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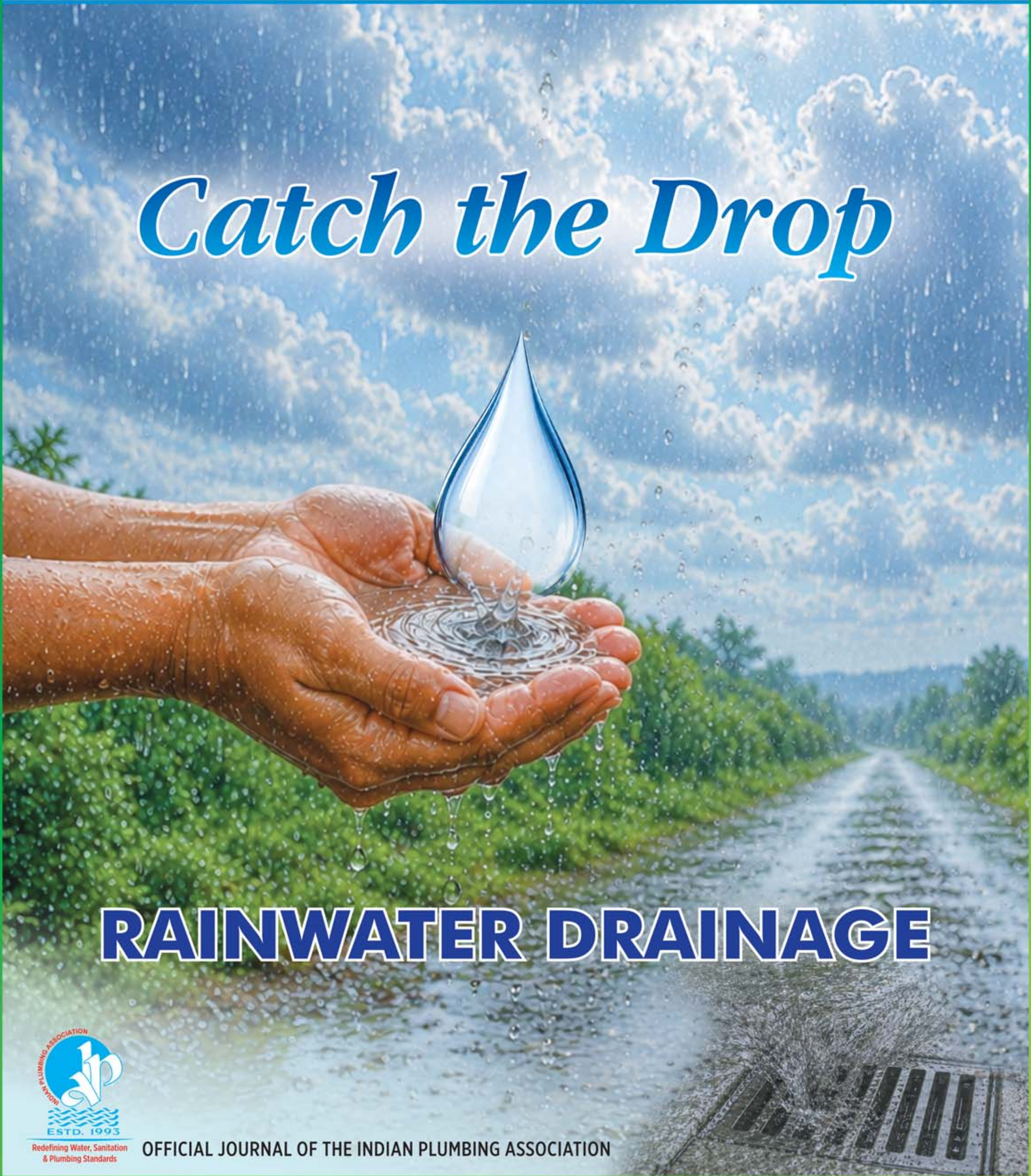

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MY PAGE

Dear Friends,

We are now at the midpoint of the year, and it has been a productive and encouraging period for all of us at the Indian Plumbing Association. As we move into the second half of the year, we look forward to several important initiatives that will further strengthen our mission of advancing plumbing standards, water conservation, and sustainable development across India.

The 10th edition of the **Indian Plumbing Professional League (IPPL)** is set to commence shortly and promises to engage plumbing professionals, students, and industry stakeholders across the country. This issue also features the orientation of the **Indian Designers Plumbing League (IDPL)**, a landmark collaboration between the Indian Plumbing Association (IPA) and the Indian Institute of Interior Designers (IIID) which aims to integrate plumbing into modern design thinking while promoting sustainability, functionality, and user-centric built environments.

Looking ahead, preparations are underway for the **Indian Plumbing Conference (IPC)**, scheduled to be held in **Chennai** this **December**. The conference will provide an important platform for knowledge sharing, innovation, and collaboration among professionals from across the water, sanitation, and plumbing ecosystem.

As we enter the monsoon season, water remains one of the most critical challenges facing our nation. While the monsoon season is expected to be average and nature may not pose a water crisis this year, human-driven factors still demand attention. We must act on two fronts: implementing water-saving technologies and spreading awareness across society.

As the population continues to grow and the demand for water increases, without any possibility of significantly enhancing natural water generation, water conservation and reuse have become more important than ever. IPA is doing its best to contribute towards this goal; however, creating awareness at the grassroots level is absolutely essential.Considering the ever-growing demand for water and the limited availability of this precious resource, it is time to adopt the concept of Net Zero Water and even strive towards becoming Net Positive. Without embracing these practices, the ambitious vision of the Ministry of Jal Shakti to provide 24x7 water supply to nearly 4,000 cities across India may remain only a dream.

This edition of our publication is focused on the theme: "Rainwater Drainage-Catch The Drop." It features a range of insightful articles covering Catch The Rain, Catch The Drop Before The Flood, Moving Beyond Drainage and more. We hope you find these resources informative and valuable in your work.

As always, I look forward to receiving your valuable feedback, which helps us continuously improve the quality of both the content and the printing of Indian Plumbing Today.

Warm regards,

Rahul Dhadphale
IPA Regional Director, South
Editorial Board Member

CONTENTS

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Moving Beyond Drainage: The New Blueprint for Flood-Resilient Design

Why the future of architecture and urban infrastructure depends on designing WITH water — not against it.

- Minesh Shah

On a monsoon evening in Mumbai, a few hours of intense rainfall can paralyse an entire city.

In Bengaluru, roads disappear under water despite billion-rupee infrastructure investments.

In Gurugram, luxury developments flood while groundwater levels continue to collapse.

The contradiction is impossible to ignore: India's cities are drowning during the monsoon and running dry during summer.

For decades, urban storm water management followed a single philosophy — remove rainwater as quickly as possible.

Water was seen as a threat to infrastructure rather than a resource for resilience. Drainage systems were designed to collect, convey, and discharge rainfall into municipal sewers, rivers, or seas.

But climate change has fundamentally altered the equation.

Rainfall events are becoming shorter, sharper, and more intense. Urbanisation is rapidly replacing natural landscapes with impermeable concrete surfaces. Traditional drainage systems, originally designed for historical rainfall patterns, are no longer capable of handling modern hydrological realities.

The result is a new urban crisis where flooding, water scarcity, heat stress, groundwater depletion, and infrastructure vulnerability are deeply interconnected.

This is precisely why the conversation around storm water management is undergoing a global transformation. The future no longer lies in drainage alone. It lies in flood-resilient, water-sensitive design — a multidisciplinary approach where architects, planners, landscape designers, and building services engineers collectively design cities that absorb, slow, store, filter, reuse, and recharge water.

From Drainage to Water Sensitivity

The traditional drainage mindset was based on speed. Rainwater had to be evacuated from sites immediately.

However, modern urban flooding has demonstrated the limitations of this approach.

When entire cities are covered with roads, pavements, parking areas, podiums, rooftops, and hardscapes, rainwater loses its natural path into the ground. Instead, runoff accelerates across impervious surfaces, creating massive hydraulic loads on already stressed drainage networks.

In natural landscapes, rainfall infiltrates slowly into soil, replenishes aquifers, and moves gradually through ecological systems.

Urbanization disrupts this balance completely

The data is clear: urban environments generate two to six (2 – 6X) times more runoff than natural land. While natural terrain allows for 25% deep infiltration and only 10% runoff, typical urban surfaces result in 55% runoff and 0% deep infiltration. Our mission is to bridge this gap through engineered resilience.

This is where the philosophy of Water-Sensitive Urban Design (WSUD) becomes transformative. Instead of treating rainwater as waste, the objective is to retain water within the site for as long as possible through infiltration, detention, retention, reuse, and groundwater recharge.

Globally, progressive cities are now integrating blue-green infrastructure into planning frameworks. Flood resilience is no longer considered only a civil engineering problem — it has become a core urban design strategy.

Architects Are Now Designing the Journey of Water

One of the most important shifts happening within the built environment industry is the expanding role of architects in water resilience.

Historically, storm water systems were addressed late in the project cycle after architecture and planning decisions had already been frozen.

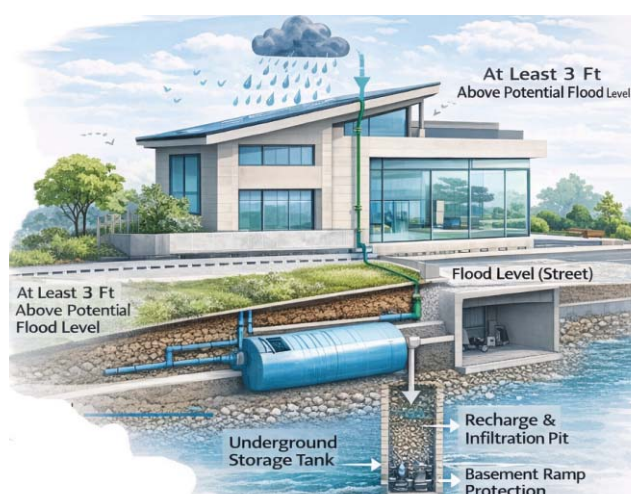
Today, that sequence is proving unsustainable.

Early design decisions directly influence flood vulnerability. Site grading determines runoff behaviour. Roof geometry affects drainage loads. Basement depth influences hydrostatic risk. Landscape design controls infiltration potential. Surface material selection affects runoff coefficients.

In effect, architects are not merely designing buildings anymore — they are designing how water moves through a project.

This shift requires stronger integration between architecture, plumbing, landscape, sustainability, and civil infrastructure from the earliest concept stage.

Water-sensitive design rethinks storm water as a resource rather than a disposal burden



Early-stage architectural decisions increasingly determine urban flood resilience.

Projects that embed water management into planning achieve significantly higher resilience compared to projects where drainage is added later as a compliance requirement.

Why Roofs Are Becoming Strategic Water Assets

In dense urban developments, rooftops are among the largest rainwater catchment surfaces available.

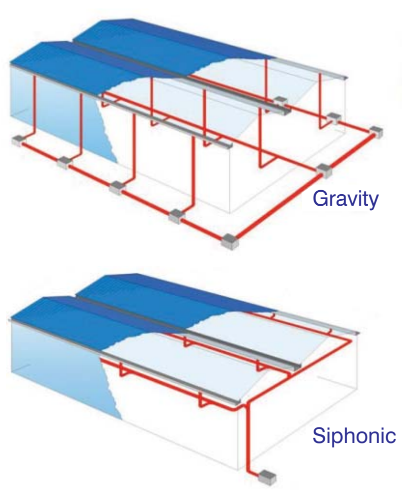
This makes roof drainage design a critical part of flood management strategy.

Conventional gravity drainage systems have served buildings for decades, but modern high-intensity rainfall events are exposing operational limitations in large developments.

Siphonic roof drainage systems are emerging as a more advanced alternative, especially for airports, industrial facilities, commercial complexes, convention centres, and large institutional campuses.

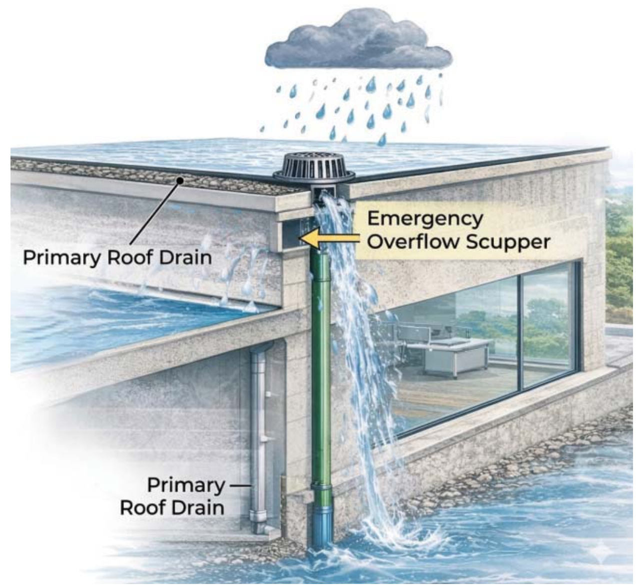
By operating under full-bore flow conditions using negative pressure, siphonic systems can rapidly evacuate large volumes of rainwater using smaller pipe diameters and fewer downpipes.

Beyond efficiency, these systems also provide greater architectural flexibility by reducing slope requirements and simplifying coordination within congested service zones.



Modern roof drainage strategies are evolving from passive disposal systems to active resilience infrastructure

Equally critical are emergency overflow systems. During extreme rainfall or blockage conditions, secondary overflow provisions protect roofs from excessive hydraulic loading — a factor becoming increasingly important as climate volatility intensifies.



Landscape Is the New Storm Water Infrastructure

Perhaps the most exciting transformation in resilient urban design is the emergence of landscape as functional infrastructure.

Traditional projects depended heavily on underground pipes to manage runoff. Contemporary resilient developments increasingly use landscapes themselves to slow, absorb, filter, and recharge water naturally.

Rain gardens, bioswales, detention basins, permeable pavements, and ecological swales are now becoming essential components of sustainable campuses and townships.

Blue-green infrastructure integrates ecology, landscape, and storm water resilience into one system

These systems offer multiple benefits simultaneously:

- Reduced peak runoff
- Improved groundwater recharge

- Natural filtration of pollutants
- Reduced heat island effect
- Enhanced biodiversity
- Better public realm quality

This multi-functional performance is exactly why blue-green infrastructure is becoming central to global resilience planning.

In Indian cities where open space is rapidly shrinking, integrating water systems within landscape architecture may become one of the most effective long-term resilience strategies available.

Detention, Retention & the Rise of Sponge Cities

Across the world, cities are now adopting concepts often referred to as "Sponge City" planning — urban systems designed to absorb and retain rainfall instead of simply discharging it.

Detention systems temporarily hold storm water during peak rainfall events and release it slowly into downstream networks. Retention systems permanently store water for infiltration, ecological enhancement, or reuse.

This philosophy dramatically reduces flood peaks while simultaneously improving water availability.

For India, this approach carries enormous relevance. Urban flooding and groundwater depletion are increasingly occurring within the same geography. By integrating detention ponds, underground storage chambers, recharge basins, and wetland systems, cities can address both challenges simultaneously.

The future of resilience will depend on how effectively urban developments create distributed storage capacity across the built environment.

Rainwater Harvesting Must Move Beyond Compliance

For many projects, rainwater harvesting still remains a statutory checklist item.

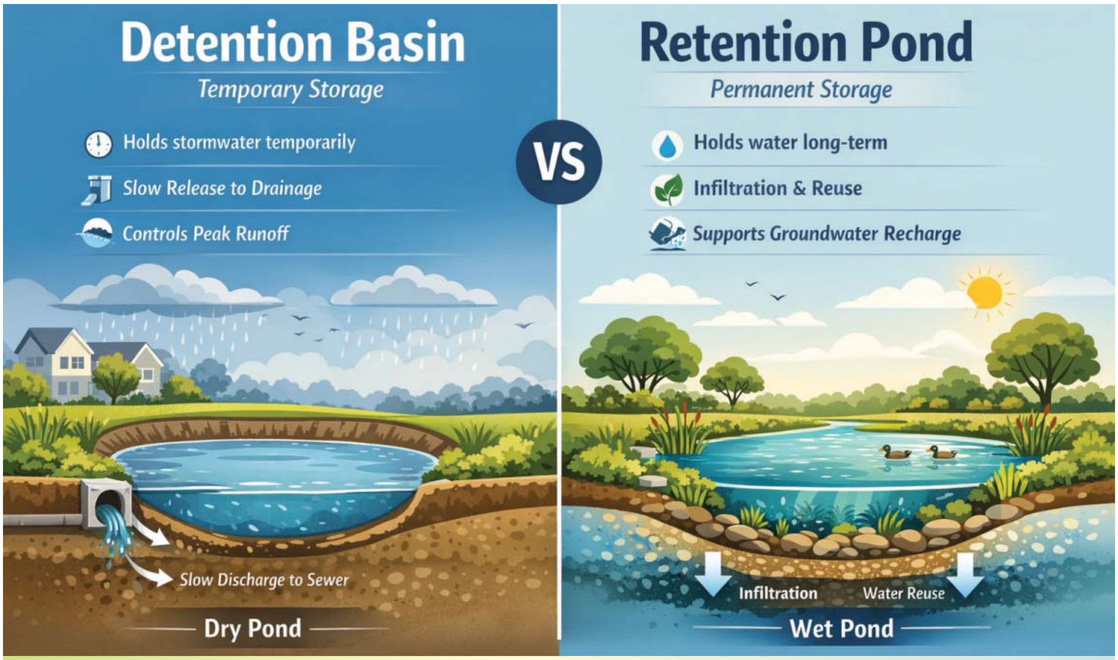
But the scale of India's future water challenges demands a much more strategic approach.

Large commercial and institutional developments can generate millions of litres of rainwater annually from rooftop runoff alone.

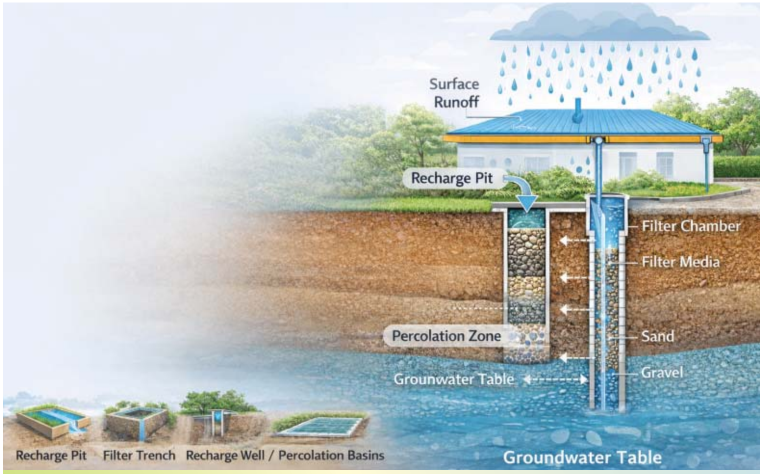
When integrated intelligently with filtration, storage, recharge systems, and reuse networks, rainwater harvesting can substantially reduce freshwater dependence.

The next evolution of rainwater harvesting lies in integration — linking storm water design, landscape systems, recharge strategies, and non-potable water reuse into one coordinated framework.

The projects that will define the next decade of sustainable development are not the ones that simply comply with regulations. They are the ones that create measurable water resilience.



Detention and retention systems reduce flood peaks while strengthening long-term water security



Groundwater recharge and integrated rainwater harvesting are becoming essential urban resilience tools

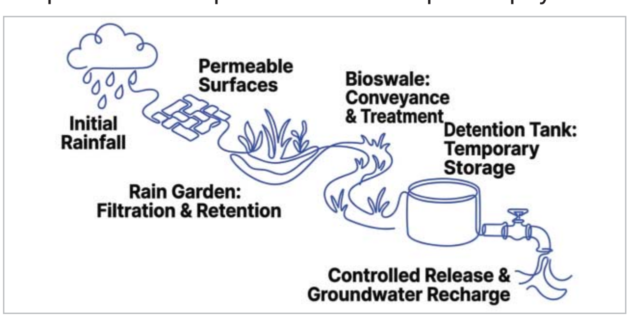
The Future Belongs to Cities That Learn to Live With Water

Climate change is forcing the design industry to rethink some of its most fundamental assumptions.

The conversation is no longer about how quickly water can be removed from a site. The real challenge is how intelligently water can be managed within it.

Flood-resilient design represents far more than a technical upgrade in plumbing or drainage engineering.

It represents a complete shift in urban philosophy.



Integrated Storm Water Strategy

The buildings and cities of the future must become active participants in the natural water cycle — absorbing rainfall, protecting infrastructure, replenishing groundwater, reducing ecological stress, and strengthening long-term resilience.

The most successful developments of the coming decades will not be those that fight water the hardest.

They will be the ones designed to work with it.

Key Industry Takeaways

The future of resilient architecture lies in buildings that function as active participants in the natural water cycle. We must move beyond "disposal" and toward "management."

Key Takeaways for the Design Team:

- **Resource Mindset**: Stormwater is a resource to be managed, not a waste to be drained.
- **Architectural Control:** Design decisions regarding roof forms and site grading determine the success or failure of the water strategy.
- **Foundation Integrity:** Subsoil drainage below the foundation raft is mandatory to relieve hydrostatic pressure and prevent structural decay, in case of high water tables.
- **Early Coordination:** Water strategies must be frozen at the concept stage, prior to finalizing excavation depths.
- **Holistic Infrastructure:** Landscapes, pavements, and roofs must work in unison to capture, store, and recharge rainwater.

We have a professional obligation to ensure our buildings are not obstacles to the environment, but sophisticated engines of urban resilience. Buildings can move from being part of the water problem to becoming part of the water solution. Every drop of rain is an opportunity for design.

Minesh Shah
National Secretary
Indian Plumbing Association

Minesh Shah is the National Secretary of the Indian Plumbing Association (IPA) and a seasoned MEP Consultant with extensive experience in planning, designing, and managing building services. He is the Director at Aqua Utility Designs and Management MEP Consultants and has previously served as the Chairman of the IPA Ahmedabad Chapter. He has been honoured with five consecutive IPA Navratna Awards, along with the Lifetime Achievement Award conferred by the Indian Plumbing Association (IPA).

"CATCH THE RAIN"

Comprehensive Roof Rainwater catchment and harvesting solution

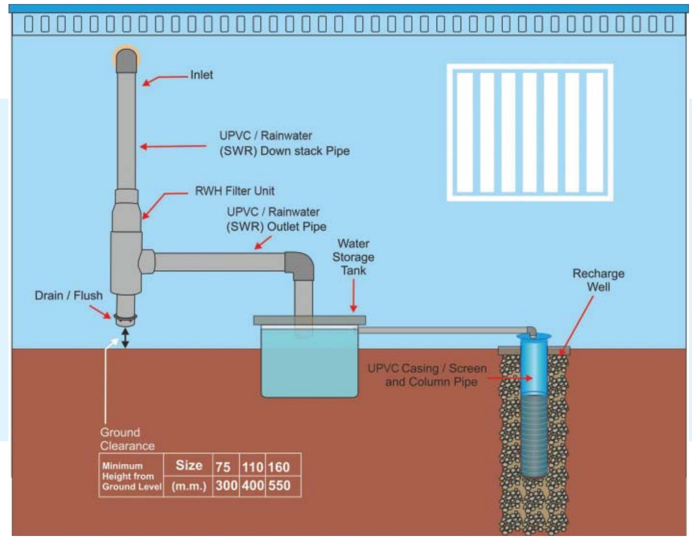
- Hemant Mutha

The discourse surrounding water management in India has shifted from mere conservation to an urgent national imperative for sustainable resource replenishment. Despite hosting 16% of the world's population, India possesses only 4% of the world's fresh water. This imbalance, coupled with a documented 61% decline in ground water levels over the last decade, highlights a critical ecological deficit that demands immediate and innovative solutions. The water we currently draw from depths of 500 feet was stored in the ground more than 300 years ago, underscoring the severity of our ground aquifer depletion and the vital necessity of systematic recharge.

To address this challenge, a simple, yet profound, act of harvesting rainwater from residential and commercial rooftops has emerged as the most viable, easy and immediate solution. It is the primary responsibility of every stakeholder—from individual homeowners to large commercial builders and municipal bodies—to use water judiciously and contribute to replenishing the underground water table.

Let us look at a complete, robust, and intelligently designed system for Rain Water Harvesting (RWH). At the core of this system is a revolutionary **integrated filter unit**, designed not merely to collect water, but to purify and channel rooftop run-off efficiently back into the water cycle.

[Suggested Illustration/Diagram: Cross-section diagram of the filtration unit installed with down-stack pipe and recharge well.]



The Integrated Filter - RWH Filter Unit: The Heart of Efficient Roof Rainwater Harvesting

The filter unit is engineered to transform the often-overlooked potential of rooftop rainwater into a valuable resource, available for immediate use—such as landscaping, gardening, car washing, and cooling—or for the long-term recharge of existing water storage resources like borewells or just simply the groundwater.

Unlike conventional, cumbersome RWH methods that involve extensive civil construction, this system is predicated on simplicity, robustness, and non-reliance on external energy sources. It stands out due to its core benefits and features:

- **Simple and Durable Construction:** The unit features a straightforward assembly and is manufactured from UV-resistant uPVC, significantly extending its service life, particularly in environments exposed to intense sunlight.
- **Energy-Free Operation:** It operates exclusively on minimal gravitational force, effectively leveraging the natural descent of water from the terrace to filter the flow. This ensures zero electricity consumption, leading to zero running cost and trouble-free maintenance.
- **High-Efficiency Filtration:** The gravity-based mechanism ensures the collected rainwater is clean and safe for downstream applications, including recharging the ground aquifer. There is a high quality/grade SS mesh (screen) inside the unit and primarily used to filter the roof rainwater that enters the RWH Filter unit. The filter works by directing rainwater from the down-stack pipe into the inlet, passing through the SS mesh thus filtering the water and then passing this filtered water through the outlet to the storage/recharge point.
- **Easy Maintenance:** The system is designed for user-friendliness. Debris like leaves, twigs, and trash accumulated during the initial rainfall are collected within the filter. This can be quickly cleared by unscrewing the bottom cap to drain the dirty water; the screen element can be removed, cleaned by simply spraying water, and reassembled, ensuring swift resumption of the RWH process.
- It is important to note that this filtration process and system is primarily used to filter out solid particles only and not chemicals or other possible water soluble compounds. Hence, it is basically a mechanical/physical process of filtering and not a chemical one.

Filter Performance Details

The filtration unit is backed by robust technical specifications that ensure high performance even under pressure (measured at 1.0 Kg/cm^2 pressure).

Size MM	Total Filtration M^3/Hr	Total Filtration Capacity Liters/Hr
75	16	16000
110	40	40000
160	80	80000

The self cleaning mechanism:- Auto Drain Valve

To preemptively address potential maintenance and cleaning concerns, a crucial product addition is available:the optional **Auto Drain Valve**. Traditional filters can become choked by solid particles, dust and dirt, dried bird droppings, dried leaves and twigs and other excessive debris, leading to reduced or zero water discharge. This blockage can cause rainwater to accumulate, choke the filter unit and thus overfill the inlet downtake pipes eventually leading to an overflow from the terrace, resulting in water flooding in the building.

The Auto Drain Valve, which replaces the standard bottom cap, operates on the principle of hydraulics. It is calibrated to automatically relieve accumulated water when the pressure in the system reaches a minimal threshold of 0.1 to 0.15 Kg/cm^2. This prevents the terrace from flooding and eliminates the risk of property damage, affirming the system's focus on safety and reliability.

A Complete, Integrated Piping Ecosystem

The true strength of the RWH solution lies in its holistic, integrated approach, combining the filtration unit with a comprehensive range of purpose-built piping systems for collection, conveyance, and storage/recharge.

1. Collection and Conveyance:

Rainwater collected from the rooftop is channeled through the primary down-stack system using **PVC / Rainwater Pipes**. Here the universally used, effective and cost efficient **uPVC SWR pipes** designed confirming to the **IS:13592** standards, ensure rapid, leak-free conveyance of water to the filtration unit. The filtration unit is available in sizes 75 mm, 110 mm, and 160 mm diameter, corresponding to the down-stack diameter. Alternatively the **uPVC Pressure pipes** confirming to **IS:4985** standards which are designed as per various pressure ratings like 2.5kg/cm2, 4kg/cm2, 6kg/cm2 and so on are also used by many. One thing to be considered here is the UV radiation handling ability of the pipes which are better in case of the uPVC SWR pipes as compared to the latter. It is also practically recommended that an exterior reflective paint or whitewash is painted on these pipes for much longer life considering the currently intensive and evergrowing Sunlight - UV - Heat combination.

2. Ground Aquifer Recharge and Storage:

Post-filtration, the clean rainwater is directed to the final storage or recharge medium. For borewell recharge, which directly targets the ground aquifer, the integrated system utilizes **Well Casing and Screen Pipes** conforming to **IS:12818** standards. These casing and screen pipes, available in sizes from 100 mm and above, are essential for constructing and protecting the recharge well, allowing water to percolate effectively back into the ground.

3. Water Reuse System:

Completing the sustainable loop is the mechanism for water extraction and reuse. The RWH system is integrated with the uPVC **Column Piping System**. These pipes, available in sizes from 25 mm onwards, are suitable for submersible pumps and are used for pumping and reusing the recharged ground water from borewells. At many places across the country alternatively the **HDPE pipes in coil form** are used instead of the uPVC Column pipes and they work as effectively as the former. The ability to effectively filter, recharge, and extract water makes the system a true 'closed-loop' solution for water security.

Quantifiable Performance and Market Validation

The economic and ecological impact of this system is significant. Considering an average annual rainfall of 700mm and a run-off coefficient of 0.8, the potential water harvest, or yield, is quantifiable based on the catchment area. This quantifiable benefit transforms RWH from an abstract environmental concept into a tangible asset for buildings and communities.

Rain Water Harvesting Potential for Different Roof Sizes:

Roof Area (Sq. Feet)	Total Rain Water Available* (Liters)	Roof Area (Sq. Feet)	Total Rain Water Available* (Liters)
500	26047	3000	156282
1000	52094	3500	182329
1500	78141	4000	208376
2000	104188	4500	234423
2500	130235	5000	260470

* *Avg. Annual Rain Fall=700mm Run off Coefficient =0.8*

For example, a modest rooftop of 1,000 square feet can yield approximately 52,000 liters of pure rainwater annually, while a large commercial roof spanning 5,000 square feet can collect over 260,000 liters.

Conclusion: A Path to Water Resilience

The integrated filtration and piping system offers more than just a product; it delivers a future-ready framework for water resilience. By providing a smart, cost-effective, and minimal-maintenance solution for capturing, cleaning, and channeling every precious drop of rain, the system once installed completely empowers communities to build their own 'water bank accounts'.

In the face of climate uncertainty and increasing water stress, the need for proactive measures cannot be overstated. By choosing the integrated RWH system—incorporating the filtration unit, SWR/PVC Pipes, Well Casing, and Column Pipes—builders, contractors, and homeowners are not just installing plumbing materials; they are investing in long-term environmental sustainability and water security for generations to come. It is time to heed the call: "CATCH THE RAIN" whenever it falls.

Hemant Mutha
Head - Marketing & Promotions
Jain Irrigation Systems Limited

Hemant Mutha is the Head of Marketing & Promotions and Head of Jain Plumbing & Building Products at Jain Irrigation Systems Limited. With almost two decades of overall experience, including 16 years in the Plastic Piping industry, he leads the Plumbing, Drainage and Building products segment and further heads the company's overall marketing strategies and execution. With a strong focus on Water Management, he champions the promotion of integrated Piping systems, Ag-Tech Solutions, precision farming, and water conservation through content strategy and strategic media partnerships.

Catch the Drop Before the Flood

The Missing Layer in Stormwater Design

- Madhava Narasimha Murthy Nedunuri

Abstract

Urban flooding is increasingly becoming a recurring reality across modern townships, commercial developments, and high-density urban corridors. Ironically, many of these developments already incorporate stormwater drainage systems designed in accordance with standard engineering practices. Yet roads flood, basements surcharge, ramps turn into water channels, and stormwater networks fail during short-duration high-intensity rainfall events.

This contradiction exposes a deeper issue. In many projects, stormwater systems are still approached primarily as drainage infrastructure intended to remove water after accumulation occurs. However, modern urban flooding often begins much earlier—before water even reaches the drainage pipe.

The problem is no longer limited to rainfall intensity alone. Hardscaping, loss of infiltration zones, accelerated runoff, disconnected planning, surface-level hydraulic obstructions, and outdated design assumptions collectively alter how water behaves within urban environments. As cities become increasingly impervious, rainfall that once infiltrated gradually now moves rapidly across rigid surfaces, overwhelming systems designed for older rainfall behaviour.

This article examines the missing layer in stormwater design: the behaviour of water before entry into the drainage network. It further proposes a practical systems-oriented framework for resilient urban stormwater planning that integrates surface hydraulics, retention strategy, drainage resilience, multidisciplinary coordination, and operational preparedness.

Introduction

Across many Indian cities today, a familiar pattern is emerging during heavy rainfall events. Roads become submerged within minutes, basements flood despite sump pumping arrangements, landscaped areas transform into runoff channels, and stormwater drains surcharge even in newly developed projects.

What makes this situation particularly concerning is that these failures are not limited to older urban infrastructure. They are increasingly visible in premium residential townships, commercial campuses, mixed-use developments, and modern urban corridors that already incorporate engineered drainage systems.

This raises an uncomfortable question.

If drainage systems already exist, why are cities still flooding so rapidly?

The answer may not lie entirely inside the drainage pipe.

Traditionally, stormwater design has focused on collecting and removing rainwater efficiently after runoff occurs. Pipe sizing, drain slopes, catch pits, and outfall arrangements have remained the central focus of drainage engineering. However, modern urban conditions have fundamentally altered the behaviour of rainwater before it even enters the drainage system.

Natural soil absorption has been replaced by hardscaped surfaces. Landscapes are increasingly built over podiums and basements. Roads, paved walkways, parking areas, and architectural grading patterns accelerate runoff velocity instead of slowing it. In many cases, water reaches drainage systems faster than the systems were ever intended to handle.

Modern flooding, therefore, is not merely a drainage failure.

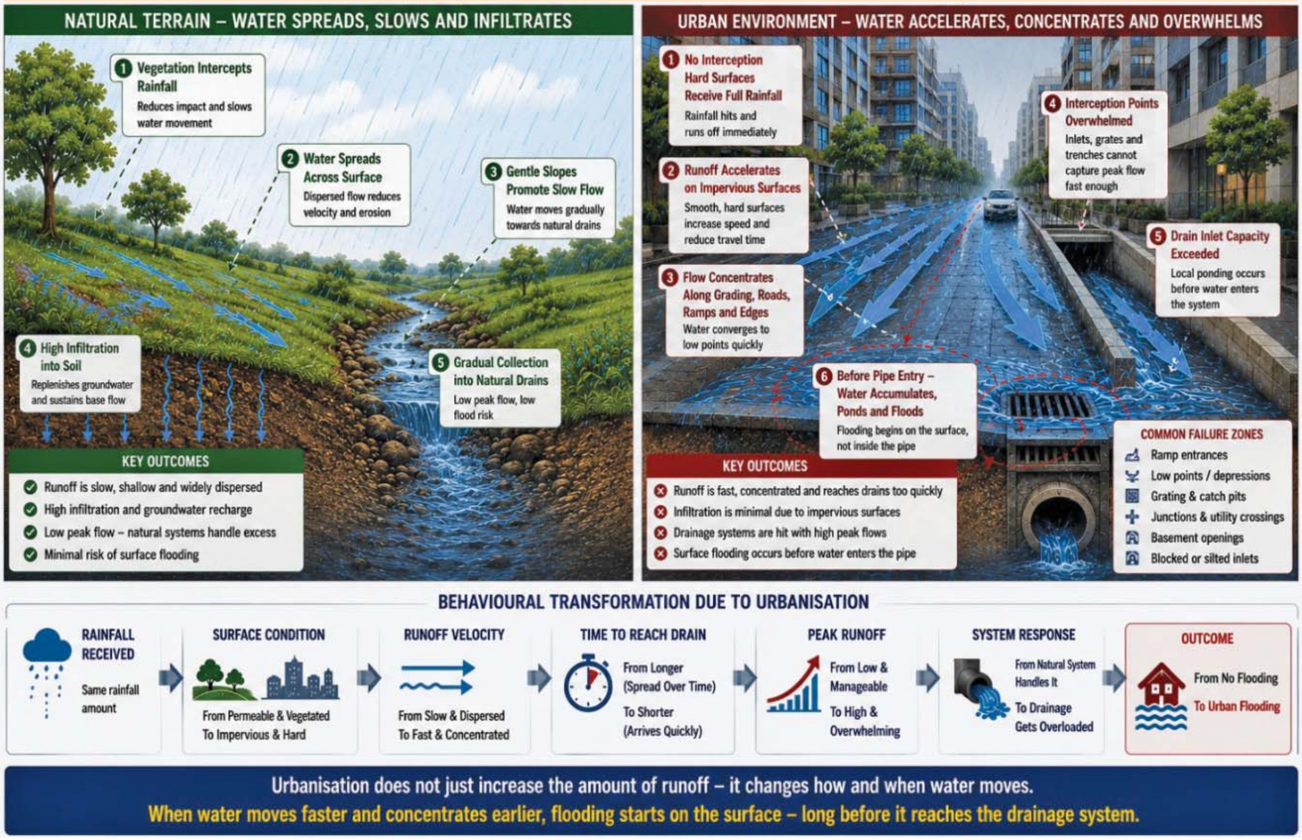
It is increasingly a surface water movement failure.

The Urbanisation Problem Nobody Calculates

Before urbanisation, rainfall followed a relatively balanced hydrological cycle. A significant portion infiltrated into soil, replenished groundwater, or

Fig 1: How Urbanisation Changes Rainwater Behaviour Before Drainage Entry

Flooding begins on the surface - long before water enters the pipe



dispersed gradually through natural terrain variations. Surface runoff existed, but its movement was slower, distributed, and partially absorbed during transit.

Urbanisation changes this balance dramatically.

Modern developments increasingly replace permeable ground with concrete roads, podium decks, paved landscapes, basements, retaining structures, and architectural hardscaping. Rainwater that once infiltrated naturally is now forced to travel across rigid surfaces with significantly higher velocity.

This transformation alters not only the quantity of runoff, but its behaviour.

Water accelerates faster, accumulates earlier, and concentrates at specific low points with greater intensity. Surface gradients, vehicular ramps, utility trenches, and landscape edges begin influencing water movement as much as hydraulic calculations themselves.

In many projects, this behavioural layer remains under-evaluated during design.

Stormwater calculations may still satisfy runoff formulas, yet actual water movement across the site behaves differently because the physical environment no longer resembles the assumptions behind the calculations.

This is particularly visible in podium developments and basement-intensive projects. Water that previously dispersed into natural soil now converges rapidly toward ramps, edge drains, and collection points. During peak rainfall, concentration occurs faster than evacuation.

The result is local flooding even before the pipe network reaches its theoretical capacity.

This distinction is important.

Flooding does not always begin because the drainage pipe is undersized.

It often begins because urban surfaces accelerate runoff faster than the system can absorb, intercept, or redirect it.

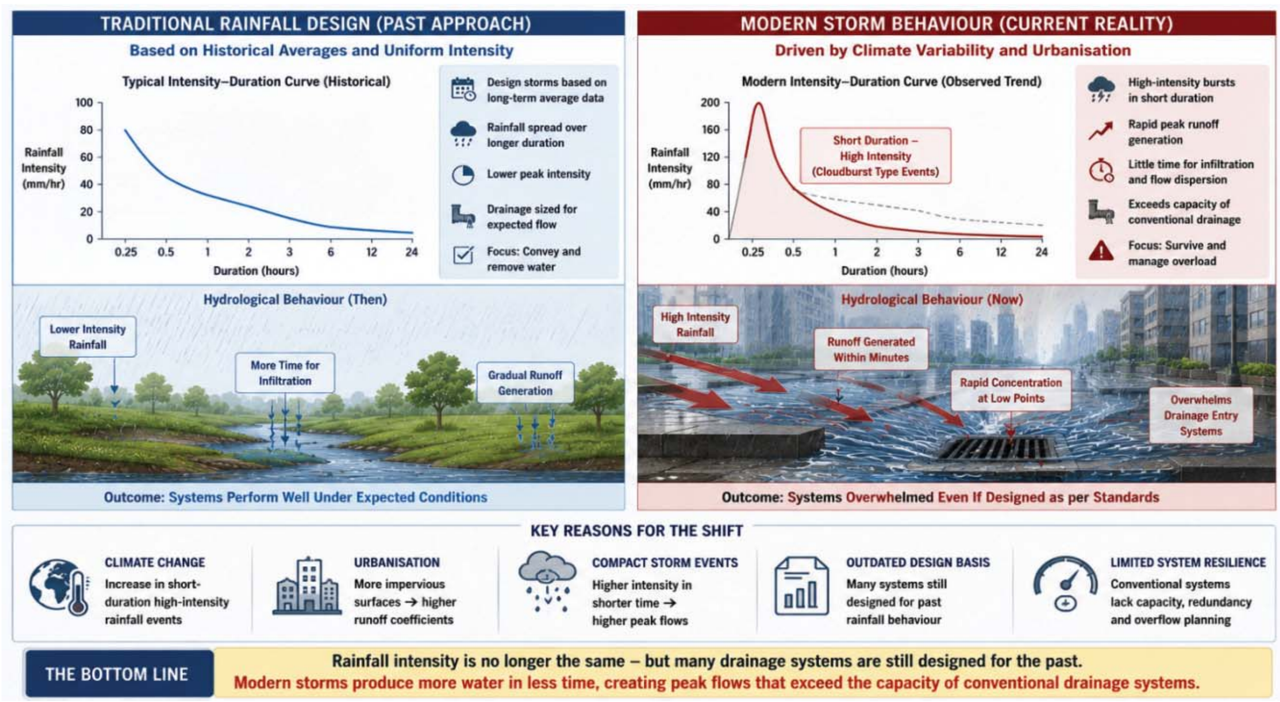
Why Conventional Drainage Calculations Are Becoming Inadequate

Many stormwater systems are still designed using historical rainfall assumptions that no longer reflect actual urban storm behaviour.

In many urban developments, drainage systems continue to rely on historical return-period assumptions

Fig 2: Traditional Rainfall Design vs Modern Storm Behaviour

Why short-duration high-intensity rainfall overwhelms conventional drainage systems



that may no longer fully represent emerging short-duration high-intensity rainfall behaviour.Traditionally, drainage systems relied on rainfall intensity-duration-frequency relationships developed from long-term climatic averages. These approaches remain technically valid, but urban rainfall patterns are increasingly becoming more volatile, concentrated, and unpredictable.

Short-duration high-intensity storms are now more common across many cities. Instead of moderate rainfall spread over several hours, developments increasingly experience intense cloudburst-type events that generate rapid runoff within a very short period.

This distinction is critical from a hydraulic perspective.

Drainage systems designed for average behaviour struggle when rainfall arrives as sudden surges.

At the same time, urbanisation itself changes runoff characteristics. Runoff coefficients increase as permeable surfaces reduce. Water reaches collection points faster, leaving less time for natural absorption or flow dispersion.

As a result, even correctly sized systems may experience temporary overload conditions because the behavioural dynamics of runoff have changed.

The issue is therefore not the absence of engineering calculations. The issue is that many calculations still assume hydrological conditions that cities no longer possess.

Stormwater infrastructure today must respond not only to rainfall quantity, but also to rainfall behaviour.

Drainage Is Not a Pipe Network Alone

One of the most overlooked realities in stormwater engineering is that flooding often begins long before water enters the pipe.

Surface-level planning plays a decisive role in determining whether stormwater reaches drainage systems in a controlled manner or as uncontrolled concentrated flow.

In many projects, architectural grading, landscape levels, road slopes, utility coordination, and drainage placement are developed independently. While each discipline may function correctly within its own scope, their combined interaction can unintentionally create hydraulic conflict zones.

Minor level mismatches become water traps. Poorly placed grating systems miss actual runoff paths. Utility crossings obstruct flow continuity. Decorative landscaping interrupts surface drainage movement. Basement ramps unintentionally become runoff channels.

These issues rarely appear during isolated design review.

They become visible only during actual storms.

This is why stormwater systems cannot be understood

Fig 3: Typical Failure Points in Township Stormwater Systems

Common coordination and execution issues that trigger local flooding despite available drainage infrastructure

purely as underground infrastructure. Surface hydraulics are equally important.

The path water takes before reaching the drain often determines whether the system performs successfully during peak rainfall.

Catch pits, trench drains, and grating systems must therefore be located based on actual runoff behaviour rather than geometric convenience. Surface flow interception is not merely a civil coordination issue—it is a hydraulic control strategy.

Stormwater failure usually begins before water enters the pipe.

The Basement Flooding Problem

Among all urban flooding conditions, basement flooding has emerged as one of the most severe and expensive operational risks in modern developments.

Basements are increasingly integrated into residential and commercial projects due to parking demands and land utilisation constraints. However, during heavy rainfall events, these underground spaces often become vulnerable collection zones for rapidly moving runoff.

The most common pathway is the basement ramp.

During intense rainfall, ramps begin behaving like sloped water channels, concentrating runoff directly toward lower levels. If trench drains at ramp entrances are undersized, partially blocked, or hydraulically overloaded, water bypasses the collection system and enters the basement itself.

This problem becomes more severe during cloudburst-type events where runoff intensity exceeds normal operating assumptions.

Additional risks emerge when external stormwater lines surcharge during peak rainfall. Backflow conditions may develop if isolation arrangements are inadequate. Simultaneously, power failures during storms can compromise pumping systems precisely when drainage demand becomes highest.

In many cases, the issue is not a single design failure, but the absence of layered resilience.

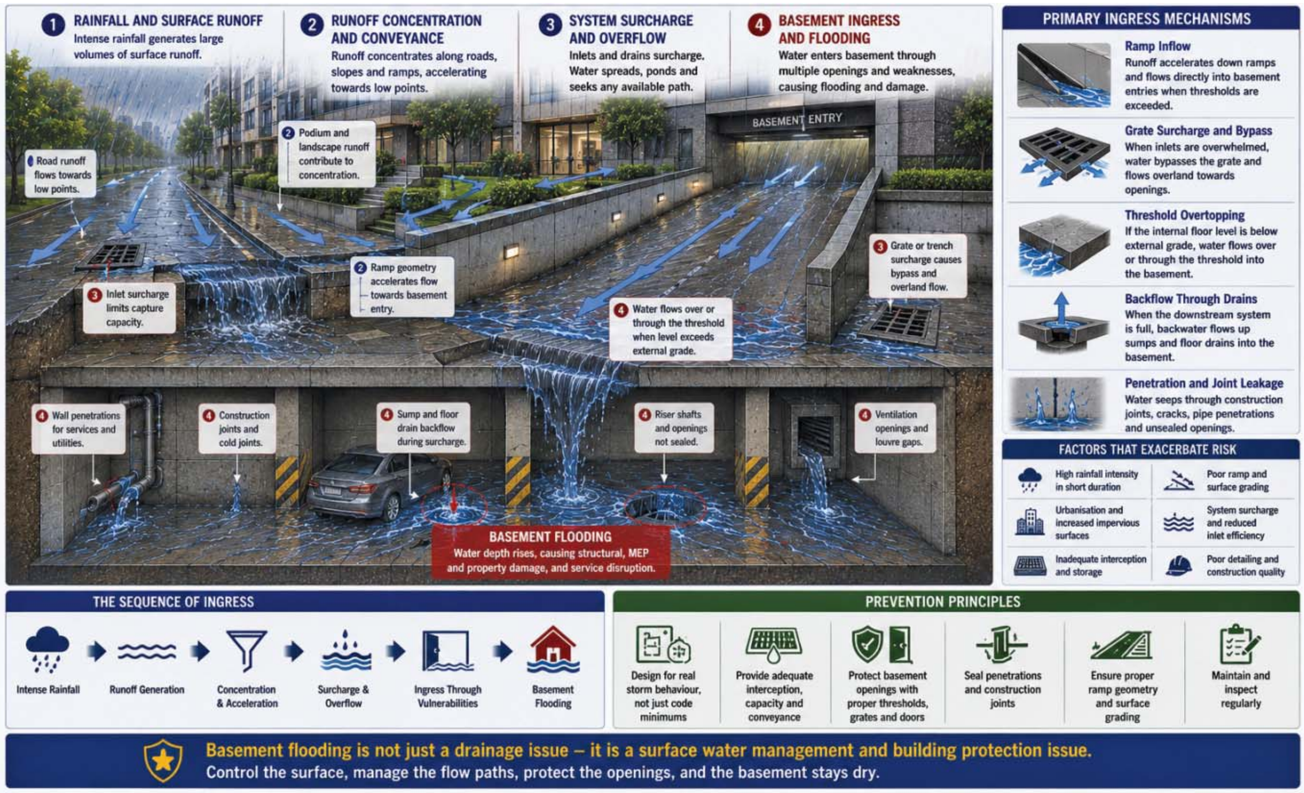
Basement protection requires:

- surface interception
- trench drain redundancy
- pump backup
- overflow routing
- emergency response planning

Without these layers, basements become urban flood traps during abnormal storm conditions.

Fig 4: Stormwater Ingress Pathways into Basements

How runoff concentration, ramp geometry, and surcharge conditions create basement flooding risks



Catch the Drop – Moving from Disposal to Retention

Traditional drainage philosophy focuses on removing stormwater as quickly as possible.

However, modern urban systems are increasingly revealing the limitations of this approach.

When every surface accelerates runoff and every network attempts rapid disposal simultaneously, downstream overload becomes inevitable. Water simply moves from one flooded zone to another at higher speed.

This is why future-ready stormwater systems must evolve beyond disposal philosophy toward retention and controlled movement strategies.

The objective is no longer only to remove water. It is to manage water behaviour before overload occurs.

This requires distributed retention approaches integrated throughout the development itself. Bioswales, recharge landscapes, rooftop buffering, detention zones, permeable paving, and controlled-release systems collectively slow runoff and reduce peak loading intensity.

Instead of concentrating water immediately into underground pipes, these systems distribute hydraulic stress across time and space.

Globally, similar approaches are reflected through Water Sensitive Urban Design (WSUD), Low Impact Development (LID), and sponge-city planning philosophies that prioritise retention, infiltration, and distributed runoff management.

Slow the water before the system is overwhelmed. Retention does not replace drainage infrastructure. It strengthens system stability during peak-flow conditions.

A Five-Layer Framework for Resilient Stormwater Design

If urban flooding begins before water enters the pipe, then stormwater resilience must also begin before conventional drainage systems alone.

Modern stormwater infrastructure can no longer depend on isolated drainage calculations or rapid disposal philosophy. It requires a layered systems approach that integrates surface behaviour, hydraulic resilience, urban coordination, and operational preparedness into one continuous framework.

Based on recurring failure patterns observed across urban developments, stormwater resilience can be approached through five integrated layers.

Fig 5: Distributed Stormwater Retention Strategy in Urban Townships

Integrated retention, recharge, and controlled-release system for sustainable stormwater management

The first layer is **surface water behaviour control**. Stormwater movement must be guided from the moment rainfall reaches the ground. Surface grading, runoff interception, hardscape planning, and flow-direction control become critical in reducing uncontrolled concentration.

The second layer is **distributed retention and recharge**. Instead of transferring peak runoff instantly into underground networks, developments must slow and temporarily retain water through detention landscapes, rooftop buffering, recharge zones, and staggered release strategies.

The third layer is **resilient drainage infrastructure** itself. This includes not only hydraulic capacity, but also surge management, overflow routing, basement protection, redundancy planning, and controlled-failure philosophy during abnormal events.

The fourth layer is **integrated urban coordination**. Stormwater behaviour is influenced not only by plumbing systems, but also by architecture, road design, utilities, podiums, landscape planning, and site grading. Drainage resilience therefore requires multidisciplinary coordination from the earliest planning stages.

The fifth layer is **operational preparedness**. Many drainage systems fail not because they were hydraulically inadequate, but because maintenance, debris control, pump readiness, and emergency response mechanisms were insufficient during critical events.

Together, these layers shift stormwater engineering from reactive drainage design toward proactive urban resilience planning.

Designing for Extreme Events, Not Average Events

One of the most important shifts required in modern drainage engineering is the transition from average-condition design to resilience-oriented design.

Historically, systems were optimised primarily for expected rainfall behaviour. Today, however, abnormal events are becoming increasingly frequent.

This does not mean every system can be designed for zero flooding under all conditions. Such an approach is neither technically nor economically practical.

The real objective is resilience. A resilient stormwater system does not assume overload will never occur. Instead, it ensures that when extreme conditions exceed design limits, failure remains controlled, predictable, and non-catastrophic

This requires layered planning. Emergency overflow paths must be identified deliberately rather than discovered accidentally during storms. Flood routing must prevent critical infrastructure exposure. Pumping systems require backup philosophy. Low-lying vulnerable zones must be recognised during planning itself.

Fig 6: Five-Layer Urban Stormwater Resilience Framework

Integrated framework combining surface hydraulics, retention, resilient drainage infrastructure, multidisciplinary coordination, and operational preparedness

Operational preparedness also becomes essential. Drainage systems that function hydraulically may still fail operationally if maintenance, debris control, or emergency response protocols are weak.

A drainage system is therefore successful not when rainfall remains normal, but when abnormal conditions do not create uncontrolled urban failure.

Conclusion

Rainfall is changing.

But cities are changing even faster.

Urban flooding today is no longer simply a rainfall problem. It is increasingly a systems problem created by the interaction between extreme weather, hardscaped infrastructure, accelerated runoff, fragmented planning, and outdated drainage assumptions.

The future of stormwater engineering therefore cannot remain limited to underground pipe sizing alone.

It must expand into integrated urban water movement thinking.

Stormwater systems must be designed not only to drain water, but to slow it, guide it, distribute it, absorb it, and safely manage it during abnormal conditions.

This shift fundamentally changes the role of plumbing and infrastructure engineers. They are no longer designing only drainage systems.

They are increasingly designing urban resilience itself.

The future of rainwater drainage will not be defined by how fast cities remove water.

It will be defined by how intelligently they intercept it, slow it, distribute it, and survive the extremes it creates."

Madhava Narasimha Murthy Nedunuri
IPA Professional Member
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Madhava Narasimha Murthy Nedunuri, FIE, is a senior MEP leader, IPA Professional Member who has spent two decades shaping complex building environments across India. His career spans leadership roles at Urbanac Infra Projects, IL&FS Engineering, Shapoorji Pallonji, and HCC, where he led delivery of high-rise residential towers, hospitals, malls, data centers, townships, and large commercial developments. A Fellow of The Institution of Engineers (India), Chartered Engineer, PMP®, PMI-RMP, and IGBC Accredited Professional, he is known for uniting technical clarity with execution reality. His approach emphasizes design-to-site alignment, lifecycle-focused decision-making, and building strong second-line leadership rather than dependence on individuals.

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BACK TO BASICS

VALVES AND THEIR APPLICATIONS

- Rahul Dhadphale

1. Introduction

Valves are indispensable mechanical devices used in piping systems to control, regulate, or direct the flow of fluids. They play a vital role in ensuring operational safety, efficiency, and reliability across domestic, commercial, and industrial installations. From simple plumbing networks to complex power plants and chemical industries, valves form the backbone of fluid control systems.

Fluids controlled by valves include water, steam, gases, oils, chemicals, and slurries, operating under varying conditions of pressure and temperature.

2. Purpose and Functions of Valves

The primary functions of valves are:

- **Isolation**: Starting or stopping fluid flow
- **Regulation**: Controlling flow rate and pressure
- **Backflow Prevention**: Allowing one-directional flow
- **Pressure Relief**: Protecting systems from overpressure
- **Directional Control:** Diverting or mixing flow
- **Automation:** Enabling remote and process control

3. Classification of Valves

3.1 Classification Based on Function

1. Isolation valves
2. Control (throttling) valves
3. Non-return (check) valves
4. Pressure relief and safety valves
5. Directional control valves

3.2 Classification Based on Motion

- **Linear motion:** Gate, Globe, Needle, Diaphragm
- **Rotary motion:** Ball, Butterfly, Plug

4. Detailed Types of Valves and Their Applications

4.1 Gate Valve

Description

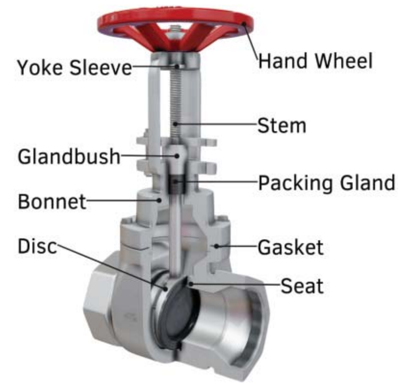
Gate valves operate by raising or lowering a gate perpendicular to the direction of flow. They are designed primarily for on/off service.

Characteristics

- Full-bore opening
- Very low pressure loss
- Not suitable for throttling

Applications

- Water transmission pipelines
- Fire fighting mains and hydrant systems
- Oil and gas pipelines
- Raw water and irrigation systems



4.2 Globe Valve

Description

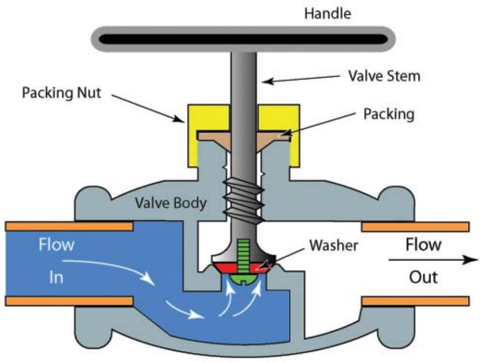
Globe valves regulate flow by moving a disc against the flow stream, offering precise control.

Characteristics

- High pressure drop
- Excellent throttling capability
- Good shutoff performance

Applications

- Steam and boiler systems
- Fuel oil lines
- Cooling water control
- Chemical processing plants



4.3 Ball Valve

Description

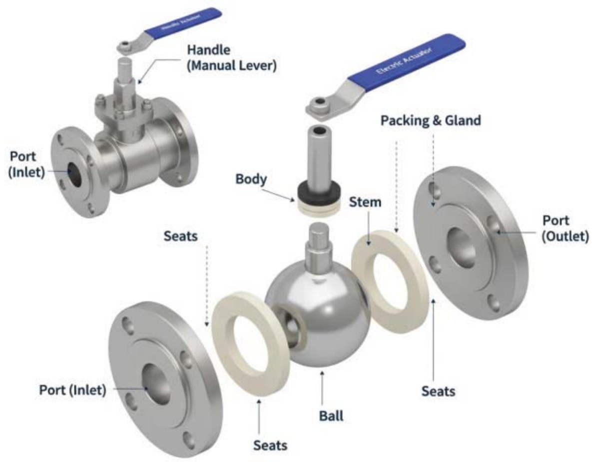
Ball valves use a hollow, perforated ball rotated 90° to control flow.

Characteristics

- Quick quarter-turn operation
- Bubble-tight shutoff
- Minimal pressure drop

Applications

- Domestic and commercial plumbing
- Gas distribution networks
- HVAC isolation
- Chemical and pharmaceutical industries



4.4 Butterfly Valve

Description

Butterfly valves consist of a rotating disc mounted on a shaft, offering compact and economical flow control for large diameters.

Characteristics

- Lightweight and space-saving
- Moderate pressure drop
- Suitable for throttling and isolation

Applications

- Chilled and condenser water systems
- Sewage treatment plants
- Fire protection systems
- Large-diameter water pipelines

4.5 Check Valve (Non-Return Valve)

Description

Check valves allow fluid flow in only one direction and automatically prevent backflow.

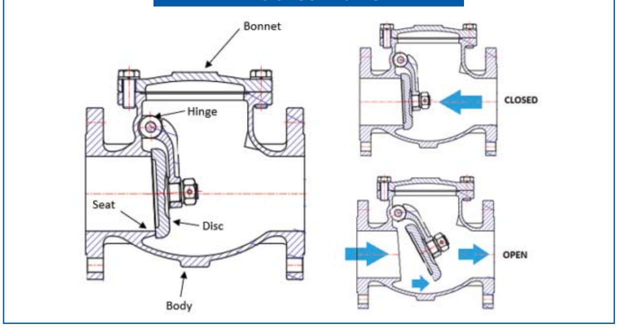
Types

- Swing check valve
- Lift check valve
- Dual plate check valve
- Foot valve

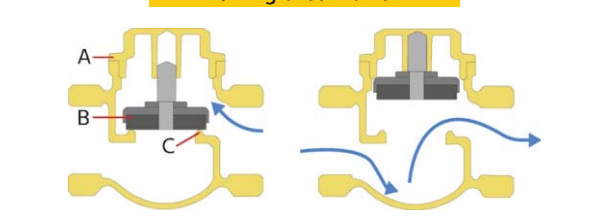
Applications

- Pump discharge lines
- Water supply systems
- Sewage and drainage pipelines
- Compressor outlets

Lift check valve



Swing check valve



4.6 Plug Valve

Description

Plug valves use a cylindrical or tapered plug to control flow and are well-suited for handling slurries and viscous fluids.

Characteristics

- Simple construction
- Tight shutoff
- Can handle dirty fluids

Applications

- Chemical and petrochemical plants
- Slurry and wastewater systems
- Oil and gas industries

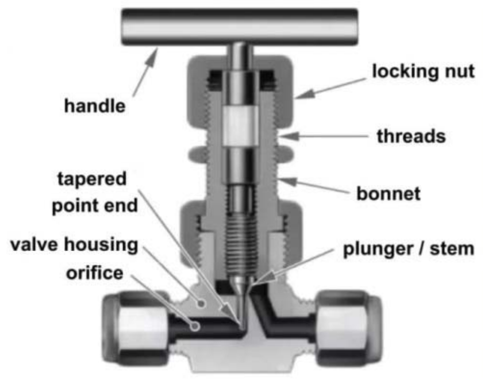
4.7 Needle Valve

Description

Needle valves provide precise control of small flow rates using a finely tapered needle.

Applications

- Instrumentation lines
- Pressure gauges
- Hydraulic and pneumatic systems



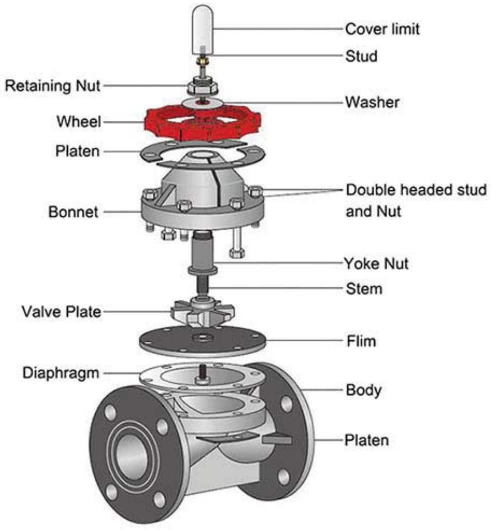
4.8 Diaphragm Valve

Description

Diaphragm valves use a flexible diaphragm to control flow, ideal for corrosive and sanitary applications.

Applications

- Pharmaceutical industries
- Food and beverage plants
- Chemical dosing systems



4.9 Pressure Relief and Safety Valves

Description

These valves automatically release excess pressure to protect equipment and personnel.

Applications

- Boilers and pressure vessels
- Steam pipelines
- Compressors and reactors

Standards

- ASME
- IS codes

4.10 Control Valves

Description

Control valves regulate process variables automatically using actuators and control signals.

Applications

- HVAC automation
- Power plants
- Process industries

4.11 Solenoid Valves

Description

Solenoid valves are electrically operated valves used for automation.

Applications

- Irrigation systems
- Pneumatic and hydraulic circuits
- Building management systems

8. Conclusion

Valves are critical components that ensure **safe, efficient, and controlled operation** of fluid systems. A thorough understanding of **valve types, operating principles, materials, and applications** is essential for engineers, designers, and maintenance professionals. Proper selection and maintenance of valves directly impact system performance, safety, and lifecycle cost.

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Importance of Traps and Self-Priming Trap

- Prasham Mehta

Introduction

Plumbing design is an important part of any building because it helps keep the spaces clean, comfortable, and safe to live in. One key element in this system is the **trap**, which stops bad smells, harmful gases, and germs from coming into the house from the drainage system. It does this by holding a small amount of water called the **water seal**, which acts like a protective barrier. But sometimes this water seal can disappear due to pressure changes or improper use. Self-priming traps solve this problem by refilling the water seal on their own. This study highlights why water seals are important and how **self-priming traps** help maintain a healthy plumbing system.

Figure 1 Types of Traps

Importance of Water Seal

The water seal is the layer of water that stays inside a trap, usually around 50–75 mm deep. It plays a very important role in keeping indoor spaces clean and safe. Its benefits include:

- **Stopping sewer gases:** It blocks harmful gases like methane, hydrogen sulphide, and ammonia from entering the building.
- **Preventing bad smells:** It keeps foul odors from the drainage system out of living areas.
- **Keeping insects away:** It prevents cockroaches, mosquitoes, and even small rodents from entering through the sewer lines.
- **Protecting health:** It helps reduce the spread of diseases that can come from dirty drainage systems.
- **Maintaining hygiene:** It ensures washrooms, kitchens, and public toilets stay fresh, clean, and comfortable for users.

Causes of Water Seal Failure

The water seal in a trap can disappear for several reasons, such as:

1. **Evaporation:** This happens in drains that aren't used often, especially in hot weather.
2. **Siphonage:** When a toilet or fixture is flushed, the sudden pressure change can pull water out of the trap.
3. **Back pressure:** If pressure builds up in the sewer line, it can push the water seal out of the trap.
4. **Leakage or poor installation:** Loose joints, cracks, or badly fitted traps can let the water escape.
5. **Capillary action or absorption**: Dirt, hair, or other materials in the trap can slowly absorb or draw out the water seal.

Importance of Self-Priming Traps

Self-priming traps are special traps that can refill the water seal on their own if it gets lost. Their importance can be understood through the following points:

1. **Automatic refilling:** They restore the water seal without anyone having to do it manually.
2. **Useful in rarely used areas:** Ideal for guest bathrooms, basements, or emergency drains where water doesn't flow often.
3. **Better hygiene in important places:** Hospitals, labs, and commercial kitchens benefit greatly because these traps help maintain a cleaner environment.
4. **Less maintenance:** They reduce the need for frequent inspections or manual topping up of water.
5. **Protection from odor and gases:** They stop sudden bad smells and harmful gases, keeping indoor areas comfortable and safe.

Applications and Case Examples

- **Residential buildings:** Commonly used in bathrooms, kitchens, and laundry areas to keep the environment clean and comfortable.
- **Commercial buildings:** Important in malls, hotels, and offices to avoid bad smells and maintain a pleasant atmosphere.
- **Healthcare facilities:** Hospitals and clinics rely on self-priming traps to meet strict hygiene and infection control standards.
- **Industrial kitchens:** Essential in food preparation areas to prevent odors and pests from entering the workspace.
- **Public restrooms:** Help lower maintenance needs while providing consistent and effective odor control in busy areas.

Best Practices in Design Installations

- **Maintain proper water seal depth:** Make sure all traps have at least a 50 mm water seal, as recommended by NBC.
- **Use self-priming traps where needed:** Install them in drains that aren't used often or where the water seal may evaporate.
- **Inspect traps regularly:** Include trap checks in routine building maintenance to ensure everything is working properly.
- **Design drainage correctly:** Avoid wrong slopes or pressure issues that can pull water out of traps.
- **Choose good-quality materials:** Use durable, corrosion-resistant traps to prevent leaks and increase lifespan.

Figure 2 Self Priming Trap

Conclusion

The water seal is a key part of how traps work in plumbing, keeping buildings safe from harmful gases, bad smells, and pests. But sometimes, due to weather or how the system is used, this seal can disappear. Self-priming traps offer a simple and dependable fix by automatically restoring the water seal. They are especially useful in modern high-rise buildings, hospitals, and commercial areas. By using proper water-seal principles and self

priming trap technology, designers can create plumbing systems that are safer, cleaner, and more sustainable.

Prasham Mehta
Student, CEPT University

Prasham Mehta is currently in his sixth semester at CEPT University. In his fifth semester, he completed a Plumbing Design Studio under the guidance of Dipsha Shah and Dipen Mehta, where he gained knowledge of water supply systems, drainage networks, and plumbing layout planning. He is particularly interested in building services engineering, with a focus on the integration of plumbing systems and their performance in real construction projects.

Wat-er View

COLUMN 27

PART 2

Solutions for 'Problems' that do Not Really Exist in Apartments

- Chandrashekar Hariharan

In the last edition we discussed the impact that we can make on apartments across India and how up to 70 litres at the minimum per person over 50 million such urban middle-class apartment dwellers can be saved, or 3.5 billion litres reduced as demand by some simple acts that every apartment can take to save 50% of current water purchase cost, and in the bargain secure better quality water, and reduced dependence on tankers and water board.

The untold story of apartments and water is something that marks every city in India as their numbers have jumped over the last 25 years. From less than 1000 Apartments in all of Bangalore in 2000, the city has jumped to about 7,000 such building 'complexes'. The number of homes they host is an average of 100, and about 25% of the city's population have morphed into apartment dwellers over the last 25 years.

Our story today is about one such luxury apartment of 78 homes, set in four blocks of ten floors, built over 20 years ago. They reached out to a team that this writer mentors, concerned as the residents were over the sharp increase in water costs in the last one or two years. They couldn't figure out the unaccountably high daily demand of nearly 1000 litres to each home, with more than half the flats having no more than 2 people.

So where was the challenge? How could they keep water purchase costs on leash? They could not put their finger on it. The monthly amount paid to the water supply board had gone up by at least half of what it used to be, said one of the residents.

The apartment's water-use every month was over 2 to 2.4 million litres, at 80,000 litres a day of average buying from the BWSSB. The annual consumption was hovering at well over 25 million litres.

What can you do to mitigate the relatively higher cost, they asked. Eighty families and nearly 80,000 litres? So what was the consumption pattern that needed to be understood and rationalised?

A water diagnostics team went to work. They explored every dimension. The water engineers examined the quality of the pipes for calcium deposits that could be slowing down the surge of water from the pumps, the quality of the pumps and the 'energy inefficiency' of the pumps on conversion of power to pressure, of the quality of water that was being purchased, as well as the water discharged as waste water. The faucets and the showers had to be checked out for flow efficiency, the underground and overhead tanks had to be evaluated for peak storage in the rain months, since civil engineers traditionally have designed for 1-1.5 days of daily demand, with no recognition of need for storing rainwater that can be used on non-rain days. Such addition of storage tanks has been frowned upon, and considered to be a burdensome, needless cost, without a thought to how such storage can build resilience and reduce water purchase over a year. "There's no space in the project," is the stock uncaring answer you get from senior custodians in most places who are supposed to know. The hot water-producing geysers, 20 years old in this apartment, were major energy-guzzlers with an energy efficiency ratio of a poor 0.5–which meant double the units consumed than efficient new-gen heat pumps that offer options for reducing energy bills by 80% on hot water.

At 2 KW to every geyser it meant 6 KW to every home at an average of 3 geysers, and nearly 500 kVA or half mVA as demand load from these geysers alone. The fixed cost on demand load was also adding quietly to the common bills of the residents without them being aware of it.

The four pumps working nearly ten hours a day and pumping water over 80 meters or 260 feet to the overhead tanks from the underground storage reservoirs of nearly half-a-million litres were adding a staggering ₹8 lac a year to the apartment's common energy bills.

The diagnostics team went about exploring every option to rationalise and manage use of water better, without compromising comfort or convenience. Taps and showers were flowing water at a rate that was twice the recommended flow-rates. The washing machines and dishwashers needed descaling of the internal systems and pipes of all such appliances in these homes which would enhance flow and therefore energy efficiency. The split and window AC's were energy-guzzlers and could be helped with a saving of 30% on their energy consumption with simple energy-efficient expedients.

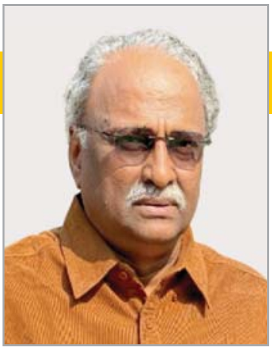
An open well that also got in a bit of rainwater in the Monsoon months, was used for some years for gardens and for washing of about 60 cars of the residents. This was reengineered to save about ₹7 lac a year with systems that centred around Treat-and-Reuse. All of the wastewater discharge of about 80,000 Litres have been sent out of the apartment all these years to the external water sewerage drain—this was wealth draining every day and could be put to potential reuse by upgrading treated waste water to high-hygiene drinking grade water. This would save over 12 million litres a year and ₹12 lac annually, with an investment of no more than ₹30 lac for such high-end water treatment systems. The residents were yet to unravel these possibilities. You can see how this will make the apartment near-zero on its need for water purchase—all ₹25 lakh a year could be saved, with green water infrastructure that will work to 'generate' alternate, non-fossil, low-carbon water, all within the apartment in a loop of water that will need no more than 10% as 'new water' from outside of the loop.

Are these challenges unique to one apartment? First, this is not an isolated example of one apartment in the city, in any city. Second, these are challenges that characterise every single apartment in every city. The older the apartment the greater the losses, with inefficiencies in water and energy virtually doubling what should be actual cost of a well-managed set of water and energy infrastructure.

The single unique challenge in all this for water professionals who aspire to help water-users achieve Net Zero Water, is that they have to offer solutions for 'problems' that do not really exist in the minds of Water- and Energy-users, as you can see from the listing of the solutions. Users have no idea that AC's can chop 30% of the energy bill, or that geysers can be done away with, with an 80% cut in energy cost for all residents of an apartment.

If this is the story of one apartment which could transform to become sustainable both on costs and resources for the very long term, the potential to go Net Zero across such apartments in any city is limitless. Explore it. You can be part of the solution if you are an apartment dweller, or you can usher in such change in new apartments you are charting as MEP designers. With the summer's onset, when you read a report of the inevitable water crisis, think of what you can do to solve it, without any help or aid from any government department. If you need help in understanding what is a simple set of procedures, you could also mail this writer for help.

Recall the simple matrix that was offered in Part 1 of this column, which encapsulated the numbers of both water savings, and the savings in rupees that a range of solutions offer for any apartment. This can be engineered for any apartment, no matter how old or how large, or where located. This is the future. Sooner you adopt this at your apartment, the wiser you are. If the data offered in the matrix here need explaining, you could mail the writer and adopt such systems with greater quality of water secured, greater assurance of water security, lesser dependence on the world outside your apartment for water from tankers or from water supply Boards, and at costs that are eminently viable.



Chandrashekar Hariharan

The writer is founder-trustee at AltTech Foundation and Prem Jain Memorial Trust, and a Senior Fellow at CII IGBC. As a green building pioneer and a Net Zero exponent, he currently mentors startups to harvest over 5 billion litres of no-tankers, no-borewells, no-grid, low-carbon, low-TDS water every year for a variety of commercial and industrial projects.

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3rd EDITION

Jaquar IPA Neerathon

Water Awareness Festival

The 3rd edition of the *Jaquar IPA Neerathon – Run for Water, a Water Awareness Festival* was held on 19th April 2026 at the iconic Jawaharlal Nehru Stadium, New Delhi. With over 2,500 participants coming together, the event once again highlighted how collective effort can drive meaningful change towards water conservation.

Organized by the Indian Plumbing Association (IPA) and supported by Jaquar Group as the Title Sponsor, the Neerathon continues to grow as a key initiative under the **#ISaveWater** campaign. The event is also held in memory of Shri N. L. Mehra, whose vision and legacy continue to inspire sustainable practices across the water and sanitation sector.The support of the Ministry of Jal Shakti and the Ministry of Housing and Urban Affairs added further strength to the initiative, underlining the importance of joint efforts in addressing the country's water challenges.

A Milestone Year with Growing Participation

This year marked an important milestone with the introduction of the Half Marathon (21.1 km), which received an overwhelming response with over 700 registrations. Alongside it, the 10.5 km, 5 km, and 3 km (Fun Run) categories saw enthusiastic participation from people across different fields—academia, industry, hospitality, and corporate sectors.

Prize Distribution Ceremony

Where Awareness Meets Expression

The event was not just about running; it was also about connecting with the message in meaningful ways.A heartfelt poem on water conservation by Hindi poetess Ranjeeta Sahay Ashesh added an emotional touch, resonating with the audience. This was followed by a thoughtful skit by children from the Prajna Foundation on "Jal Hai to Kal Hai," reminding everyone, in a simple yet powerful way, why conserving water is so important.

An Inclusive and Inspiring Movement

One of the most inspiring aspects of the Neerathon was its inclusive nature. Six differently abled participants (deaf and mute) took part in the run with great

Six differently abled participants along with the Prajna Foundation team

enthusiasm. Two of them also shared messages on water conservation through sign language, creating a moment that truly connected with the audience.

The event also saw participation across age groups, from a six-year-old child to senior citizens aged 91 and 94. It was a powerful reminder that the responsibility of water conservation belongs to everyone, regardless of age.

Powered by Strong Partnerships

The success of the Jaquar IPA Neerathon 2026 was made possible by a wide network of partners who shared the vision of promoting water sustainability. Key partners included Ashirvad by Aliaxis and Aqua Press Pvt. Ltd. as T-shirt Partners; Saffron Energy as Hospitality Partner; KPT Pipes Private Limited as Kit Bag Partner; Georg Fischer (+GF+), Watec Pipes, JRK Techno Engineers Pvt. Ltd., and Aopollo Pipes Pvt. Ltd. as Supporting Associates; Krimens Engineering Services Pvt. Ltd., NeerDrains Pvt. Ltd., Piscine Global, and Best Tech Pipes LLP as Ground Support Partners; Nutty Gritties as Nutrition Partner; Apollo Hospitals as Medical Partner; Delhi Heart & Lung Institute (DHLI) as Healthcare Partner; Delhi Pharmaceutical Sciences and Research University (DPSRU) as Physio Partner; and Incremento as Energy Drink Partner.

Flag- Off for the Marathon

Way Forward

With each passing year, the Jaquar IPA Neerathon continues to grow, not just in scale, but in impact. What started as an awareness initiative is steadily evolving into a larger movement that encourages people to think, act, and contribute towards water conservation.

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CHAPTER NEWS

CHAPTER ELECTIONS

Puducherry Chapter

Elections were held in IPA Puducherry Chapter for the 3 years term 2026 – 2029 on Monday, 23rd Feb 2026 with the General Body Meeting. All the candidates who filed nominations were elected unopposed and were administered the oath of office by the Returning Officer.

Returning Officer: Dr. S Virapan - Chairman, IPA Chennai Chapter

Election Date: 23rd February, 2026

Sl. No.	Name of Candidate	Elected for the post	Election Mode
1.	Dr. K Nagakarthigan	Chairman	Unopposed
2.	Dr. S Thirougnaname	Vice Chairman	Unopposed
3.	T. Gandhi	Hon. Secretary	Unopposed
4.	Dr. S Janarthan	Hon. Joint Secretary	Unopposed
5.	Antony Leo Y	Hon. Treasurer	Unopposed
6.	Dr. Premkoumar T	Exe. Committee Member	Unopposed
7.	T. S. Semmal	Exe. Committee Member	Unopposed

L-R: Dr. Premkoumar T – Exe. Committee Member, Dr. S Janarthan – Hon. Joint Secretary, Dr. K Nagakarthigan – Chairman, Dr. S Virapan – Returning Officer, Dr. S. Thirougnaname – Vice Chairman, T. Gandhi – Hon. Secretary, Antony Leo Y – Hon. Treasurer, T S Semmal – Exe. Committee Member

Sloan *Affirms India as Central to Global Strategy; Outlines Future Investment and Expansion*

Sloan, Illinois, US-based leading plumbing systems maker, has acquired a controlling stake in the homegrown Essel Bath Fittings, to amplify its presence in the fast-growing Indian bath fittings market. A recent visit by Jim Allen, Sloan President & CEO, underscored India's pivotal role in Sloan's future, signaling a long-term commitment to investment and business development in the region.

Reinforcing the company's commitment to sustainability, Allen pointed to the facility's LEED Gold certification as evidence of accountability in action. "Water connects communities and economies. Protecting that resource requires discipline, innovation, and long-term thinking," Allen said, emphasizing the opportunity in India to elevate water efficiency standards through local expertise and advanced technology.

Anil Sawhney, Managing Director of Sloan India, added, "We continue to invest in automation, technical training, and process enhancement. That ensures consistency in performance while meeting the demands of a rapidly expanding infrastructure sector."

Allen (President & CEO – Sloan Valve Company), along with the executive team of Sloan Valve & Sloan India, and the Essel owners

KiTEC Industries (India) Pvt. Ltd. *Wins Prestigious ASSOCHAM Global Quality Excellence SME of the Year Award*

ASSOCHAM

KiTEC Industries (India) Pvt. Ltd., a leading name in the manufacturing of Multilayer Composite

Pipes has been honoured with the 12th Global Quality Excellence SME of the Year Award presented by ASSOCHAM, one of India's premier trade and industry bodies.

The award was conferred by Khagen Murmu, Hon'ble Member of Parliament, Lok Sabha, and Member of the Parliamentary Standing Committee on Micro, Small and Medium Enterprises (MSME), Government of India.

The recognition was received on behalf of the company by Yash, Director, KiTEC Industries (India) Pvt. Ltd., at the ASSOCHAM 12th Global SME Conclave & Excellence Awards attended by industry leaders and policymakers.

Launch of Indian Designers Plumbing League (IDPL)

"Beyond Pipes - Integrating Plumbing into Design Thinking"

An orientation session of the Indian Designers Plumbing League (IDPL), a collaborative initiative mutually agreed to be conducted by the Indian Institute of Interior Designers (IIID) and the Indian Plumbing Association (IPA), was successfully held online on 23 May 2026 from 3:00 PM to 5:00 PM.

The session, themed "Beyond Pipes – Integrating Plumbing into Design Thinking," aimed to create awareness among interior designers, students, and industry professionals about the importance of integrating plumbing systems into modern interior and built environment design. The program highlighted the role of plumbing in sustainability, user experience, efficiency, and intelligent interiors.

The online Continuing Education Program received enthusiastic participation from IIID members, non-members, IPA members, and students from IIID affiliate institutes.

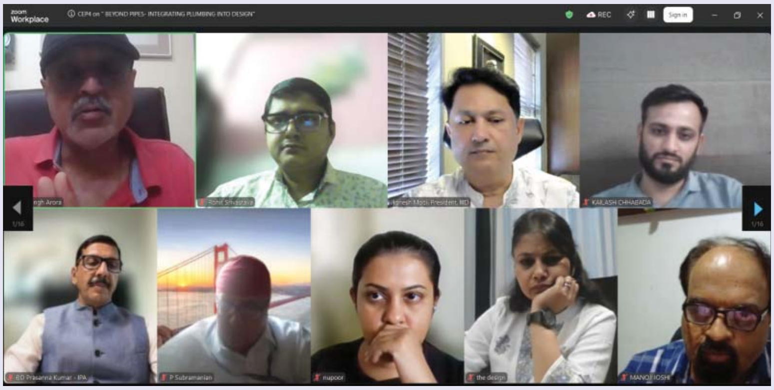
The sessions covered:

- **Interiors That Work With Water – focusing on systems, efficiency, and sustainability**
- **Smart Plumbing in Interior Design – covering fixtures, materials, and integration**

Minesh Shah, National Secretary, IPA, and BO Prasanna Kumar, NEC Member, IPA Bengaluru Chapter, were the distinguished resource persons and speakers for the event. They shared valuable insights on the evolving role of plumbing in design thinking and the need for greater collaboration between designers and plumbing professionals.

Ar. Jignesh Modi, President, IIID, and Gurmit Singh Arora, National President, IPA, were also present during the session and delivered their presidential remarks, appreciating the collaborative initiative and emphasizing the importance of interdisciplinary learning and integration in the built environment sector.

The orientation session marked an important beginning towards strengthening collaboration between IIID and IPA under the IDPL initiative and received positive feedback from participants.



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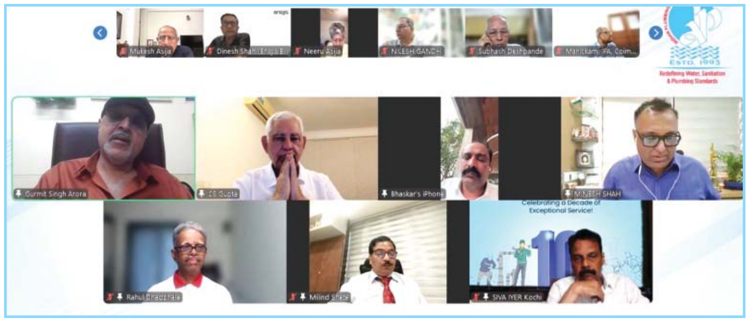
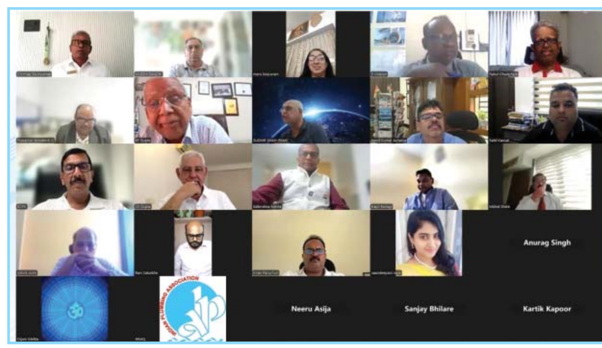
NATIONAL EXECUTIVE COMMITTEE MEETINGS

62nd Virtual National Executive Committee Meeting

7th March 2026





63rd National Executive Committee Meeting

15th April 2026
Bengaluru

Gurmit Singh Arora, National President, IPA, along with Sharat V. Rao, National Joint Secretary, IPA; Sahil Kansal, Chair, IPA Chandigarh Chapter and Sushanta Sinha, General Manager – Marketing & Events, IPA, visited leading valve manufacturers—Sant Valves, NVR Valves, VS Fittings, and Zoloto Valves—in Jalandhar, Punjab. The visit was followed by an evening meet with valve manufacturers from Jalandhar to promote IPA initiatives, including Centre Of International Plumbing Practices (COIPP) and to discuss the formation of a new IPA chapter in the city.

Gurmit Singh Arora, National President, IPA, participated in the panel discussion on "Driving Efficiency, Reuse & Digital Transformation of Water Smartly" conducted by ET Infra, Water Conclave on 16th March at Hyatt Regency, New Delhi.

Chennai Chapter

IPA Student Chapter inaugurated at the Department of Civil Engineering, Sri Venkateshwara College of Engineering, Chennai. The event was convened by Dr. R. Kumutha, Head of the Department, Civil Engineering, followed by Dr. S. Virapan, Chairman, IPA Chennai Chapter as the guest speaker and S.V. Raja, Managing Partner, ADR Automation and Technologies, as the Guest of Honour.

IPA Chennai Chapter recognized B.S. Abdur Rahman Crescent Institute of Science and Technology and Easwari Engineering College for their outstanding academic and industry engagement as IPA Student Chapter.

IPA Chennai Chapter recognized National Skill Training Institute (NSTI) for its valuable contributions to the industry.

Ahmedabad Chapter

Drawing Competition Organized by IPA Ahmedabad Chapter as part of World Plumbing Day Celebration.

Students from Narmadeshwar Gyan Mandir, Anjani Gyan Mandir, and Vraj Vihar Gyan Mandir (Division 1 and 2) participated enthusiastically with a total of 92 participants.

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CENTRE OF INTERNATIONAL PLUMBING PRACTICES

IPA stalwarts convened for a high-level discussion on the Centre Of International Plumbing Practices (COIPP) in Goa, which is slated for inauguration in 2026. The meeting was held in Hilton Hotel, Mumbai on 9th May, 2026 and focused on strengthening global plumbing standards, advancing skill development, and positioning India as a hub for international plumbing excellence.

R-L: B.O. Prasanna Kumar, Subhash Deshpande, Sharat V. Rao, Minesh Shah, Gurmit Singh Arora, Chandra Shekhar Gupta, Ashok Joshi, Dr. S. Virapan, Guruprasad Mantrawadi, Aditi Mishra

CHAPTER **ACTIVITY**

Visakhapatnam Chapter

A webinar on "From Water Stress to Climate Resilience – Building Solutions Through Multi-Stakeholder Action" was conducted by IPA Visakhapatnam Chapter. The webinar was conveyed by Ranjan Panda, popularly known as the "Water Man of Orissa" and Climate Crusader, India.

Pune Chapter

A seminar on Building Information Modelling (BIM) was conducted by Rahul Mhaske, Founder and Director of Blueprints Design Consulting Services Pvt. Ltd., at MMIT College, Lohegaon, Pune for IPA Pune Student Chapters.

Kolhapur Chapter

IPA Kolhapur Chapter, in association with the Association of Architects & Engineers, Nipani, successfully organized an insightful lecture on "Importance of Plumbing and New Technologies in Plumbing".

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IPA Neerathon

Water Awareness Festival

Bengaluru Chapter

Date : 25th October 2026

Venue : St Joseph's University, Bengaluru

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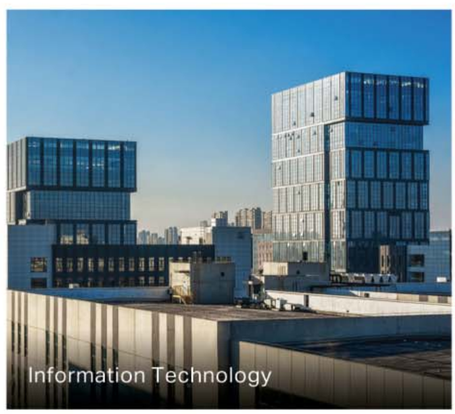
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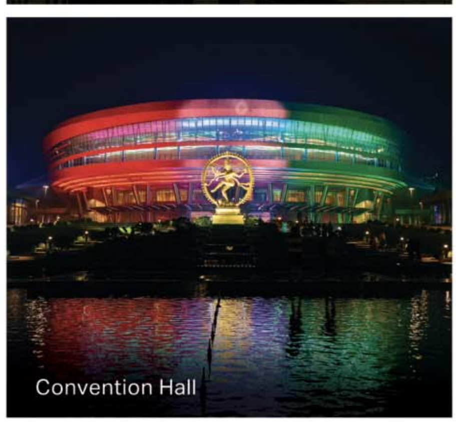
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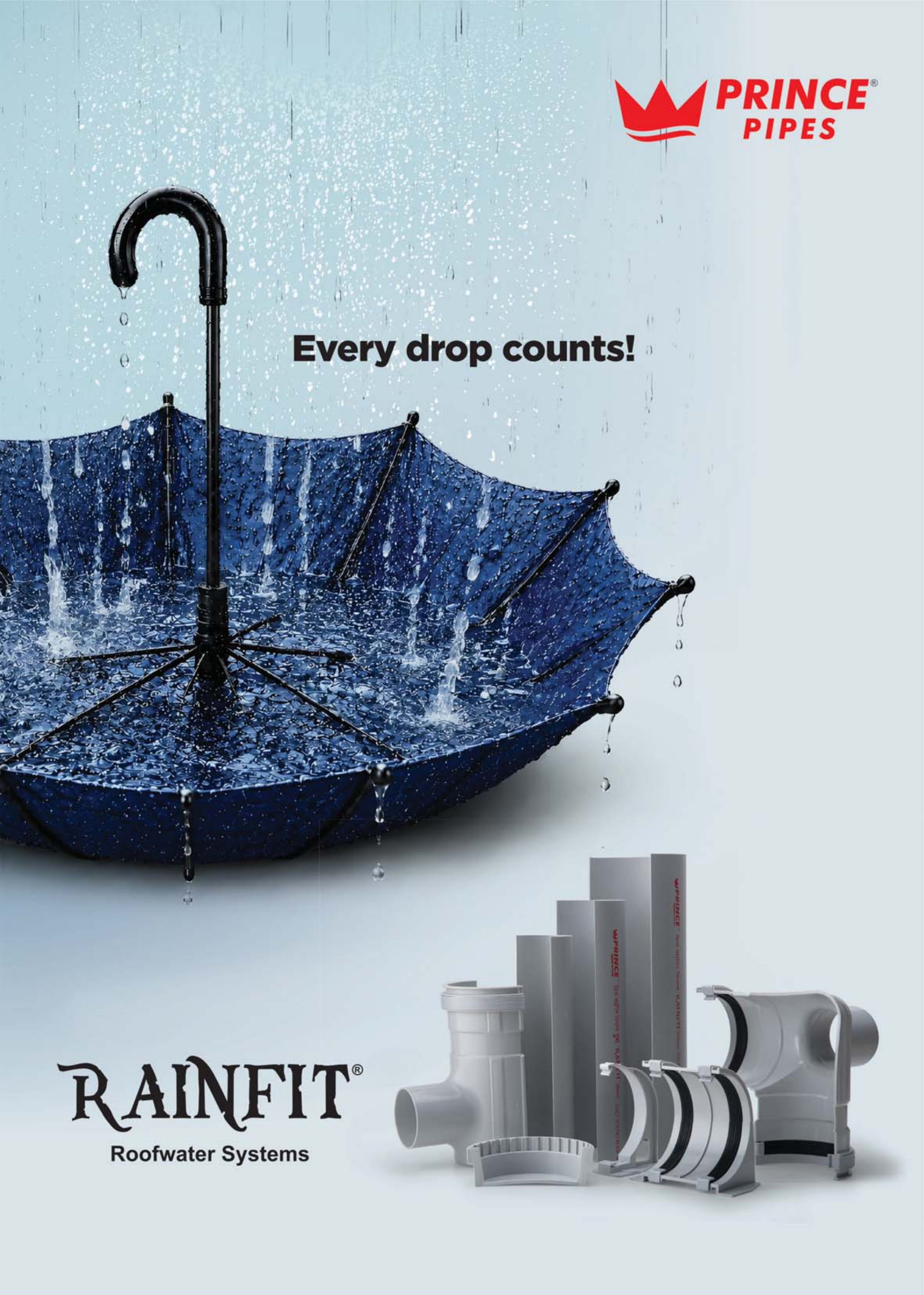
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