281 infr.** Ministry of Rural Rehabilitation and Development
- **1,040 infr.** Local Community
- **917 infr.** UN Habitat
- **577 infr.** World Bank
- **367 infr.** World Food Programme

74% of mosques were in normal or good conditions

Hospitals and mosques had maintenance more frequently and therefore had a better condition

52% of hospitals were in good condition

100% of historical monuments had NEVER been restored

Almost 9 out of 10 historical monuments were in bad condition

25% of power plants had not been renovated within the past 1-3 months

100% of parks had NOT been renovated within the last 3 years