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## Making Cities Resilient: My City is Getting Ready!

World Disaster Reduction Campaign 2010-2011

## Amman is getting ready!

### Amman, Jordan



Population: 2,315,600

Total Area: 1,662 km<sup>2</sup>

*Types of Susceptible Hazards: Seismic Hazards, Land Slides, Urban Disaster Risk, Droughts, Flooding.*

Being one of the key urban centers of the Middle East, Amman, the capital of Jordan has managed to grow into a mega city over the past 100 years. The population of the Greater Amman Municipality (GAM) is now 1000 times the population it used to be in 1909 when the first municipal council in Amman was established. Because of these recent and dramatic changes, past disasters cannot be used to assess the impact of the next destructive earthquake on modern Amman. A large earthquake today will affect not only a much larger urban population, but also completely different urban construction, (e.g., mid- and high-rise buildings) and complex infrastructure system that enables every-day life.

Located on the itinerary of the Great Dead Sea Rift Valley, Amman demonstrates a topographical drama by definition. The Dead Sea Rift Valley, which extends the whole length of the country and defines its western border, is the single most important geological feature of seismic significance within Jordan.

Originally founded on its infamous seven hills and the “wadis” or valleys that adjoin them, Amman had been last drastically damaged by a destructive earthquake on the 11 July 1927, at 15:04. The epicenter of the (ML = 6.3) earthquake which startled the residents of the Jordan-Palestine area was estimated to be in Jordan Valley, in the vicinity of the present Damya bridge. While that earthquake resulted in 342 deaths, damages and casualties in Amman itself were minor. This is the strongest earthquake in Amman in recent history.

### **Accelerated Urban Growth & Disaster**

When rapidly growing cities like Amman are located in earthquake prone areas, this directly contributes to a rapid increase in the number of people exposed to the hazard. Amman population growth has been a major driver for the rapid expansion of the mega-city and the growth of informal housing quarters that are highly vulnerable to natural disasters. There is an obvious and almost overwhelming urban risk problem in the city of Amman where many buildings have been erected without seismic resistant construction techniques.

**Seismic Hazard:** The Middle East is tectonically and seismically active. In general, the eastern Mediterranean region is dominated by the interaction of the Arabian and African Plates with Eurasia and within this tectonic framework is the Dead Sea Fault System (DSFS). This fault system defines the western edge of the Arabic plate and forms a 1000 Km long continental transform fault extending from the Red Sea northwards through Lebanon, Syria and Jordan towards the collision zone in southern Turkey. This part of the fault, which passes through Jordan, is known as the Dead Sea Rift Valley.

**Flooding:** Incidents of flash flooding have claimed the lives of a few hundred in Jordan over the years and affected the lives and livelihoods of thousands. The most recent incident occurred in the Amman in 2009 where flash floods due to heavy rains caused loss of few human lives.

**Drought:** Jordan is one of the world's most water scarce countries with 75% of the country classified as desert or semi-desert. The potential for the occurrence of drought and associated adverse consequences for the economy and society are ever-present concerns in arid regions such as Jordan. Drought has been a prevalent feature of the Jordanian landscape during the latter part of the 1990s, producing serious socioeconomic and environmental consequences. In 1999, severe drought cut rainfall in Jordan by up to 70 % with declining rainfall levels and increased demand on water resources. During that period drought affected over 200,000 persons including small holders who have lost their harvest and their inputs, small-scale herders and landless rural households.

**Urban Disaster Risk:** Like many cities in the region, Amman faces the challenge of rapid urbanization with an annual rate of urban growth of approximately 4-5%. The Amman Metropolitan Area (AMA) which includes the cities of Amman, Zarqa, Ruseifa and surrounding areas, accounts for more than 50% of Jordan's population, contains about 80% of the country's industrial sector and provides employment for about 55% of the nation's inhabitants. When rapidly growing cities like Amman are located in earthquake prone areas, this directly contributes to a rapid increase in the number of people exposed to the hazard. Amman population growth has been a major driver for the rapid expansion of the mega-city and the growth of informal housing quarters that are highly vulnerable to natural disasters. There is an obvious and almost overwhelming urban risk problem in the city of Amman where many buildings have been erected without seismic resistant construction techniques.

### Steps towards disaster risk preparedness

The Greater Amman Municipality is currently engaged in some encouraging disaster preparedness work at the municipal level but this has not really influenced preparedness and mitigation activities within the Governorates. GAM's program will complement a previous interventions including Support to Building National Capacities for Earthquake Risk Reduction at Amman Municipality in Jordan which aimed to establish an integrated disaster risk management process, which equipped the city of Amman with a Disaster Risk Management Master Plan (DRMMP) that is anchored in a sound institutional framework and was based on the risk profile of the city.

A DRMMP framework of Amman was developed and nationally endorsed in March 2009. The DRMMP framework provides a set of goals, policies and recommendations intended to eventually equip GAM and other relevant national institutions with a disaster risk management practice that conforms to the international standards in the field. The DRMMP Framework was also grounded in the outputs of the earthquake risk assessment study undertaken for Greater Amman late 2008.

The Municipality is in the process to launch a new project that aims to strengthening the institutional framework and capacity development for the preparation, implementation and monitoring of a Disaster Risk Management Action Plan in Amman. Through focus groups discussion, training and capacity development initiatives, the project will engage the communities and their governing bodies in disaster risk reduction by enhancing their knowledge of the risk parameter and the options for reducing this risk, building institutional strength and capabilities and developing a coalition of knowledgeable stakeholders whose collective contribution results in a safer community and environment.

Simultaneously, the development of the action plan process includes competency building activities in terms of specified training, workshops, and city-to-city sharing activities. The project will consist of setting up a Disaster Risk Reduction (DRM) office/unit within GAM with its admin/organizational structure, Operating Procedures, Emergency Operations Plan, and related training, by building upon the existing emergency centers.

*The year 1927 was an important year in the memory of Amman as it was the "year of the earthquake". Damage to Amman was moderate mainly because of the humbleness of its early one-storey structures. However, the quake drove the city's early builders to consider stronger building materials for new buildings, ushering in some of the stone and concrete building techniques of Amman which gave it its character.*