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# **RAIN WATER HARVESTING REFORM PRIMER UNDER JNNURM**

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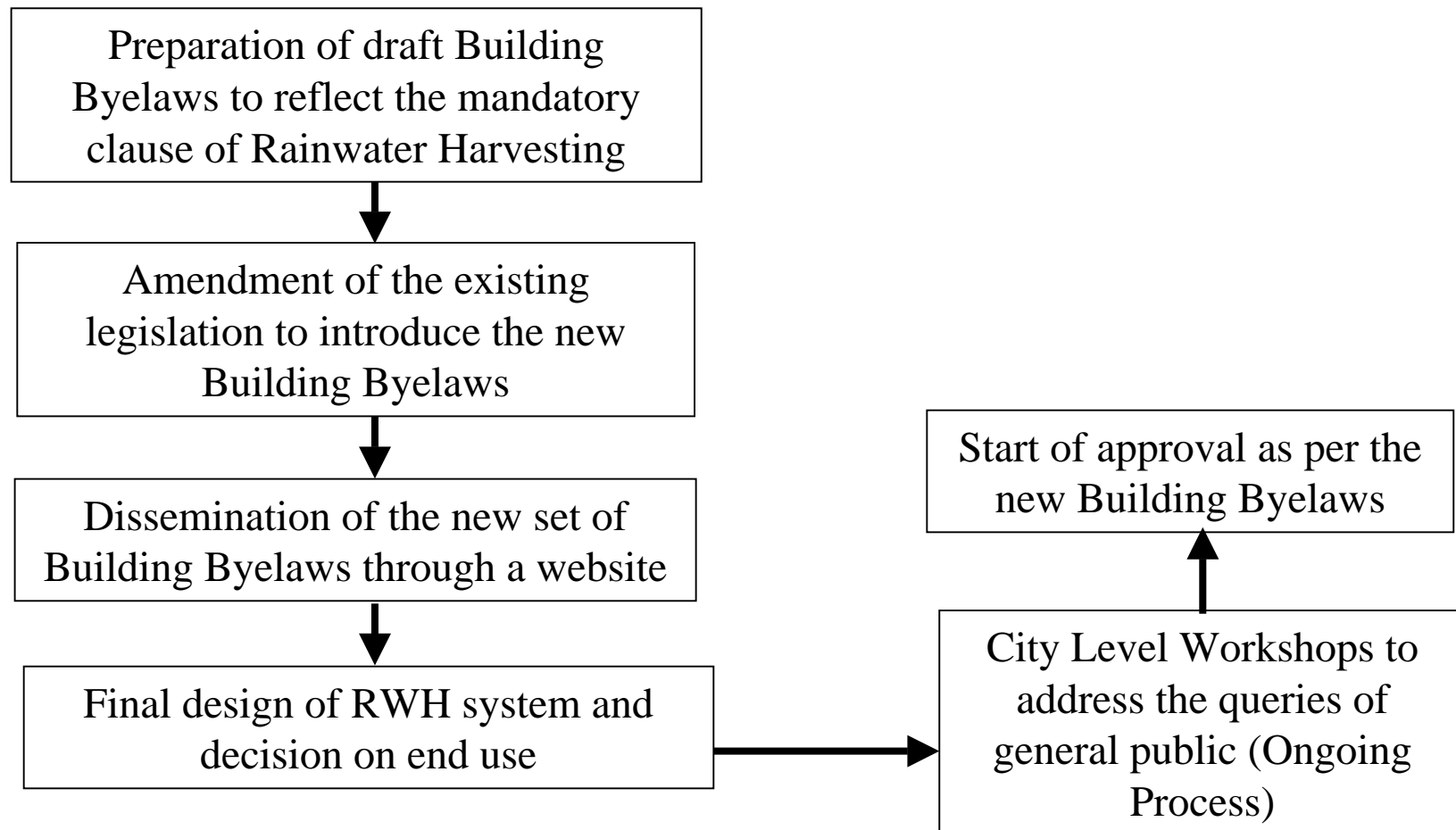
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## Rationale for Reform

### **RWH needed to:**

- Tackle **water shortage** during **summers**
- **Recharge aquifers**
- Reduced **power consumption** in pumping water
- Reduced **water logging** and **flooding** in low lying areas
- Reduced **erosion**
- **Improved Groundwater quality** through dilution. Eg:  
Coastal areas

## Milestones to effectively implement RWH Reforms



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## Step 1: Preparation of draft Building Byelaws to reflect the mandatory clause of Rainwater Harvesting

- State would:
  - Frame broad Guidelines for RWH
    - In consultation with SGWB
    - City specific Guidelines
    - Based on existing knowledge
- Based on this, State shall draft modified Building Byelaws to:
  - Include a separate section on RWH
    - Make RWH mandatory for new buildings
    - Minimum Area limits (Flats and Plots)
    - Extend RWH to all land uses including Industries, Transport (Parking areas, Bus Depots)
    - Specify start date of sanction with RWH plans
    - Specify that Building Sanction and CC shall not be issued otherwise
    - Specify stricter guidelines for high end users
    - Clearly specify incentives and penalties
- Comments from Stakeholders be invited before finalizing modified byelaws

## Step 2: Amendment of the existing legislation to introduce the new Building Byelaws

- State Govt. shall issue Notification to amend:
  - State Municipal Corporation Act
  - Development Authority Act
  - Town and Country Planning Act
- Under the above notifications, ULBs should:
  - Incorporate RWH in its mandate
    - Make budgetary allocations for RWH
    - Set up RWH cell (only for MC)
    - Take up projects to promote RWH
- Invite and incorporate relevant comments
- State Government shall publish amendments in State Gazette

Include RWH in their mandate } Amend Building Bye laws to include RWH as a precondition to Sanction and issue of Completion Certificate for new buildings

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## **Step 3: Dissemination of the new set of Building Byelaws through a website**

- State Government, MCs and DAs to disseminate Revised Byelaws through their website, newspapers, etc.

## Step 4: Final design of **RWH** system and decision on end use

### Design of RWH Systems

- Undertaken by MC in cooperation with State Ground Water Board as per **Guidelines framed by State Government.**
- At 2 levels:
  - **Short Term Plan:**
    - Based on existing knowledge, Make a Conceptual Plan for:
      - The **Groundwater Zones** in the City
      - Implement Pilot projects** in Government and Institutional buildings to finalize design of Rainwater Harvesting structures
      - Identify **critical areas and land uses**
        - » RWH on immediate basis.
      - Implement **stricter guidelines for high end users**
        - » Eg: Hotels and Housing Societies to construct U/G tanks to meet at least 5 to 10% of their annual water requirements
      - Extend implementation of **RWH to all land uses**

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## Step 4: Final design of RWH system and decision on end use (Contd.)

### Design of RWH Systems

- **Long Term Plan:** MC and State Ground Water board:
  - Undertake **groundwater explorations and monitoring** in each zone
  - Divide City into **Water Recharge Zones**
  - Prepare **technical manual** on RWH
  - Can maintain a digital database of Ground Water Scenario
- Entire process has been done for Delhi by Central Ground Water Board
- State Ground Water Boards have all this information at District Level
- Needs to be extended to City level
  - Including proposed City Boundaries

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## Step 4: Final design of RWH system and decision on end use (Contd.)

### Decision on End Use

- By RWH Cell in consultation with SGWB based on:
  - **Consumption pattern:**
    - High end users like Hotels should **reuse and recycle** water
    - **Small individual users** should recharge.
  - **Location and water situation:**
    - Areas where recharging is difficult/expensive should **store and reuse:**
      - Hard terrain or
      - Existing groundwater contamination (like Arsenic contamination in West Bengal)
  - **Situational Analysis:**
    - Stringent measures and wider implementation in **Critical Zones.**

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## **Step 5: City Level Workshops to address the queries of general public**

- **Workshops By RWH Cell:**
  - **For interaction of citizens with technical experts of the RWH cell**
  - **Workshops:**
    - **At least 3 workshops in each zone every year**
    - **More workshops in critical zones.**
  - **Date of workshop advertised in dailies, pamphlets, websites**
  - **Special workshops prior to monsoons**

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## **Step 6: Start of approval as per the new Building Byelaws**

- **After approval of new Building Bye laws, ULB to take 2 to 6 months to operationalize Byelaws**
- **During this time, ULB would:**
  - **Prepare Conceptual Ground Water Zonal Plans**
  - **Device design of RWH structures through Pilot Projects**
  - **Engage personnel to constitute RWH Cell**
    - **Stakeholders and technical personnel**
  - **Conduct workshops to sensitize:**
    - **Citizens**
    - **Government Officials related to RWH**
    - **Answer technical queries**
- **Finalize date for conditional issue of (RWH based):**
  - **Building Sanction**
  - **Completion Certificate**

## Steps to implement RWH

	Steps to be taken by Urban Local Bodies	Years			
		1	2	3	4
a.	Prepare draft changes in Building Rules	■			
	Discuss the draft changes in Building Rules with key stakeholders in a Stakeholders meeting	■			
	Finalise Building Rules based on the feedback from stakeholders	■			
b.	Prepare draft building byelaws to reflect the mandatory clause of Rainwater Harvesting.	■			
c.	Issue G.O./ amend Building Bye-laws to include construction of rainwater harvesting structure in every building	■			
d.	Widely disseminate the new set of Building Byelaws through a website that also provides links to other key resources and via Public Interest advertisements in the mass media.	■			
e.	Finalize Design of RWH system and take decision on end use	■	■		
e.	Based on needs identified, conduct city level workshops to address/ guide queries of the general public.	■	■		
f.	Start of Approval as per the new building byelaws	■	■		
g.	Give rebate in property tax as incentive.	■	■		
	Set up a Rainwater Harvesting Cell in Municipal Corporation/ Municipality to guide all applicants for plan approval for new buildings and/ or development projects as well as those introducing rainwater harvesting structures in existing buildings.		■		
	Facilitate the decision of applicant on end use for rainwater and design of Rainwater Harvesting System in response to the roof area and the annual rainfall expected		■	■	
	Assist building owners to decide on appropriate options for harvesting rainwater (for ground water recharging or direct use) and on appropriate technologies/ designs for rainwater harvesting		■	■	■
	Rainwater harvesting measure to be executed before issue of Completion Certificate/ Building Use Certificate	■	■	■	■

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## **Develop a Common Platform for each State to implement RWH**

- To be spearheaded by MC. MCs should:
  - Constitute RWH Cell. The Cell should:
    - Undertake Training Programmes for Citizens and Officials
    - Dedicated Website for RWH
    - RWH cell to coordinate with other Agencies on RWH
  - MCs to extend RWH to all major land uses

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## **Develop a Common Platform for each State to implement RWH (Contd.)**

- **Stricter Guidelines for High end users**
  - **Recycle and reuse**
  - **Onsite Water harvesting**
  - **Wastewater Treatment Plant**
- **SEPARATE BUDGETARY ALLOCATION FOR RWH**
- **New buildings form 5% of built fabric, extend to Existing buildings**
- **PPP in RWH**
- **Issue notifications from time to time to expand scope of RWH**
- **Penalties and incentives to ensure compliance.**

## States Studied for Implementation of RWH

- Kerala
- New Delhi
- Indore
- Kanpur
- Hyderabad
- Tamil Nadu
- Haryana
- Rajasthan
- Mumbai
- Gujarat

### Study of

- Reforms
- Steps Taken:
  - Administrative
  - Implementation
  - Monitoring
  - Technical
  - Awareness Generation/ Stakeholder Involvement
  - Incentives/Penalties

### **Best Case**

Tamil Nadu, Indore

### **Worst Case**

Rajasthan, Hyderabad

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## Implementation of the Bye-Laws in different States: TAMIL NADU

### Reform

- Amendment to Municipal Laws made RWH **mandatory for public and private buildings**
- Municipal Administration and Water Supply Departments set as **Nodal Agencies for RWH implementation**
- **Penalties specified**
  - No water or sewer connection given till RWH is implemented

### Measures Taken

- **Administrative**
  - RWH promoted as **Top down approach**
  - CM spearheaded campaign as drought mitigation measure

# Implementation of the Bye-Laws in different States: Tamil Nadu

- **Implementation**
  - Phase wise implementation
    - 1<sup>st</sup> Phase: RWH made mandatory for all buildings
    - 2<sup>nd</sup> Phase: Scope increased to Ponds, streets, highways
- **Technical**
  - TN and Chennai WS&S Boards provide technical guidance
  - Technical manual on website
  - Storm water drains with pervious base
- **Awareness generation**
  - TWAD spearheads the Campaign
  - Workshops, street plays, seminars, door to door campaigns
  - 25,000 youngsters trained in RWH
- **Penalties**
  - If deadline not met, officials to construct structure and recover cost like Property Tax
  - Water and sewer connection to new buildings only after implementation of RWH

**More than 48 lakh buildings with RWH**

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# Implementation of the Bye-Laws in different States: Indore

## Reform

- **RWH mandatory in all new buildings of 250 sq m or more.**
- **Rebate of 6 per cent on Property Tax as incentive.**

## Steps taken

### **Administrative**

- **RWH as separate head** under Municipal Budget

### **Implementation**

- **Separate RWH Department** under IMC
- Building Department of IMC issues **Sanction and Completion Certificates** after implementation of RWH

### **Awareness Generation**

- **RWH Department coordinates with NGOs**

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## Implementation of the Bye Laws in different States: Hyderabad

### Reform

- Rainwater harvesting has been made mandatory in all new buildings with an area of 300 sq m or more.
- Mandatory to provide RWH in all Group Housing and Commercial Complexes

### Steps Taken

#### Implementation

- Sanction of plans after ensuring RWH
- WS&S Board constructed 14,000 RWH structures in Critical areas

#### Awareness Generation

- Special cell at WS&S Board for information on RWH

### Issues

- Lack of interest by Government Officials.
  - Applications submitted for RWH by citizens to MC, HMWS & SB and DA met with no or little response.
- Government departments in Hyderabad ask residents to contact listed contractors who claim very high rates
- Only 10% of the applications actually executed RWH
  - Government withdrew the 50% subsidy on structures

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## SHORTFALLS

- MCs don't have RWH Cells
- Few Cities implement RWH beyond new buildings
- Lack of coordination between Organizations working on RWH
- Need for sensitizing Government Officials for effective implementation
- Proper Incentives and Penalties
- Lack of awareness amongst citizens
- RWH structures only implemented till Completion Certificate is issued