biome Environmental

Rainwater Harvesting Regulations in Bengaluru

Rules and Regulations for property owners, 2016
(updated May 2020)

biome
Environmental

This document has been made to be used as a community resource and is meant to evolve with the contributions and experiences of everyone. Please write to us with your contributions.

Please feel free to use, share and disseminate this document. We would appreciate being informed about how it has been used.

Please write to us at water@biome-solutions.com or find us on Facebook here.

biome Environmental

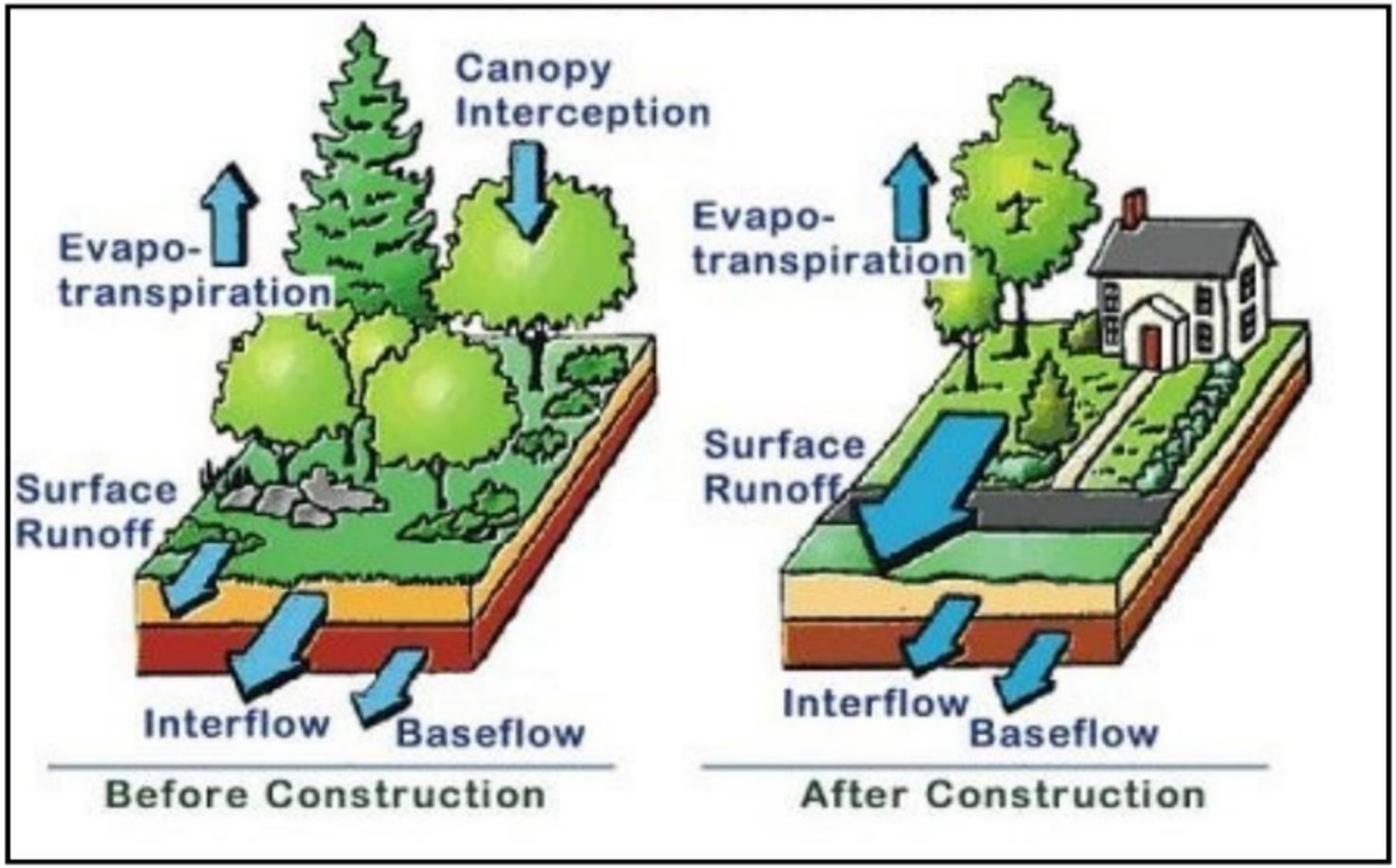
Bengaluru is an ideal city for rainwater harvesting

- Nearly 40% of Bengaluru is groundwater dependent, but the groundwater levels in the city's periphery are fast depleting due to indiscriminate extraction and drilling
- Bengaluru faces increasing water shortages as sources dry up and demand increases
- Paradoxically, there is also an increase in cases of urban flooding
- Many of these problems can be dealt with through rainwater harvesting systems

biome
Environmental

- Bengaluru receives 970 mm of rainfall on average annually spread over 8 months and 59 rainy days
- As land is constructed upon and paved over, the surface runoff of rainwater from a small plot increases from 15% (before construction) to 90% (after construction)
- At the same time, evapotranspiration goes down from 75% (before construction) to 5% (after construction) so you actually end up with a lot more water
- This water can be put to good use: either for usage or to recharge groundwater
- Also, it is the law!

biome
Environmental



What is rainwater harvesting?

- It is the technique of collection and storage of rainwater for future use or groundwater recharge, in the area where it falls

- Rainwater harvesting systems include a catchment, a system of conveyance and filtration for rainwater received within the catchment, and a storage or recharge mechanism

biome Environmental

Laws and Regulations

How they apply to you

The laws around rainwater harvesting

- There are Acts that define the law and there are Regulations that enable the authorities to enforce the stipulations of the Acts

- There are two main Acts concerning rainwater harvesting:
  - The Bangalore Mahanagara Palike Building Bylaws (2003)
  - The Bangalore Water and Sewerage Amendment Act(s)…
    - The Bangalore Water and Sewerage Amendment Regulation(s)

- Even if you don't qualify under the law it makes sense to follow them!

Do the laws apply to me?

- The BBMP law applies to all properties coming under its jurisdiction; they are required to implement rainwater harvesting as per the BBMP law

- If you have a BWSSB connection, then you have to comply with the BWSSB Act
  - Currently around 110 villages / areas in Bengaluru do not have BWSSB connections and thus penalties cannot be levied on them for non-compliance
  - But if these properties come under BBMP, they need to comply with the BBMP law

Chronology

BBMP Building Bylaws (2003)

Bylaw 32 pertaining to Rainwater Harvesting

BWSSB Amendment Act (2009)

Insertion of Section 72a making RWH compulsory

BWSSB Regulations Amendment (2011)

Inclusion of Regulation 8 (Disconnection of water supply)

BWSSB Regulations Amendment (2015)

(Introduction of penalties for defaulters)

BWSSB Notification (2020)

Substitution of Regulation 6 (Increasing quantity of rainwater harvested)

Insertion of new Regulation 9 (Certification of RWH systems)

The laws pertaining to RWH

	BBMP ByLaws 2003, ByLaw 32	BWSSB Amendment Act 2009
Eligible properties	Built up area exceeding 100 m^2 / 1100 ft^2 on sital area of 200 m^2 / 2150 ft^2	Built up area of 1200 ft^2 and above on sital area of 2400 ft^2 and above
Minimum volume of rainwater to be harvested from rooftop		60 L per m^2/10ft^2 of roof area
Open well / recharge well	Open well should have a minimum depth of 6m/18ft and a minimum dia of 1m/3ft; the borewell should have a pit with 3m/10ft depth and 1m/3ft dia filled with stone aggregate and sand around it	Well should have a minimum depth of 3m/10ft and minimum of dia 0.9m/3ft
Minimum volume of rainwater to be harvested from non-rooftop area		30 L or more per m^2/10ft^2
Discharge	For roof area of 100m^2/1100 ft^2 you need at least 2 downtake pipes of minimum 10cm dia	
Penalties	Rs 1000 p.a. for every 100m^2/1100ft^2	For residential properties: Disconnection of water supply (2011 Reg Amdt) and 25% addnl charge for 3 mths, 50% additional charge thereafter. For non-residential properties: 50% addnl charge for 3 mths, 100% additional charge thereafter.

biome Environmental

Non-compliance and Penalties

Non compliance

What if I have not implemented rainwater harvesting?

If you have a BWSSB connection and your property falls under any of the regulations and you have not yet implemented rainwater harvesting, the BWSSB can impose a levy of additional (water supply and sewerage) charges as per the BWSSB Amendment to Regulations (2015)

Penalties imposed by BWSSB for non compliance

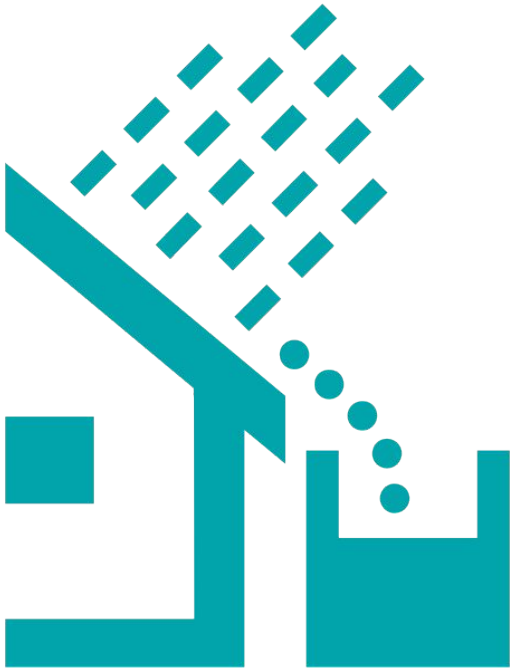
Penalties introduced for residential and non-residential defaulters (BWSSB Amendment to Regulations 2015)

- **Residential buildings**: additional charges of 25% of total water and sanitary charges will be levied for first 3 months and thereafter 50% of total water and sanitary charges till RWH is implemented
- **Non-residential buildings**: additional charges of 50% of total water and sanitary charges for first 3 months and thereafter additional charges of 100% of total water and sanitary charges till RWH is implemented

Penalties imposed by BWSSB for non compliance

- Executive Engineers and Assistant Executive Engineers are responsible for levying the additional charges and BWSSB has started implementing this with effect from 30th June 2016
- As of November 2020, 143000 properties have implemented RWH and 58000 properties have been identified by BWSSB as non compliant, and thus additional charges (Rs 30 crores INR) have been levied against them as per the regulations

biome Environmental



Installing rainwater harvesting on your premises

Frequently asked questions

How do I go about installing RWH? Where can I get more information?

- The BWSSB has set up a Rainwater Harvesting Theme Park in Jayanagar that demonstrates all the different ways you can set up an RWH system
- This is a list of RWH contractors maintained by the Karnataka State Council for Science and Technology
- This link has contact details of vendors engaged in many aspects of water management, like RWH contractors, well-diggers, etc
- This website has a lot of information on water management, including how to strategise and install RWH systems

- Principles of Rainwater Harvesting
- Storage of Rooftop Rainwater Harvesting in the underground sump
- Rainwater harvesting: groundwater recharge
- Rainwater harvesting: storing in a rainwater barrel
- Plumber training and information videos made by LabourNet and Biome
- Available in English, Hindi, Kannada, Telugu and Tamil

Design specifications regarding rainwater harvesting as per law

For rainwater that falls on your roof

- Design for 60 L or more per m^2 (approx. 10 ft^2) of rooftop area for storage or groundwater recharge, or both
- Open wells or recharge wells should have a minimum depth of 6m (approx. 9 ft) and a minimum dia of 0.9 m (approx. 3 ft)

For water that falls on the rest of your property

- Storage or recharge structures should be designed to have a capacity of 30 L or more per m^2 (approx. 10 ft^2) of the land area earmarked for rainwater harvesting
- Open wells or recharge wells should have a minimum depth of 6m (approx. 9 ft) and a minimum dia of 0.9m (approx. 3 ft)
- Also see our Recharge Well primer

Use surplus rainwater for groundwater recharge

- After the rainwater storage tanks are full, the water that overflows can be diverted to recharge wells / open wells / borewell recharge pits for groundwater recharge
- Water should be diverted for groundwater recharge only after filtration
- With borewell recharge, the water should be filtered, stored and stabilized in a sedimentation tank before recharging the borewell with the provision of adequate bypass or safety arrangements in place

I’ve installed RWH. What next?

- If you have an existing property that needs to be RWH compliant, first install the RWH system as per the requirements stipulated in the guidelines
- Once installed, submit a letter to the Sub Divisional BWSSB Office informing them of your RWH system. Include a photograph if possible
- The Assistant Executive Engineer (AEE) of the sub-divisional office will visit your property and inspect the RWH system for compliance with the regulations
- After the inspection, if compliant, the Engineer will certify the property and update the details in BWSSB’s online monitoring system

Annexures – Laws and Regulations

The Bangalore Mahanagara Palike Building Bylaws (2003) By-Law 32

- Applicable within BBMP jurisdiction from June 5th 2004 onwards
- Every building with plinth area/built up area *exceeding 100 m^2 (approx 1100 sq ft.)* and built on a site measuring not less than 200 m^2 (approx 2150 sft) should have rainwater harvesting structures with a minimum total capacity as mentioned in Schedule 12
- Every owner of a concerned property needs to ensure that the rainwater harvesting structure is maintained and is used to store water for non-potable purposes or recharge of groundwater at all times
- The Authority may impose a levy of not exceeding Rs. 1000/- per annum for every 100 m^2 of built up area for the failure of the owner of any building mentioned in the by-law 32 to provide or to maintain Rain Water Harvesting structures as required under these bylaws.

BBMP By-law 32 Schedule XII

- For the efficient discharge of rainwater, there shall be at least two rainwater pipes of 100 mm dia for a roof area of 100 m^2 $(approx$ 1100 $sqft)$
- Every property identified under Bye-law 32 needs to provide an open well of a minimum of 1m dia and 6m depth (3 ft dia and 18 ft depth) into which rainwater may be channelled and allowed after filtration for removing silt and floating material
- Recharge of groundwater may be done through a borewell around which a 1m wide pit may be excavated up to a 3m depth and refilled with stone aggregate and sand

Bangalore Water Supply and Sewerage (Amendment) Act, 2009, Section 72A

- Section 72A included in the Act and in force since August 27, 2009
- "Obligation to provide rain water harvesting Structure"
- *Within 9 months from the date of commencement of this act, i.e. May 2010, every owner or occupier of building with sital area of 2400 ft^2 and above or every owner who propose to build/construct building with sital area of 1200 ft^2 and above should provide for RWH as per regulations mentioned in first section above. Failing which the board may cause such RWH and recover the cost from owner as arrears of land revenue*

The Bangalore Water Supply and Sewerage (Amendment) Regulations, 2011

- The insertion of new Regulation 8: “Disconnection of water supply”
- Where the owner or occupier of building fails to provide RWH within such date as modified under section 72A of the Act, the water supply connection provided to such building may be disconnected provided that no disconnection should be made unless an opportunity of being heard is given to the affected persons

The Bangalore Water Supply and Sewerage (Amendment) Regulations, 2015

- Penalties introduced for residential and non residential defaulters
- Residential buildings: additional charges of 25% of total water and sanitary charges will be levied for first 3 months and thereafter 50% of total water and sanitary charges till the RWH is provided
- Non residential buildings: additional charges of 50% of total water and sanitary charges for first 3 months and thereafter additional charges of 100% of total water and sanitary charges till the RWH is provided

Bangalore Water Supply and Sewerage (Rain Water Harvesting) (Amendment) Regulations, 2020

- **Substitute of regulation 6 - Capacity designing of rain water storage structure:-**

  (1) In respect of rooftop rainwater harvesting the capacity of storage structure or for artificial recharge structures to groundwater, a provision at the rate of not less than 60 litres per square metre shall be adopted

  (2) In respect of land based rainwater harvesting the capacity of storage structure or artificial recharge structure to groundwater, a provision at the rate of not less than 30 litres per square metre of land surface shall be adopted

- **Insertion of new regulation 9 - Certification of implementation of rain water harvesting unit:-** The implementation of rainwater harvesting shall be certified by the Board Engineers or by the third party agencies accredited or empanelled by the Board

Get in touch!

Get in touch with
Biome Environmental Trust at
water@biome-solutions.com