

# **Resilience Case Studies**

**from Middle  
East and  
West Asia**

**Resilience Learning Modules**

# Resilience Case Studies from Middle East and West Asia

## Resilience Learning Modules

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## Foreword

Disasters, which are not a new phenomenon for our communities though, reveal the necessity of enhancing the resilience of our cities more than ever, which becomes increasingly important as urbanization speeds up and climate change progresses whose impacts are felt more deeply each passing day. In this regard, the current situation leaves us no room but to focus on this compelling challenge.

Unplanned and dense human settlements witnessing extreme weather conditions are more vulnerable than ever. Such an unprecedented crisis must be addressed with well-planned new strategies rather than the beaten path. Given the fact that water scarcity, floods, fast-growing population, inadequate infrastructure, and unplanned urbanization are facing many cities of the Middle East and West Asia region, the need for adopting such strategies comes to the light once again.

The first step of this novel strategy should entail the inclusion of local and regional governments in developing disaster risk reduction plans. With this in mind, multi-level and multi-stakeholder cooperation and governance are no longer an option, but a must. The international community, central authorities, local governments, the private sector, and civil society must act together to put forward a firm and capable action plan.

To contribute to this joint effort, cities need to improve their understanding of urban resilience. In this regard, UCLG developed the Resilience Learning Modules in 2020 to enhance the capacity of cities. UCLG-MEWA has also been committed to the dissemination and adaptation of these learning and capacity-building efforts as well as the global agendas for resilient cities across our region.

This publication on **Resilience Case Studies from Middle East and West Asia** is the most recent effort to reach resilience in our cities through research and learning activities. Two prominent experts, Maan Chibli and Reycaan Çetin, bring cases from Turkish and Arab cities together to evaluate local initiatives. We believe that these Case Studies will help take the learning activities of UCLG on resilient cities a step forward.

**Dr. Mehmet DUMAN**  
UCLG-MEWA Secretary General


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# Introduction

The COVID-19 pandemic and climate change have revealed that eliminating current risks is not sufficient for sustainable urban development. In order to achieve safer, resilient and sustainable cities, capable of managing unexpected shocks and underlying stresses, we must build resilience in economic, social, political, cultural, physical, and ecological terms. Local governments play an integral role in this sense, as they are the main responsible bodies for providing basic services, coordinating day-to-day tasks and providing relevant information to citizens. They are also the main actors during recovery and reconstruction processes. Thus, local governments' successful initiatives can influence policies, actions and future outcomes both locally, nationally and globally.

This report, prepared in cooperation with UCLG's Regional Secretariat for Middle East and West Asia (UCLG-MEWA), aims to exemplify successful cases of DRR and resilience building in Turkish and Arabic cities. The cases presented here have been gathered in the framework of the Resilience Learning Modules developed by United Cities & Local Governments (UCLG), together with UNDRR and UN-Habitat, which have been translated and adapted to Turkish and Arabic by UCLG-MEWA. As such, the cases are linked to the different chapters and lectures of the two modules, providing examples that can facilitate and enrich the organization of training and workshops based on these guidebooks across the region.

Specifically, the cases are linked to the following thematics identified by the corresponding icons found in each case:

-  **Disaster Risk Governance**
-  **Assessing Risk & Resilience**
-  **Financing DRR & Resilience**
-  **Enhancing Social Resilience**
-  **Managing Resilient Urban Development**
-  **Fostering regional and ecological resilience**
-  **Effective Response, Recovery and Building Back Better**

The examples range significantly, from metropolitan cities to district municipalities with a focus on different areas and hazards. Climate change, earthquakes, and floods are some of the most common threats these municipalities face. And in the context of the MEWA region, the importance of resilience increases even more. First of all, as stated in [UCLG GOLD V](#), over 350 million people live in this region. Apart from that, as underlined in another UCLG publication "[Climate Action from Local Governments in the Middle East and West Asia](#)", cities in the region are vulnerable in various ways including from water scarcity and drought, extreme hot temperatures, and increasing demand for public services such as health.

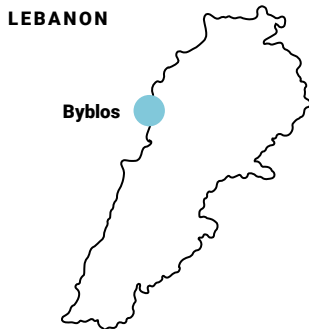
The various departments of any local government, through coordination, joint work, and daily communication with local partners, citizens and its institutions, are able to identify points of strengths and weaknesses in their municipalities. Therefore, they can touch upon the current and future needs, and build resilience in a systematic and holistic way. However, the power and resources of the municipalities are fairly limited. Many of the cases in this publication show how municipalities receive support from the central government, international institutions such as the World Bank and the European Union, as well as regional development agencies and universities. Such support is not only financial, but also includes scientific consultation, technical aid, and training programs to increase institutional and individual capacity. Thus, building and developing these relationships in a horizontal way is essential for municipalities.

Another important lesson to be drawn from these cases is that holistic planning is of crucial importance. Building resilience is not only about reducing disaster risks, but also about creating sustainable economic, social, and physical conditions for the city dwellers. And it should not be considered a cost, but rather an investment for more livable, safer and inclusive cities and regions.

Building resilience is a complex and ongoing process, so the cases presented in this publication do not represent an ultimate solution to all the problems faced by the respective cities. However, it is hoped that these cases can serve as a source of inspiration to municipalities in the region and beyond, for them to discover their potential and power to take action.

# Case Studies

## CASE STUDY 1



### **Byblos Resilience Strategy**

**Area** City: 5 km<sup>2</sup> / Metropolitan area: 17 km<sup>2</sup>

**Population** City: 40,000 / Metropolitan area: 100,000

**Aim** Develop a resilience strategy for the City of Byblos, and set out the vision and strategic pillars.

**Analysis & Outputs**

- Identify the challenges: How current and future stresses could affect the city?
- Explore which assets are already providing resilience as well as those in need of strengthening.
- Define the actions to be carried out to achieve the goal set.

**Actors** Byblos Municipality, stakeholders from the private sector, academia, and NGOs, 100 Resilient Cities Rockefeller Foundation

#### SDGs



Byblos is a coastal city in the Keserwan-Jbeil Governorate of Lebanon, it is one of the oldest continuously inhabited cities worldwide. The City is also a UNESCO World Heritage Site that has natural heritage, including coastline, river valleys, beaches, and hillside woodlands. Both historical and natural features are an asset and a threat from unplanned urbanization and unregulated construction, resulting in the intrusion of urban developments into river valleys and the surrounding landscape, along with pollution of rivers with waste and sewage, and occasional droughts due to increased water demand. The situation has been aggravated by the waste management crisis and by the increasing demand for power generators, due to the power cuts, which are polluting the environment. Accordingly, protecting the environment is critical for the City of Byblos' resilience.

The Municipality of Byblos started the procedures to launch a strategy bringing together the city stakeholders from the municipal government, private sector, academia and civil society. As a result, five focus areas had been identified. Then the City started a Preliminary Resilience Assessment (PRA) to set up the immediate and long term resilience challenges as well as to assess prevailing capability for countering the emerging and recurring stresses facing the city. Byblos City's strategy is outlined by 5 pillars; first, a connected city that open up innovation; second, a resource efficient city that enhance ecosystem; third, a peaceful city that accept social cohesion and cultural diversity, fourth, a cultural city that protects cultural assets; and finally, a city that diversify its economy and flourishes from shared valued cultural and human resources.

Later, to develop the city's resilience, the Municipality started campaigning and implementing some initiatives with local and international partnerships. The strategy covered areas such as: a transport capacity study, solid waste management project to identify suitable urban waste strategies, a public park for the dual benefits of recreation and environmental management, restoration of the old souks, constructing a cultural center as well as a sport complex for community use.

Delivering the strategy passes by a detailed action plan that assigns roles and responsibilities for the concerned stakeholders as well as a time frame for carrying out the task. Successful implementation will require strong coordination and communication on the local, national, and international levels. The people of Byblos, the platform of partners, the Regional & National Governments, the stakeholders, the municipal staff are all important assets that will ensure the effective implementation of the strategy. Moreover, transparency is also an essential asset to the delivery of the resilience plan.

The municipality of Byblos set out a monitoring plan to make certain that all the above mentioned participants are moving ahead towards the targets, to keep track of how the activities are progressing, it can regulate and evaluate the impact to delve into further opportunities. The City, then, performed a 'Stakeholder Perception Analysis' to realize how city stakeholders perceive the current level of resilience in Byblos. This will permit the city to consider the progress, and to identify any gaps and risks that the strategy endures and by then to propose an adaptation plan to cover those gaps. It will also allow people who are on resilience to review the status of actions, to facilitate feedback between the concerned parties, and to keep the Mayor up-to-date on the development of the action plan.



CASE STUDY 2

TURKEY



 **Kadıköy Climate Adaptation Action Plan**

**Area** 25.09 km<sup>2</sup>

**Population** ~ 482,000

**Aim** Mitigate the impact of climate change

**Analysis & Outputs**

- Examine sectoral vulnerabilities
- Develop an open green fields map and demographic forecasts
- Carry out an occupancy and gap analysis, and an urban heat analysis

**SDGs**



Kadıköy is a district located in the Anatolian part of Istanbul that has 21 km of coastline by the Marmara Sea. Most of the district's residents have a high socioeconomic status and can access public services. Additionally, due to its location, the district has a strong connection with the rest of the city. The buildings in the district were mostly built before the 1999 earthquake took place, but, over the last decade, the district has undergone a rapid urban transformation process. However, since the transformation process is not as organized and planned as it should be, it causes air and noise pollution, traffic problems, and many other similar problems for the citizens.

As an increasingly crowded urban space, Kadıköy also experiences the effects of climate change on a micro scale. As a result of climate change, it is expected that the temperature in Istanbul will increase by at least 1-2 degrees in parallel with a rain and snowfall reduction, and the sea level will rise between 40 - 70 cm, and Kadıköy is one of the districts that will be directly affected by these changes.

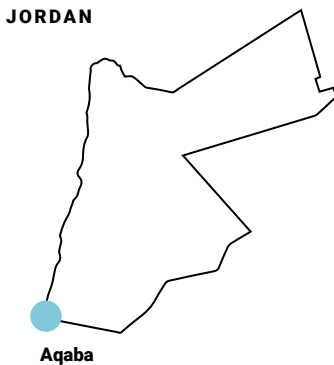
Although climate change is a global problem, local governments can increase their cities resilience by implementing measures at the local level. In this sense, the Municipality of Kadıköy prepared the Climate Adaptation Action Plan in 2018. The plan aims to reduce greenhouse gas emissions by 20% until 2030. To achieve this goal, the local government received support from academics and professionals in the sector, and financial aid from the European

Union. Within the scope of the project, the following analyzes were made about the district:



- **Mapping** out the open and green fields of the city, which are natural defense mechanisms against climate change.
- **Creating** urban heat maps
- **Forecasts** on precipitation and water management
- **Estimates** on public health

the Municipality of Kadıköy, as a district municipality, has limited authority and financial power when dealing with climate change, but that doesn't stop the local government from pursuing its fight against it. It tries to create more green spaces and to reduce the urban temperature with the arrangements made in the zoning plans and license regulations. Rehabilitation of streams, encouraging the use of bicycles by the citizens, rainfall management and participatory governance are among its main strategies.

CASE STUDY 3



 **Informing Disaster Risk Management Plans in Aqaba, Jordan, through Urban Seismic Risk Mapping**

<b>Area</b>	375 km <sup>2</sup>
<b>Population</b>	193,400 (2016)
<b>Aim</b>	Integrate seismic risk reduction considerations into Aqaba's economic development
<b>Analysis &amp; Outputs</b>	Conduct a seismic hazard risk assessment
<b>Implementation</b>	Aqaba Municipality (Jordan)  Aqaba Special Economic Zone Authority (ASEZA), United Nations Development Programme (UNDP), Swiss Agency for Development and Cooperation
<b>Duration</b>	N/A
<b>SDGs</b>	 



Aqaba, located in the southern part of Jordan, is the only coastal city in Jordan and the main city on the Aqaba's Gulf in the Red Sea. As an administrative division, Aqaba is considered the center of Aqaba Governorate. Although studies pointed out that Aqaba was at high risk of severe earthquakes, Disaster Risk Management (DRM) plan had not been developed by the city. In 2001, Aqaba was declared a special economic zone, which opened up the door for investments, services, and tourism. This new status was expected to raise the risk and exposure to hazards, especially seismic ones, and justified the launching of this project.

The project generated tools for measuring the level of seismic risk, and confirmed the need of a Master Plan for earthquake risk management that serve as a foundation to an operational framework for earthquake risk reduction. It produced an impact scenario for an earthquake of 7.5 magnitude demonstrating the effects on people, buildings, and the economy. The analysis pointed out the necessity of improving the level of services and amenities in the city. For instance, the hospital had a capacity of 206 beds, while treatment requirements in the aftermath of the earthquake predicted a scenario of around 1,900 people. Moreover, the disruption

of port activities for three months due to damages and the focus on humanitarian activities could amount to US\$420 million. In the same way, a loss of US\$300 million was associated with a reduction in tourism.

In return, the following improvements were made to strengthen DRM in the City of Aqaba:

- Preparation of a new DRM Master Plan was prepared.
- Establishment of a DRM unit as well as a stakeholder coordination committee.
- Creation of emergency response teams, and search and rescue teams.
- Use of findings from seismic risk assessment to decide on the land allocations and construction projects.

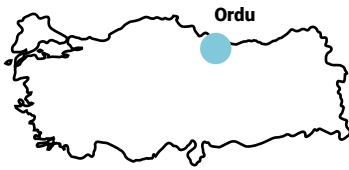
Finally, the lessons learned from this process include the following five factors that contributed to the success of this project:

- Decision-making;
- evidence-based risk assessment;
- use of local expertise;
- communication of risk findings;
- extensive stakeholders engagement.

CASE STUDY 4

 **Rainwater Harvesting Project in Ordu**

TURKEY



**Area** 5,952 km<sup>2</sup>

**Population** ~ 760,000

**Aim** Generalize rainwater harvesting systems in urban areas to prevent flood risk and water waste

**Analysis & Outputs**

- Regulation on building licenses
- Building a sample rainwater harvesting system

**SDGs**



Ordu is located in the Black Sea Region of Turkey. The region is rich in forests and mountains, and the climate in the coastal areas and the hinterland differ significantly because of the mountains. The coastal areas are warm and rainy throughout the year and have only 2 or 3 cold winter days. However, the hinterland is snowy in winters, and the snow on the top of the mountains does not melt until May. While agricultural production is not widespread in the mountainous parts of the region, agriculture is the main source of income in the coastal areas. In these areas, the rainy climate is beneficial for agricultural production, but it also has the potential to cause overflowing and floods. Ordu often suffers from floods, and these floods harm settlements and the fertile lands and agricultural products, which negatively impact the city economy.

In the last decade, the city has suffered from drought and floods at the same time. Rainfall does not occur for most of spring and summer, and when it rains, the rainfall is unexpectedly heavy. The structures built to hinder flooding are not sufficient to prevent overflowing after such heavy rains. Therefore, Ordu Metropolitan Municipality searched for innovative solutions to this problem and prepared the Rainwater Harvesting Project. In 2021, the municipality built five rainwater harvesting ponds across different districts and aimed to take the necessary actions to make the rainwater harvesting system widespread across settlements.

The center district was selected as the pilot settlement for the project. The municipality drew up a number of regulations for the new buildings that stipulated new obligations to obtain building licenses. For example, the new buildings must have rainwater

collecting structures on the roofs and storage spaces and filters in the basements.

The municipality also built a sample rainwater harvesting system on the roof of a municipality-owned cafe. This cafe has a 30 m<sup>2</sup> roof area that was re-designed to harvest rainwater, and a water tank with a 15-ton capacity was built to store and filter the collected rainwater. The municipality declared that in one rainy weekend, 7 tons of water were harvested. The cafe used this water to irrigate its 25 m<sup>2</sup> garden, and the municipality used it in public toilets.

Rainwater harvesting is of significant importance in preventing the waste of water. It prevents the overuse of underground water, especially for irrigation, and using these systems in housing and commercial buildings reduces water costs. Rainwater harvesting systems are also important tools to reduce flood risk. The climate of Ordu changed in recent decades because of climate change, just as the other Black Sea Region cities. The rains are heavier, and the current infrastructure is not strong enough to handle such heavy rainfalls. By investing in rainwater harvesting systems, the municipality reduced the risk of flood, protected underground and surface water sources, and reduced costs.

CASE STUDY 5

TURKEY



 **Izmir COVID-19 Resilience Action Plan**

**Area** 11,890 km<sup>2</sup>

**Population** 4,392,000

**Aim** Ensure the resilience of Izmir against the COVID-19 pandemic, as well as other crises (earthquakes, floods, etc.)

**Analysis & Outputs**

- Assess capacity of the healthcare systems.
- Revision of the Transportation Master Plan.
- Disaster Resilience Capacity Examination

**Actors** Izmir Metropolitan Municipality, AFAD, Izmir Governorate, District Municipalities

**SDGs**



Izmir, located in Western Anatolia, is the third most populous city of Turkey. The city, which has a coastline of 629 km on the Aegean Sea, contributes to the Turkish economy primarily through industry, services, and tourism sectors. In the last decades, Izmir has witnessed an acceleration in urbanization caused by internal migration. This rapid and uncontrollable urbanization has created amorphous urban settlements and a city vulnerable to disasters.

The COVID-19 virus has spread more quickly in populous cities, especially in informal urban settlements. This showed that increasing the number of public green spaces and offering accessible urban services is critical for a city. Accordingly, Izmir Metropolitan Municipality prepared an action plan that aims to increase the resilience of the Izmir province against the COVID-19 pandemic. The plan is adaptable to other natural disasters as well.

This plan was drawn up with a holistic approach, and it defined a disaster risk reduction (DRR) strategy with three levels of implementation: pre-crisis, during crisis, and post-crisis.

- **Pre-crisis:** Preventive measures. Among the main goals at this level are strengthening buildings and infrastructure systems, investing in human resources, increasing the number of public green spaces, and creating accessible health units.

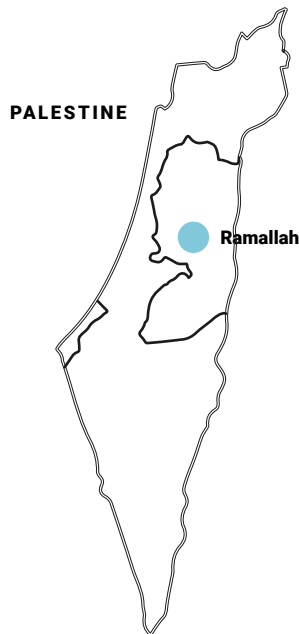
Izmir Metropolitan Municipality prepared a Disaster Master Plan and a Transportation Master Plan, and accelerated urban transformation projects. Also, municipal officers and citizens were trained in disaster management.

- **During crisis:** Interventions made by municipal authorities during a crisis. After examining the measures taken in other countries, the Science Committee revised the rules of public transportation use to be in line with the principle of social distancing. Face masks and hygiene products were supplied for the citizens, municipal cleaning staff regularly disinfected public areas, and online courses were organized to support the educational development of school children.
- **Post-crisis:** Once the COVID-19 pandemic was better contained, Izmir Metropolitan Municipality started taking the necessary actions to determine the extent of damage and loss incurred because of the pandemic. The municipality identified the sectors and families that are most affected by the pandemic and initiated a financial aid program. In addition, the Municipality purchased agricultural products from local producers to support them, thus addressing the needs of one of the most vulnerable groups of citizens.

This holistic and multidimensional action plan prepared by the Izmir Metropolitan Municipality to remedy the negative outcomes of the COVID-19 pandemic can also be adapted to other types of disasters. Following this plan also helped the Municipality to inform citizens better and prevent the spread of misinformation. Furthermore, the strong relationship between the Municipality and the citizens led to the latter working in cooperation with the former during the vaccination campaign and rehabilitation.



CASE STUDY 6



 **Resilient Ramallah 2050**

<b>Area</b>	16.3 km <sup>2</sup>
<b>Population</b>	City: 44,587 / Metropolitan area: 153,237
<b>Aim</b>	Establish a long-term vision and resilience strategy for the City of Ramallah through strategic actions and specific goals
<b>Analysis &amp; Outputs</b>	Analyze the risks and impacts that the city is enduring, and identify the strategic actions and goals for a resilience strategy.
<b>Actors</b>	Ramallah Municipality, Ramallah-Al-Bireh Governorate and other institutions.
<b>Duration</b>	2017-2050
<b>SDGs</b>	 



Ramallah is a city located on the central West Bank, just about 16km north of the City of Jerusalem. In 1994, it became the administrative center for the Government of the State of Palestine. Despite the occupation and the lack of control over its resources that are crucial for the city's resilience, Ramallah is a growing and cosmopolitan city that hosts many international organizations and service sector bodies (e.g. banks) as well as arts and cultural events. It is a diverse city which respects the human and cultural rights of its residents and visitors. Moreover, Ramallah has international connections with cities worldwide, and it is a part of the 100 Resilient Cities network, through which the city intends to share knowledge and implement best practice initiatives for its citizens.

The City of Ramallah is under many risks and impacts including earthquakes, extreme weather events and political and social instability. The city is subject to winter snow storms and sudden heavy rain which have severely affected services and amenities. Ramallah will face all these challenges in the context of increasing pressures from climate change. In this regard, Ramallah-Al-Bireh Governorate formed an 'Emergency Council' with other stakeholders (the Palestinian Red Crescent Society, the police, transportation sector, fire brigades, electricity companies, and water and sewage network) to coordinate actions, share resources and provide the needed support.

The actions for a resilient Ramallah are arranged under three strategic directions, which focus on different areas and are underpinned by eleven specific goals. Although Ramallah Municipality takes a leading role in the implementation process, carrying out actions requires broad collaboration with other actors.

The strategic directions are as follow:

- 1. Regaining Control:** which will foster culture, resource efficiency and urban and economic development that supports resilience.
- 2. Responsive Governance:** that supports transparency, collaboration, community engagement, and establishes cohesive approaches to disaster management.
- 3. Realizing Potential:** to build the city's prosperity through its cultural, physical and natural assets, and support community resilience by investing in smart city approaches.



A particular entity within Ramallah Municipality was designated to administer the implementation of the Resilience Strategy. This entity consists of a reflective unit whose task is to monitor and track the progress of the plans concerning each one of the actions, as well as the progress of the overall strategy.

CASE STUDY 7

TURKEY



 **A community-focused sustainable Disaster Risk Management model in Tuzla**

<b>Area</b>	123 km <sup>2</sup>
<b>Population</b>	~ 273.000
<b>Aim</b>	Disaster Risk Management with Local Community Collaboration
<b>Analysis &amp; Outputs</b>	Local Risk Maps, Capacity Analysis
<b>Actors</b>	Disaster Management Center of the Istanbul Technical University and Istanbul Development Agency (ISTKA)
<b>SDGs</b>	 



Tuzla is a well-known district that is located on the southeastern border of Istanbul, with that has a 12 km long coastline. Around half of the existing building stock was built after the year 2000 and complies with the earthquake regulations. The district cannot be claimed as overpopulated and has several outdoor green fields. However, since its proximity to the North Anatolian Fault Line, the risk of natural disasters such as earthquakes and tsunamis is high.

After the earthquake took place in Gölcük, 1999, Tuzla Municipality identified the damaged buildings and started an urban transformation process for unhealthy and illegal settlements. In this context, 1220 buildings were renovated from 2000 to 2020 in cooperation with the local government and citizens.

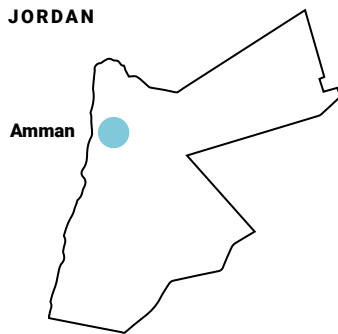
As a branch of Disaster Risk Reduction, the local government prepared a project in 2013 in order to create a human resource force to prevent the risks of expected disasters. Under the financial support provided by ISTKA and with the assistance of the Istanbul Technical University, the municipality created a Disaster Risk Management Model. This model aims to increase the social capacity by investing on local people's risk sensibility and training them to become active actors for prevention and response. In project scope:

- **340 volunteers were organized in local teams** in different neighborhoods by the academics.

- **These local teams created risk maps for their own neighborhoods.** The support from the locals in the process of creating these risk maps has helped to raise awareness towards the precaution that has to be taken, and to identify the risks that had been overlooked.
- **Neighborhood teams also received professional training** on social responsibility, volunteering, first aid, safe post-disaster behavior, post-disaster psychological assistance, and how to act in the event of a fire.
- **The local government renewed the Emergency Action Plan and the Evacuation Plan** with the help and the support of academics.

Tuzla Municipality has adopted a holistic approach to Disaster Risk Reduction. The local administration, as much importance to increasing the social capacity than to improving the physical conditions of the buildings, aims to use local people as an important human resource in case of disaster. A self-sufficient and disaster-resilient city was created by receiving scientific support from the university and with increasing the institutional capacity of the local government.

CASE STUDY 8



 **From Response to Resilience, working with Cities and City Plans to Address Urban Displacement in Amman**

**Area** 1,680 km<sup>2</sup>

**Population** 4,410,200 (2020)

**Aim** Improve the humanitarian response to urban displacement crises by working directly with municipal authorities to support their city resilience planning.

**Analysis & Outputs** Discuss the relationship between urban displacement and resilience, analyze the process behind them, and highlight how humanitarian-municipal partnerships can achieve the benefits.

**SDGs**



Amman is the capital of Jordan, the central agglomeration of political, cultural and commercial activities, and it is located in the central west part of the country. The Amman Metropolitan Area, which also comprises the cities of Zarqa and Ruseifa, has a population of almost 4.5 million, and offers employment opportunities for about 55% of the country's labour force. Throughout its history, the city has shown tolerance and resilience, welcoming large migrant populations such as Circassian people in the 19th century, Palestinians in the 20th, and Iraqis and Syrians in the 21st century. Therefore, the building of a resilience process is a continuity of an old tradition more than a new approach.

As a city, Amman is facing various challenges but also has valuable assets. It is confronting new challenges and pressures such as climate change, lack of economic diversity, and resources constraints. In addition, it also faces infrequent shocks like heat waves, drought, flash floods, major infrastructure failure, etc. Furthermore, Amman encounters chronic stresses such as, high energy costs, water shortage, lack of natural resources, changing demographics, urbanization, etc. On the other side, Amman enjoys a set of valuable assets, such as the historic and architectural assets, and environmental and landscape assets, among others.

By bringing an urban resilience lens to displacement and conferring these relationships and the process behind them, the objective is to

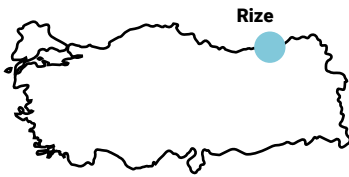
draw attention to how humanitarian-municipal partnerships can achieve the following benefits:

- **Strengthening coordination, sustainability and impact** of multi-stakeholder responses to urban displacement;
- **Linking humanitarian programming** to the long-term development goals of the city;
- **Improve the understanding** of municipal authorities in relation to the needs and preferences of urban displaced populations; and
- **Ensure the inclusion** of displaced and marginalized residents in the public services provided by the municipality.


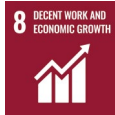


The International Rescue Committee used a methodology to obtain a better perception of the local context, and to engage the stakeholders. By doing so, it was able to develop a partnership with the local authorities and the Greater Amman Municipality. Firstly, it conducted an urban context analysis for the political, social, economic, service delivery, and spatial dynamics that influence the displaced populations as well as the host communities that live in Amman. A toolkit established a ten-step process, which comprises a desk review, key interviews, and focus group discussions with both refugee and host communities. Secondly, it engaged in a dialogue with the municipality of Amman to detect joint priorities between the humanitarian sector and the municipality while focusing on areas for significant collaboration. Thirdly, it gathered all the concerned stakeholders around a workshop to discuss the Response to Resilience. Finally, it stipulated recommendations based on outcomes from the current response to displacement within the city and subsequently, entered into discussions on potential programmatic relationships with the municipal authorities.

CASE STUDY 9

TURKEY



 **Training the female workforce on Climate Change**

<b>Area</b>	3,835 km <sup>2</sup>
<b>Population</b>	~ 340,000
<b>Aim</b>	Training the female workforce on climate change and preparing them against expected risks
<b>Analysis &amp; Outputs</b>	Analysis of the agricultural risks posed by climate change, and of the possible risk factors in labor and economy.
<b>Actors</b>	European Union (financial supporter) and Bogazici University
<b>Funding</b>	49,500.00 €
<b>Duration</b>	12 months (2017-2018)
<b>SDGs</b>	   



Rize is located in northeastern Anatolia with an 80-km coastline on the Black Sea. The Black Sea Region is cool in summers, warm in winters, and receives rain in all seasons. These characteristics shape agricultural production in Rize, which is the main economic activity of the city, especially the production of tea. 63% of the labor works in the agriculture sector, of which 65% are women. The education level of the female population is low, which makes agriculture almost the only job opportunity for women in Rize.

In recent years, climate change has become a significant threat for Rize, not only for the environment but also for the agriculture-dependent economy and labor. Since most agricultural workers are women, the deterioration in agricultural productivity will affect them the most. Unfortunately, only a few of the landowners and female workers are aware of this threat, and most of them have no backup plan or are taking precautions to slow down the process.

The Rize Municipality partnered with Bogazici University to raise awareness on climate change, especially for female workers who are the most fragile group. During this project:

- Academics from the Bogazici University **made estimations for the future agricultural productivity levels** in the Black Sea Region. In addition, detailed **analyzes were carried out on the**

**potential negative effects of climate change** on tea production and labor.

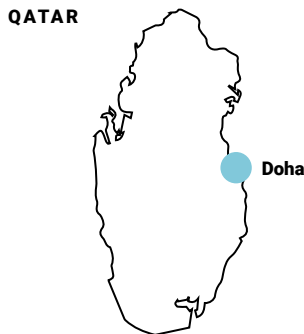
- A **SWOT analysis for agricultural production was conducted** to measure the local strengths and potentials to increase resilience.
- From September 2017 to September 2018, the municipality and the Bogazici University **organized meetings with female agricultural laborers and landowners**. The participants **discussed possible scenarios and measures** that can be taken against these scenarios. The municipality **encouraged the producers to invest in their strengths**.

Later in 2017, the Bogazici University included another agricultural city in the project. Canakkale, located in northwestern Anatolia, has a similar pattern in terms of agricultural labor and faces the same threats caused by climate change as Rize. It organized meetings with these two municipalities, agricultural producers, scientists, and female laborers to discuss possible risks, experiences, and measures that can be taken.

The vulnerable groups face the effects of disasters harder than the others. Resilience projects need to consider their needs and the inequalities that they already have to face. This project is important in not being against a singular disaster. Rather, it aims to reduce the long-term risks posed by climate change and empower relevant actors and the most vulnerable groups. And using local strengths and potentials is of great importance for self-sufficiency in building resilience.



CASE STUDY 10



## Transforming Metropolitan Doha into a Global Resilient Urban Village

**Area** 132 km<sup>2</sup>

**Population** 641,000 (2020)

**Aim** Reimagine the City of Doha to confront its challenges, negative and positive, while building its resilience through its development and progress.

**Analysis & Outputs** Future plan of Doha based on sustainable urban development values like sustainable urbanization, social balance and the preservation of the historical and cultural identity

**SDGs**



Doha is the capital of Qatar and the political and economic center of the country. It is also the most populous and the fastest growing city in the country, with 80% of the nation's population living in it. On top of this, Doha hosted the 2022 FIFA World Cup, a global event that represented a substantial shock and created an extensive impact on the people, economy and the development of the city. Furthermore, it requires a wider interpretation of the challenges faces. Thus, Doha needs a flexible and dynamic approach that goes beyond risk mitigation to build its resilience strategy and to deal with the challenges facing its development and progress. Of course, this strategy has to be aligned with the Sustainable Development Goals (SDGs) of the UN 2030 Agenda.

Doha's future growth comprises multi-urban centers, which means moving from centric to polycentric plans, and introduces the concept of hierarchical, vibrant and livable urban centers. This structure allows a more efficient combination between transportation and infrastructure, encouraging bicycle riding as well as walkability and livability, all in line with the objectives of Qatar National Vision 2030. The Greater Doha bikeway network proposes three types of routes: green bicycle paths for recreational purposes, blue cycle tracks for major transportation and red bicycle lanes for local transportation. Also, social life in public spaces has been encouraged by making streets, squares and neighborhoods more lively.

The readiness of Doha can be perceived on three levels: Strategic, Urban Planning and Architectural:

- On the **Strategic level**, a development vision around the concept of a knowledge-based and creative economy.
- On the **Urban Planning level**, a compact model of urbanism that relies on multicenter development to stop the unsustainable growth.
- On the **Architectural level**, use green and sustainable architecture principles developed by the Qatar Green Building Council and the Gulf Organization for Research and Development. especially for the new buildings design assured by Qatar Green Building Council and Gulf Organization for Research and Development in the design of the new building.

The future plan of Doha is based on a set of sustainable urban development values like sustainable urbanization, social balance and the preservation of the historical and cultural identity. The plan also claims a balanced social inclusion between different segments of the population, in particular the two main categories: the local citizens and working expatriates. The aim was to create a sense of belonging, appreciation and a respect of the values and diverse characters of the country's rich human mosaic. Behind the city' success story resides the substantial fact that the social cohesion contributes to enhancing the resilience capabilities of the city. It depicts and exemplifies the ideas and tools being used to help engaged citizens, civic leaders, and urban professionals to work together to build up a viable urban society.

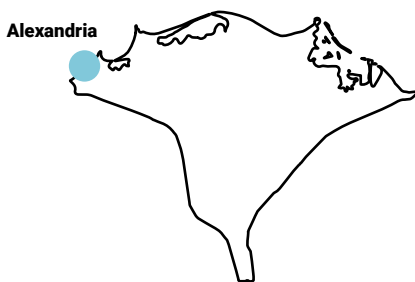
Observing the comprehensive impact of the Future plans of Doha on the city inhabitants and visitors paved a paradigm shift in Doha's urbanity. This shift is based on the success of the project to introduce qualitative changes and new perceptions about the role of the built environment such as mixed-use development, car-free planning and knowledge-based urban development.

This successful project has revived the central part of Doha by using a sustainable planning approach that takes into consideration the environment as well as the community participation. This enables the multiple stakeholders to contribute and gain a boundless ownership of the City of Doha with its variety of services, amenities, and open spaces.

CASE STUDY 11

 **Enhancing Climate Change Adaptation in the Northern Coast and Nile Delta Regions of Egypt**

NILE DELTA



**Area** 20,000 km<sup>2</sup>

**Population** 768,164 inhabitants along the coast / 16.9 million people in inland urban/rural communities

**Aim** Attenuate the risks of floods from more frequent and intense storms as well as from an anticipated sea level rise.

**Analysis & Outputs** Define the strategy and its implementation process, find innovative approaches for the project design, identify main risks and assumptions.

**Funding** US\$31.4 million

**Duration** 2018 - 2024

**SDGs**



The northern coastal area of Egypt and the Nile Delta are extremely exposed to the rise of the sea level and to the inconsistency of climate events. High tides associated with the rise of the sea level have caused devastating damages, such as the coastal floods in Alexandria in 2015 and a sea level rise rate of 3.2-6.6mm/year for the Nile Delta. Both areas are primordial for the national economy; tourism, industry, agriculture and development are located along the northern low coastal lands, and the dependence on the Delta area for agricultural is essential to the country's economy.

Studies on the environmental impact in in the City of Alexandria indicated that a sea level rise of 0.3m would lead to infrastructure impairment, the displacement of over half a million inhabitants, and the loss of about 70,000 jobs. Moreover, coastal flooding in the Nile Delta would cause a decline in the quality of coastal freshwater lagoons, which in turn would have a negative impact on fisheries and biodiversity. This natural system is one of the most productive in Egypt and source of 60% of Egypt's annual fish catch.

The project will safeguard the development in the North Coast through an integrated coastal zone management process and the installation of soft protection measures along 69 km of highly

vulnerable coastline to directly address climate change risks. The approach also combines long-term planning, capacity building, and data generation and management. The project will enable, in the short term, to reduce flooding threats in the Delta and, in the long term, to integrate additional risks resulting from the climate change into coastal planning, budgeting, and implementation of risk reduction measures.

The project aims to:

- **Address** the lack of appropriate data that enables planning and decision making
- **Propose** a framework for the implementation of integrated approaches
- **Strengthen** the weak institutional coordination and capacity to anticipate and manage expected sea level rise impacts



The project outputs include firstly, the installation of 69 km of sand dune dikes along five vulnerable hotspots within the Nile Delta; secondly, the development of an integrated coastal zone management (ICZM) plan to take into account long-term climate change risks. Some of the main expected results are to protect at least 17 million people who are in flood prone areas by soft coastal defenses, to include the training of technical officers on modeling and other skills associated with ICZM, and to set up a National Coastal Observation System.

CASE STUDY 12

TURKEY



 **Gaziantep Climate Change Action Plan and Clean Energy Strategies**

<b>Area</b>	6,819 km <sup>2</sup>
<b>Population</b>	~ 2,000,000
<b>Aim</b>	Reducing greenhouse emissions by 20% until 2020
<b>Analysis &amp; Outputs</b>	Gas Emission Study, Clean Energy Investments
<b>Actors</b>	Ministry of Energy and Natural Resources, Private Sector
<b>SDGs</b>	 



Gaziantep is located in southeastern Anatolia and is one of the largest cities in the region. The province has an enhanced industry and service sector, and attracts domestic migrants from rural areas and nearby provinces. Gaziantep is dry and hot in summers, and cold in winters. Unfortunately, climate change will harshen these weather conditions in the future.

The Gaziantep Metropolitan Municipality is the first municipality in Turkey that prepared a Climate Change Action Plan. The municipality developed the action plan in 2011 and revised it in 2015 and 2018. Following the creation of the action plan, Gaziantep started attaching great importance to creating clean energy resources.

Since Gaziantep receives sunlight throughout the year, solar energy stands as the best source of clean energy. In line with the city's potential in terms of clean energy production, the Gaziantep Metropolitan Municipality has been investing in solar energy since 2015. In addition, the municipality has invested in solar and bioenergy in order to reduce gas emissions. In 2017, a solar farm of 1MW (1000kW) was built, and it has generated a total of 1.8 million kWh of electrical energy. This farm has prevented the emission of 1020 tons of CO<sub>2</sub> annually, and has saved almost 100,000 trees in three years. Furthermore, the municipality planned another solar energy farm of 15 MW so that the energy used by the municipality comes entirely from renewable resources. According to the calculations, although this is a costly investment, it will amortize itself between 6 to 8 years.

Another clean energy source the municipality benefits from is biowaste. The Gaziantep Metropolitan Municipality planned to establish two biogas energy facilities in two different districts, Oguzeli and Nurdagi, to produce electricity from biowaste. For the construction of the Oguzeli Biogas Energy Facility, the municipality applied for a grant from the government. For the Nurdagi Facility, the municipality started a tender process in 2017. These two projects have not yet been completed, but once they are, the Gaziantep Metropolitan Municipality will have achieved the goals it set in the Climate Change Plan.

Although these investments are costly and take a long time to be fully implemented they are amortized in ten years. They also make the city more attractive to investors. Therefore, allocating a budget for Disaster Risk Reduction and resilience will reduce risks and benefit economic development.

CASE STUDY 13

 **Riyadh the Green Resilient City**

SAUDI ARABIA



<b>Area</b>	1,973 km <sup>2</sup>
<b>Population</b>	7,231,000 (2020)
<b>Aim</b>	Create healthy urban environments with abundant green open spaces.
<b>Analysis &amp; Outputs</b>	Analyze the Resilient City vision and its action plans to create healthy urban environments with abundant green open spaces and walking infrastructure, also to protect, improve, and relink green and blue networks.
<b>Actors</b>	Ministry of Municipal and Rural Affairs, Municipality of Riyadh, UN-Habitat
<b>Duration</b>	Until 2030
<b>SDGs</b>	  



Riyadh is the capital and the largest city of the Kingdom of Saudi Arabia. It is located at the center of the peninsula, which is largely a deserted area, and this relatively flat territory makes it very suitable for development. However, some topographical challenges and steep slopes are encountered on the edges of the city. Riyadh is a dynamic metropolis home of more than seven million inhabitants. It is the center of power and a commercial hub, and it has become a focal point for both travel and trade, and a center for educational, financial, agricultural, cultural, technical, and social organizations. Riyadh is divided into 17 municipalities, each playing a part in its own way to the vibrant character of the city.

The city faces several natural shocks and stresses, which have been exacerbated by climate change: the growing number of sandstorms and extended periods of excessive heat during summer time, and the access to fresh-water. All these issues increase the environmental, socio-ecological, and economic discrepancy of the city. Raising awareness will be critical for the future sustainable development of Riyadh. It is of great importance for the city's resilience to enhance the accessibility to open public spaces, which are currently underdeveloped. These spaces could form a network and connect points of interest where people can meet and interact.

Open spaces like parks, sports facilities, and recreational spots are presumed to balance the built-up areas, as well as to make public facilities accessible by walking.

One of Riyadh's Resilient City visions is to create healthy urban environments with abundant green open spaces and walking infrastructure. Increased green areas in all forms will reduce the urban heat island effect, reducing ambient temperatures and creating a more pleasant living environment for the inhabitants. Consequently, one of the pillars of Riyadh's strategic action plan is "Action 3: Protect, improve, and relink green and blue networks."

This action focuses simultaneously on the creation of an extensive and well-linked network of green public spaces, as well as on the enhancement of the blue network and its integration with green spaces. In addition, it aims to define a well-structured and efficiently distributed green network because a balanced distribution of diverse green areas will provide a social and active environment for the inhabitants of Riyadh City. Finally, Action 3 supports the improvement of the urban environment through ad-hoc programs and environmental awareness campaigns.

Greening Riyadh means to establish a healthy and functioning rapport between the built and natural environment that can enrich and rebalance the ecological, social, and economic dimensions of the city fabrics, providing a healthy urban environment for its inhabitants. As a recommendation, the strategic vision of the city needs to dictate the directives for sustainable development not only by focusing on spatial recommendations but by providing well-defined guidance regarding the integration of urban planning and design as well as resilience and resource efficiency. Such a method will actually need a restructuring of urban governance to boost coordination across the different planning entities and organize the related distribution of responsibilities.



CASE STUDY 14

TURKEY



 **Great Porsuk Project**

**Area** 13,925 km<sup>2</sup>

**Population** ~890.000

**Aim** Rehabilitation of the Porsuk River to reduce disaster risks and creation of healthy areas in the riverside for the citizens.

**Analysis & Outputs** Cleaning of the riverbed, building of flood prevention structures, design urban projects for the riverside.

**Actors** Anatolian University, State Hydraulic Works

**SDGs**



Eskişehir is located in the Central Anatolia Region of Turkey, near the capital, Ankara. Thanks to its location and sophisticated transportation system, the city has developed into an industrial one. In addition, Eskişehir has fertile lands and rich mines, making the city an even more attractive destination for internal migration. Finally, the city hosts two universities with a combined number of 40,000 students. The high number of students dramatically affects the city's housing demand, economy, and social life.

Since 1940, Eskişehir faced rapid urbanization triggered by internal migration, and the city expanded to the periphery. The Porsuk River, which runs through the city and has always been a significant landmark for the dwellers of Eskişehir, was affected badly during this rapid urbanization process. The river was polluted by drains, overpopulation, and the wastes of high-rise buildings built around the river. This pollution caused massive problems for the city. Firstly, the pollution created an unhealthy environment for the dwellers, and the unregulated building activities alongside the river caused the threats of flood and soil liquefaction. Secondly, the high-rise buildings and traffic jams around the river caused the river to lose its recreational character.

Therefore, in 1999, the Eskişehir Metropolitan Municipality came up with a new vision for Eskişehir: a healthier, more livable, and more accessible city. The rehabilitation of the Porsuk River and restoring its former glory were important aspects of this vision. As a result, Eskişehir Metropolitan Municipality prepared the

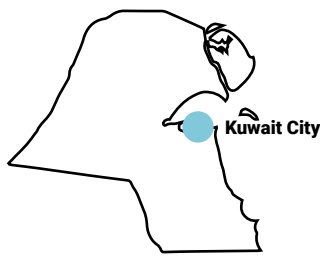
Great Porsuk Project in 2003 and completed the project in 2013. The project covered an area of 12 km<sup>2</sup> alongside the Porsuk River. During the project:

- The river bed was cleaned, deepened, and stabilized using natural materials. The fillings of the river were removed, and the original river depth was achieved. Next, the streambeds were strengthened by using large plates to eliminate the risk of soil liquefaction. Finally, the bridges on the river were renewed.
- After alleviating the risks of overflowing and soil liquefaction, the municipality modernized the riverside. The landscape, urban furniture, and the pavement were renewed, and the city gained a more contemporary look. The students and professors of the Fine Arts Faculty worked in cooperation with the municipality.
- The municipality encouraged art and sports activities at the riverside. With these activities, students and local city dwellers were able to socialize better.




The Great Porsuk Project was not only a Disaster Risk Reduction project but also a project that gave prestige to the city. The Eskişehir Metropolitan Municipality has invested in artistic and cultural activities since 1999. With the new, modern image of the city, the river, riverside activities, and famous urban sculptures of Eskişehir became very popular for domestic tourists. In 2019, two million tourists visited Eskişehir, which signals a significant economic contribution to the city economy.

CASE STUDY 15

KUWAIT



 **Multilevel Governance response to COVID-19 in Kuwait City**

<b>Area</b>	200 km <sup>2</sup>
<b>Population</b>	Metropolitan area: 3,114,553 (2020)
<b>Aim</b>	Various efforts and measures taken by the central government, the municipality of Kuwait City and the private sector to mitigate the outbreak of COVID-19.
<b>Analysis &amp; Outputs</b>	Various efforts and measures taken by the central government, the municipality and the private sector to mitigate the outbreak of COVID-19.
<b>Actors</b>	Municipality of Kuwait City, Private sector, Non-governmental organizations, Central Government
<b>Duration</b>	2020-2021
<b>SDGs</b>	  



Kuwait City is the capital of the State of Kuwait and the largest city in the country. The city has a central position on the East of Kuwait on the Persian Gulf. It is also the political, cultural and economic center of the emirate, holding the Emir’s Palace, the Government, and the headquarters of most Kuwaiti corporations. As of 2020, the metropolitan area of Kuwait City is home to almost 3.5 million inhabitants (more than 70% of the country’s population).

The impact of COVID-19 was great for a country that depends largely on oil for its government income (more than 80%). In addition, business environment was negatively affected: about 45% of private businesses shut down during the crisis and 25% of businesses are on the edge of collapsing due to a drop in returns that surpassed 80%. To address COVID-19 impacts, the Kuwaiti government has reacted through fiscal measures such as increased budgets for ministries and government departments, provision of monetary and liquidity stimulants, among others. Also, several structured strategies and knowledge-driven decisions were taken to make help available for urban areas to overcome the crisis.

As a response to the crisis, the central government, the municipality and the private sector shared the responsibility. The key decisions

were taken by the central government with other actors responsible for the implementation of many of these decisions, and additional support based on their mandates.

The Kuwait Municipality played a significant role in the management of the crisis, putting into effect an austere policy for safety and health within commercial stores. Besides, the municipality also kept up an essential responsibility of cleaning and sanitizing streets and buildings throughout the crisis. A “temporary fund” was created to receive financial contributions from private donors in support of the efforts related to the outbreak, especially in the most affected parts of the city. The government ensured the availability of food, water, electricity and all essential needs for the Kuwaiti and expats.

The Kuwait Red Crescent Society gathered donations from different private sector companies and distributed them to registered families in need. This was important as many families lost their jobs or had their salaries affected due to the crisis. Also, civil charity organizations/ societies had a major role in distributing food for poor expat families and individuals during the lockdown in different areas of Kuwait. These efforts have been significant to support precautionary measures enforced by the country’s health authorities to avoid the spread of COVID-19.

CASE STUDY 16



## Izmir Earthquake Master Plan and Other Disaster Risk Reduction Strategies of the Izmir Metropolitan Municipality

TURKEY



**Area** 11,890 km<sup>2</sup>

**Population** ~ 4,392,000

**Aim** Reducing Earthquake Risk

**Analysis & Outputs** Examination of infrastructure risk, Inventory of the buildings, and socioeconomic vulnerabilities.

**Actors** Bogazici University, Izmir Chamber of Civil Engineers

**SDGs**



Earthquakes are the most common and destructive natural disasters in Turkey. The third-most populous city of Turkey, Izmir, is located in a first-degree seismic zone and is home to seventeen active fault lines. Although the latest destructive earthquake in Izmir occurred in the 17th century, it is predicted that the active fault lines may soon cause a massive earthquake.

Therefore, the Izmir Metropolitan Municipality (IMM) partnered with the relevant departments of Bogazici University to prepare an Earthquake Master Plan. Scientists made predictions about the damages on infrastructure systems, buildings, and social and economic structures in a scenario of a 6.9 magnitude earthquake caused by the Izmir Fault line at midnight.

In October 2020, Izmir suffered from a 6.9 magnitude earthquake, which killed 117 citizens and wounded 1034. This earthquake was one of the biggest earthquakes of 2020 and helped the local government to test its capacity to handle the crisis.

Immediately after the disaster, the municipality established a crisis management center. Firstly, search and rescue teams determined the destroyed buildings and saved 107 citizens from them with the help of civil society organizations (CSOs) and the Disaster and Emergency Management Presidency (AFAD). The citizens whose houses were damaged moved into the tents till the local government provided temporary housing to the victims. The local

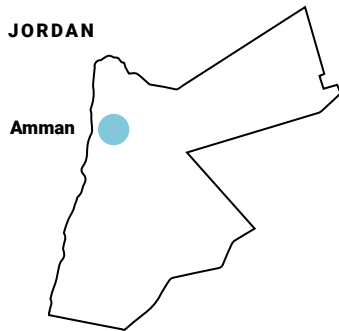
government also built a strong communication between AFAD, the central government tool, CSO's, and district municipalities.

In the following days, IMM took actions for risk reduction in future disasters and to meet the needs of earthquake victims.




- The related units of the municipality analyzed damages of the buildings. The analyses revealed that **506 buildings were heavily damaged and needed to be demolished**. These buildings were demolished immediately.
- **The IMM provided temporal housing** for the victims in municipal properties. Those victims who preferred to be housed elsewhere got rent support.
- The Municipality signed a protocol with the World Bank to create **resources for post-earthquake rehabilitation and reconstruction and also changed its budget structure**, transferring funds to the urban transformation department to accelerate post-earthquake rehabilitation and reconstruction.
- The IMM allocated a **\$250 million budget to be distributed among the victims during a period of 30 years with a low-interest payment plan** to help them deal with the damages they suffered because of the earthquake.

The Izmir earthquake revealed that the buildings that do not follow the regulations are the biggest threat in disasters. The Izmir Metropolitan Municipality handled the crisis successfully but, disaster management in the aftermath of an event is not enough to prevent the loss of lives. It is aware of the importance of Disaster Risk Reduction and it is working towards the elimination of those risks. And as a local government, the IMM tries hard to advocate for the rights of its citizens.

CASE STUDY 17



 **Amman Disaster Risk Management Master Plan**

<b>Area</b>	1,680 km <sup>2</sup>
<b>Population</b>	4,410,200 (2020)
<b>Aim</b>	Build national capacities for Disaster Risk Reduction in Amman.
<b>Analysis &amp; Outputs</b>	Process for developing the Disaster Risk Management Master Plan framework of the Greater Amman Municipality. Earthquake risk assessment and diagnosis of the current DRM practice at the Greater Amman Municipality.
<b>Actors</b>	Greater Amman Municipality, Disaster Management Department of the General Directorate for Civil Defense, UNDP
<b>SDGs</b>	  



Jordan is a relatively small country in the northern part of the Arabian Peninsula. Sudden population increases occurred in the past decades when refugees came to settle down in the country due to conflicts and wars. Located in the central west part of the country, the capital Amman is where the administrative, the political and the economic powers are concentrated. About 80% of the industrial sector is located in Amman and the city provides employment for about 55% of the total labor force of the country. In addition, the Amman Metropolitan Area hosts more than 50% of Jordan’s total population and covers the cities of Amman, Zarqa, and Ruseifa, including the surrounding areas.

The responsibilities of the Greater Amman Municipality (GAM) dictated by the law and related to disaster management are: (i) fire prevention and monitoring and regulating the sale and storage of fuels and flammable products; (ii) taking precautions to prevent damage caused by floods and overflowing streams; (iii) helping victims of disasters and collecting and distributing donations.

Although those responsibilities are not enough, they served to define the baseline for the development of the Disaster Risk Management Master Plan (DRMMP). The output of this component is the “Amman City Disaster Risk Profile”, which permits an initial understanding of current gaps and needs in terms of the seismic

hazards that the GAM is exposed to, as well as its physical, social and economic vulnerabilities.

As disaster management is highly centralized, and the coordination system is weak, some municipal laws allowed the GAM to assume responsibilities related to it, such as risk prevention, sanitation and health, and aid to victims when both natural and manmade hazards occur.

Besides, the GAM established a disaster response plan and created an emergency center to manage the emergency actions and mobilize resources during hazard events. The plan assigns roles and responsibilities to the different departments and officials of the GAM. This framework has the objective of delivering a roadmap to implement a state-of-the-practice urban disaster risk management practice at the GAM. It also provides consistent strategies and correlated recommendations that primarily enhance the emergency management capabilities, and with time build disaster resiliency in Amman.

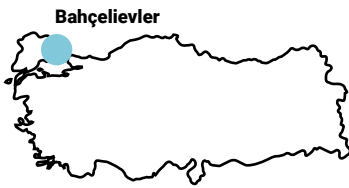
As a result, the DRMMP framework contains elements, recommendation, and rationale. The action plans make available mechanisms and an orderly basis for structuring the GAM's emergency management and DRM functions. The Amman DRMMP Framework is further grounded on technical analysis and diagnosis of the state of DRM. It covers the following fields of actions:

1. Legal, Institutional and Organizational Aspects
2. Emergency Management, Disaster Preparedness and Awareness and Social Mobilization
3. Construction Standards and Practice
4. Earthquake Infrastructure Resilience
5. Land Use Planning
6. Training and Capacity Building
7. Research and Development, Knowledge Management, ICT and Human Resources



CASE STUDY 18

TURKEY



 **Developing a volunteer system for Disaster Risk Reduction, capacity-building for Disaster Risk Management and Effective Disaster Response in Bahçelievler**

<b>Area</b>	16.7 km <sup>2</sup>
<b>Population</b>	~ 594,000
<b>Aim</b>	Disaster Risk Reduction and Effective Disaster Response
<b>Analysis &amp; Outputs</b>	Education on disasters for individuals and families. Training of 130 volunteers. Increase of the operational capacity.
<b>Funding</b>	US\$31.4 million
<b>Duration</b>	2018 - 2024

**SDGs**



Bahçelievler is located on the European side of Istanbul. The district was built mostly illegally in the 1950s, during the rapid urbanization of Istanbul. With an overcrowded population, a lack of public areas, and buildings at risk, the district is highly vulnerable to earthquakes.

After the Golcuk Earthquake in 1999, scientists warned that a massive earthquake is to be expected in the coming years in Istanbul, which is at the same time the most crowded city of Turkey and its economic capital. And Istanbul is not beyond ready to handle this disaster. In the rapid urbanization time, authorities could not manage the development of new settlements. The private sector and the dwellers themselves created unsafe, illegal, and unhealthy housings. So after the massive disaster in 1999, the central government introduced new regulations in building licenses to eliminate earthquake risks. But those buildings built before 1999 do not follow these new regulations, making most of them unsafe.

Istanbul Metropolitan Municipality and district municipalities  
In the early 2000s, Istanbul Metropolitan Municipality started a transformation process together with its districts municipalities. The latter was in charge of identifying risky and damaged buildings

in their community. In this context, Bahcelievler Municipality identified that 30% of 23,000 buildings in Bahcelievler were built before 1999. Even though they had not been damaged in the 1999 earthquake, another earthquake in the future could be devastating. That's why, since 2004, 1500 buildings have been reconstructed by local governments and owners of buildings.

In 2020, Istanbul Metropolitan Municipality and the Bahcelievler Municipality partnered on an urban transformation project to reconstruct all fragile and at-risk settlements, and invest in human resources to reduce and manage disaster risks. Consequently, the Bahcelievler Municipality developed a project in partnership with the Bahcelievler Prefecture and with the financial support of ISTKA (Istanbul Development Agency) to build institutional and social capacity.

The project focused on effective disaster management and received support from the local dwellers. Concretely:

- **Professionals trained 130 citizens as disaster volunteers.** These volunteers exercised search and rescue practices with the guidance of expert trainers and using professional equipment.
- **83,000 citizens received Disaster Awareness Training** for Individuals and Families.
- **A 30-person search and rescue team was assembled.** This team holds a license that authorizes them to train others on search and rescue.
- **The Municipality built a crisis management center** in Atsushi Miyazaki Trafic Training and Civil Protection Park. This center consists of supply rooms, communication rooms, and dormitory rooms.

The Bahcelievler Municipality has a two-step strategy to reduce disaster risks: first, carrying out urban transformation projects to strengthen the physical structures; and second, attempting to strengthen its institutional and social capacity to manage disasters effectively.

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CASE STUDY 19

 **Disaster Risk Reduction Seminars for Municipalities**

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**Aim** Introducing the Sendai Framework to local governments and bringing together successful examples

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**Analysis & Outputs** Seminar series for representatives of metropolitan, city and district municipalities

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**TURKEY**  
Union of Municipalities



Every municipality is a member of the Union of Municipalities of Turkey (UMT), which was established in 2002. UMT defines its purpose as increasing the capacity of municipalities and defending their rights. The UMT provides trainings to municipalities on a wide variety of topics, such as the use of technology, information on relevant legal regulations, and applying for national and international grant programs. Disaster risk reduction is also an important issue for UMT, as Turkey is one of the countries under the highest threat of different natural disasters such as earthquakes, floods, sandstorms, and landslides.

The UMT's goal is that local governments approach natural disasters as preventable events and manageable processes and to understand the importance of Disaster Risk Reduction and Disaster Risk Management strategies. For these purposes, the UMT, as a member of UCLG MEWA, introduced the Sendai Framework to municipalities. In 2020, the "Disaster Risk Reduction and Earthquake Meeting" was organized in cooperation with the Ministry of Interior and the Japan International Cooperation Agency. Mayors of various cities and representatives from the riskiest district municipalities attended this meeting. At the meeting, Dr. Shoji Hasegawa shared Japan's Disaster Risk Reduction strategies and explained how to localize the Sendai Framework with precise examples. After this seminar, the Ministry of Environment and Urbanization shared the Disaster Risk Reduction and Disaster Risk Management strategies of the central government, and then the members discussed about current problems and possible solutions. These meetings were held online in 2020 and 2021. The UMT also organized a workshop in 2020 in which Martin Tilcer, Head of the Czech Republic's Disaster Management Department, conveyed the Czech Republic's national, regional, and local risk reduction and risk management strategies to Turkish municipalities, and representatives from both countries shared experiences.

Thanks to these meetings and workshops, the UMT members get to know successful examples from around to world, establish international relations, and share their problems.

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**Contributors:**

Maan Chibli, Associate Professor at Bahcesehir  
University / Former Mayor of Aleppo City  
Reycan Çetin, Lecturer at Yıldız Technical University  
- Faculty of Architecture, Department of Urban and  
Regional Planning

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