State of Palestine Country Report

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1 Brief Summery

Back in 2012, the Palestinian Ministry of Local Government (MOLG) took the initiative to develop a web mapping application to facilitate access to fundamental geospatial data in all sectors across the country. The idea has emerged from the desire to enhance governmental delivery in the geospatial data sector resulting in saving time, cost, and efforts as well as increasing productivity, accuracy, transparency, and institutional cooperation. The efforts have been translated by building Geomolg Portal which hosts all fundamental geospatial layers in Palestine such as urban master plans, cadaster, agriculture, water, environmental, census, geological, topographic, historical, transportation, political, and imageries. The portal offers a free public service and provides very powerful tools and functions that ensure friendly interaction with maps particularly the ability to download the data.

The fact that the State of Palestine (West Bank, East Jerusalem, and Gaza Strip) is relatively small in terms of area (around 6,000 km^2), has reinforced the possibility of building Geomolg Portal and providing access to all fundamental geospatial data at the national level as the data extent can be controlled and managed effectively.
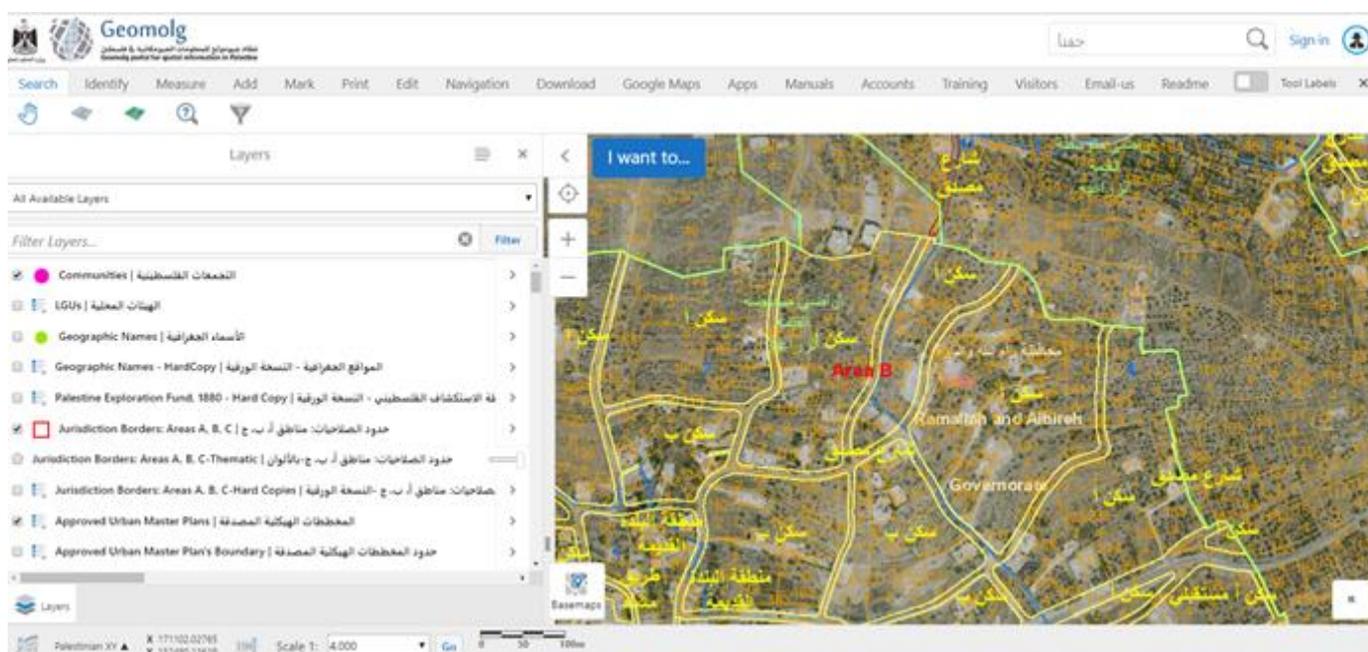

Figure 1: Geomolg Portal interface

1	Aerial photos	13	Electoral Boundaries	24	Vulnerable Areas
2	Communities	14	Governorate's Boundary	25	Land Cover
3	Local Government Units	15	Buildings	26	Soil
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Table 1: Examples of the available geospatial data layers on Geomolg Portal

2   National Spatial Data Infrastructure (NSDI)

Since the MOLG is not the sole geospatial data producer, the need to initiate the Spatial Data Infrastructure (SDI) project has been confirmed. The SDI project is intended to draw up robust technical and legal frameworks based on which producing and consuming geospatial data is envisioned to be regulated and organized. In other words, the initiative to implement the SDI project in Palestine has emerged to develop technical and legal frameworks to facilitate and simplify electronic geospatial data sharing, such that robust flux, data exchange, and dissemination, as well as open interoperability between producers and consumers on a national level can be ensured. More specifically, the implementation of the SDI project in Palestine aims to:

1. Develop a legal framework to regulate geospatial data sharing and dissemination.
2. Develop technical platforms for the physical implementation of SDI. This includes hardware, software, capacity building, and staffing.
3. Set standards and criteria for geospatial data to ensure consistency and harmony.
4. Assign the custodianship of each dataset to eliminate duplication of cost and effort.
5. Develop a modern Geodetic Reference Frame for Palestine.
6. Develop a Statistical Data Framework to facilitate seamless integration of statistical and geospatial information resources.
7. Establish a comprehensive set of reference data that will be the basis of many end-user applications.

Realizing the importance of the SDI project and its benefits, the Palestine Council of Ministers issued the decree No. 09/132/17 dated on 27th December 2016 by which the MOLG is designated to initiate and lead the SDI project at the national level. Another decree (No 05/176/17 dated on 31/10/2017) was issued to form the SDI National Committee. The committee was formed from all key institutions from governmental, academic, NGOs, and private sectors to support the MOLG in realizing the project, and to play the role of steering, guiding, and monitoring to ensure that the project is implemented based on the best practices. Currently, the national committee consists of 20 members:

1. Ministry of Local Government (chair)
2. Ministry of Telecommunication and Technology
3. Ministry of Agricultural
4. Ministry of Transportation
5. Ministry of Finance
6. Energy Authority
7. Ministry of Education
8. Ministry of Interior Affairs
9. Palestine Land Authority
10. Palestine Central Bureau of Statistics
11. Land and Water Settlement Commission
12. Ministry of Tourism and Antiquities
13. Ministry of Religious Affairs
14. Ministry of National Economy
15. Palestine Environment Authority
16. Wall and Colonization Resistance Commission
17. The Presidency Office
18. A Representative of the Private Sector
19. A Representative of the Academic Institutions
20. A Representative of NGO's

To address specific components of the project Action Plan, the national committee formed six working groups of experts to develop and implement six different themes: legislation, geospatial data standards, geodesy, systems architecture, integration of statistical and geospatial data, and needs identification (software, hardware, staff, training, etc.).

Figure 2: Photo from the first meeting of the SDI National Committee.

Internationally, Palestine has actively joined the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) to be a part of the international geospatial community and to get exposed to the international experience and success stories implemented in other countries across the globe.

3   Significance

In Palestine's local context, it is worth making a distinction between Geomolg Portal and the SDI project. Currently, Geomolg Portal is entirely run and administrated by the Palestine Ministry of Local Government (MOLG). Geomolg publicly provides geospatial data via web apps, consuming its contents from information stored in its database, and it is not linked to authoritative producers. For example, agriculture geospatial data is physically collected from the Ministry of Agriculture (MOA) and housed in Geomolg database. Any changes that continue to occur at the MOA database will not be reflected on the portal in real-time; it needs to be re-collected and fed into Geomolg database, which is time and effort consuming.

By implementing the SDI project, an authoritative source will be specified for each geospatial dataset, improving the overall quality of data and eliminating any duplication of efforts and redundancy. Each dataset on the SDI portal will be linked to its authoritative producer. Having geospatial data shared by its authoritative source means that any change in the data will be reflected in real-time on the portal. Thus, the data will be available in its most updated version with a high degree of completeness, reliability, and consistency.

4   SDI Project Progress

In 2018, and with consultation from the World Bank, Palestine develop a comprehensive Action Plan for the SDI project based on the Integrated Geospatial Information Framework (IGIF).

So far, the national committee has formed six technical working groups to implement different components of the project. This section illustrates the progress of each working group.

4.1   The Working group on Geospatial Data Standards

- Purpose:

  Figure 3: Photo from the first meeting of the Working Group on Standards

  In recognition of the various bodies collecting and disseminating geospatial data, this working group is concerned with developing coherent standards for the Palestinian geospatial data that aligns with the international best practices. The group is working toward unifying the governmental geospatial information. The key general concerns of the Standards Working Group are: defining the fundamental data themes, developing geospatial data standards, developing the national geospatial data catalogue, assigning geospatial datasets custodianship, and defining data access levels.

- Work Progress:

  The Working Group on Geospatial Data Standards convened its first meeting on the 26th of December, 2018, and it has been meeting on a monthly basis since then. The members have revised the working group terms of reference (TOR) and approved it on their second meeting. After studying the tasks assigned to the working group and considering the necessary activities to develop a Geospatial Data Framework in Palestine, the Working Group on Geospatial Data Standards developed a detailed TOR for the required consultancy services to carry out these activities. The tender will be open internationally to benefit from other countries' experience in developing and implementing geospatial data standards.

- Expected Deliverables:

  1- Defined Fundamental Data Themes.
  2- A National Geospatial Data Catalogue.
  3- A set of geospatial data standards that aligns with the international standards.
  4- Assigned custodianship for all geospatial datasets.
  5- Defined level of access for each geospatial dataset.

- Future activities:

  1- Short term:

     At this stage, the working group will be acting as a supervising body on the implementing consultant. They will be responsible for supervising the consultant's work progress and providing assistance where it's needed. Their responsibilities will also include revising and approving the submitted work by the consultant.

  2- Long term:

     The Working Group on Geospatial Data Standards will develop and implement a strategy to ensure the adoption and compliance with the developed geospatial data standards and policies in the Palestinian institutes.

4.2   The Working Group on Legislation

Figure 4: Photo from the first meeting of the Working Group on Legislation

- Purpose:

    Currently, there are no clear Palestinian laws that regulate geospatial data sharing and dissemination. The Working Group on Legislation is responsible for ensuring that the SDI abides by Palestinian laws related to geospatial data where it exists, and aligns with the international best practices where legal norms around this emerging technology are still developing. This group is working toward developing a legal framework for the SDI to resolve any current conflicts and ensure legal protection for data custodianship, privacy and confidentiality, intellectual property, and security. The working group will also develop a Legal Act for geospatial data sharing to mandate compliance with the SDI standards and policies.

- Work Progress:

    The Working Group on Legislation convened its first meeting on the 26th of December, 2018, and it has been meeting on a monthly basis since then. The members have revised the working group terms of reference (TOR) and approved it on their second meeting. After discussing the required tasks to develop a legal framework to regulate the Palestinian geospatial data sector, the working group members have agreed on hiring a national or international consultant with proven experience of implementing similar tasks. Upon this, the working had developed the bidding documents, including a detailed TOR for the required consultancy services.

- Expected Deliverables:

    1- A Legal Framework that regulates geospatial data sharing and dissemination, and ensures legal cover for data custodianship, privacy and confidentiality, intellectual property, and security.
    2- A Legal Act for geospatial data sharing to ensure compliance with the developed geospatial data standards and policies.
    3- Conflicts in regulations and policies related to geospatial data are resolved.

- Future activities:

    1- Short term:

        The Working Group on Legislation will be acting as a supervising body on the implementing consultant. They will be responsible for supervising the consultant work progress, revising, and approving the submitted work.

    2- Long term:

        The working group will follow up on the process of approving and adopting the new laws or amendments on the current laws. They will also develop and implement a plan to enhance awareness of data laws and policies and promote compliance with the adopted laws.

4.3   The Working Group on Geodesy

- Purpose:

    The working group on Geodesy aims to design and implement a new Palestinian Geodesy System and CORS network with all its relevant components. Currently, all available geodetic networks in Palestine are outdated, inconsistent, cause significant errors, and are not regulated. The Working Group on Geodesy is tasked with establishing a precise modern national Geodetic Reference Framework. A modern Geodetic Reference Framework will ensure accurate positioning of geospatial data and provide a uniform reference for interpreting and disseminating geospatial data.

Figure 5: Photo from the first meeting of the Working Group on Geodesy

- Work Progress:

    The Working Group on Geodesy convened its first meeting on the 2nd of January, 2019, and it has been meeting on a monthly basis since then. The working group terms of reference had been revised and approved by the members on their second meeting. After reviewing the current situation of the geodetic network in the West Bank and Gaza and studying the requirements for establishing a modern national geodetic reference framework, a number of the geodesy experts and members of the working group developed a detailed TOR for the consultancy services required to design the components of the new Palestinian Geodetic Network.

- Expected Deliverables:

    A highly accurate Geodesy System in Palestine with all its components: ellipsoid, map projection, a coordinate system, Geoid and vertical network, benchmarks and trig points, and CORS network.

- Future activities:

    1- Short term:

        The working group will be acting as a supervising body on the implementing consultant. They will be responsible for supervising the consultant's work progress, revising and approving their work, and ensuring that the design meets the minimum requirements.

    2- Long term:

        In the next stage, the Working Group on Geodesy will prepare the second phase bidding documents. In this phase, the approved design of the Palestinian Geodetic network will be implemented. The working group will supervise the implementing consultant, ensuring that all components are implemented according to the design specifications.

4.4   The Working Group on Systems Architecture

- Purpose:

    The Working Group on Systems Architecture was formed to implement the appropriate tools that ensures the Palestinian SDI initiative's interoperability. A sound SDI systems architecture will enable knowledge discovery and easy access for those interested in using the Palestinian geospatial data. The working group will ensure seamless communication and data exchange between different geospatial information systems. Their responsibilities include defining the components, mechanism, and workflow of the SDI platform.

Figure 6: Photo from the first meeting of the Working Group on Architecture

- Work Progress:

    The Working Group on Systems Architecture convened its first meeting on the 23rd of December, 2018, and it has been meeting on a regular basis since then. The working group terms of reference (TOR) had been revised and approved by the members on their second meeting. The working group members have been studying the different geographic information systems and geospatial data technologies used in Palestine, and the available options to connect all geospatial data producers in the West Bank and Gaza.

- Expected Deliverables:

    1- A mechanism for the integration and sharing of geospatial data via the SDI platform.
    2- Design and implementation of the SDI platform components. This includes the SDI data center, geoportal, core GIS data and portal services, data sources, and network connections.
    3- A set of core standards, including service invocation standards and Information transactional standards.

- Future activities:

    1- Short term:

        The Working Group on Systems Architecture will develop the required consultancy services TOR and bidding documents to design the SDI platform components. The working group will be acting as a supervising body on the implementing consultant. They will be responsible for supervising the work progress in addition to revising and approving the submitted work, and ensuring that the design will satisfy the current and future needs.

    2- Long term:

        The working group will prepare for the second phase bidding documents to implement the approved design of the SDI platform. The working group will supervise the implementing consultant and ensure that all components are implemented according to the design specifications.

4.5   The Working Group on Geostatistics

- Purpose:

    The purpose of the Working Group on Geostatistics is to develop a Statistical Data Framework to facilitate seamless integration of statistical and geospatial information resources. The Statistical Data Framework will be developed based on the Global Statistical Geospatial Framework developed by the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM).

Figure 7: Photo from the first meeting of the Working Group on Geostatistics

- Work Progress:

    The Working Group on Geostatistics convened its first meeting on the 25th of March, 2019, and it has been meeting on a monthly basis since then. The members had revised and approved the working group terms of reference, which aligns with the Global Statistical Geospatial Framework. After discussing their work plan, the members have started to work on their first task in which they will be reviewing all available statistical data and identifying the ones with attributes that can be linked to geospatial data.

- Expected Deliverables:
    1- A set of accessible and usable geostatistical data.
    2- Interoperable statistical metadata based on the international standards.
    3- A national geocoding system.
    4- A Palestinian addressing system.
    5- Defined common geographic boundaries and a system to correspond data between geographies.

- Future activities:
    1- Short term:

        a) The working group will conduct an inventory study to identify the statistical data produced by the Palestinian institutions.
        b) Review all available Palestinian statistical data and identify the statistical data with attributes that can be linked to geospatial data.

    2- Long term:

        a) Design of the national geocoding system.
        b) Establish a Palestinian addressing system.

4.6 The Working Group on Needs Identification

- Purpose:

    The Working Group on Needs Identification works closely with the other technical working groups. Its role is to assess and procure the necessary resources and capacities to ensure the successful and sustainable implementation of the SDI project.

Figure 8: Photo from the first meeting of the Working Group on Needs Identification

- Work Progress:

    The Working Group on Needs Identification convened its first meeting on the 9th of January, 2019 and it has been meeting on a regular basis since then. The working group terms of reference (TOR) had been revised and approved by the members on their second meeting. After discussing the work plan, selected members have been assigned to attend other SDI working groups meeting in order to report back to the Working Group on Needs Identification. By following up with the other working groups, the Working Group on Needs Identification will have a better understanding of their work scope and thus will be able to assess their needs more efficiently.

- Expected Deliverables:

    1- Secure the resources and needs required to carry out the tasks of the SDI working groups.
    2- Assessment of the technical requirements and human resources needed to ensure a successful implementation of the SDI project.
    3- A business model to ensure the long-term sustainability of the SDI project.

- Future activities:

    1- Short-term:

       The members of the Working Group on Needs Identification will continue to work closely with the other SDI working groups and secure the resources needed to carry out their tasks.

    2- Long-term:

       The working group will develop a business model that ensures the long-term sustainability of the SDI.

5   Activities in 2018 - 2020

The State of Palestine has participated in three main events in the field of geospatial information in the last two years:

1. Participation in the Eighth Session of the United Nations of Group of Experts on Global Geospatial Information Management (UN-GGIM), New York, 2018. Palestine, in cooperation with World Bank, managed to develop its Geospatial Action Plan based on the Integrated Geospatial Information Framework (IGIF), to be the first developing country that has got this vital document ready. Palestine had the chance to present its geospatial action plan during the 8th session of the UN-GGIM in New York in August 2018 during the introductory events.

Figure 9: Photo from the Eighth session of UN-GGIM in 2018, New York

2. Participation in the First United Nations World Geospatial Information Congress (UNWGIC) in China, 2018. Palestine has actively participated in the congress and confirmed its commitment to develop the Palestinian geospatial industry aligning with the 2030 united nation agenda.

Figure 10: Photo from the First UNWGIC in 2018, China

3. Participation in the Sixth Session of UNGGIM-Arab States, KSA, 2019. Palestine presented its progress in geospatial industry and the road ahead to leverage its benefits in all sectors.

Figure 11: Photo from the Sixth Session of UNGGIM-Arab States in 2019, KSA

6 Challenges

1. Financial: the investment in Geospatial Information requires massive resources which might not be available on a sustainable basis particularly in the developing countries. Currently, the implementation of the Palestinian SDI is slowed down by the unavailability of sufficient funds as the next phase requires substantial funding. Moreover, COVID-19 pandemic has added additional strain on an already struggling Palestinian economy.

2. Political: Palestine faces other unique obstacles due to complicated political situation and the occupation. Nevertheless, in Palestine, the decision has been made at the highest level to comply with the UN frameworks regarding geospatial information.

3. Expertise: in depth local experts on the development of the SDI components are very limited, international consultancy and capacity building programs are required for a successful implementation of the Palestinian SDI.