



Damage to Lifelines and Infrastructures due to the Kermanshah Earthquake M7.3

Farzad Talebi
PhD Student, Graduate School of Engineering,
Kyoto University

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(1) Damage to bridges and roads

(2) Damage to electricity network

(3) Damage to water supply network

(4) Damage to the gas network

(1) Damage to bridges and roads

Damage to the bridges:

- The significant damage on main structure of main bridges was not observed.



Main bridge of Sarpole-Zahab city

(1) Damage to bridges

- Cracks and even collapse in some parts of stone retaining walls beside the structure of the bridge were observed. (like the Sarpole-Zahab main road's bridge)



Main bridge of Sarpole-Zahab city



Bridge near by Ezgeleh Village



Bridge on road of Sarpole-Zahab to Tazeh-Abad

▲ (1) Damage to bridges

- The expansion joints have become active during the ground motion (And all of the spans of the bridges adjacent to the joints have experienced some minor or moderate movements)



(1) Damage to bridges

- Damages and big cracks were detected on the stone walls of some little bridges in the village roads.



Road of Sarpole-Zahab city
to Tazeh-Abad



(1) Damage to roads

On the damaged area due to the settlement, landslide and rockfall, some damages were observed on the roads but it was only in some parts.



Settlement at Sarpole-Zahab to Tazeh-Abad road



Severe rockfall at Ban-Zardeh Village road

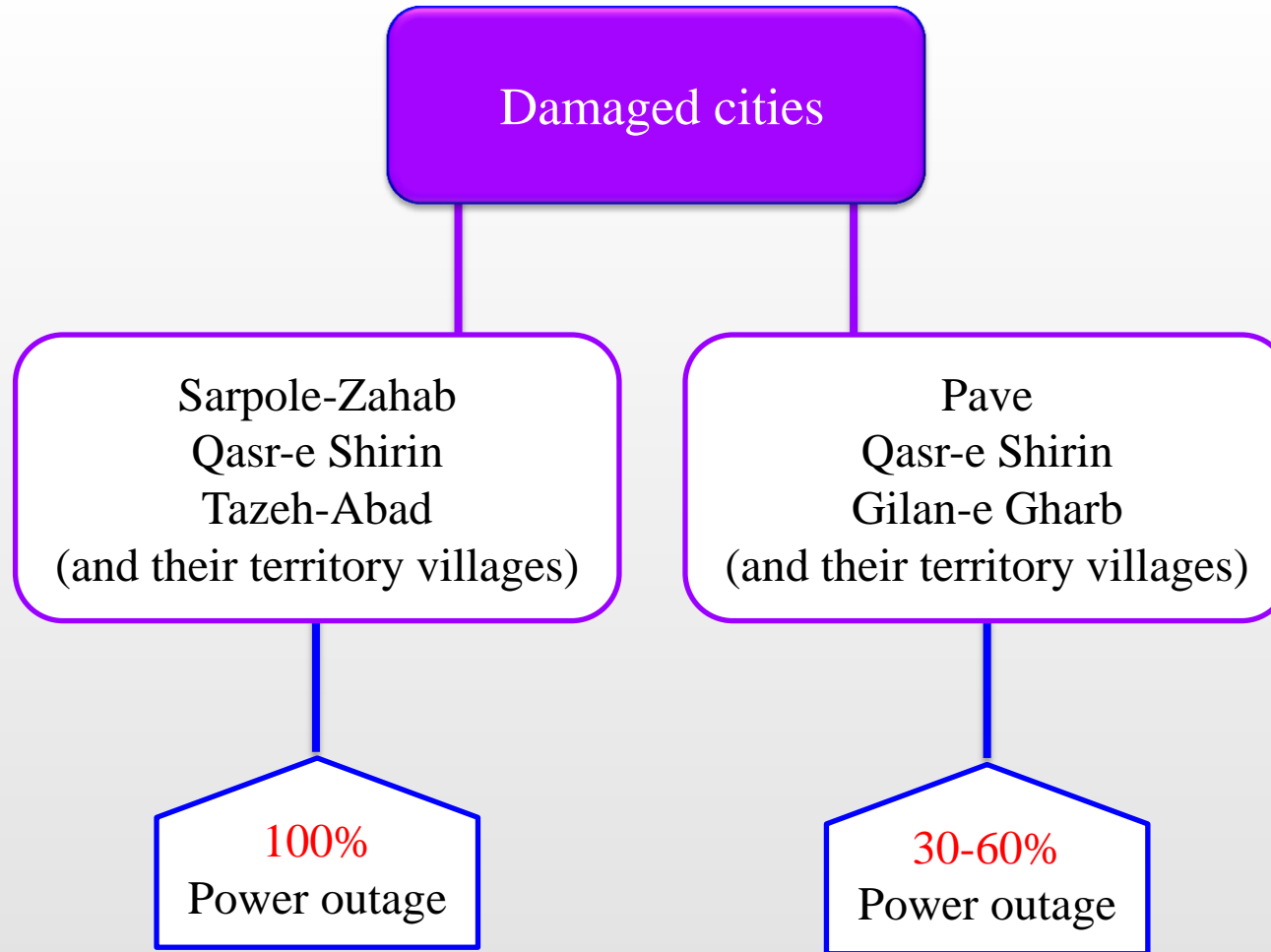
(1) Damage to roads

On the damaged area due to the settlement, landslide and rockfall, some damages were observed on the roads but it was only in some parts.

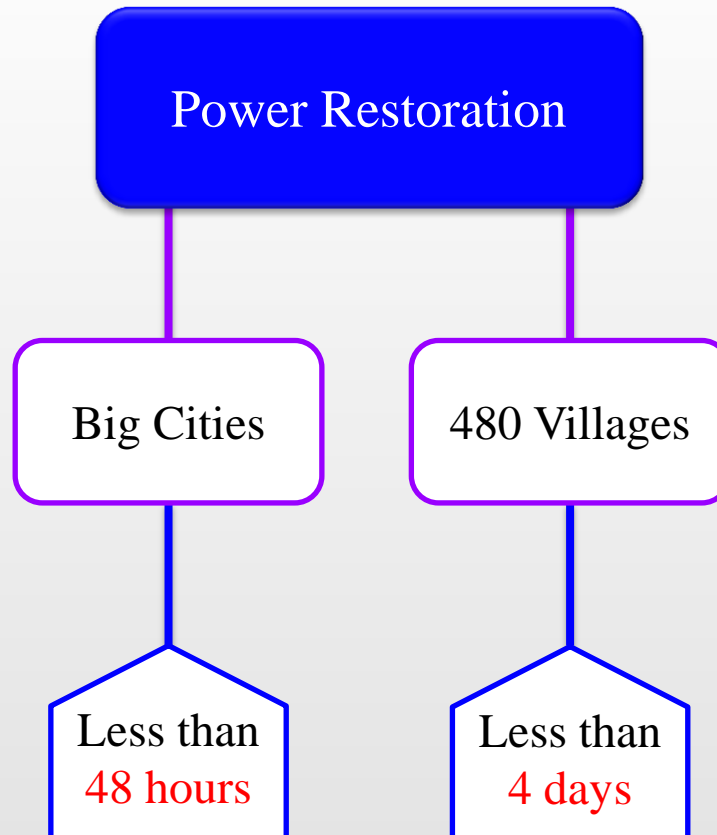


Most of the mentioned damages have been repaired during the first week after the earthquake even as a temporary repair.

(2) Damage to electricity network



(2) Damage to electricity network



▲ (2) Damage to electricity network

- Tilting and collapse of Utility poles in cities due to buildings or walls falling on them



Sarpole-Zahab City

(2) Damage to electricity network

- Tilting and collapse of Utility poles in cities due to buildings or walls falling on them
- Falling of 63kV transformer in Sarpole-Zahab city



Sarpole-Zahab City

(2) Damage to electricity network

- Tilting and collapse of Utility poles in cities due to buildings or walls falling on them
- Falling of 63kV transformer in Sarpole-Zahab city
- One collapse of Transmission tower due to rockfall on the mountains nearby the Sarpole-Zahab city



(2) Damage to electricity network

Damages to the electrical power network were estimated about **36 million Dollars** by Power ministry.



(3) Damage to water supply network

Water supplies of 13 cities of Kermanshah Province were damaged, and because of Contamination in 7 cities mainly Sarpole-Zahab, Qasr-e Shirin and Gilan-e Gharb water was cut for **2 weeks**



Sarpole-Zahab City

▲ (3) Damage to water supply network

More than **500 cases** on the main water pipelines and more than **300 cases** on main wastewater pipelines were damaged. These damages were observed even in large polyethylene pipelines with the diameter of 600mm.

Damages to the water supply network were estimated about **72 million Dollars** by Power Ministry of Iran

(3) Damage to water supply network

In some Villages due to landslide and settlement in main water pipelines, severe damages and failures were observed.



Palane-Olya village



(3) Damage to water supply network

In some Villages due to landslide and settlement in main water pipelines, severe damages and failures were observed.



Gurchi-Bashi
Village



(4) Damage to the gas network

- National Iran Gas Company established that In general, there was no damage in main Gas pipelines. However, there was some damage to joints of the gas pipelines at the entrance to the houses.



Damage to joint of the gas pipeline at the entrance to the houses at Ahmad-Abad town of Sarpole-Zahab city.

(4) Damage to the gas network

- There was gas cut off for one day to prevent the fire threat.



Damage to joints of the gas pipeline at the entrance to the houses at Ahmad-Abad town of Sarpole-Zahab city.



thank you!

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