

Concept Paper - “Promotion of Rain Water Harvesting - RWH” in Earthquake Affected Areas (EQAAs) of NWFP / AJK

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1) Problem statement:

- 1.1 As per data available, 55% water supply coverage existed in the EQAAs of AJK and NWFP prior to earthquake of 2005. The Devastating earthquake of 8th October 2005 badly affected over 4000 existing water supply schemes along with disruption of almost all water sources in this area. About 40% decrease in the yield of water sources was also reported.

To cope up with high demand of water in EQAAs, ERRA is in the process of reconstruction and rehabilitation of affected water supply schemes on priority basis. But, the completion of such facilities would require few years' time, whereas merely rehabilitation & reconstruction of affected schemes would not be sufficient to resolve the problem of depleted water sources and would certainly not benefit the people who did not have any water supply scheme prior to earthquake.

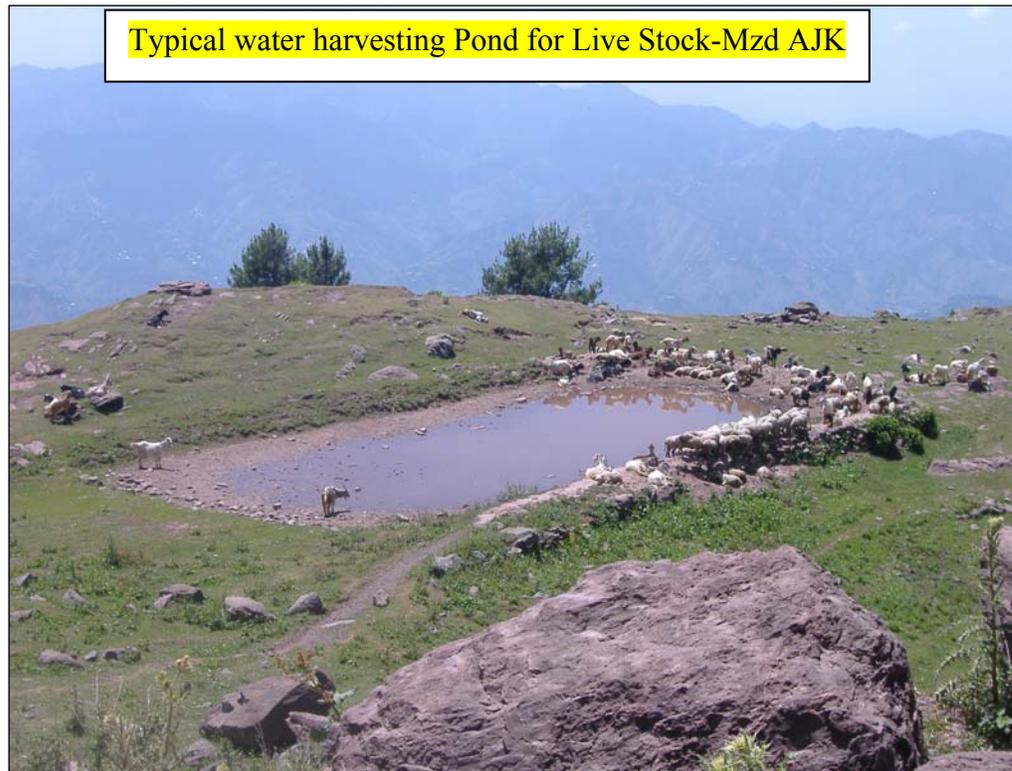
- 1.2 On the other hand, daily demand of water has increased exponentially because of additional water requirements for Brick & Mortar construction activities, which will continue for many years to come. As more than 90% population of EQAAs lives in a scattered manner in mountainous rural hamlets, lifting of water from main water-bodies (if available at the foot hills) or tapping water sources, situated at kilometers distance on top of the hills may also not be a viable and cost effective solution in many areas.

2) Potential Solution / Techniques:

- 2.1. To address this potential severe water shortage in the EQAAs, ERRA, in addition to rehabilitation and reconstruction of damaged water supply schemes, has planned to promote “**Rain WATER HARVESTING**” in the EQAAs, as one of the best possible alternative / supplementary solutions, which is being practiced in many parts of the region as well as at global level.
- 2.2. Generally there are two types of catchment for rain water harvesting, **Rooftop and Landscape Runoff**. Rooftop RWH technique is already being practiced in few of the EQAAs (Bagh, Rawalakot, Muzaffarabad , and A-Abad) which require technical improvement and needs to be promoted at mass level.



Whereas, **Landscape runoff RWH**, had been used to store water in big water ponds mainly to feed the cattle in rural areas.



2.3. There are three basic elements / components of a rain water harvesting system.

2.3.1 **Catchments:** of a RWH system is the surface, which receives the rain water directly. This can be the roofs in a rooftop system and hill – slopes /watershed or any other surface in a runoff system.

2.3.2 **Gutters / Pipes:** are pipelines and drains that carry rain water from the catchments to the rain water harvesting Storage tank. Gutters can be of PVC/PE or Galvanized Iron sheets.

2.3.3 **Storage:** Rain water can be stored in any commonly used water storage containers such as RCC, Masonry, Plastic or Polyethylene. Rain water can also be charged into the ground water aquifer through any suitable structure like dug well, percolation well, boreholes, recharge trenches/pits or water ponds.

2.3 Annual rainfall of the EQAAs ranges from **1300mm to 1500mm** which is quite sufficient to promote Rain Water Harvesting in EQAAs, to address the water shortage issues. It is assessed that about **95%** of private houses and Public buildings will be reconstructed using **CGI Sheet roofing** which is



considered as one of the best catchments for rain water harvesting because it flushes very quickly and gives cleaner water as compared to other roofing systems

3) **Benefits of Rain Water Harvesting**

- 3.1 The merits of Water Harvesting are easy to quantify. As an economic investment, RWH installations pay off the capital cost in less than two years. This mean one gets **FREE WATER FOREVER**. Different studies in the region show that money spent on water can be reduced by about 30-60% per month by using Rain water as supplementary source. Rain Water Harvesting at house hold level in EQAAs would not only supplement the existing water schemes (if any) but also help in providing water facilities in the most decentralized manner which have minimum burden of O&M cost as compared to a centralized piped system.
- 3.2 This intervention in EQAAs will not only help in mitigating the water shortage issue but also help in **sanitation promotion** through latrine construction along with each house. It is assessed that provision of this facility would save at least 3-6 hours of a woman daily, which she spend fetching water from distant water source in hilly terrain. This time in turn could be utilized in other livelihood activities and certainly would be helpful in the increase of girl students' attendance in schools.
- 3.3 Further more, a major benefit of this intervention would be in terms of **reducing the silt pressure on Mangla and Terbela Dams** by controlling heavy runoff water, which is one of the major causes of soil erosion in the water-shed areas of these dams. Last but not least, Rain Water Harvesting is environment friendly and cost effective.---**End**