Rainwater Harvesting

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Description of Initiative:

Rainwater Harvesting is a popular term used for a tradition of collecting rainwater, improved by modern concepts and technologies, a result of more than two decades of research work around the globe. Today, Rainwater Harvesting is used in wet and dry countries, in poor and modern situations, for water supply and for sanitation in homes. It is utilized in addressing agricultural productivity and food security for poverty alleviation, even in places with 200 mm of rain. Rainwater Harvesting is employed in flood mitigation in rain-drenched countries, and in solving infiltration problems of sealed surfaces in urban areas and industrial complexes, or in avoiding polluted water and toxic ground water.

Most of all, Rainwater Harvesting, or RWH is environmentally sound as it assists in recharging ground water, enhances wetlands, assists forest conservation, encourages ecological farming, and slows down construction of new dams for water supply thus helping the ecological flow.

Discussions during the 3rd World Water Forum session on Rainwater Harvesting are summarized below:

1. On Water Supply and Sanitation
   - In the face of water scarcity, another major option for water supply should be considered at par with surface water and ground water. This third option is Rainwater Harvesting. In some areas of the world, rainwater could be the only option. This was shown by cases presented from Africa, South Asia, and the arid and semi-arid regions of Brazil, Nepal, Sri Lanka, Thailand, and others.
   - Rainwater quality can be improved to WHO standards with proper monitoring and maintenance, and by using improved technologies. In South Australia, 42% of the population drink rainwater and only 40% drink from the main water supply.
   - In view of the above, the Forum recommended that RWH should be recognized by the United Nations as a major option for water supply for health and sanitation. Governments should issue guidelines and policies for water quality monitoring and use of improved technology. A mix of technologies is appropriate in many situations.

2. On Water and Poverty Alleviation
   - China reported that 5 million people relying on 300-400 mm annual rainfall were benefited significantly by the practice of RWH. Additional examples were presented from India. Forum participants agreed that rainwater harvesting is a cost effective means to irrigate farms. It controls erosion, conditions soil, helps recharge ground water and beneficially modifies farming practices.
   - The participants recommended that RWH should be recognized as a basic strategy for poverty alleviation. Governments should invest in RWH facilities.

3. On Urban Use
    - Many mega-cities suffer from problems brought about by increased water demand, intense pollution and the absence of an efficient drainage system.
    - In Tokyo, RWH was advocated for water supply and disaster preparedness and mitigation.
    - In Bangladesh, 80 million people could have been affected by arsenic poisoning from ground water, if not for the implementation of RWH.
    - The problem of flooding in cities could be mitigated by RWH using low-impact runoff retardation. The Water Resource Bureau of Taiwan reports the effectiveness and the technology of such use.
    - In Germany, 50,000 new RWH systems are installed every year to add to an existing 500,000 systems, as reported by RWH equipment manufacturers.

Mainstreaming/ Sustainability

Introducing rainwater harvesting in the country's policy often starts with an information campaign about the new concepts and technologies and good practices around the world. When acceptability is seen, an ordinance is passed requiring all building constructions to include RWH facilities. Incentives such as tax rebates are offered if the owner adds a RWH system to an existing building. These practices are found in Texas, Hawaii, Caribbean islands, Australia, Germany and other European countries. Guidelines are issued and made accessible to the public. Water quality monitoring guidelines are also issued. In one province in the Philippines, a revolving fund was started to enable households to install their own RWH facilities. In another province, a water concessionaire leads a RWH campaign as its means of expanding its water installations. In Kenya, the women contribute some amount every week to allow one RWH per member

The financial cost of rainwater varies across the globe, but it is invariably lower than the alternatives. For example, in Lebanon it is \$0.05 to \$0.30 per m^3 of collected water, in Rajasthan, India, it is \$0.02 to \$0.06 per liter. Essentially, the cost varies depending on the expenditure needed for construction of the system. In Bangladesh it is \$0.02 per liter of water, and in Malaysia it is approximately \$0.65 per m^3 of water, while in Thailand, the construction cost is \$20/ $2m^3$ jar. In the Philippines it is \$0.05/ liter , and in Africa it is in the region of \$0.09 per stored liter of water, including labor costs.

Replicating the Initiative

The International Rainwater Catchment Systems Association (IRCSA) has documented, through its 11 biennial international conferences, country experiences showing replications, variations and patterns of rainwater catchment systems as adapted to specific conditions in 8 IRCSA regions of the world. .

During the development years, IRCSA members-- volunteer scientists and development practitioners, were so focused with their studies and action researches, that promotion has been relegated to the background. However, it could be said that the proper time has come, since the world is experiencing water scarcity and environmental degradation. Rainwater Catchment Systems or Rainwater Harvesting technologies are appropriate for the prevailing conditions and are ready for the world.