



Rainwater Harvesting Regulations in Bangalore

Rules and Regulations for property owners, 2016

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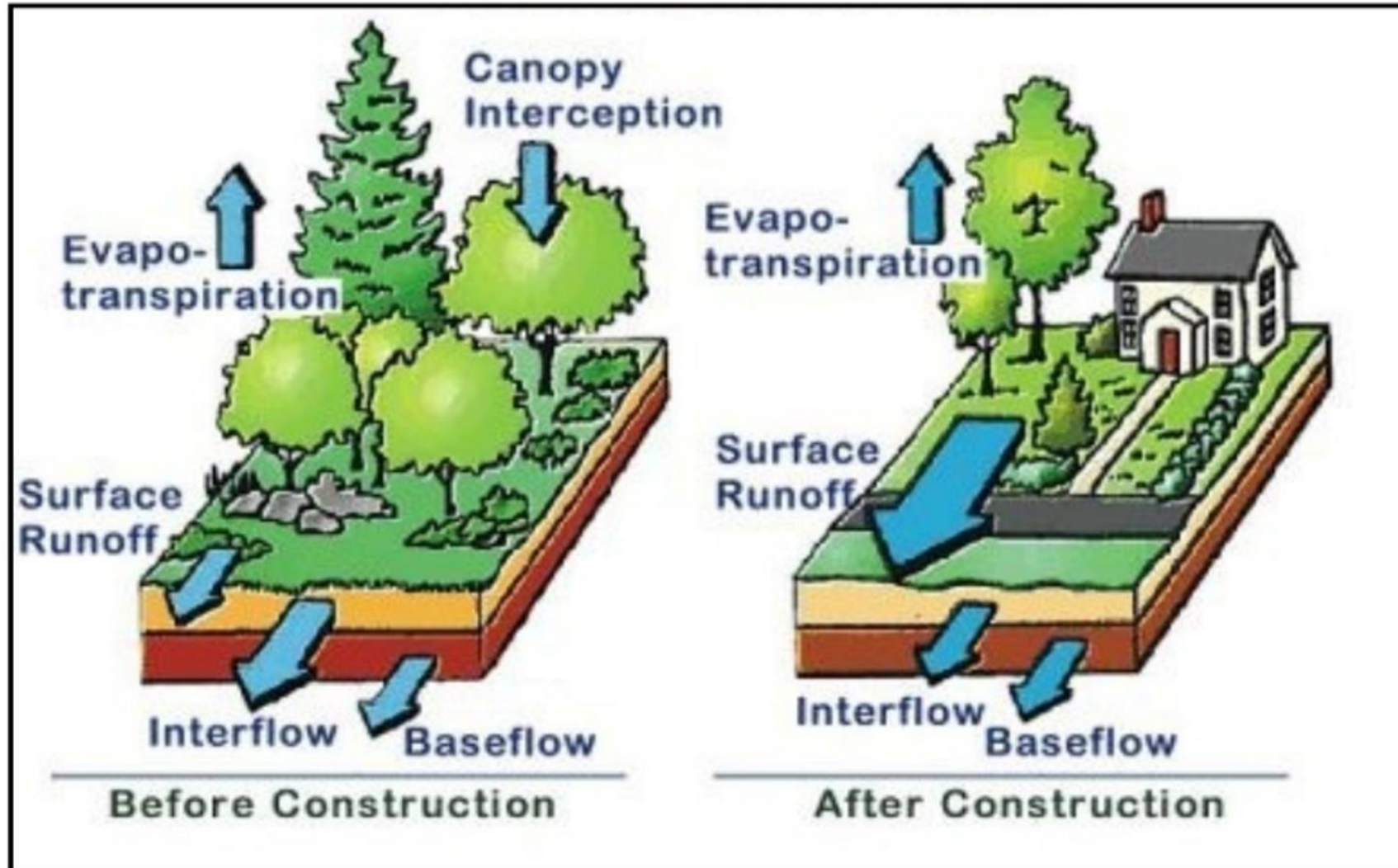
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Bangalore is an ideal city for rainwater harvesting

- Nearly 40% of Bangalore is groundwater dependent, but this is fast declining due to indiscriminate extraction and drilling
- Bangalore faces increasing water problems and increasing water shortages as sources dry up and demand increases
- Increasing cases of urban flooding
- Many of these problems can be checked through rainwater harvesting systems

An ideal city for rainwater harvesting

- Bangalore receives 970mm of rainfall on average annually spread over 8 months and 59 rainy days
- As you construct on land, your surface run-off of rainwater from a small plot increases from 15% (before construction) to 90% (after construction)
- Equally, evapotranspiration goes down from 75% (before construction) to 5% so you'll 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!



What is rainwater harvesting?

- It is the **technique of collection and storage** for future use of rain water for future use or recharge, where ever it may fall
- Rainwater harvesting systems include **a catchment, a system of conveyance and filtration for rainwater** received within the catchment and **a storage or a recharge mechanism**



Laws and Regulations

How they apply to you

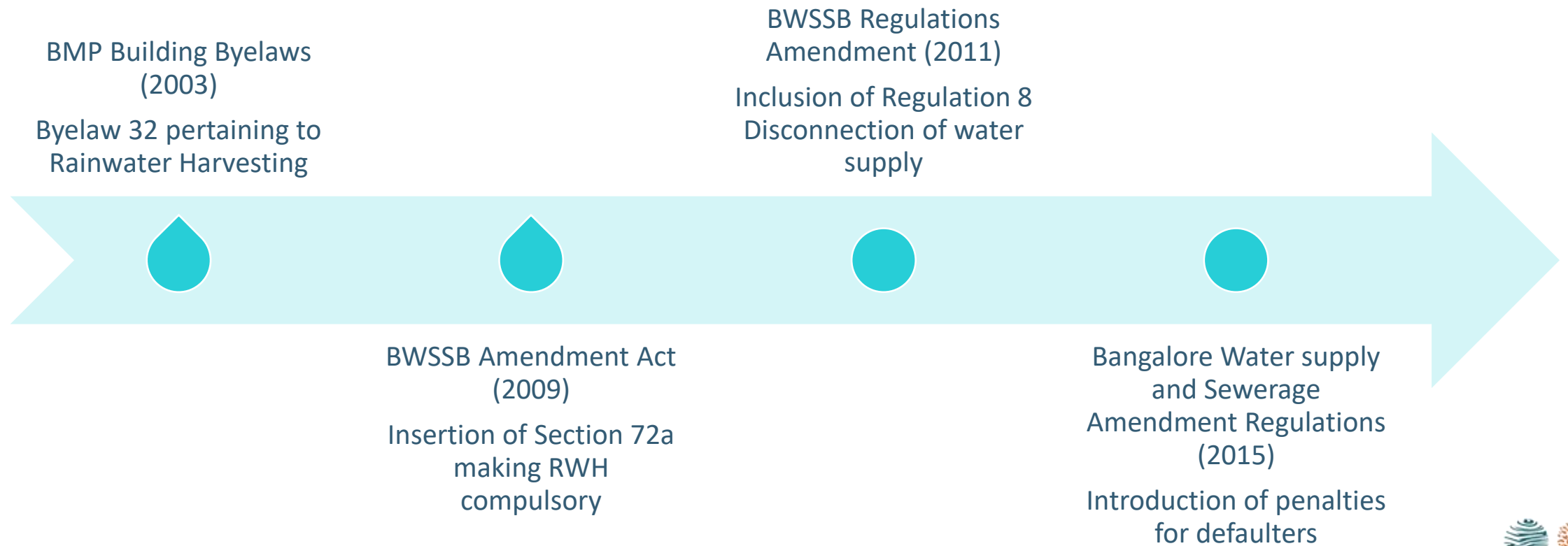
The laws around rainwater harvesting

- 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 Byelaws (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!

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 Bangalore 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



The laws pertaining to RWH

	BBMP Bye-Laws 2003, Bye-Law 32	BWSSB Amendment Act 2009
Eligible properties	Built up area exceeding 100m ² /1100 ft ² on sital area of 200m ² /2150 ft ²	Built up area of 1200 ft ² and above on sital area of 2400 ft ² and above
Capacity of storage structure rooftop		20l 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
Land based rwh storage capacity		Plan for 10L or more per m ² /10ft ²
Discharge	For roof area of 100m ² /1100 ft ² you need at least 2 down pipes of minimum 10cm dia	
Penalties	1000 Rs p.a. for every 100m ² /1100ft ²	Disconnection of water supply (2011 Reg Amdt) and 25% addnl charge for 3mths, 50% additional charge thereafter (residential); 50% addnl charge for 3mths, 100% additional charge thereafter (non residential);

Penalties and Non Compliance

Non compliance: what if I have not implemented rainwater harvesting?

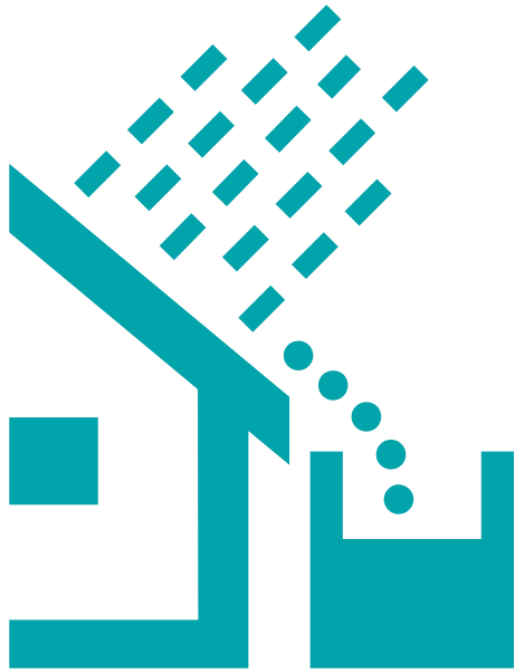
- If you have a BWSSB connection and your property falls under any of the regulations and have not yet implemented rainwater harvesting, the BWSSB **can impose a levy of additional water supply and sewerage charges** as per the BWSSB Amendment to Regulations (2015).

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 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

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 August 2016, 61,749 properties implemented RWH and 117000 properties have been identified by BWSSB as non compliant and thus additional charges (30 Lakh INR) have been levied against them as per above in last two months.



Installing rainwater harvesting on your premise

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 a RWH system.
- Check out www.groundwaters.in, a site that lists many of the organisations and groups who can help you install RWH. Also check out the [list of RWH contractors](#) maintained by the Karnataka State Council for Science and Technology.
- Also see Biome's [blog](#) for how-to posts and rainwater harvesting experiences of Bangalore's citizens

- 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 water that falls on your roof
 - cater for 20L or more per m^2 (approx. $10\ ft^2$) of rooftop area for storage or recharge structures.
 - 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) (minimum).
- For water that falls on the rest of your property
 - Storage or recharge structures should be designed to have a capacity of 10 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) (minimum).
 - Also see the [our documents on the Recharge Well](#)

Use surplus rainwater for groundwater recharge

- Surplus water after filling storage tanks can be diverted to open wells/borewells or recharge pits for groundwater recharge
- Water should be diverted for groundwater recharge only after filtration and appropriate disinfection
- With borewell recharge, the water should be filtered, stored and stabilized in a sedimentation tank before recharging into the bore well and 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 Regulation

The Bangalore Mahanagara Palike Building Byelaws (2003) Bye-Law 32

- Applicable within BBMP jurisdiction from June 5th 2004 onwards
- Every building with plinth area/built up area *exceeding 100 m² (approx 1100 sq ft.)* and built on a site measuring not less than 200 m² (*approx 2150 sq ft*) 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 m² of built up area for the failure of the owner of any building mentioned in the bye-law 32 to provide or to maintain Rain Water Harvesting structures as required under these bye laws.

BBMP Bye-law 32 Schedule XII

- For the efficient discharge of rain water, there shall be at least two rain water pipes of 100 mm dia for a roof area of 100 m^2 (*approx 1100 sq ft*) .
- 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 rain water may be channelled and allowed after filtration for removing silt and floating material
- Recharge of ground water may be done through a bore well 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 ft² and above or every owner who propose to build/construct building with sital area of 1200 ft² 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

Get in touch!



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