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Inception Report

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To:

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Acronyms list

DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EoI	Expression of Interest
FDA	French Development Agency
GIZ	German Agency for International Cooperation
HFA	Hugo Framework for Action
IDA	World Bank-International Development Association
KFW	Kreditanstalt Für Wiederaufbau (German Development Bank)
LGU's	Local Government Units
MoLG	Ministry of Local Government
NDRMC	National Disaster Risk Management Center
PA	Palestinian Authority
SDC	Swiss Agency for Development and Cooperation
SDGs	Sustainable Development Goals
Sendai Framework	Sendai Framework for Disaster Risk Reduction 2015-2030
ToR	Terms of Reference
UPDRRC	Urban Planning and Disaster Risk Reduction Centre
VNG	International Cooperation Agency of the Association of Netherlands Municipalities

1. Introduction and Background

In response to a request from the Palestinian Authority, the World Bank extended additional funding support to LGUs in West Bank and Gaza as they manage the adverse impacts of the COVID-19 global pandemic. The efforts and resources of the PA alone are inadequate to address the large financing gap created by the social and economic challenges that arose from the pandemic. As a result, the ongoing Third Municipal Development Project (MDPIII) was restructured to channel some USD15 million to affected municipalities. The Palestine Liberation Organization, for the benefit of the Palestinian National Authority (PNA), has received an initial financing of EUR 130 Million from the World Bank-International Development Association (IDA), PA, KFW, Denmark, SDC, VNG, GIZ and AFD towards the cost of the 3rd phase of the Municipal Development Program (MDPIII).

The MDPIII retains its original project development objective of enhancing the institutional capacity of municipalities for more accountable and sustainable service delivery. However, the project was enhanced to address the impacts of the public health emergency, and at the same time, contribute to the long-term resiliency of municipalities. The project allows to finance the costs of municipal activities that respond to the COVID-19 pandemic, sustain the provision of critical activities, and provide relief to vulnerable communities during the crisis. Further, a Contingency Emergency Response Component was added to finance response to forthcoming crises or emergencies throughout the life of the project.

The additional funds will finance:

1. Priority investments contained in local Strategic Development and Investment Plans (SDIPs);
2. Capacity development interventions;
3. Projects with potential for private sector engagement.

Being at forefront of the battle against COVID-19, LGUs could definitely benefit from resources to provide basic services critical for controlling the pandemic and facilitating the recovery of their communities.

2. Description and Objective of the Assignment

The attack of the COVID-19 pandemic across the globe highlighted the value of making governments, whether at the central or local levels, resilient to emerging complex emergencies, brought about by either natural or man-made hazards. While the impacts of these hazards may be different, there is a clear convergence in the aim of ensuring that communities have the capacities to absorb and recover from the effects of emergencies and disasters. Similarly, governments must equally have the means to mitigate and address the human and economic toll from disasters.

Under this restructured project, a capacity building component will be implemented to create knowledge and practice for building resilience at the local level. The project will likewise support efforts to institutionalize these efforts through the leadership of the National Disaster Risk Management Center (NDRMC).

The target outcome of this assignment is to lay the foundation for integrating resilience in local governance through the production of technical knowledge, information, and guidelines and the conduct of the corresponding institutional capacity development.

To achieve this target, the assignment is composed of the following activities detailed in the ToR:

a) Conduct of a Multi-Hazard Risk Assessment and Mapping
b) Development of Guidelines on Local Resilience Planning.
c) Formulation of Resilience Plans for Pilot Local Governments.
d) Formulation of resilience standards for critical infrastructure.

e) Capacity building of the National Disaster Risk Management Center (NDRMC).

The Assignment will be carried out in consideration of the following:

a) Participatory engagement
b) Efficient and effective implementation.
c) Practical, but sound approaches.

Apart from producing the above technical outputs, the Assignment will:

a) Identify the gaps and capacities that exist among national institutions to sustain this undertaking;
b) Provide guidance on how such capacities can be built by identifying key actions that can be integrated into the national DRM strategy.
c) Recommend priority infrastructure (buildings) for retrofitting or rehabilitation which the municipalities can pursue in future projects targeting infrastructure e.g., MDPIII and other initiatives within scope of the assignment.

World Bank assistance to NDRMC

It is worth mentioning that the technical assistance that was submitted to NDRMC by the World Bank in October and December 2019 can be built on. Also both the current assignment and the World Bank assistance can be considered as complementary to each other.

This is through the direct connection between the objectives of the current assignment and the World Bank assistance, particularly:

1-The World Bank mission for the West Bank and Gaza Disaster Risk Management (DRM) in October 2019. The objectives of this mission was to:

- Discuss and develop the work plan for the implementation of the West Bank and Gaza DRM Improvement Project;
- Consult with key DRM stakeholders to gather insights on the proposed new DRM legislation and strengthening of the institutional framework for disaster preparedness, response and finance; and
- Meet with civil society, academic and local government organizations to gain insights into their roles in DRM and how to ensure their integration into the institutional framework. .

2- The World Bank mission for the West Bank and Gaza Disaster Risk Management (DRM) Improvement Project was carried out in December 2019 with the following objectives:

(a) Proposed contents of the disaster risk reduction and management (DRRM) legislation;

(b) Institutional framework for DRRM;

(c) Related capacity building agenda;

(d) Awareness and advocacy plan and campaign

3. Privilege of Urban Planning & Disaster Risk Reduction Centre (UPDRRC)

UPDRRC is considered the main national scientific centre in Palestine, and has a team of highly qualified researchers and professionals, supported by a diverse pool of scientific units. The multi-year experience and involvement of the centre in Disaster Risk Management (DRM) had an important role in building the resilience of Palestinian communities through:

- Adopting a holistic approach to Disaster Risk Reduction (DRR) through scientific strategies to draw together decision-makers, practitioners, citizens and the public to drive towards sustainable risk reduction, exceeding the traditional academic approach.
- Conducting several capacity building programs by targeting the civil society and general public to cope with disasters using several dissemination activities.
- Providing consultation to local government and private sector on the design, assessment and retrofitting of critical infrastructure to enhance their resilience against different hazards.
- Carrying out investigations for hazardous sites; proposed solutions and drafted guidelines to prevent future risks.
- Reviewing organizational regulations related to the construction of buildings in order to make them resistant rules.-consistent with earthquake
- Drafting new regulations for Seismic Building Code.
- Developing several courses and programs on DRR, including a master program on Disaster Risk Management.
- Performed urban and national scale multi-peril risk assessments
- Conducted social vulnerability assessments for the most vulnerable communities and assessed the institutional awareness and readiness to cope with disasters
- Developing and conducting post-disaster damages assessment and recovery initiatives.
- Establishing a national network for earthquake observation
- Integrated DRR related requirements in the existing physical planning guidelines.
- Achieving coordination and integration with neighboring countries in the field of seismic monitoring networks, joining the monitoring networks together
- Promoting and bridging local initiatives with the international frameworks for DRR (e.g., HFA, Sendai Framework, SDG's and others)

Key Staff Members

The UPDRRC has selected experienced staff with a combination of management and technical skills. The team includes a number of distinguished well-qualified experts, who have been working, or worked in, relevant projects in the Palestinian territories as well as in regional and international projects. The team includes international experts to improve the team's qualifications and benefit from international experience. Other international experts will be in the Support and non-key staff members and will provide specific expertise. (please refer to team CVs). The external experts with global experience, will strengthen local staff research excellence in natural hazard risk assessment and transfer the international best practice and boost the research and development capacity of the local institutions. They will support activities in the Multi-hazard risks and with the technology needed to transfer knowledge to the local institutions (i.e., interactive platforms and decision support tools).

For more information pls refer to the submitted Expression of Interest (EOI) the Technical Proposal

4. Detailed scope of work and Methodology

4.1 Phase (a): Conduct a Multi-Hazard Risk Assessment and Mapping

Objective of the phase:

The objective of this phase is to create the baseline risk information for the known hazards and climate change-related risks in the West Bank and Gaza region needed to inform plans and priorities for disaster risk management. The underlying components of risk: hazard, exposure and vulnerability will be developed using state-of-the-art

methods. Property owners, reinsurance companies, capital lending institutions, local and national government agencies, and structural engineers will thus be provided with the technical information needed to build community resilience at the local level. Building upon the baseline information, an interactive web platform will be developed to visualize risk estimates. This web platform is the gateway to access the main datasets (flood hazard, seismic hazard, critical infrastructure, social indicators), hazard and risk products (hazard maps, long-term economic and human loss maps, scenario damage and loss maps). The structure of the web application is modular, giving the possibility to update and extend the framework to other types of risks. The input components and software will be documented in a manner that allows local authorities to replace the components and update the assessment as new datasets become available.

The duration of this phase is **six** calendar months and the main activities, tasks, outputs and deliverables of this phase will be as following:

Detailed Implementation Methodology:

1. Multi-hazard technical assessment

The UPDRRC will review the current knowledge about multi-hazard risk and its subcomponents (exposure, vulnerabilities, hazard). The review will take into consideration assessments carried out as part of local, regional and global initiatives with the aim to a) provide a reference baseline upon which to conduct the risk assessment b) identify weaknesses and areas to be improved. The UPDRRC will identify various natural hazards and focus on the most relevant supported by historical loss data, the review of multi-hazard risk assessments and the priority hazards identified by the emergency sector. Given the current knowledge of the UPDRRC of the West Bank and Gaza, it is expected that the most relevant natural hazards to be considered will fall into the following three categories: geophysical (earthquakes and associated secondary hazards), hydrological (floods) and climatological (climate change), and a number of hazard products will be produced, as summarised in the following sections.

1.1 Geophysical hazards

The primary hazard type considered in this category will be earthquakes. The UPDRRC will perform the following tasks under this activity:

- Describe the tectonic settings of the region and its seismicity, using regional databases and the data available at the earthquake observation center in An-Najah University. This also includes the identification and mapping of the major seismic faults.

- Produce maps for seismic hazard (ground shaking) for different return periods (e.g. 475, 2475) and for different intensity measures. The hazard maps on reference rock will be computed with OpenQuake-Engine (Pagani et al. 2014[1]; Silva et al. 2014[2]) using the latest state-of-the-art openly available hazard models for the region, such as the Middle East regional earthquake model (EMME14)[3]. EMME model is the first probabilistic earthquake model available in the open literature covering West Bank and Gaza and includes a unified historical catalogue and comprehensive faults database with various intensity measures that are necessary to estimate ground shaking hazards, landslides and liquefaction. The probabilistic model allows

[1] M. Pagani, D. Monelli, G. Weatherill, L. Danciu, H. Crowley, V. Silva, P. Henshaw, L. Butler, et al., OpenQuake engine: an open hazard (and risk) software for the global earthquake model, Seismol Res. Lett. 85 (2014) 692–702.

[2] V. Silva, H. Crowley, M. Pagani, D. Monelli, R. Pinho, Development of the OpenQuake engine, the Global Earthquake Model's open-source software for seismic risk assessment, Nat. Hazards 72 (2014) 1409–1427, https://doi.org/ 10.1007/s11069-013-0618-x.

[3] Danciu L, Kale Ö, Akkar S (2016) The 2014 Earthquake Model of the Middle East: ground motion model and uncertainties. Bull Earthq Eng (2016). doi:10.1007/s10518-016-9989-1

the computation of earthquake scenarios, hazard maps for different return periods. The maps will be prepared at a high level of resolution covering the West Bank and Gaza.

- Produce maps of landslide and liquefaction susceptibility using both local and global datasets of slope, lithology, land cover, compound topographic index (wetness index), shear wave velocity averaged over top 30 metres, mean annual precipitation, distance from coast, distance from rivers and water table depth.

- Identify a list of earthquake scenarios based on past events and the stochastic catalogue generated when developing the seismic hazard maps. The ruptures of the identified events will be prepared using OpenQuake-Engine format to be used for scenario loss and damage assessment in the next activities.

1.2 Hydrological hazards

The primary focus in this category is flood hazard. The UPDRRC will perform the following tasks under this activity:

- Collect and review available historical data regarding floods (such as intensity-duration-frequency curves from rainfall data).

- Based on the data collected, the UPDRRC will conduct a technical assessment of flood hazard. This technical assessment will identify flood hazard and its technical characterization including recurrence interval, flood magnitude, location and probability of occurrence (where data is available)

- Identify flood hazard potential impacts using available historical data and modelled data. If modelled data is not available, the historical data will be used to model future events and cycles of recurrence and frequency.

- Based on the modelled results, the UPDRRC will provide maps for flood hazard, including flash flood and river flood inundation. The maps will depict the flood extent for various return periods (100, 200, 500, 1000) mapped at 90 m spatial resolution. These maps are based on Fathom's Global Flood Hazard model[4](Sampson et. al 2015). This model accounts for both river and flash flood inundation, and it allows estimating discharge for small channels (catchments smaller than 50 km2). Lastly, since input data in developing countries is limited river discharge is estimated with a method that allows transferring data from data-rich countries to poorer nations.

1.3 Climatological Hazards

The primary focus of this category is climate change hazards. The UPDRRC will perform the following tasks under this activity:

- Identify the main climate zones in the West Bank and Gaza using the existing climatological zoning and update this zoning as appropriate to capture the high variability in climatological conditions that is especially found in the West Bank.

- Collect available meteorological and climatological data for the different identified zones (e.g. from national databases of the Palestinian Meteorological Department). The focus will be on historical data, namely available temperature and rainfall data.

- Describe historical climatic conditions based on the analysis of available meteorological data with the main focus on temperature and rainfall. The UPDRRC will conduct a technical assessment of climate change

[4] C.C. Sampson, A.M. Smith, P.D. Bates, J.C. Neal, L. Alfieri, J.E. Freer, A highresolution global flood hazard model, Water Resour. Res. 51 (2015) 7358–7381, https://doi.org/10.1002/2015WR016954.

hazards. This technical assessment will identify climate change hazard and its technical characterization including rate of change for the different climatological parameters and for the different identified climate zones.

- Predict future climatic conditions based on the historical trends and using the available climate change models and predictions for the West Bank and Gaza. Predictions adapted by the Palestinian Environmental Quality Authority (EQA) in their adaptation strategy will be utilized to conduct a technical assessment of climate change hazard. This technical assessment will predict climate change hazard and its technical characterization including the rate of change for the different climatological parameters (e.g., rainfall and temperature) and for the different identified climate zones.
- Based on the modelled results and analysis, the UPDRRC will describe climate change-related hazards in the West Bank and Gaza and will provide maps for climate change hazards identified per climate zone and based on the model used for climate change predictions.

2. Identification of the exposed population and assets

This activity will identify and characterize the elements of the built environment at risk to the natural hazards assessed in the previous task. The assets considered under this activity are residential, commercial and industrial buildings and Critical Infrastructure (CI).

2.1 Residential, commercial and industrial exposure

Residential buildings are critical assets in a disaster risk assessment as they comprise the majority of the building stock, they house the population, provide a place where memories with family and friends are made, and a dwelling is often the most valuable asset that an individual owns. The residential exposure will be developed by building upon the Middle East multi-hazard exposure model (Dabbeek and Silva 2020)[5] which was developed for the residential sector using 2007 national housing and population. This model will be upgraded using the 2017 population census to account for: i) the increase in population and buildings ii) the change in the capital value of the exposed assets iii) the change in the distribution of building typologies across urban, rural and refugee camp communities. Data will be collected and presented at the community level (around 599 regions). This resolution has been selected as Palestinian communities are the smallest administrative level which is governed locally by a municipality or village council.

Besides the improvements to the residential sector, an improved exposure model for the commercial and industrial sectors, that builds upon the existing models developed by the Global Earthquake Model (GEM)[6], will be developed using national statistical data. The inclusion of these assets in the risk assessment is important to account for the buildings that house a large proportion of the population during the day. The resolution of the commercial sector will be developed at the governorate level and then disaggregated to the municipality level using proxy information e.g. number of employees, due to the limited information available for these two sectors in the census.

2.2 Critical infrastructure

Critical infrastructure (CI) is a term used to describe the assets that are essential to the health, safety, security and economic wellbeing of communities. Failure of CI is known to cause severe disruption and sometimes cascading effects after emergency events. The first step towards assessing the level of protection, preparedness and resilience of these systems to natural hazards is exposure modelling of CI. This includes identifying the location, physical

[5] https://link.springer.com/article/10.1007/s11069-019-03842-7

[6] https://www.globalquakemodel.org/product/middle-east-model

and functional features of every asset as well as the interdependence between assets and other CI sectors. CI is divided into seven sectors inspired by the United States of America's Federal Emergency Management Agency (FEMA) classification of community lifelines (FEMA 2020)[7] as can be seen in Table 1. The UPDRRC will provide data for the 22 assets listed in Table 1. This data will cover the geographical regions specified by the spatial coverage column, and will include the attributes listed in the variables column. Given the limited time and budget, the priority will be given to schools, hospitals, town halls and civil defence buildings to further characterize them in terms of their physical attributes, economic value, and occupancy levels, thus allowing them to be explicitly included in the probabilistic risk assessment.

Table 1.

Sector	Assets	Variables	Spatial coverage
Safety and Security	Police	Location, code, name	West Bank and Gaza
	Civil Defence	Location, name	West Bank
	Fire Stations	Location, code, name	West Bank and Gaza
	Townhall	Location, name	West Bank and Gaza
Food, Water, Shelter	Wells	Location, English and Arabic name, water use	West Bank
	Mosques	Location, Arabic name	West Bank
	Churches	Location, name	West Bank and Gaza
	Schools	Location, English name, governmental	West Bank
Financial	Banks	Location, code, name	West Bank and Gaza
Health and Medical	Medicine Storage	Location, code, name	West Bank and Gaza
	Hospitals	Location, English and Arabic name, sector, contact, service type	West Bank and Gaza
	Health Centers	Location, English and Arabic name, work hours, contact,	West bank
	Pharmacy	Location, code, name	West Bank and Gaza
Energy	Steel Poles 161KV	Location, Length	West Bank
	Electrical Substation 161-33KV	Location	West Bank
	Gasoline Station	Location, code, name	West Bank and Gaza
Communication	Telephone Center	Location, code, name	West Bank and Gaza
Transport	Check Points and Gates	Location, English name, the opening period	West Bank
	Separation Wall	Location	West Bank
	Road Network[1]	Location, type	West Bank
	Road Network[2]	Location, type	Gaza

[7] https://www.fema.gov/emergency-managers/practitioners/lifelines

Hazardous Material	Dumping sites	Location, Type	West Bank

Hospitals, Schools, Civil defence and Town Hall buildings are essential assets that should remain operational in normal conditions and after major incidents or disasters and thus warrant more detailed attention and assessment. Local practitioners will collect information about these buildings from three regions in the West Bank (north, middle and south) and Gaza. The objective of the field survey is to identify building typologies and their distribution across regions. If possible, buildings will be surveyed from the interior to get more information when needed. This component will include preparation of questionnaires, engineers training, data post-processing, testing and integration of users' needs.

Schools

There are about 3,037 schools in the West Bank and Gaza hosting 1.28 million students as estimated in 2018/2019[8]. Built in different epochs, the structural conditions of these buildings can vary significantly. Generally, schools constructed post (2000-2005) were designed to resist seismic loads. Accordingly, the field survey will be conducted on a representative sample of schools buildings built before 2000-2005. The survey aims to collect all the physical and functional information needed to define the buildings' vulnerability to seismic, flood and other natural hazards.

The locations of these buildings will be primarily based on the UN-OCHA database for the West Bank and OpenStreet Map for Gaza. The total built area of each building will be inferred using the school's student capacity[9] and building footprints. According to the Palestinian Central Bureau of Statistics (PCBS), there are about 2,192 schools built before 2005. The sample will include a total of 200 schools (i.e., around 10%) distributed as the following: 150 in the West Bank, of which 50 will be selected from each region (the North, Middle and South); the remaining 50 samples will be taken from Gaza. Selected schools should be representative of the total population of schools. Accordingly, the schools selected will be public and private buildings, primary and secondary levels, female, male and mixed-gender schools. Priority will be given to schools with the highest number of students to include as much as possible of the student's population. The knowledge obtained from this sample of schools will be used to develop inference rules to assign the structural class to the remaining buildings in the West Bank and Gaza, based on the available census data.

Hospitals

As of 2019, there were 85 hospitals, 53 located in the West Bank and 32 in Gaza with an estimated 6,440 beds. The Ministry of Health owns and manages about 55% of the hospital beds in Palestine with a capacity of 3,531 beds distributed in 28 hospitals[10]. The geographical location of these buildings will be based on the UN-OCHA database. All of the physical attributes of the hospital buildings will be gathered on the ground for all 85 hospitals. In the cases where there is limited access to hospitals due to extreme conditions (e.g., Israeli road closures or lack of cooperation from private and NGO hospitals), the information will be acquired with other means or inferred from known variables e.g., Google Street View, satellite imagery, hospital bed capacity and built-year. The surveys will be conducted by trained local engineers with experience in structural surveying.

Town hall

Disaster management and response is primarily managed at the community level by the local governments. As the project aims to integrate resilience in the local government, governmental assets are prioritized among other types

[8] https://www.pcbs.gov.ps/default.aspx

[9] https://www.mohe.ps/home/schools-map/

[10] https://www.pcbs.gov.ps/default.aspx

of CI. The UPDRRC will gather information about the municipal buildings for 20 pilot municipalities defined after the project negotiation meeting on November 22, 2021 which include Ramallah, Al-Bireh, Nablus, Bethlehem, Hebron, Jenin, Tulkarm, Qalqylia, Salfit, Jericho, Tubas, Dura, Al-Yamoun, Beita, Abu Dees (from West Bank). And from Gaza: Jabalya, Gaza, Deir Al Balah, Khan Younes and Rafah.

Civil defence

The UPDRRC will survey the buildings of the civil defence, the survey will target the operational units that are responsible for intervention after major incidents or disasters. These units are responsible for search and rescue operations and provision of heavy logistics. In addition to the main operational civil defence buildings, the UPDRRC will include the buildings of the major fire stations that complement the operations of civil protection.

2.3. Exposure database

The output of this task will be datasets and maps with information about buildings in terms of geographical distribution, physical characteristics, number of occupants and replacement cost. This information will be key inputs to assess the vulnerability and risk of the exposed assets. The specifications of these datasets are summarized in Table 2.

Table 2.

Assets (Buildings)	Coverage	Resolution	Features	source
Residential	West Bank and Gaza	Aggregated @ community level	location, structural class, replacement value, occupants	Census
Commercial & Industrial	West Bank and Gaza	Aggregated @ Governorate level	location, structural class, replacement value, occupants	Census
Hospitals	West Bank and Gaza	building level	location, structural class, replacement value, occupants, service type	Complete survey
Schools	West Bank and Gaza	building level	location, structural class, replacement value, occupants, education level	Partial survey + Census
Civil defence	West Bank and Gaza	building level	location, structural class, replacement value	Complete survey
Town hall	West Bank and Gaza	building level	location, structural class, replacement value	Complete survey

3. Vulnerability assessment

3.1 Physical vulnerability

The UPDRRC will assess the vulnerability of the identified assets in Activity (3). Existing fragility and vulnerability functions will be selected based on the main building typologies and adapted to the extent possible to fit the local context. The functions will be quantitative, allowing therefore the estimation of direct economic loss due to direct damage due to earthquake and flood actions on buildings as well as (where possible) the fatalities,

injuries and homeless. The UPDRRC will use existing knowledge about vulnerability developed during their involvement in the SASPARM 1 & 2 projects[11] as well as other regional and global vulnerability databases to accommodate the gaps in existing knowledge. Analytical vulnerability models (that are based on a model of the structural performance of different classes of buildings, rather than empirical data) will be used for the seismic risk assessment in order to provide a basis for local practitioners to subsequently evaluate the improved performance and benefits of potential structural retrofitting and rehabilitation.

3.2 Social vulnerability

Natural hazards are a complex phenomenon featuring large numbers of interactions that result in loss of lives, livelihoods and interruption of systems. The potential impacts result from the collective behaviour of the built environment, the earth's biophysical systems and communities' socio-economic characteristics. The socio-economic indicators of most relevance are related to the capacity of populations to prepare, respond and recover from potential damage from natural hazards. For example, the level of education is related to awareness, which is essential for a population to avoid and cope with a disaster.

The UPDRRC will conduct a social vulnerability assessment for multi-hazard based on a set of socio-economic conditions including economic, education, health, environmental and health conditions. The social vulnerability index (SoVI) will provide policymakers with a basis for understanding and measuring resilience. This valuable tool will illustrate variations in social vulnerability geographically and identify the main drivers of social vulnerability. The socio-economic variables will be collected at the lowest administrative level available in the national census. The SoVI index will be constructed using appropriate statistical analysis in the Statistical Package for the Social Sciences (SPSS) software and mapped at the lowest resolution available.

3.3 Evaluation of coping mechanisms

- The UPDRRC will identify the main disaster coping strategies for the most relevant hazards in West Bank and Gaza
- The UPDRRC will recommend priority actions for potential implementation under MDPIII. The actions proposed will target various disaster phases e.g., preparedness, prevention and mitigation. Actions will not be limited to hard measures such as structural rehabilitation but also soft measures e.g. financial strategies for funding disaster needs.

4. Multi-hazard risk assessment

The outputs of the multi-hazard risk assessment will promote understanding of disaster risk among policymakers in the West Bank and Gaza. The information can support policymakers to define the risks, where they manifest, how much they are expected to cost, and what drives them. The practitioners need this information to design effective adaptation and coping strategies, while policymakers need it at the political level to justify the investments. The UPDRRC will utilize the outputs (where possible) to calculate the indicators needed to monitor the Sendai Framework targets'[12] progress, linking the progress and efforts in DRR in the West Bank and Gaza to global initiatives.

4.1 Seismic risk

[11] http://sasparm.najah.edu/en/
http://sasparm2.najah.edu/

[12] https://www.preventionweb.net/sendai-framework/sendai-framework-indicators

The UPDRRC will assess seismic risk in the West Bank and Gaza for the population and assets identified in the previous activities.

The UPDRRC will perform scenario damage and loss assessment using historical and other probable earthquakes. The scenarios identified in Activity 2 will be combined with ground motion models as well as the landslide and liquefaction susceptibility maps, in order to produce maps of the intensity and extent of ground shaking, as well as triggered landslides and liquefaction. The ground-shaking maps will be combined with the exposure and vulnerability models to produce outputs in terms of economic losses as result of direct building damage and human losses in terms of fatalities, injuries and homeless. Maps of assets exposed to earthquake-triggered landslides and liquefaction will also be produced. These impact maps will provide the underlying information needed to plan emergency needs and disaster response.

The UPDRRC will also perform a probabilistic seismic risk assessment to evaluate earthquake impacts on human lives and the built infrastructure (i.e. economic loss and fatalities, injuries and homeless). The outputs of this analysis include the following products:

- Average annual loss (AAL) maps at community level
- Loss maps at community level for specific return periods
- Bivariate maps of modelled loss and SoVI at community level
- Loss curves (i.e. loss versus return period) for each community
- Calculation of average annual probability of collapse for critical infrastructure to assess compliance with seismic design code standards.
- Ranking of school buildings, hospitals, town halls and civil defence buildings in terms of priority for seismic retrofit using composite risk indicators (which combine collapse/loss metrics with SoVI)

These products will provide a basis to policymakers to understand risk in the short, mid and long term and will allow practitioners to evaluate the economic feasibility of DRR measures i.e. structural retrofitting and the exploration of risk transfer solutions such as disaster insurance.

4.2 Flood risk

The UPDRRC will assess flood risk in the West Bank and Gaza for the population and assets identified in the previous activities.

The UPDRRC will perform a probabilistic flood risk assessment to evaluate the impact of floods on the built environment (as a minimum in terms of loss of building function and resulting economic loss) by overlaying the flood hazard maps for different return periods with the residential, industrial and commercial exposure models, and the flood vulnerability functions to produce the following products:

- Average annual loss (AAL) maps at community level
- Loss maps at community level for specific return periods
- Bivariate maps of modelled loss and SoVI at community level
- Loss curves (i.e. loss versus return period) for each community
- Ranking of school buildings, hospitals, town halls and civil defence buildings in terms of priority for flood proofing using composite risk indicators (which combine loss metrics with SoVI)

These products will provide a basis to policymakers to understand risk in the mid and long term and will allow practitioners to evaluate the economic feasibility of DRR measures i.e. flood proofing and exploration of risk transfer solutions such as disaster insurance.

4.3 Climate change-related risks

Generally, and according to the Intergovernmental Panel on Climate Change (IPCC) reports and based on General Circulation Models (GCMs) simulations, the region will be subjected to an increase in temperature and decrease in precipitation. As a result the intensity and probability of extreme events i.e floods, droughts and wildfires might be increased. Based on the identified climate change hazards and its potential impact on the different meteorological zones, the UPDRRC will identify risk levels associated with different climate change scenarios. The UPDRRC will build upon the 2016 Palestinian national adaptation plan (NAP)[13].

- The UPDRRC will focus on the sectors, e.g. water, agriculture, energy and food vulnerable to climate change as identified in the Palestinian national adaptation plan.
- The UPDRRC will assess sensitivities and adaptive capacities of these sectors to evaluate their vulnerabilities.
- The UPDRRC will reflect the output vulnerability spatially at the highest resolution possible.
- The UPDRRC will use climate zones identified in activity 1.3 and vulnerability to evaluate and map (where possible) the risk/impact levels of climate change.

4.4 Web-based map and data-visualization tool

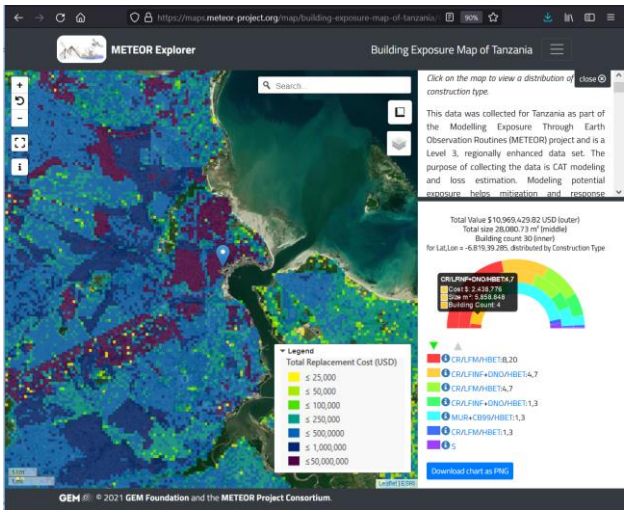
The UPDRRC will create a landing page for the project on the NDRMC website, where site visitors could see project progress and activities and access the relevant reports and information. Moreover, the UPDRRC will launch a portal/landing page to visualize interactively hazard, exposure and risk maps. The portal will allow local authorities to easily construct, style and update maps. Members of the community can access the portal to view and navigate maps, using familiar zoom/pan controls. Users can also click on the map features to explore details via interactive graphs, tables or by downloading files for use in common desktop spreadsheet tools. At the local authorities' discretion, maps can also be made available for use in standard desktop GIS tools such as QGIS by enabling the OCG standard compliant web services.

The tool has been successfully adopted in a number of international projects focused on different aspects of disaster risk. For example, the UK Space Agency funded METEOR project (https://maps.meteor-project.org/) has used it to release hazard maps for earthquake, flood, landslide and volcano perils as well as building-by-building exposure maps. For the European SERA project (https://maps.eu-risk.eucentre.it/), the portal has been used to map exposure and risk information at the country and sub-national scale. The Colombian Geological Survey employed the portal to disseminate their national earthquake hazard map along with interactive tools for exploring hazard curves, uniform hazard spectra and disaggregation data (https://amenazasismica.sgc.gov.co).

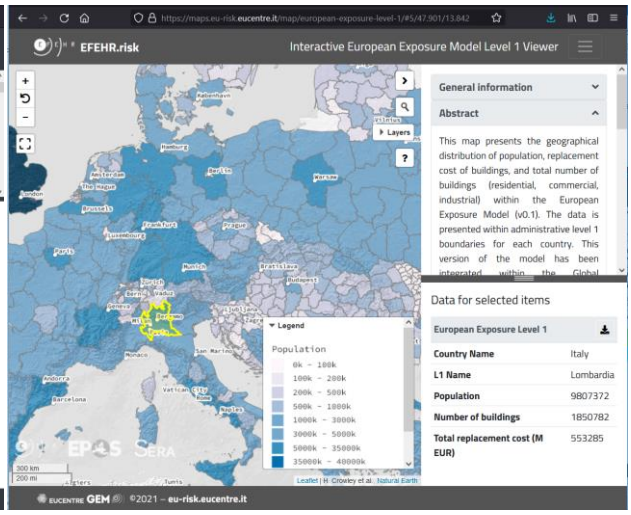
The UPDRRC will prepare the platform with maps produced in the previous described activities. The features of the landing page will be agreed upon with NDRMC. The web-based map viewers will be customized with logos, disclaimers and appearance following NDRMC preference. The UPDRRC will host the platform during the project. After the project ends, the platform will be migrated to the NDRMC servers and the UPDRRC will provide free

[13] https://unfccc.int/files/national_reports/non-annex_i_parties/application/pdf/national_adaptation_plan__state_of_palestine.pdf

maintenance for 2 years. The UPDRRC will train NDRMC on how to use the platform, update the maps and metadata and add new projects.



Building cost information by construction type, METEOR project.



Exposure Information for Europe, SERA Project

4.5 Sustaining risk assessment capabilities

- The UPDRRC will review existing and international DRM policies that provide mandates and operational guidelines for risk assessment.
- The UPDRRC will identify gaps in the domestic capacity for risk assessment, provide recommendations for improving them and build public awareness of these risks.

C) Duration of This Phase: This phase will be implemented in 7 months

D) Submission Time: Month 7

Summary Table for Phase 1

Phase No. 1	**First (1): Conduct a Multi-Hazard Risk Assessment and Mapping**
Objective/s	• Produce multi-hazard maps and tools to inform plans and priorities for disaster risk management
Sub-Activities	**Activity 1: Multi-hazard technical assessment**
	Activity 1.1: Geophysical hazards
	Activity 1.2: Meteorological hazards
	Activity 1.3: Climatological hazards
	Activity 1.4: Hazards specific to Gaza
	Activity 2: Identification of the exposed population and assets
	Activity 2.1: Residential, commercial and Industrial exposure
	Activity 2.2: Critical infrastructure
	Activity 3: Vulnerability assessment

	Activity 3.1 Physical vulnerability
	Activity 3.2 Social vulnerability
	Activity 3.3 Evaluation of coping mechanisms
	Activity 4: Multi-hazard risk assessment
	Activity 4.1: Seismic risk
	Activity 4.2: Flood risk
	Activity 4.3: Climate change-related risks
	Activity 4.4: Web-based map and data visualization tool
	Activity 4.5: Sustaining risk assessment capabilities
Tool /Tools	Meetings, Desk review, Presentations, Office work, fieldwork
Deliverables	• **Deliverable No. (3.1):** Multi-hazard assessment : March 2022
	• **Deliverable No. (3.2):** Exposure and vulnerability assessment and full module with maps and tools : July 2022
Duration	**7 months**

Special Initiatives

Project Website

UPDRRC will develop a project landing page to disseminate, promote and communicate project activities. The webpage will be the gateway to access the reports, workshops, announcements, and the web-based map viewer. During the course of project implementation, the UPDRRC will coordinate with NDRMC working together on the web page. After assignment completion, it will be moved to be managed by NDRMC.

User Manual

The UPDRRC will create a manual explaining the platform's primary functions, e.g., navigating the map, getting feature attributes, accessing and downloading metadata, and linking the maps to other open-source mapping tools like QGIS.

4.2 Phase (b): Development of Guidelines on Local Resilience Planning

Introduction:

Local resilience planning is **a holistic approach that takes into consideration future economic, social and environmental developments, including climate change**. It should not be regarded as **a temporary response** to external shocks, but **a long-term strategy** for local governments to improve their sustainability profile – and make

sure those achievements last in the face of future adversities. Communities or local governments that plan for resilience strive to:

- **Think holistically** – resilient communities weave considerations of shocks and stresses across multiple sectors throughout all of their plans, policies and decision-making, rather than a single plan or department.
- **Collaborate** – collaboration and partnerships are essential for thriving in the face of complex social and environmental challenges. Local governments that plan for resilience encourage collaboration with diverse stakeholders in their communities to identify equitable solutions, and seek partnership and support from outside governments, agencies and organizations. Thorough and robust community engagement can help ensure that local governments are reaching socially vulnerable populations in their collaboration efforts.
- **Embrace uncertainty** – resilient communities proactively understand and plan for the shocks and stressors they will likely face. They also recognize that it is important to remain flexible and adaptable to uncertain future conditions, like the effects of climate change.
- **Connect the dots** – communities that plan for resilience consider the connections between everyday societal stressors and vulnerability to shocks like disasters.

From a land-use perspective, local resilience planning means **considering shocks and stresses throughout a community's plans, land-use codes, zoning, development standards, incentive programs, and other plans or policies** that guide and shape development.

The **comprehensive (master) plan** serves as the community's long-term policy blueprint and a draft or update should resilience as an interwoven or guiding theme. This allows a community to **construct their own vision of what it means to be "resilient"**, as well as **identify and prioritize action items that increase resilience**.

A comprehensive (master) plan that incorporates resilience encompasses natural and human-caused hazards (the "shocks" to a community), while also addressing the social, environmental, and economic "stressors" into the goals and strategies. To achieve this, comprehensive planning efforts should be informed by **a risk assessment that includes identification of hazards and existing or potential stressors**.

The local resilience planning aims at achieving the following objectives:

- Reduce future disaster-related response and recovery costs and improve recovery time following natural or human-caused hazard events.
- Provide the community with an understanding of policies, programs, and other actions that can be taken across many sectors to improve the community's resilience to hazards or changing conditions.
- Help a community anticipate and reduce the severity of economic downturns and other stressors.
- Be combined with any planning process in the community, such as an economic development plan, hazard mitigation plan, or parks and recreation plan

Objective of the Phase:

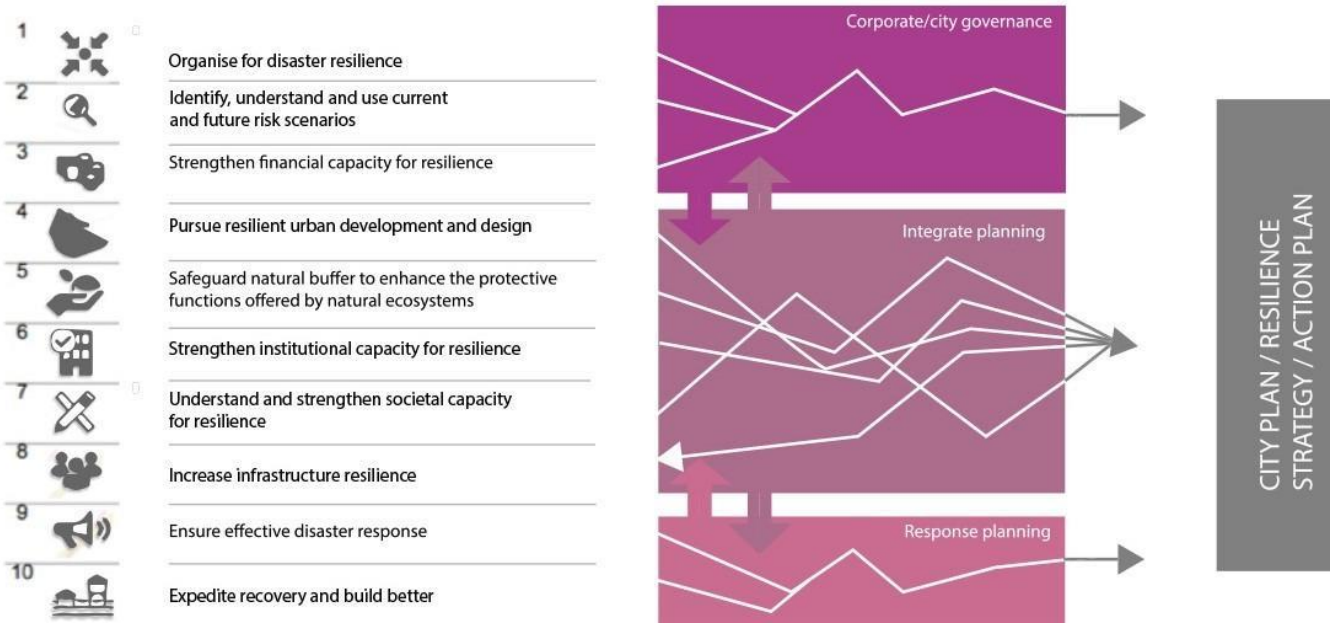
The main objective of this phase is to **formulate a set of practical guidelines for local resilience planning to be integrated in the existing in local policies and guidelines**. These guidelines will:

(1) Integrate both local policies and international knowledge.

(2) Be designed to enable the participating local governments to complete the planning process within the prescribed time period.

(3) Be packaged in a manner that can be easily replicated by other local governments in WB&G.

An example of such guideline is the **Ten Essentials for Making Cities Resilient** that are developed with the launch of the Campaign in order to accelerate implementation of the **Sendai Framework for Disaster Risk Reduction (2015-2030)** at local level. The ten Essentials map directly against the Sendai priorities of action and its indicators for monitoring actions on disaster risk reduction. They are the critical and independent steps that need to be undertaken to build and maintain resilience (see below figure)



- Another important global initiative is the project titled "**Building Urban Economic Resilience during and after COVID-19**". It is a joint partnership between UN Economic Commission for Europe (UNECE), UN Economic Commission for Africa (UNECA), UN Economic and Social Commission for Western Asia (UNESCWA), UN Economic Commission for Latin America and the Caribbean (UNECLAC), UN Economic and Social Commission for Asia and the Pacific (UNESCAP), United Nations Capital Development Fund (UNCDF) and UN-Habitat City Resilience Global Program (CRGP).

The project focuses on **strengthening the capacities of local governments in cities globally to design, implement and monitor sustainable, resilient and inclusive COVID-19 economic and financial responses, recovery and rebuilding plans**.

It will contribute to **creating more resilient cities and local governments better able to withstand shocks**, such as **COVID-19**, and **stresses** likely to reoccur in a predominantly urban world. Project outcomes will also be integrated with and contribute to national and global resilience building efforts.

Detailed Implementation Methodology:

The UPDRRC will implement this phase through conducting a group of activities and sub-activities or tasks as follows:

Activities	Sub-activities	Results/Output	Timeframe

Activity 1: Conduct a Scoping of Existing Resources especially in the Global DRM Community to build local resilience	• Synthesize relevant and practical elements to form the set of guidelines for local resilience planning in WB&G.	• Facilitate the prioritization of investments to reduce the vulnerabilities of communities in WB&G and/or • Promote their recovery from COVID-19 and other emergencies.	Months 1-3
Activity 2: Formulate a Set of Practical Guidelines	• Review the guidelines vis-à-vis existing relevant policies in WB&G • Ensure that the guidelines are aligned, with the possibility of reflecting critical instructions into these guidelines.	• a Set of Practical Guidelines that local governments can adopt to formulate their local resilience plans.	
Activity 3: Testing the Guidelines in a sample of 20 Local Governments	• Refine the guidelines for potential roll-out among the rest of local governments in WB&G. • Package the guidelines	• Tested, refined & packaged practical guidelines for local resilience planning	

4.3 Phase (c): Formulation of Resilience Plans for Pilot Local Governments

Objective of the phase:

The formulized **practical guidelines for local resilience planning** in Phase (b) will reach out to a target of around **20 local governments to facilitate a resilience planning process**. These resilience plans will

- Inform the prioritization of recovery investments that can be implemented under the project or under other financial instruments that are available to them.
- Be carried in a manner that will efficiently reach the target number of local governments**.**

Detailed Implementation Methodology:

The UPDRRC will implement this phase through conducting a group of activities and sub-activities or tasks as follows:

Activities	Sub-activities	Results/Output	Timeframe
Activity 1: Propose a set of criteria leading to the identification of the pilot local governments	• Consult with the MDLF, NDRMC, and World Bank Task Team to secure approval for these criteria, • Ensure the list of pilots.	• A target of 20 pilot municipalities that will be covered in the resilience planning process.	Months 1-9 See Work plan
Activity 2: Design a training capacity methodology	• Carry out the interventions using appropriate technology and efficient delivery schemes,	• Designed training capacity methodology based on the approved guidelines.	

based on the approved guidelines.	• Coordinate with the pilots regarding the work plan and ensure agreement on the process and target outputs. • Undertake a quality check of the outputs.	• Training of targeted 20 municipalities	
Activity 3: Propose measures how the training can be rolled out to cover more local governments in WB&G	• Propose partnerships, delivery schemes, and other strategies for further consideration by MDLF and NDRMC for negotiation with other funders.	• Proposed Measures for training other local governments • Proposed Partnerships, delivery schemes, and other strategies for further consideration by MDLF and NDRMC	

In the submitted technical proposal, the UPDRRC suggested the following criteria for selecting the **20 municipalities**:

(1) Selecting the administrative centers (**11** large municipalities) in the **11** governorates in the West Bank.
(2) Selecting the administrative centers (**5** large municipalities) in the **5** governorates in Gaza Strip.
(3) Selecting **4 municipalities** from the West Bank, which have **A^+ Rank** according to MDLF classification.

Based on previous contacts with the director of the National Disaster Risk Management Center (NDRMC) and his staff, the following 20 pilot municipalities will be covered in the resilience planning process.

West Bank Governorates	Gaza Strip Governorates
Jenin	Jabalya
Nablus	Gaza
Tulkarem	Deir Al-Balah
Qalqilya	Khan Younis
Salfeet	Rafah
Tubas	
Ramallah	
Al-Bireh	
Jericho	
Bethlehem	
Hebron	
Al-Yamoun	
Beita	
Abu Deis	
Dura	

4.4 Phase (d): Formulation of resilience standards for critical infrastructure

Objective of the phase:

Due to the complexity of the hazards of interest, the public facilities susceptible to such hazards might require retrofitting intervention to enhance their structural integrity and functionality.

Those public facilities incorporate Hospitals, Schools, Civil Defence and Town-hall buildings. Such essential assets must remain operational both during and after incidences/disasters due to their critical role in maintaining resilience and bringing back normalcy to the society. Therefore, they want more prioritization with respect to assessment and vulnerability reduction efforts.

These public faculties will cover the targeted twenty cities/municipalities agreed upon with NDRMC and MDLF. Refer to list in the previous page. The Assignment will propose appropriate engineering designs and standards that take into account the hazards identified in the area and increasing demand for such facilities. The Assignment will also identify the roles of actors and the corresponding capacities required to formally adopt and implement such standards across government agencies and the local design community. Hence, these partners will be consulted in the drafting of these standards.

Detailed Implementation Methodology:

The UPDRRC will implement this phase through conducting a group of activities as follows:

1 Assessing the current situation connected to critical Infrastructure

1.1 Review existing policies or guidelines pertaining to the promotion of structural resilience, particularly of critical infrastructure, such as schools, hospitals, civil defense, and town halls.

The UPDRRC will perform the following:

- Determine the critical infrastructure sectors that are relevant and represent important and vital assets to the country, which will include:
  - Safety and Security facilities: civil defense/fire stations, town halls
  - Shelters: Schools
  - Health and medical institutions: public and private hospitals
- In coordination with NDRMC and concerned institutions, select representative groups of buildings within the above-mentioned sectors covering all West Bank areas, as well as Gaza strip. These will be part of those selected in preparing the multi-hazard maps.
- Identify, in coordination with MDLF and NDRMC, the governmental institutions that own, construct, and utilize the identified critical buildings, which are:
  - Ministry of health for Hospitals
  - Ministry of Education with municipalities for schools
  - MoLG and Municipalities for town halls
  - Civil defense for fire stations and civil defense facilities.
- Coordinate with the major licensing institutions that are in charge of issuing permits, and monitoring infrastructure's requirements. Those are specifically the municipalities, MoLG ,Civil Defense, and the Engineers Association.
- Propose retrofitting strategies based on the structural/non-structural deficiencies found in the common Palestinian buildings. Common structural deficiencies will be based on the existing knowledge about local building practices, in addition to the insights gained from the rapid visual inspections performed in D.3.2
- Review the current state-of-practice, in addition to engineering codes/standards adopted in the design of the inspected buildings.
- Conduct meetings and discussions with the Engineers Association, the selected municipalities and Civil Defense departments and MoLG in to gather all the required information using templates relevant to the policies and guidelines.

1.2 **Assess whether these codes require updating or enhancement based on the multi-hazard risk assessment.**

Using the outputs of the multi-hazard risk assessment developed for the critical infrastructure, which will identify the extent to which the risk of existing critical infrastructure is acceptable with respect to current standards, the UPDRRC will do the following;

- Compare the prevailing polices, guidelines and practices mentioned previously with the state-of-the-art international codes and standards that could be applied on the national and local levels. Special attention will be given to the codes, standards, and guidelines developed by both the American Society of Civil Engineers (ASCE), FEMA and the European Committee for Standardization (CEN), and other standards that are applied in countries that have similar local conditions e.g., Turkey.
- Study the level of the update or enhancement needed to improve the conventional practices and to which extent the change is possible and whether it requires to be adopted in phases.
- Draft, as required, a proposal for the update and enhancement to be presented and discussed with all stakeholders mentioned above.
- Reach consensus among all concerned on the risks and the priorities for enhancing resilience.
- Disseminate the results and distribute to all above mentioned institutions including the higher education insertions that have engineering programs.

1.3 **Identify the roles and responsibilities of local institutions in Palestinian National Authority for regulating the construction at the central and local levels.**

The UPDRRC will do the following

- Check and discuss the roles and responsibilities of the relevant licensing authorities, mainly the municipalities, who are responsible for issuing building permits and licenses within the municipality boundaries in accordance with master plans.
- Check and identify the responsibilities of the other parties in enforcing the rules and monitoring the construction such as the Engineering Association, and the Civil Defense and other ministries who own these projects.
- Check if the municipalities adopt the land-use policies in their master plans.

1.4 **Assess the policy and institutional weaknesses in the current system and propose reforms that may be taken up by the NDRMC**, including strategies to address institutional gaps. Security and Resilience advances a national policy to strengthen and maintain secure, functioning, and resilient critical infrastructure.

The UPDRRC will do the following:

- Identify main stakeholders related to the DRM system
- Collect all related policies, strategies, laws, bylaws related to the Palestinian context.
- Review available documents
- Conduct meetings and brainstorming sessions with related stakeholders
- Identify weakness points in the institutional setup
- Review the licenses processes by the Engineers Association and the Municipalities for particularly of above-mentioned critical facilities. .

- Suggest related reforms that may be taken up by the NDRMC including to address institutional gaps including licensing processes that will be suitable for critical facilities and according to NDRMC regulations.

2. Propose actions towards resilient critical infrastructure

2.1 Integrate relevant instructions in the local planning guidelines to encourage prioritization of structural resilience in their recovery plans.

The UPDRRC will do the following:

- Discuss and study the applicable retrofitting interventions that might be required to upgrade the performance.
- Propose ideas to improve and develop the planning guidelines towards encouraging the integration of the structural resilience as a priority within the recovery plans.
- Present the new updated guidelines and expertise with different stakeholders and decision-makers within the community, including the Higher Education Institutions.
- Encourage the relevant institutions to adopt a long-term strategy towards building the capacities of the communities on the different levels.

2.2 Establish the long-term economic and financial benefits of structural resilience.

The UPDRRC will do the following:

- Review some previous experiences and studies about the vulnerability levels and expected evaluated losses in the critical infrastructure and its reflection on the economy. A benefit cost analysis based on the proposed risk assessment could be used to demonstrate the financial benefits of retrofitting.
- Recommendations to encourage disaster insurance which will help to protect businesses against natural disasters such as earthquakes and floods.

2.3 Advise World Bank and the partner PA authorities how structural resilience, including retrofitting and upgrading, can be implemented under the MDPIII.

The UPDRRC will do the following:

- Coordinate with MDLF to inform about the sectors and the types of projects that can be within the scope of MDPIII program. Possible desk review of the program proposal.
- Select those sectors that are classified as part of the critical buildings.
- Prepare a check list or a template with the relevant conditions and submit to MDLF to be requested from beneficiaries.
- Through MDLF, to request from the beneficiaries to submit the request for funding keeping in mind possible including new critical buildings and upgrade or retrofit existing ones.

2.4 Reviewing proposals from participating pilots and other proposed projects for MDPIII and identifying opportunities for structural resilience, among other possible approaches.

The UPDRRC will do the following:

- Collect from MDLF the proposals requesting funding for certain projects from the beneficiaries after being screened by MDLF.

- Perform a second level of screening to select those that can be considered within the categories or sectors identified before as critical infrastructure
- Discuss and advise MDLF on the results.
- Submit a list of subprojects from LGUs that can be prioritized for structural resilience under the MDPIII based on the above analysis

A) Duration of This Phase: This phase will be implemented starting March 2022 till November 2022

B) Deliverable: Resilient Standards for Critical Infrastructure

C) Submission Time: December 2022

Summary Table for Activity

Activity D	Formulation of resilience standards for critical infrastructure
Objective/s	Due to the complexity of the hazards of interest, the infrastructure and other public facilities might require retrofitting intervention to enhance their structural integrity and functionality. To do that, ● Propose engineering designs and standards that take into account the hazards identified in the area and increasing demand for such facility. ● Identify the roles of actors and the corresponding capacities required to formally adopt and apply these standards across government agencies and the local design community.

4.5 Phase (E): Capacity building of the NDRMC

A) Objective of the phase:

Capacity building of the National Disaster Risk Management Center (NDRMC).

The Assignment will carry out a focused capacity building intervention for the NDRMC to sustain project gains. The technical capacities of the NDRMC to utilize the results of the multi-hazard risk assessments for planning, policy-making, and technical assistance provision to local governments.

A capacity-building component will be implemented to create knowledge and practice for building resilience at the local level. The project will likewise support efforts to institutionalize these efforts through the leadership of the National Disaster Risk Management Council (NDRMC).

B) Detailed Implementation Methodology:

The UPDRRC will implement this phase through conducting a group of activities as follows:

1.1 Training Needs Assessment

1.2 Identification of fields and topics that the NDRMC staff should be familiar and experienced with

The UPDRRC will identify the needs of the NDRMS staff based on the following:

- Previous project phases deliverables:

  Multi-Hazard Risk Assessment and Mapping

  Guidelines on Local Resilience Planning

  Formulation of Resilience Plans for Pilot Local Governments

  Formulation of resilience standards for critical infrastructure

- Standard practices

1.3 Existing capacities of the NDRMC staff

- The UPDRRC will review the NDRMC organization structure, job titles and job descriptions.
- The UPDRRC will design a data collection sheet to be distributed to all NDRMC staff to identify their existing capabilities. The UPDRRC will collect the qualifications, previous experience, previous training courses taken by NDRMC staff and other issues.

1.4 Identification of Capacity Gaps

- The UPDRRC will identify the gaps between what capacities should be within the NDRMC staff
- Based on these phases, the UPDRRC will identify the main areas that the NDRMC staff capacities should be built especially in relation to planning, policy-making, regulation, and provision of technical support, particularly to local governments.

2.0 Designing a focused capacity building program

2.1 Designing Capacity-Building Program

- Based on the previous activity and identified key gaps, the UPDRRC will design an integrated and comprehensive capacity building program to bridge the gaps and concentrating on the aim for NDRMC to sustain and/or build on the gains of the project.
- Capacities related to the use of multi - hazard risk information for local resilience planning and the promotion of structural resilience will be included in this program. In addition to training on the platform built for the multi hazard risk assessment presented in activity (**A)** above.
- The program will be designed to be very clear containing (but not limited to) the following:
  - Program objectives
  - Capacity Building areas
  - Training courses topics
  - Targeted staff
  - Intended results / outcomes
  - Implementation Plan
- The training program will contain training tools and will be packaged into knowledge products for future use and reference by the NDRMC staff;
- The training program will concentrate on training the NDRMC staff on the use of multi-hazard risk assessments, especially in relation to planning, policy-making, regulation, and provision of technical support, particularly to local governments.

- The UPDRRC will present and discuss the designed program with NDRMC management, staff and other project main stakeholders.
- The UPDRRC will update the designed program based on the comments and recommendations received with the consultations and discussions with different stakeholders.

3.0 Identify Appropriate training methodologies and approaches

- The UPDRRC will identify appropriate training methodologies and approaches, including the possibility of converting these into knowledge products that the NDRMC can utilize even after the completion of the project.

4.0 Training Delivery

- The UPDRRC will coordinate with relevant stakeholders on the training program implantation.
- A training plan will be developed and discussed with related stakeholders especially the NDRMC management.
- At least two training sessions will be organized, compliant with local quarantine measures.

C) Duration of This Phase: This phase will be implemented between 8th and 11th months

D) Deliverable: Capacity Building of NDRMC

E) Submission Time: November 2022

Summary Table for Activity:

Phase E	Capacity building of the NDRMC
Objective/s	Capacity building of the National Disaster Risk Management Center (NDRMC)
Sub-Activities	1.0 Training Needs Assessment 1.1 Identification of fields and topics that the NDRMC staff should be familiar and experienced with 1.2 Existing capacities of the NDRMC staff 1.3 Identification of Capacity Gaps
	2.0 Designing a focused capacity building program 2.1 Designing Capacity-Building Program
	3.0 Identify Appropriate training methodologies and approaches
	4.0 Training Delivery
Tool /Tools	Meetings, Desk review, Data collection sheets, Presentation, Office work
Deliverables	• Capacity Building of NDRMC
Duration	**4 Months**

4.6 Phase (F): Cross Cutting Activities

1. Consultation with relevant stakeholders

- Immediately after NDRMC informing about the project and launching, the UPDRRC will conduct consultations and workshops with Palestinian institutions, including relevant ministries, select municipalities, insurance industry and other financial institutions, and multilateral and bilateral institutions, among others to understand the DRM policy landscape, available data, past, existing or planned initiatives, and to vet on the outputs of this assignment.
- The UPDRRC will ensure that there are planned consultations in key milestones of the assignment to secure guidance from the WB and PA counterparts;
- The UPDRRC will prepare a **communication plan** with all relevant stakeholders. This communication plan will contain (but not limited to) the following:

  Activities (Such as meeting, focus groups/ Workshops, etc.)

  Timing

  Responsibilities

  Targeted stakeholders

  Implementation methodology and logistics
- All meeting, workshops, focus groups will be documented in a minute of meeting and a summary for each activity (comments, recommendations, notes) will be documented.

2. Coordinating the activities of the project

- The UPDRRC will coordinate the activities of the project, including their proper sequencing to fit them within the 12-month timeframe. This will also determine the deployment of expertise, as well as the conduct of a more efficient dialogue and engagement with project partners and stakeholders.

3. Timely submission of Reports and deliverables

- To ensure the timely submission of reports and project documentation to the World Bank and NDRMC counterparts, including the reporting of implementation issues and bottlenecks that require World Bank and/or NDRMC,
- The UPDRRC will try his best and make all efforts needed to implement some activities in a parallel manner, so that can save time and ensure the submission of deliverables according to the submission dates.

Field work,

The UPDRRC has mobilized, assigned and recruited a team of engineers dedicated to collect all data required through coordinating with the institutions and as many visual inspection visits as needed. This is to make sure to get as accurate results as possible.

5. Roles and Responsibilities plan for the proposed staff:

As presented before, UPDRRC believes that the project requires more experts with a variety of different specialties and with major contribution that is not only technical support. As such, UPDRRC nominated many experts to complete the team of the key experts with different specialties related to the assignment and they will have a major role and contribution covering all deliverables and work activities.

The UPDRRC presents below the roles and responsibilities of both the key and non-key experts within the different major activities of the project.

5.1 Team leadership:

The Team leader will support all team members covering all deliverables. The roles and responsibilities can be summarised as follows:

- Finalizing the detailed work plan, in consultation with the NDRMC and project partners;
- Monitor the progress of the project activities and ensure their timely implementation, as well as monitor the accomplishment of deliverables based on the time schedule to ensure that project processes are running smoothly and timely;
- Represent the team and leading the coordination, discussion and engagement with MDLF, PA representative, NDRMC, municipalities representatives and other project stakeholders;
- Manage and supervise all correspondence with the NDRMC, MDLF and other stakeholders
- Follow up with the team of experts and reviewing their outputs and guaranteeing its quality;
- Responsible for the performance of the team members and utilization of resources.
- Responsible for reporting and finalization of required reports and outputs, as well as delivering a final version of the outputs based on the WB and PA's comments.
- Responsible for addressing bottlenecks faced by the team and flagging issues that call for MDLF and NDRMC intervention.
- Technical and managerial support for the team and manage the overall processes.
- Participate efficiently in support of other team members covering activities (a, b, c, d and e), these include: the required Guideline on Local Resilience Planning, Resilience Plans for Pilot Local Governments, resilience standards for critical infrastructure, as well as participating in Multi-Hazard Risk Assessment and capacity building of the NDRMC.
- Lead the preparation of the preliminary and final plans for all project activities.
- Study and analyze risks with possible mitigation measures. In cooperation with the team, NDRMC and MDLF, Put alterative plans needed.
- Work on implementing and submitting the required deliverables with the team support as per ToR:

5.2 Multi Hazard Risk Assessment and Mapping

This includes Multi Hazard Risk assessment, Identification of exposed population and assets, Physical Vulnerability and Seismic Risk. **The deputy team leader**, **the National DRM Specialist** supported by other experts including but not limited to **Multi Hazard Risk Modeler, Climate change molder, Multi Hazard Risk specialist, DRM Specialists, geoinformatics expert** and others will have the following responsibilities covering these deliverables:

The deputy team leader will:

- Review and finalize the outputs in accordance to international best practices and quality
- Facilitate the daily coordination with different stakeholders
- Lead the development of building capacity programs
- Prepare knowledge products using the guidelines and training outputs and finalize project documents and reports
- Will be involved throughout all the project deliverables as listed below

  D-3.1 Multi-hazard assessment (hazard characterization, hazard models, hazard mapping)

  D-3.2 Exposure and vulnerability assessment and full module with maps and tools: Report, Web platform

  D6: Resilience Standards for Critical Infrastructure.

The National DRM Specialist supported by other experts including but not limited to **Multi Hazard Risk Modeler, Climate change modeler, multi Hazard Risk specialist, DRM Specialists** will implement the technical part, write reports, present outcomes, organize working groups and conduct training on the outputs relevant to the deliverables and main activities listed below:

a- Multi-hazard assessment: Report, hazard maps

1) Hazards identification and characterization
2) Revision of existing hazard models/maps
3) Hazard analysis and mapping

b- Exposure and vulnerability assessment and full module with maps and tools: Report, Web platform

1) Scoping of existing technical knowledge
2) Exposure data collection and management: field and desk work
3) Exposure modelling and mapping
4) Physical Vulnerability model adaptation
5) Socio-economic data collection
6) Social vulnerability analysis (SoVI) and mapping
7) Evaluation of coping mechanisms
8) Multi-hazard risk assessment and web platform map development

c- Capacity building of the NDRMC

1) Training the staff of the NDRMC on the technical outcomes of the multi-hazard risk assessment and how the outcomes could be used for DRR
2) Provide basic training the NDRMC on the use of GIS software (QGIS)
3) Train the staff of the NDRMC on the web-based map platform this includes basic training on how to explore the datasets and information and more advanced one on how to maintain and update the platform for future projects

5.3 Development of Guidelines for local resilience planning and formulation of resilience plans for pilot local governments

The Institutional DRM Specialist, **the Urban and regional Planning expert** supported by other experts, will have the following responsibilities

- Formulating a set of practical guidelines for local resilience planning.
- Participation in testing the practical guidelines for local resilience planning in a sample of 20 municipalities.
- Designing a training capacity methodology based on the approved guidelines.
- Training activities of the selected 20 municipalities.

5.4 Formulation of Resilience Standards for Critical infrastructure

The structural Engineers supported by **the team Leader**, **the seismic retrofitting expert, the geotechnical earthquake engineering expert and the other building and civil engineers** will perform the following responsibilities:

Assessing the current situation of the critical infrastructure through:

- Collection and assessment of available information and DRM, policies, systems, capacities, plans and strategies;
- Coordination and engagement with the PA, local governments, and other national institutions.
- Designing consultative events to be organized under the project, to ensure that all relevant institutions are represented;
- In coordination with the line institutions, select/define representative groups of buildings that can be adopted as archetypes for performing multi hazard and risk assessment
- Carry out visual field-based inspections, where needed, to assess the vulnerability of the selcted existing buildings .
- Conduct a review of the building code standards adopted currently in Palestine to design new structures and assess the existing ones.
- Adapting international practices with the local context to make these outputs relevant and responsive to the needs of the PA, local governments, and other partners

Assess whether the current situation of the critical structure and/or infrastructure requires upgrade or enhancement based on the results of multi-hazard risk assessment:

Compare the prevailing polices, guidelines and practices mentioned above with the best international standard codes that can be adapted and applied on the local and national levels.

- Investigate the level of the update and/or enhancement needed on the conventional practices and to what extent the change is applicable and whether it requires to be adopted in phases.
- Categorize the expected level of damage, if found possible, for each sector.
- Discuss and study the type and level intervention that might be required for each level in order to upgrade the performance.
- Propose ideas to improve and develop the planning guidelines, which aims at encouraging the integration of the structural resilience as a priority within the recovery plans to mitigate their vulnerability and increase their functional recovery after hazards.
- Share the new updated guidelines and expertise with different actors within the community to develop solid and useful recovery plans within a reasonable timeframe

Regarding the geotechnical part:

Prepare Guidelines on:

- Site investigation reports.
- Slope stability analysis.
- Correction measures for sliding.
- Building on difficult soils, such as, swelling soil, high water table, collapsible soils, and foundation on cavities.
- Excavation support systems design and analysis.
- Correction measures for foundation (Retrofitting of foundation**)**

Other:

- Reviewing certain proposals submitted by municipalities under MDP-3 and possible retrofitting and upgrading infrastructure under the program.
- Major support in the preparation of the inception report and others
- Major support in coordination with all stakeholders

5.5 Capacity building of the NDRMC

The DRM Institutional Development Expert supported by the team leader, the institutional capacity building expert, urban and regional planning expert and others will perform the following responsibilities**:**

- Identification of fields and topics that the NDRMC staff should be familiar and experienced.
- Designing and analyzing data collection sheets.
- Conducting focused interviews with NDRMC and related stakeholders
- Designing the capacity-building program and identifying appropriate Training Methodologies and Approaches
- Identify appropriate training methodologies and approaches, including the possibility of converting these into knowledge products that the NDRMC can utilize even after the completion of the project.
- Coordinate with relevant stakeholders on the training program implementation.
- Participate in the consultations and workshops with different stakeholders.

6. Accomplishments to date

A-team Meetings:

1- Kick off meeting with key experts and part of the non-key experts: Nomination of the project contact/focal team. Namely: Professor Jalal Al Dabbeek, Engineer Abdelhakeem Al Jawhari, Dr. Jamal Al Dabbeek, Engineer Anas Atatrah and Engineer Hadeel Yameen.

2- Mobilization of the staffing and making sure all are available

3- Project implementation requirements like the logistics, transportation facilities, tools and equipment, and the allocation of the other services that will be required for fulfilling the assignment.

4- Meetings and discussions over the phone and Via ZOOM:

• Zoom meeting 1: working groups organization and revision of the work plan

• Zoom meeting 2: coordination meeting with the working group in Gaza

• Zoom meeting 3: a strategy to collect information and establish contact persons in the various ministries

• Zoom meeting 4: discuss criteria for the selection of the critical infrastructure assets, permissions and tools needed for the field surveys

B-Meetings with MDLF and NDRMC

Negotiation meeting:

The UPDRRC was invited by MDLF for the negotiation meeting which was conducted on Monday the 22nd of November, 2021.

Attendants:

MDLF: Engineer Ahmad Zayed: Procurement Manager and Engineer Musa Natsheh; Procurement Officer

NDRMC; Dr. Hasan Aby Aleeleh, Project manager and Dr. Mohammad Odeh, Project Technical Auditor, and Eng. Amer Jaradat , IT specialist

UPDRRC: Prof. Jalal Al-Dabbeek: Team Leader and Engineer Abdelhakeem Al Jawhari, the Structural Engineer.

Main items discussed:

I. The need to inform all stakeholders in order to facilitate the work of UPDRRC. They include but not limited to, ministries of education, health, local government, others. The MDLF and NDRMC will do whatever possible to facilitate the activities. NDRMC Started making the required contacts.
II. The first orientation meeting at An Najah University new campus as proposed within the technical proposal. All agreed on the idea as a concept, but requires further discussion.
III. The platform maintenance and license: The two year maintenance is part of the scope. The period beyond that requires a separate contract with a supplier. The license is there with the platform.
IV. UPDRRC suggested a change in the payment schedule through increasing D1 payment from 10% to 15% and D2 from 5% to 10%. In return, reduce D4 from 25% to 20% and D5 from 20% to 15% maintaining the total at 100%. MDLF looked positively to that and approved the suggestion.
V. Focal points from NDRMC: Dr. Hasan Abu Aleileh, project manager and Dr. Mohamad Odeh, Technical Auditor.
VI. Selection of twenty Municipalities: For West Bank, UPDRRC suggested to select the 11 main municipalities from each governorate and additional four from the center, north and south WB. The 11 were approved as an idea and the other four requires discussion. Later, the list was finalized as presented before.
VII. Documents requested by MDLF from UPDRRC; Team availability letter and bank account information. All submitted on time.
VIII. Contract Signature and Lunching: Will be on December, the 7th with the presence of high officials from PNA. It was signed by the Minister of Local Government.

Contract signature

It took place on December 7, 2021. The contract was signed by the Minster of Local Government

Negotiation Meeting

Contract Signature On December 7, 2021

C-Discussions ad meetings with NDRMC

1. Visit of Dr. Hasan Abu Al-Ailah to UPDRRC: Long visit during which Dr. Jalal presented a briefing about the centers activities. Also a tour through the center
2. Zoom meeting with NDRMC IT focal point and Dr. Mohamad Odeh to discuss the web portal of the project and the capabilities of the web-map platform
3. Discussions and meetings with Dr. Mohamad Odeh and Hasan Abu Al Aileh; to agree on the communications channels and the focal persons for each party.
4. Media coverage through a meeting with Radio Hayat Nablus

D- Coordination with Line Ministries:

1. Phone call with the MoE head of building department engineer to brief her about the project and what is required for the schools and the level and type of information needed.
2. Phone call with the MoH engineer to brief him about the project and what is required for the hospitals.

E- Progress to date

1. Selection of the targeted municipalities in both West Bank and Gaza namely:

West Bank: Ramallah, Al-Bireh, Nablus, Bethlehem, Hebron, Jenin, Tulkarm, Qalqylia, Salfit, Jericho, Tubas, Dura, Al-Yamoun, Beita, Abu Dees,

Gaza Strip: Jabalya, Gaza, Deir Al Balah, Khan Younes, Rafah

2. Identified gaps in the critical infrastructure database. Accordingly, with the support of NDRMC, the UPDRRC started contacting the relevant ministries to improve and add the missing geospatial information.

F-Plans and activities during this Month and the month after

1. Meetings with Counterparts/stakeholders including but not limited to:

   Target Municipalities
   Ministries: Ministry of Education, Ministry of Local Governments, Ministry of Health
   Others: Civil Defense, Engineers Association,

2. Launching the project: With the presence of all stakeholders
   - Presentation of project scope and contents.
   - Project plans.
   - Project team of Experts
   - Planned outcomes
   - Future expectations
3. Media coverage through a set of meetings with local media covering West Bank and Gaza to promote the project.
4. Formation and assigning field work groups

G- Support required from NDRMC: Official letters informing the relevant ministries and institutions about the project and the support and cooperation required to facilitate the work of UPDRRC.

H-Supporting Research Initiatives

In order to promote the project and to contribute towards resilience of the community as a whole, part of the field work will be done and managed by engineers as part of part of their work to obtain the Master's Degree from An Najah National University.

I-Orientation Meetings

Taking into consideration the priorities of the MDLF and the work plan, the UPDRRC will plan for the orientation meetings with all concerned depending on the availability and readiness of their teams assigned for follow up with the UPDRRC taking care of the Corona Crisis restrictions as well.

J-First Orientation and Kick off meeting

The UPDRRC is planning to host the first orientation meeting at the Research Centers Building at An Najah National University New Campus. The participants will visit the labs within the center and also the National Earthquake Observatory Center. The UPDRRC will introduce the centers team, present different instruments and equipment and present examples on how center operates.

The UPDRRC will cover the hospitality and the transportation of all participants from MDLF, NDRMC as well as all UPDRRC's team who will be present as well.

The date to be identified in consultation with NDRMC and MDLF.

7. Deliverables

As per approved by MDLF, the modified table that summarizes the deliverables of the assignment

#	Output	Target Timeline	Payment Triggers
D1	Inception Report	December 21, 2021	15%
D2	Guidelines on Local Resilience Planning	March 2022	10%
D3	Multi-Hazard Risk Assessment and Mapping		
	D3-1- Multi-Hazard Assessment	April 2022	15%
	D3-2- Exposure and Vulnerability Assessment Full Module with Maps, Tools, etc	July 2022	15%
D4	Completion of resilience plans for pilot municipalities	September 2022	20%
D5	Capacity building for NDRMC	November 2022	15%
D6	Resilience standard for critical infrastructure	December 2022	5%
D7	Terminal Report	December 2022	5%
	Total		100%

8. Anticipated risks and obstacles and the response activities

The following is added to the risk associated with the current Corona Virus that should be dealt with following the instructions of concerned governmental authorities, as presented before.

The expected risks involved and the preventive actions and risk-mitigation methodologies that the UPDRRC proposes are briefly presented below. We consider here the compatibility of such methodologies with the proposed approach. Risks include also those related to change management and other possible risks.

Expected Risks, and the proposed risk mitigation methodologies and preventive actions, are illustrated in the table below

No.	Expected Risk	Risk Mitigation Methodologies/ Preventive Actions
1	COVID-19 Constraints and restrictions on movement maybe imposed by the government as an action towards protection of people. May not be able	- Have high degree of flexibility within the obligations, especially connected to experts' engagement to promptly respond to any unforeseen unfortunate conditions.

	to work efficiently in carrying out the services required.	- Maintain sufficient number of experts for efficient execution of needed services. - UDDRRC will adhere to the emergency management guidelines response environmental, health and safety procedures. - The UDRRC will be strictly guided by MOH guidelines and recommendations, and all regulations of emergency response and governmental constraints on movement. - In connection with face to face meetings, trainings, workshops and discussions, the UPDRRC will do best possible to conduct and perform these special activities the proper way following the regulations and guidelines. - Use other means that are considered low health risk, such as: Conducting meetings via phone or through using online tools (ZOOM, TEAM, Skype, and WhatsApp). This will be applicable for communication with the Clients, LGUs and targeted municipalities instead of direct meetings if not possible. - The team will take all safety requirements and various protection measures into consideration when conducting field and inspection visits in emergency cases, as follows: ➢ Use disinfection material and maintain to the hygiene, washing hands and face in every time (before/during/after) the field visits. Maintain wearing facial masks and keeping the right distance in the meetings with others and commitment with the right health and safety acts in implementation phase ➢ Follow up COVID-19 travelling restrictions and procedures applied by each country in relation with the presence of the international experts in the field. Alternative plans will be considered in such cases with the possibility of doing the work using all on line using available tools like ZOOM and TEAMS
2	Delay in informing the involved partners and stakeholders about the assignment. Covering the targeted municipalities, the Ministries, telecommunication, civil defense, etc.	- Follow up and coordination with the NDRMC and MDLF immediately after contract signature.

		-Prepare the needed material to be presented and discussed with these stakeholders to be on the safe side.
3	The non-existence of contact persons/focal points in the partners.	- Will coordinate with NDRMC and MDLF to ensure the availability of such person or. - Use personal relations to accelerate the appointment.
4	Lack of cooperation with UPDRRC from partners. Lack of cooperation from the ministries' team and possible civil defense Lack of understanding of the assignment scope and objectives	- Pay special attention to the need to conduct the Kick-off meeting with all partners to make things as clear as possible which will help a lot to mitigate these risks or obstacles. - Request the support from the NDRMC and MDLF to communicate with those to facilitate the process. - Efficient and direct coordination with the Ministries teams in the spirit of Partnership.
5	Law level of responsiveness in cooperating with team in terms of possible need for meetings, discussions and joined visits.	- Improve and maintain the high level of responsiveness of the UPDRRC team in response to the Ministries' requirements. - Close coordination with MDLF in cases that require their intervention and support
6	Possible internal problems within the Municipality staff and even the council may affect the work progress and cooperation with UPDRRC.	- This is of moderate likelihood and if happened, to be dealt with case by case in coordination with MDLF and NDRMC
7	Difficulty in obtaining the available documents within the relevant institutions Absence of the required and weak accessibility to information	- Request support from NDRMC and MDLF - Possible to submit complaints through decision making levels.
8	Possible need to work outside official or formal working hours and official working days that may delay the work if not coordinated and planned well. Low level of readiness	- Coordination with stake holders for more sufficient benefit from the normal working hours/days and adapt the plan accordingly. - Perform other activities during no-working hours of the institutions. - Plan in time by giving the partner's staff the time needed to prepare the documents. - Plan for the visits and meetings and be as ready as possible. - Prioritize the visits, the inspections and the meetings according to the level of readiness of the staff, the venues and the documents and the normal working hours.

9	Resignation of the nominated staff, mainly the core team.	- Be well prepared for contingency plans - The UPDRRC will make sure that all team are available to carry out the project tasks timely and to the highest professional standard. The UPDRRC will make available a suitable replacer with equivalent or higher capabilities and experience, and will submit to MDLF and NDRMC for approval.
10	A project team is not be able to coordinate either with the project team or with the partners, NDRMC and MDLF team (Attitude Problem)	- The project team leader will make sure the full coordination between the project team during the implementation. Then the project team leader will take the necessary steps and actions towards insuring full coordination with all parties. - Possibility to take a decision by replacing the team member with the equivalent specialist in coordination with MDLF and NDRMC
11	The UPDRRC Lack of Capability: One or more of the team member/s lacking the necessary experience to perform the assigned to him/her in a professional and satisfactorily manner.	- The project team leader will introduce the project activities to the team members and will make sure that they comprehend the proposed approach and methodology to be used during the implementation. - He might interfere first to direct the team member to the correct approach, and in case the team member will continue to carry out his tasks without taking into consideration the team leader comments, the project team leader will recommend a suitable replacer to that team member with the same qualifications in order to make sure that the final deliverables will be professional, and to the level acceptable to the client.
12	Restrictions of movements by the IDA and possible by settlers This is through a combination of physical obstacles, bureaucratic constraints, and the designation of areas as restricted or closed. The result is the need to divert the diverting Palestinian traffic into a longer and more congested detour which is unsafe for the people and	- Find alternative routes and update the plans - This might occur during the implementation of the assignment and cause delays and transportation problems with additional cost.

	vehicles, takes longer time and longer and more costly routes.	
13	Bad weather conditions and unforeseen obstacles	- During the bad weather conditions, the project team will carry out the office work.

Note: In case, and despite all possible efforts exerted by all parties, the risks affected the delivery of the work and the delays encountered could not be overcome, the UPDRRC will keep contact and consultation with MDLF and NDRMC in order to take the required measures as eligible and justifiable, like time amendments, change of scope or any other action deemed necessary and according to rules, guidelines and policies of MDLF.

UPDRRC is also committed to fulfill and exert the utmost efforts towards mitigation of these risks and complete the assignment in time.

Emergency Plan:

Due to fact that our area, as well as all the world, is having a continuous and the ongoing emergency situation caused by Corona Virus pandemic, it is very well expected and understood by UPDRRC that certain constraints and restrictions on movement maybe imposed by the government as an action towards protection of people. Thus, the UPDRRC may not be able to work efficiently in carrying out the services required. As such, the UPDRRC will consider, as mentioned above, to have a high degree of flexibility within the obligations, especially connected to experts' engagement to promptly respond to any unforeseen unfortunate conditions.

The requested team of experts are estimated to be sufficient for the proper and efficient execution of needed services and it will be the UPDRRC's responsibility to ensure that. The emergency management guidelines response environmental, health and safety procedures will be followed by the UPDRRC team to ensure adherence to health and safety requirements. The UPDRRC will be strictly guided by MOH guidelines and recommendations, and all regulations of emergency response and governmental constraints on movement.

Additionally, and in connection with face to face meetings, trainings, workshops and discussions, the UPDRRC will do best possible to conduct and perform these special activities the proper way that is face to face following the regulations and guidelines. However, there may be a need to use other means that are considered low health risk, such as: Conducting meetings via phone or through using online tools (zoom, team, Skype, WhatsApp). This will be applicable for communication with the Clients, LGUs and targeted municipalities instead of direct meetings if not possible.

Moreover, the UPDRRC team will take all safety requirements and various protection measures into consideration when conducting field and inspection visits in emergency cases, as follows:

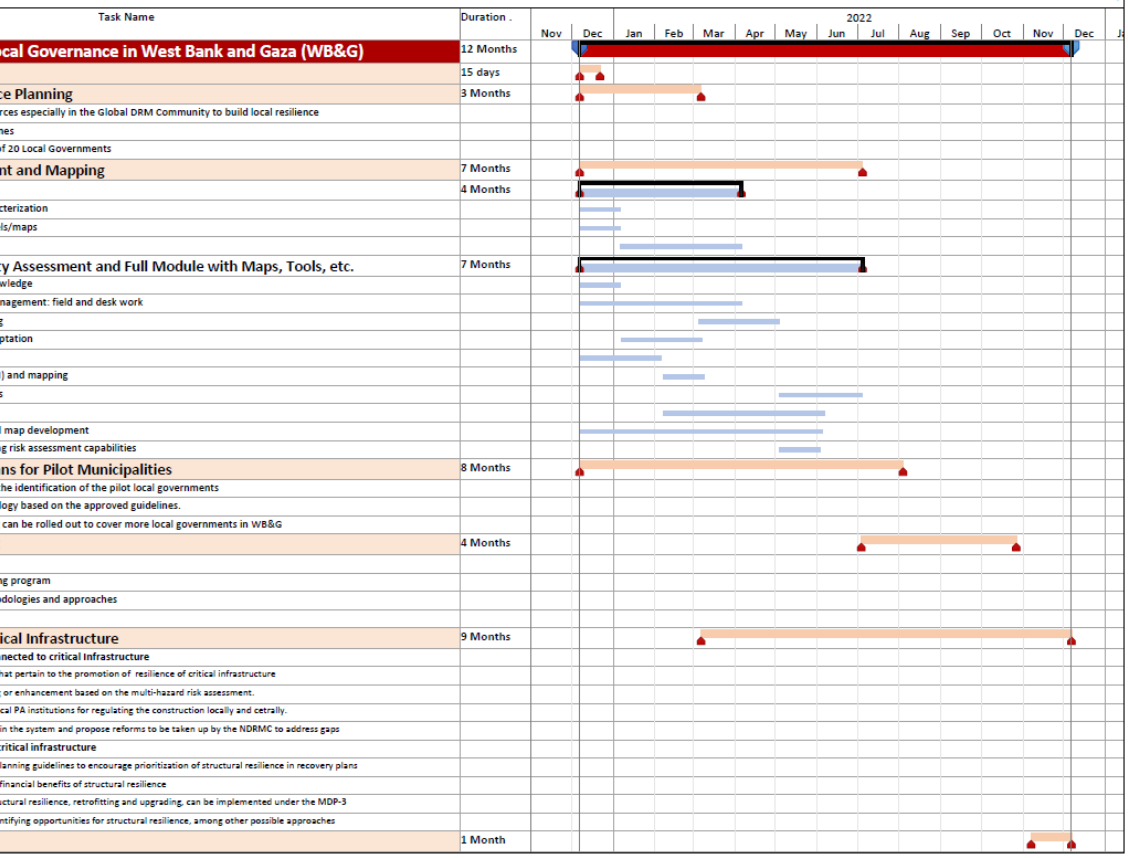
Use disinfection material and maintain to the hygiene, washing hands and face in every time (before/during/after) the field visits. Maintain wearing facial masks and keeping the right distance in the meetings with others and commitment with the right health and safety acts in implementation phase.

Special attention will be paid for the presence of the international experts in the field as required to fulfill the assignment. However, this will be governed by the COVID-19 travelling restrictions and procedures applied by each country. Alternative plans will be considered in such cases with the possibility of doing the work using all on line using available tools like ZOOM and TEAMS

9. Work Plan - Attached

Starting from the signature date, the Work Plan is presented in the attached sheet showing the proposed activities with their interrelations with other activities and correspondent duration.

Work Schedule for
Integrating Resilience in Local Governance in West Bank and Gaza



Task Name	Duration .
Integrating Resilience in Local Governance in West Bank and Gaza (WB&G)	12 Months
Inception Report	15 days
Guidelines on Local Resilience Planning	3 Months
1.Conduct a Scoping of Existing Resources especially in the Global DRM Community to build local resilience	
2. Formulate a Set of Practical Guidelines	
3. Testing the Guidelines in a sample of 20 Local Governments	
Multi-Hazard Risk Assessment and Mapping	7 Months
-Multi Hazard Assessment	4 Months
1) Hazards identification and characterization	
2) Revision of existing hazard models/maps	
3) Hazard analysis and mapping	
-Exposure and Vulnerability Assessment and Full Module with Maps, Tools, etc.	7 Months
1) Scoping of existing technical knowledge	
2) Exposure data collection and management: field and desk work	
3) Exposure modelling and mapping	
4) Physical Vulnerability model adaptation	
5) Socio-economic data collection	
6) Social vulnerability analysis (SoVI) and mapping	
7) Evaluation of coping mechanisms	
8) Multi-hazard risk assessment	
9) Web Platform customization and map development	
10) Recommendations for sustaining risk assessment capabilities	
Completion of Resilience Plans for Pilot Municipalities	8 Months
1. Propose a set of criteria leading to the identification of the pilot local governments	
2. Design a training capacity methodology based on the approved guidelines.	
3. Propose measures how the training can be rolled out to cover more local governments in WB&G	
Capacity Building of NDRMC	4 Months
1. Training Needs Assessment	
2. Designing a focused capacity building program	
3. Identify Appropriate training methodologies and approaches	
4. Training Delivery	
Resilience Standards for Critical Infrastructure	9 Months
1. Assessing the current situation connected to critical Infrastructure	
1.1 Review existing policies or guidelines that pertain to the promotion of resilience of critical infrastructure	
1.2 Assess whether these require updating or enhancement based on the multi-hazard risk assessment.	
1.3 Identify roles and responsibilities of local PA institutions for regulating the construction locally and cetrally.	
1.4 Assess institutional policy weaknesses in the system and propose reforms to be taken up by the NDRMC to address gaps	
2. Propose actions towards resilient critical infrastructure	
2.1 Integrate relevant instructions in the planning guidelines to encourage prioritization of structural resilience in recovery plans	
2.2 Establish the long-term economic and financial benefits of structural resilience	
2.3 Advise WB and PA authorities how structural resilience, retrofitting and upgrading, can be implemented under the MDP-3	
2.4 Review proposals from MDP-3 and identifying opportunities for structural resilience, among other possible approaches	
Terminal Report	1 Month