CSE Regional Workshop on “Energy and Resource Efficiency in Urban Water Management” on September 27, 2013 in Goa.

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Introduction:-

- Goa receives good annual rainfall (110 to 120 inches) in a span of four months.[1]
- Goa produces about 464 MLD (Million Liter per Day) from its seven water treatment plants.
- Considering that 45% is non- revenue water around 209 MLD is wasted.
- Reduction of non-revenue water (NRW) and management is one of the mandatory requirements for achieving 24 X 7 water supply on sustainable basis.
- Water management becomes an issue where both-ground and surface water is being used.

Sustainable Urban Water and Resource Management

Urban water and resource management involves the following steps:

1. Collecting water in sufficient quantities to meet needs throughout the urban area; treating collected water to achieve the quality required for specific purposes.

2. Distributing water to end users.

3. Treating used water for reuse, including for environmental enhancement.

4. Managing residuals from treatment processes.

5. Extracting useful materials, such as heat, energy, organic matter, and nutrients, from the used water stream.

The Urban Water Strategy

- Quite clearly, a concerted strategy for management of water resources in urban areas need to be put in place in order to avoid the crisis.
- Some of the key themes to develop a coherent water strategy for urban areas will clearly have to move towards, and revolve around, the following issues:
    1. Water Audits:
    2. Demand Management
    3. Integrated urban water resource management

WATER AUDITING

What is a water audit?

- A water audit is conducted to determine the amount of water lost from a distribution system due to leakage, storage overflow, meter malfunctions.

- Audits are also used to estimate the cost associated with these losses to the water system by balancing the amount of water produced.

- Comprehensive audits can provide the water system with a detailed profile of the distribution system and water users, allowing for more effective management of resources and improved reliability.

Elements of a water audit include:

- The amount of water produced
- The amount of water delivered to metered users
- The amount of water delivered to un metered users
- The amount of water loss

Water loss most commonly occurs due to leakage caused by a variety of factors, including:

- Corrosion
- Excess pressure
- Temperature variations
- Seismic activity
- Lack of regular maintenance
- Excessive traffic loading.
- Poor design/installation.
- Inappropriate backfill.
- Pressure transients/fluctuations

Consumer Education

(i) SAVING WATER INDOORS.

- Never put water down the drain when there may be another use for it such as watering a plant or garden, or cleaning.
- Avoid flushing the toilet unnecessarily. Dispose of tissues, insects and other such waste in the trash rather than the toilet .
- Take shorter showers. Replace you showerhead with an ultra-low-flow version. Some units are available that allow you to cut off the flow without adjusting the water temperature knobs.
- Use the minimum amount of water needed for a bath by closing the drain first and filling the tub only 1/3 full. Stopper tub before turning water. The initial burst of cold water can be warmed by adding hot water later.

•Install water softening systems only when necessary. Save water and salt by running the minimum amount of regenerations necessary to maintain water softness.

•Run the washing machine only when you have a full load of clothes.

(ii) SAVING WATER OUTDOORS

- Don't over water your lawn. As a general rule, lawns only need watering every 5 to 7 days in the summer and every 10 to 14 days in the winter.
- Don't water your street, driveway or sidewalk.
- Report all significant water losses (broken pipes, open hydrants, errant sprinklers, abandoned free-flowing wells, etc.) to the property owner, local authorities.
- Avoid the installation of ornamental water features (such as fountains) unless the water is recycled.
- Consider using a commercial car wash that recycles water. If you wash your own car, park on the grass to do so.

POLICIES AND SPATIAL CONTROL

- The supply of raw water directly to industry would reduce the demand for treated water. Government of Goa has taken up first such scheme for Verna Industrial Estate.

- Major upgradation of water treatment plants & water pipelines needs to be done including replacement of old pipe lines in Panaji city and other towns of Goa.

- De-silting of various lakes in Goa needs to be undertaken.

- Major scheme for revival of rivers and development of check dams in catchment areas.

- For major housing, industrial and commercial projects- including star category hotels, permissions are to be on the basis of surface water provisions/ availability. Their access to ground water should be restricted.

- *As per The Goa Land Development and Building Construction Regulation 2010 (GLDBCR-2010)*

(a) Rain water harvesting tank for storage and re-use of water shall be mandatory for private buildings in case the plot area is more than 4000 sq. meters and having 40 units and more for secondary use as flushing of WC, gardening, landscaping, car washing.

(b)Similarly for public/institutional buildings/ complexes in plots having areas of more than 4000 sq. meters and having a floor area of more than 2000 sq. meters and all commercial/ industrial developments in plots having areas of more than 4000 sq. meters, shall be provided with rain water harvesting tanks for storage and re-use.

THANK YOU

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