Petra Archaeological Park - Jordan

Petra faces a wide diversity of risk, particularly from natural and geological hazards such as earthquakes, floods and landslides. The Siq is a 1.2 km gorge and it is the only tourist entrance to the site. The Siq is one of Petra’s most endangered areas, in which natural environmental risks pose a major threat to the cultural heritage and the visitors. Its narrow pathway (3.4 meters at narrowest point), high rock walls (up to 70 meters), and limited access points, evacuation is challenging in the event of emergencies. The risk to tourists and monuments due to landslide and rock fall is serious, and needed to be comprehensively addressed.

The Siq Stability Project was introduced to respond to problems of tourist safety due to rock-falls in Petra. But it was also created to meet the clear necessity of local authorities to deal with slope instability in an integrated and long-term, sustainable way. In 2011, a rapid assessment of the Siq was undertaken by a team of Italian experts (ISPRA) in cooperation with local experts. This was a part of UNESCO’s response to the Department of Antiquities’ request for emergency assistance from the UNESCO World Heritage Centre. Risks were identified and a second phase of the project was developed in order to manage those risks, including defining priority interventions that would need to be implemented. The overall goal of the project is to contribute to the conservation and management of the site of Petra, through the implementation of priority mitigation strategies against landslide risk in the Siq. The results are guaranteeing higher security for the safety of both the visitors and monuments. This multiphase project was undertaken to directly manage immediate risks. Actively engaging the staff from DOA and PAP in all activities was the first step towards the project sustainability. Through this project technical expert and site managers were provided with key skills to continue the implementation of these activities, in Petra, and elsewhere in Jordan. This is ensuring that Jordanian heritage will be adequately protected from natural and manmade hazards.

The overarching project objectives were: Monitoring system: Produce an in-depth assessment of landslide risk in the Siq based on an engineering geology field survey and the installation of an integrated and operational monitoring system for detecting potential unstable and at risk areas; Development of guidelines: Implement sustainable landslide mitigation strategies for management, conservation and protection of the site; Comprehensive site documentation: Create a 3D model of the Siq and other selected monuments with an extensive and interactive virtual tour of the site based on panoramic photography. Develop a common GIS platform for storing, analysing and managing data; Capacity building and improvement of knowledge of local authorities: The Department of Antiquities, Petra Development and Tourism Regional Authority and Petra Archaeological Park staff will participate in and benefit from the advanced technical approach of the project, including the documentation of the site, implementation and use of the monitoring system, equipment maintenance and the design and implementation of landslide mitigation strategies.
Building on the positive results achieved in Phase I and II (2012-2016), the third phase (2016-2018) of the Italian-funded project aims to implement priority mitigation measures in those areas identified as more prone to environmental hazards, with a primary focus on reducing land slide and flash flood risks in the ‘Siq’. The project also responds to a strongly felt need to enhance management and preparedness against disaster risks through the development of a Disaster Risk Management Plan for addressing emergencies within the Petra Archaeological Park and particularly in the ‘Siq’. The overarching objectives of Phase III (in progress): Implementation of landslide/flash flood risk mitigation interventions on the ‘Siq’ slopes in line with the priorities identified in Phase II; Development of a complete Disaster Risk Management Plan for the Petra Archaeological Park, including an Emergency Plan for the ‘Siq’; Capacity development of the national authorities to address the management of landslide-specific risk at the site and implement mitigation measures in coordination with international experts.

The successes have already been achieved in the area of capacity building and visitor security. Both flash flooding and slides have occurred with appropriate evacuation procedures followed and no injury or death incurred. See also the separate file entitled, "Petra Emergency Plan" for a second success story in the sustainable management of Petra and care for its visitors in times of natural disaster.

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