



**ECO-MESH**

**Green Infrastructure Program**  
***RCM-Rainwater Conservation Module***  
**Stormwater Management and Solution**



**Promote Stormwater infiltration, retention, and create a comfortable and healthy ecological environment.**

***RCM-Economical & Simple Solution***



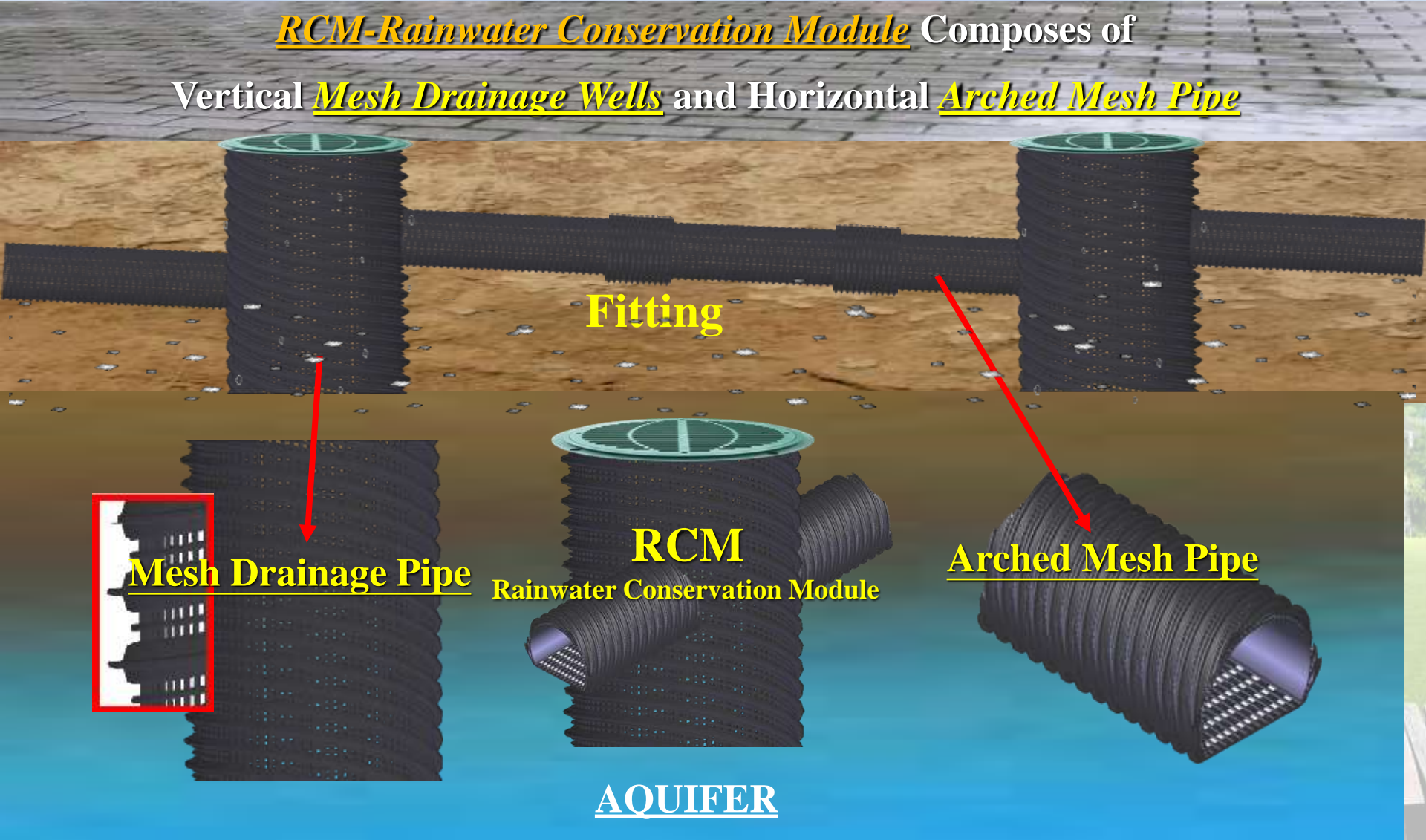
# Green Infrastructure Program

## Stormwater Management and Solution

### *RCM-Rainwater Conservation Module-Structure*

## Aquifer Recharge and Aquifer Storage and Recovery

RCM-Rainwater Conservation Module Composes of  
Vertical Mesh Drainage Wells and Horizontal Arched Mesh Pipe





**Green Infrastructure Program**  
**Stormwater Management and Solution**  
***RCM-Rainwater Conservation Module-function***

**Aquifer Recharge and Aquifer Storage and Recovery**

**Mesh Drainage Wells collection  
of surface water is diverted into  
the ground and percolated to  
aquifer.**

**RCM-Rainwater Conservation Module**

**Promote Stormwater Infiltration**

**CONSERVATION AQUIFER**



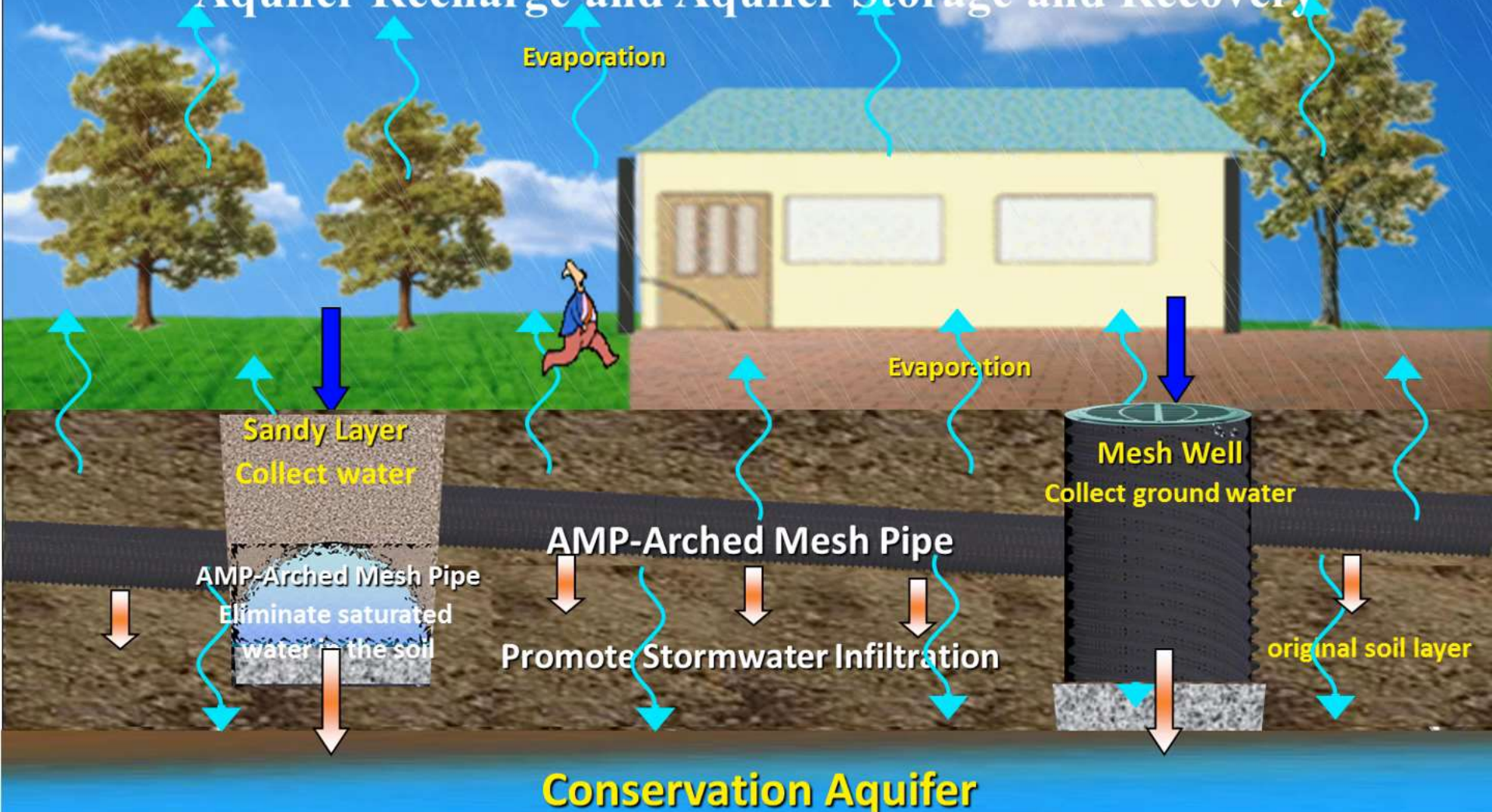
# Green Infrastructure Programs

## Stormwater Management and Solution

### *RCM-Promote Stormwater Infiltration*

Create an ecological balance of the environment

**Aquifer Recharge and Aquifer Storage and Recovery**





# Green Infrastructure Program Stormwater Management and Solution

*RCM-Create an ecological balance of environment*

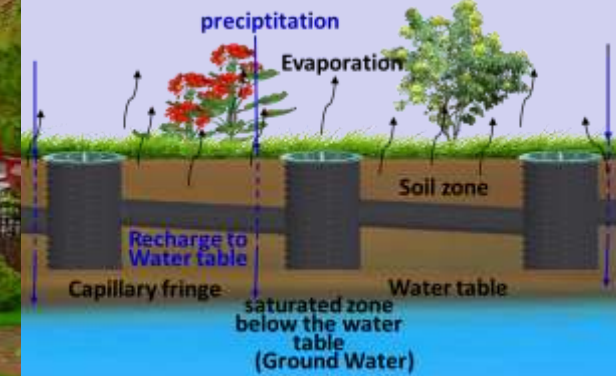
## Aquifer Recharge and Aquifer Storage and Recovery

### RCM-Stormwater Retention

Promotes Stormwater permeation  
and ecological balance

Supports a beautiful garden  
without irrigation

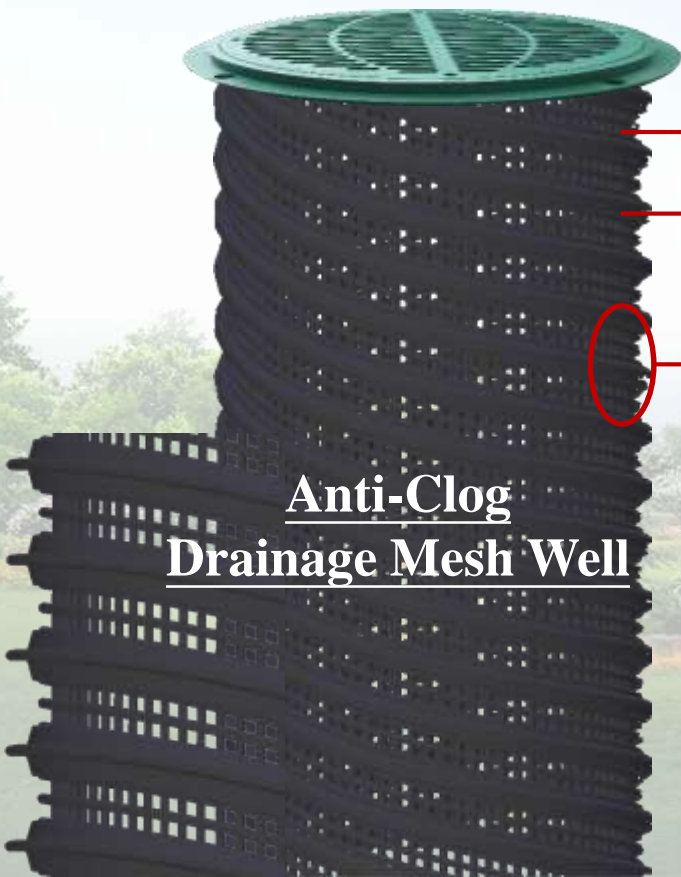
Create an ecological balance environment



# Drainage Mesh Wells—Unique Characteristics

**Drainage Mesh Well does not need to use gravel, grading, non-woven fabrics and other filter materials, The Mesh Well is not blocked, and the ecological engineering method is the best underground collection and drainage material.**

## Drainage Mesh Wells—Unique Characteristics

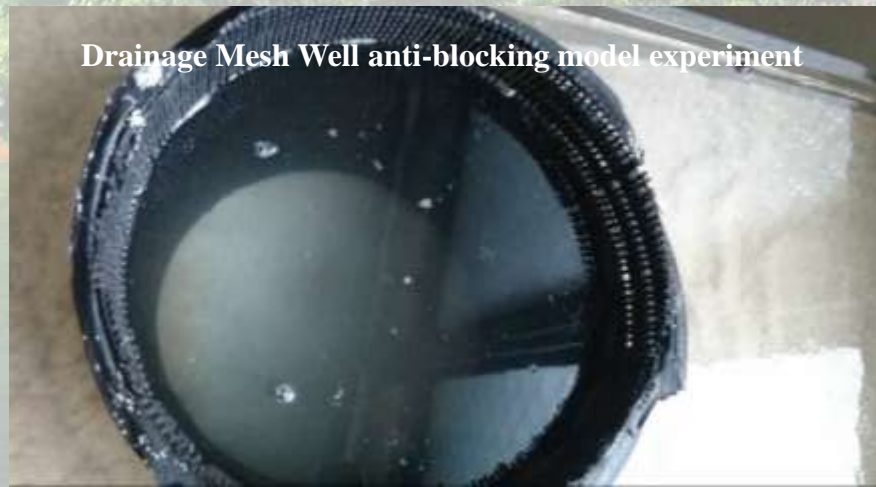


Anti-Clog  
Drainage Mesh Well

→ The sidewall openings are fine mesh design.

→ The sidewall has T-type thread design and high compressive resistance.

→ *Drainage Mesh Well sidewall is Anti-Clog and minimizes soil entry without extra filter material, such as non-woven fabric.*



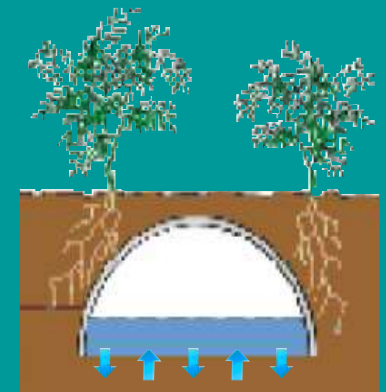
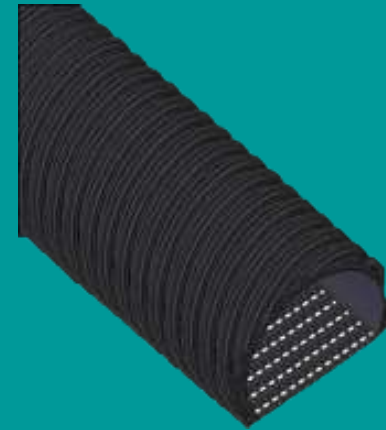
Drainage Mesh Well anti-blocking model experiment

# Arched Mesh Pipe –Unique Characteristics

**Arched Mesh pipe does not need to use gravel, grading, non-woven fabrics and other filter materials, The Mesh Pipe is not blocked, and the ecological engineering method is the best underground collection and drainage material.**

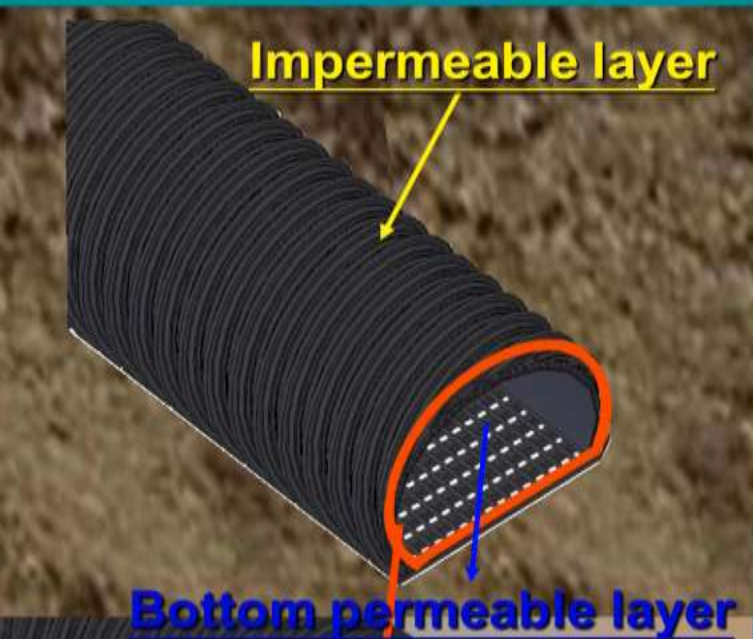
## Arched Mesh Pipe Feature

Most of the traditional water-permeable pipes are slotted in the upper part, and there is no opening in the lower part of the inlet water. Therefore, the soil particles inevitably penetrate into the pipe along with the water flow, and gradually accumulate around the outer pores of the pipe until the blockage, Arched Mesh Pipe is changed to a half-moon design. The half-moon type is an impermeable layer, the flat part is a mesh-shaped permeable layer, and the buried flat part is a mesh-shaped permeable layer downward, so that the water flows from bottom to top into the water conduit. As soon as the soil particles naturally sink into the temple due to gravity, they will not flow into the water pipe along with the water, and will not cause siltation near the sink groove. However, the downward groove can not only enter the water, but also cause water absorption. When water enters, the siphon phenomenon naturally produces a pumping effect on the moisture in the soil, and is discharged outward by gravity flow. When the the water reaches the outlet, it will cause a siphon effect due to the drop, further generating a negative pressure inside the soil, and greatly increasing the suction and drainage. effectiveness.



# Unique Characteristics of Arched Mesh Pipe

## Structure



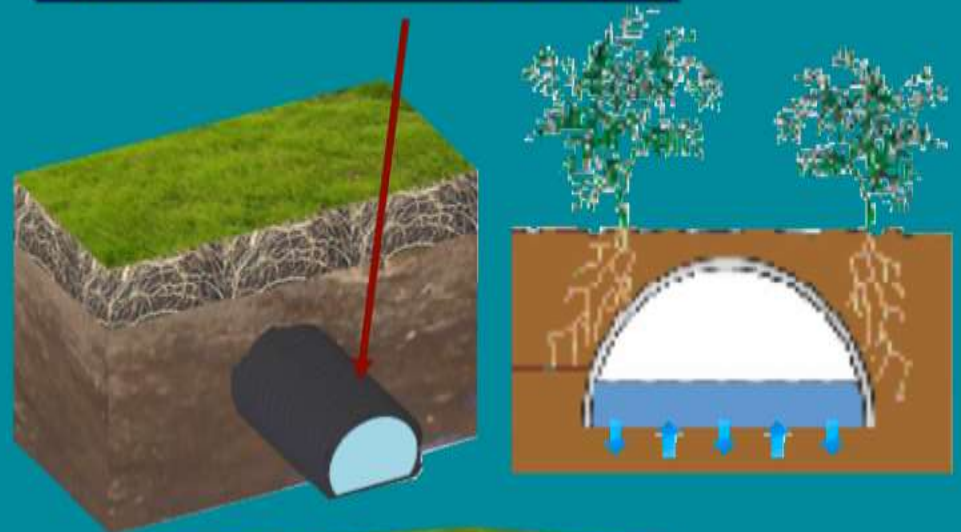
## Principle

### Half round design

Soil density higher than water  
Natural sink of soil particles due to gravity  
water chamber obstruction is prevented

**Filter Material-Free**  
**Clog-resistant**

## Arched Mesh Pipe



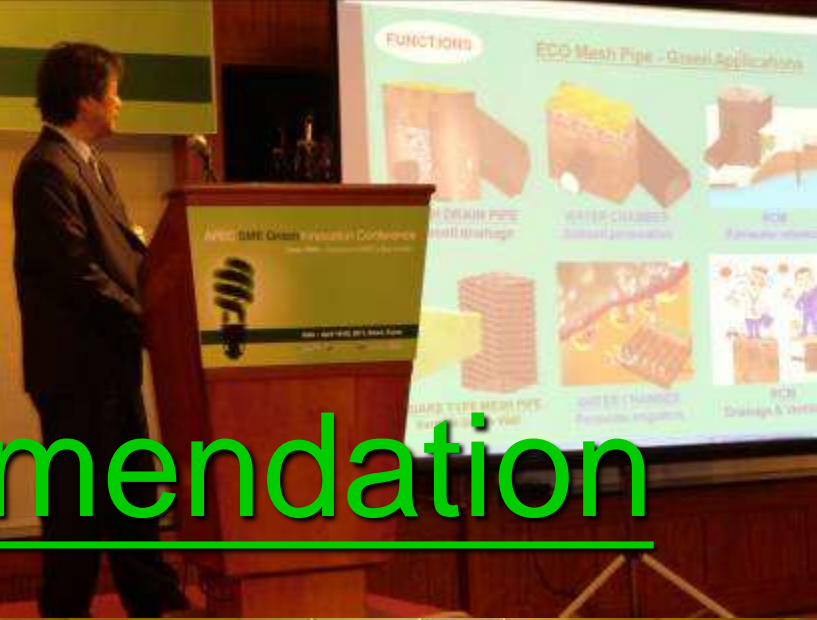
## Traditional installation



## Traditional subsoil drainage pipe







# APEC Recommendation

## Environmental Protection Green Products



# ECO Mesh Pipe





ECO-MESH

## ***RCM-Rainwater Conservation Module***

### **Function**

**Aquifer Recharge and Aquifer Storage and Recovery**



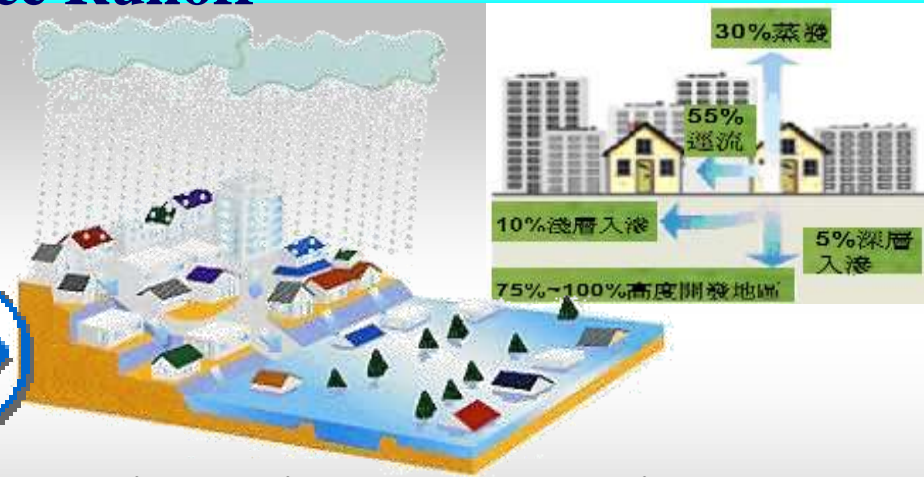


# RCM-Promote Stormwater Infiltration

## Slow Surface Runoff



Undeveloped areas have adequate surface area to absorb Rainwater



High density development which does not have adequate water absorption surface areas will cause flooding





# Aquifer Recharge and Aquifer Storage and Recovery

## Stormwater Infiltration Retention



**Create an ecological balance environment**

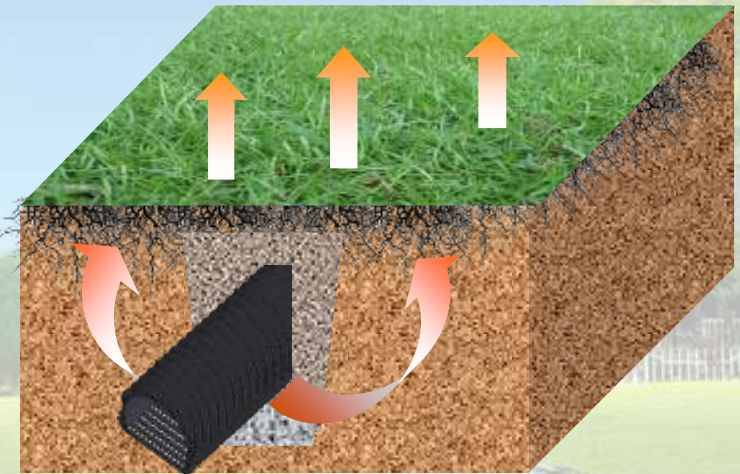
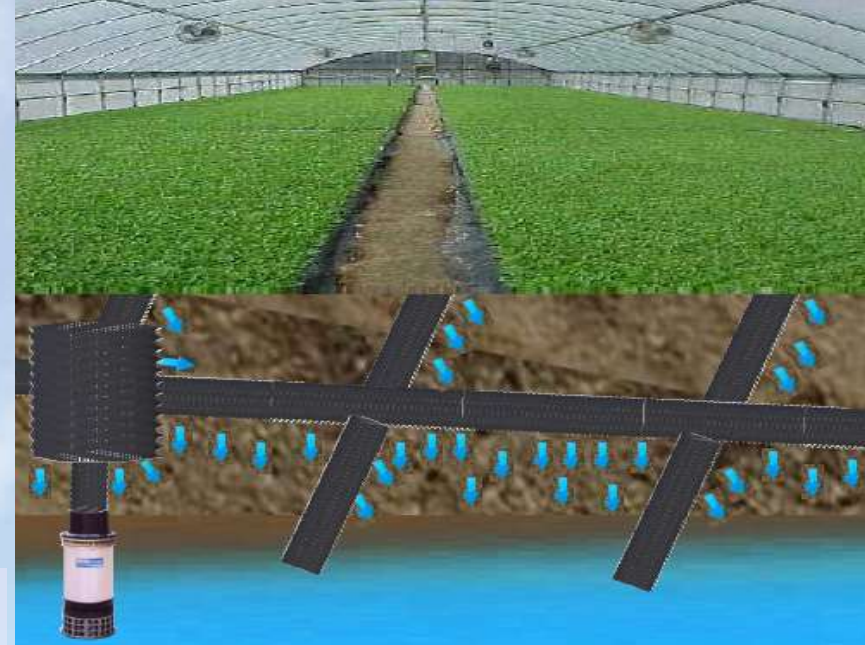
### **RCM-Rainwater Conservation Module**

**Promote stormwater infiltration to sustain groundwater for reservoirs**



**10 km<sup>2</sup> stores up to 200 million tons of groundwater**

**RCM-Economical & Simple Solution**



Mitigates  
Heating Island Effect

## RCM - Rainwater Conservation Module

Water Retention & Drainage Moderates Climate Impact

**Circulates underground constant temperature & moderates climate.**



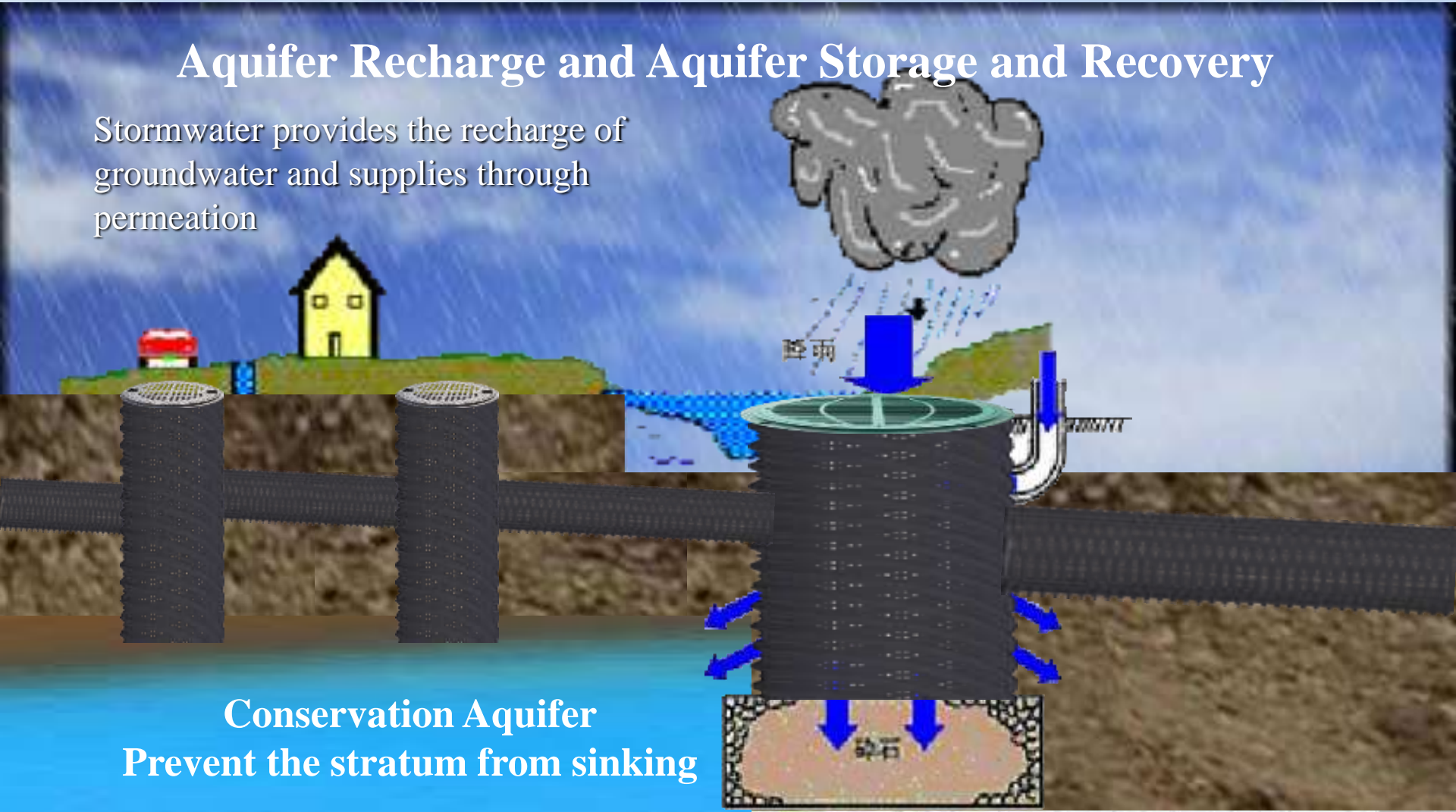
# Recharge groundwater

## Land Subsidence – Resistant

### Without Land Erosion

## Aquifer Recharge and Aquifer Storage and Recovery

Stormwater provides the recharge of groundwater and supplies through permeation



**Conservation Aquifer**  
**Prevent the stratum from sinking**



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## ***RCM-Rainwater Conservation module***

### **Water Retention - Applications**



**Aquifer Recharge and Aquifer Storage and Recovery**

# RCM - Rainwater Conservation Module



## Environment Protection

Easy to install, Cost effective, Clog resistant

### Roof & Garden Drainage



### Aquifer Recharge and Aquifer Storage and Recovery

1. RCM can replace traditional cement drainage facilities and save installation costs up to 30%.
2. Using ecological engineering construction method, it is quick and easy.
3. To keep land completeness.
4. To reinforce Rainwater permeation and reduce the burden of storm sewer.
5. To provide soil with ventilation for keeping plant growth and health fast.
6. The invisible permeation drainage system circulates water through the stack effect resulting in stable climate.
7. Because of Rainwater permeation, there is no stagnant water through the drainage. Thus there is no mosquito breeding environment. Therefore RCM is the best approach for prevention and treatment of dengue fever through the drainage system.





# Pavement Stormwater Drainage



Water Retention & Temperature Moderation

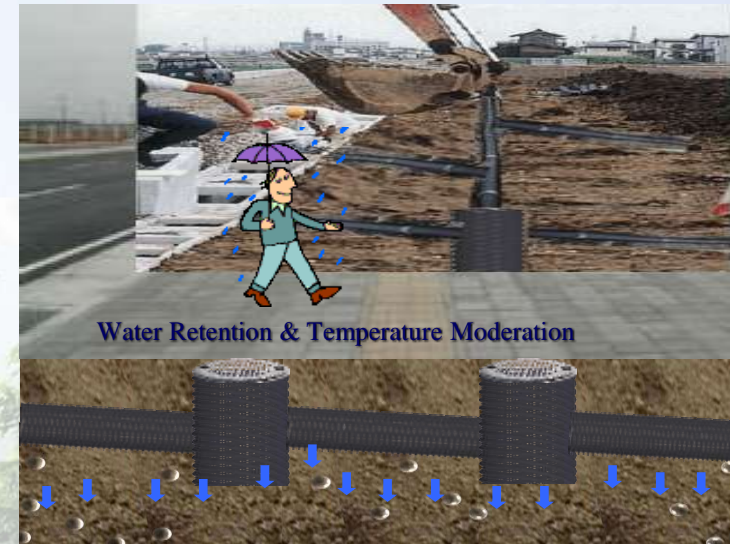
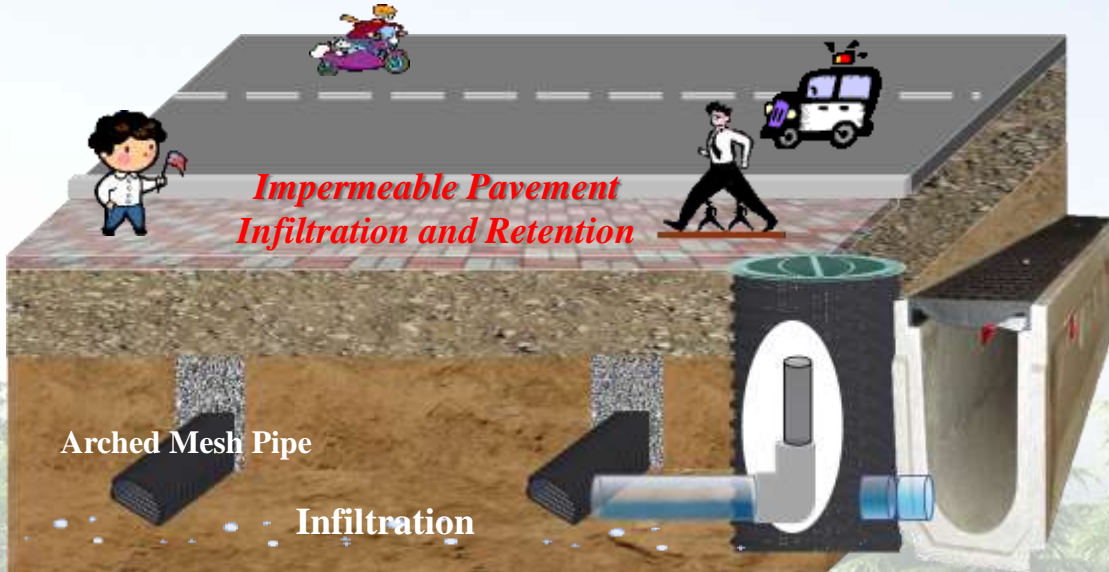
Aquifer Recharge and Aquifer Storage and Recovery



The best method for pavement drainage

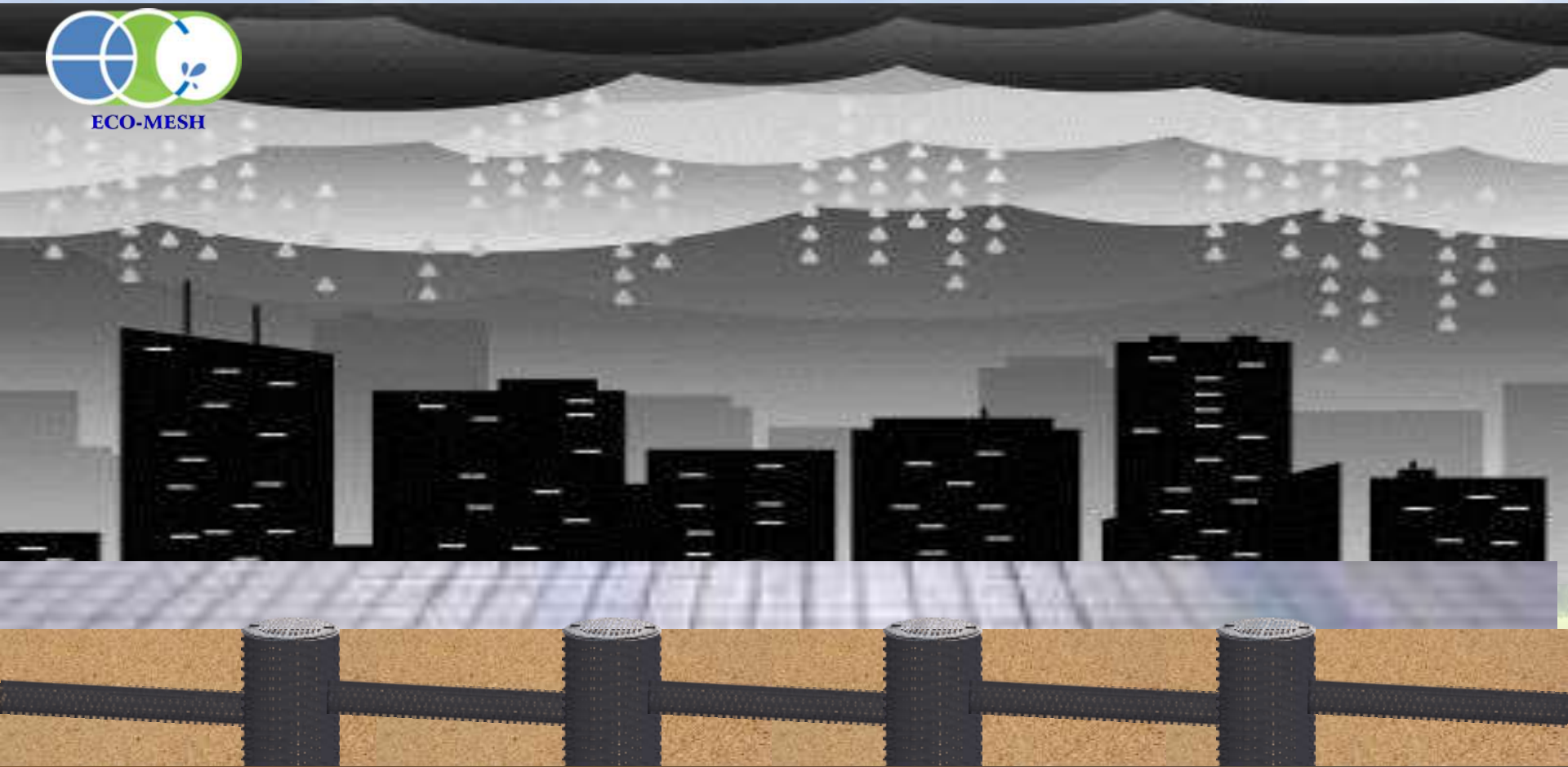
RCM - Rainwater Conservation Module

***RCM-Runoff · Infiltration · Retention***  
**Aquifer Recharge and Aquifer Storage and Recovery**



# RCM System- Industrial Park drainage

Promote Rainwater infiltration to reduce the field of sewage treatment capacity



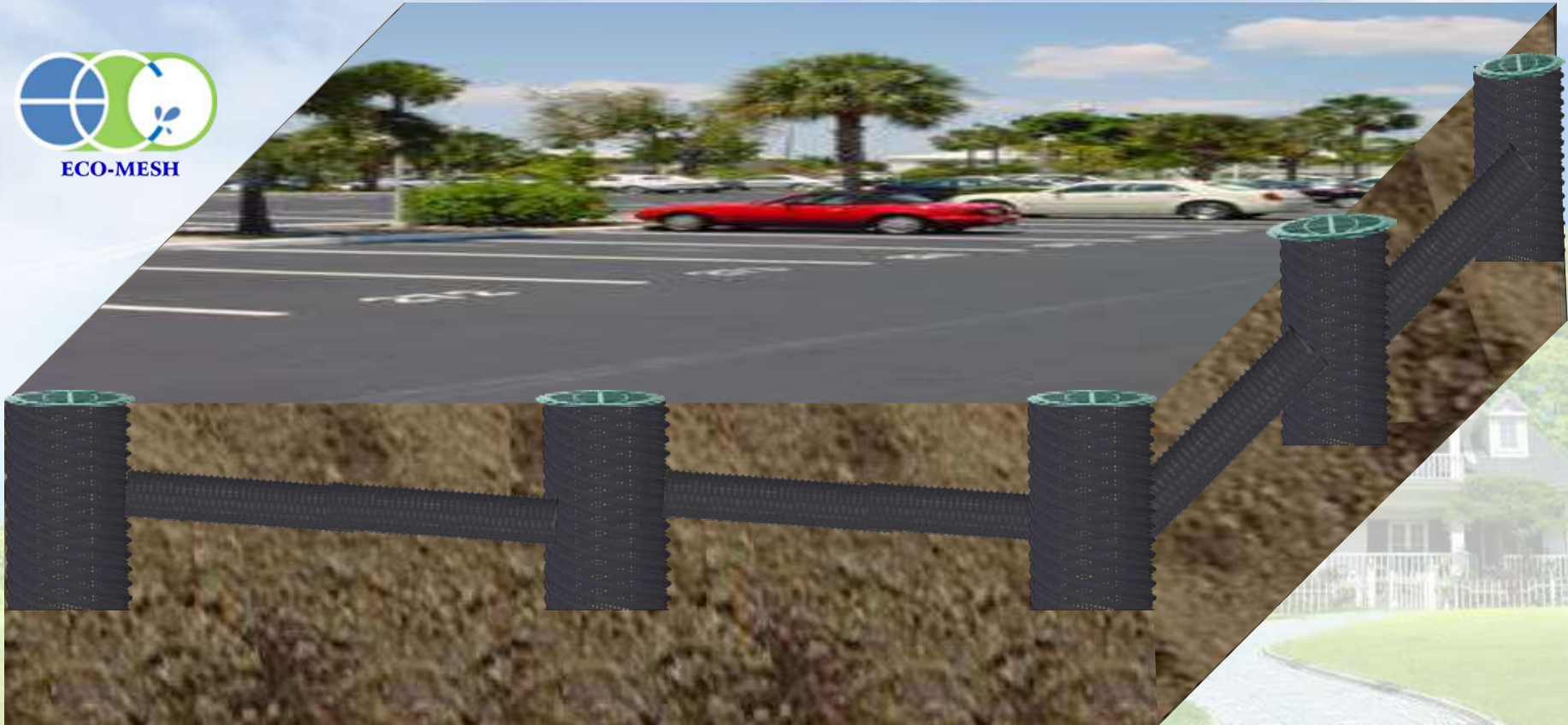
**Aquifer Recharge and Aquifer Storage and Recovery**

**Conservation aquifer**

# RCM – Parking Lot Water Retention and Drainage

## Promote Stormwater Infiltration and Water Retention

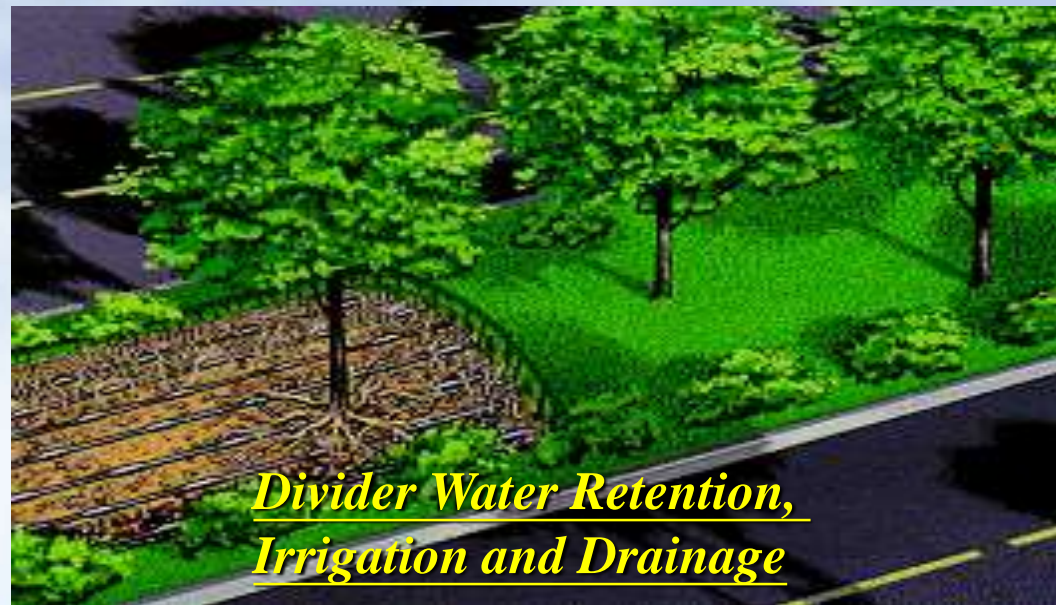
## Aquifer Recharge and Aquifer Storage and Recovery





# RCM-Roadside Water Retention and Drainage

## Aquifer Recharge and Aquifer Storage and Recovery



Divider Water Retention, Irrigation and Drainage



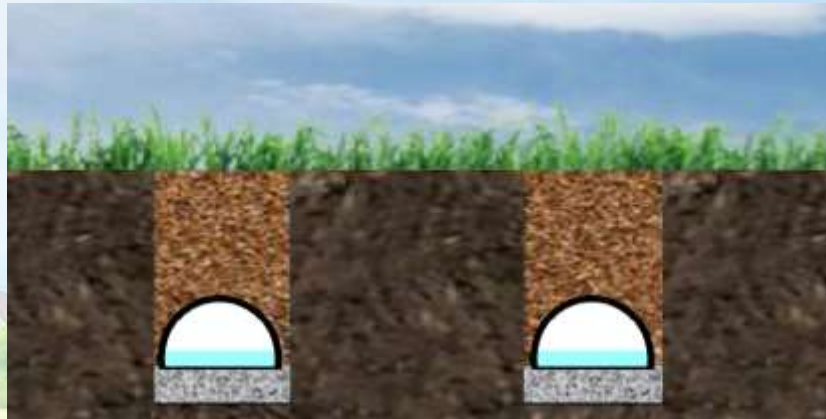
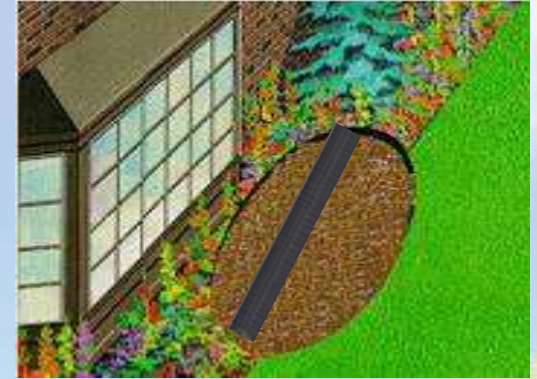
Pavement Water Retention, Irrigation and Drainage



Roadside Water Retention and Drainage



# RCM - Park Drainage, Irrigation *Water Retention and Drainage*



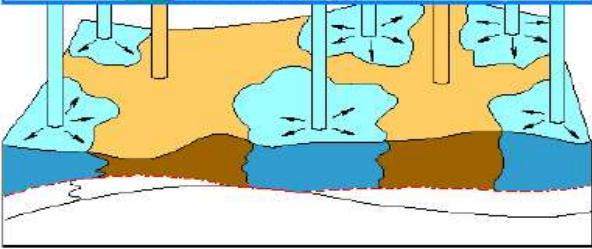
Aquifer Recharge and Aquifer Storage and Recovery



# Stormwater Retention Tunnel System Aquifer Recharge and Aquifer Storage and Recovery



Promote  
Water Retention



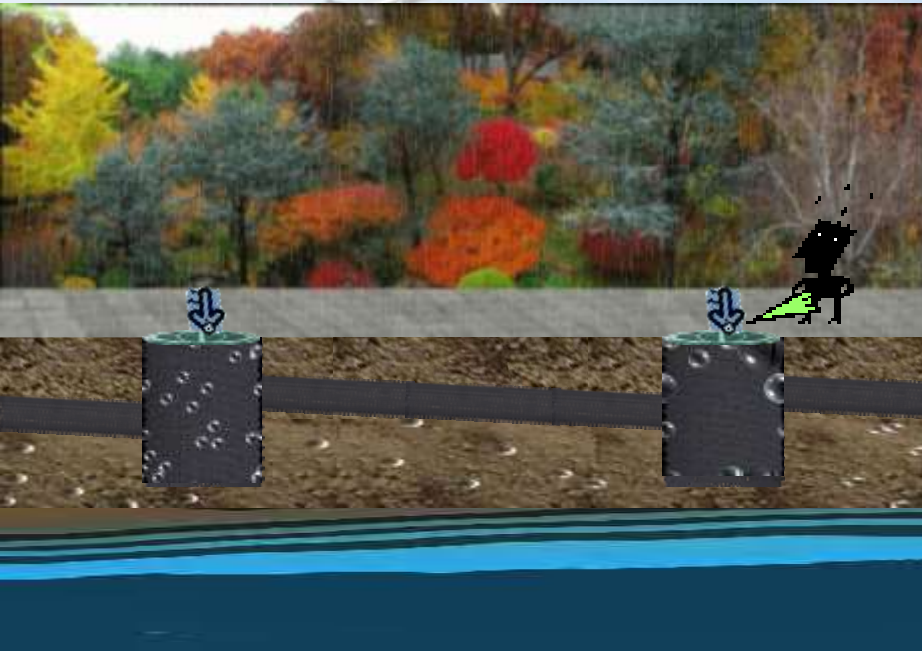
RCM Tunnel System facilities low cost, without mutual links, the Government consider Rainwater drainage system should be based on RCM Tunnel System to the main base water drainage system, will not only save a lot of construction funds, can be reached water retention, Rainwater Recycling, saving precious water sources and reduce water and more efficient use of water resources in the real implementation of the objectives.



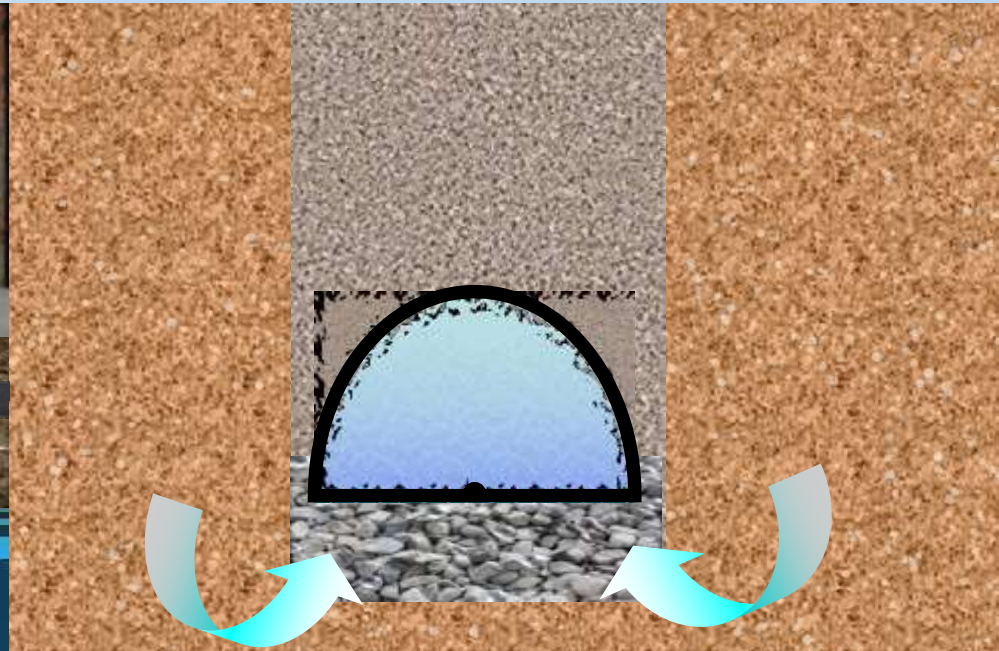
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## **Rainwater Conservation module - *RCM***

### **Water Retention- Experimental Part**



**Surface Drainage**



**Subsurface Drainage**

**Aquifer Recharge and Aquifer Storage and Recovery**



# Experiment of artificial Rainwater permeability

Validation of flood mitigation and improvement of permeation well system

- **Goals**

- Compare the Rainwater permeation ability between the site with and without the permeation well system®
- Validate the effect of permeation well system® on the soil water content in sites.

- **Supported**

- This project is financially supported by the National Science Council of Taiwan and conducted by Prof. Tzu-Ping Lin in National Formosa university, Taiwan.



# Experiment of artificial Rainwater permeability

Experimental  
Section



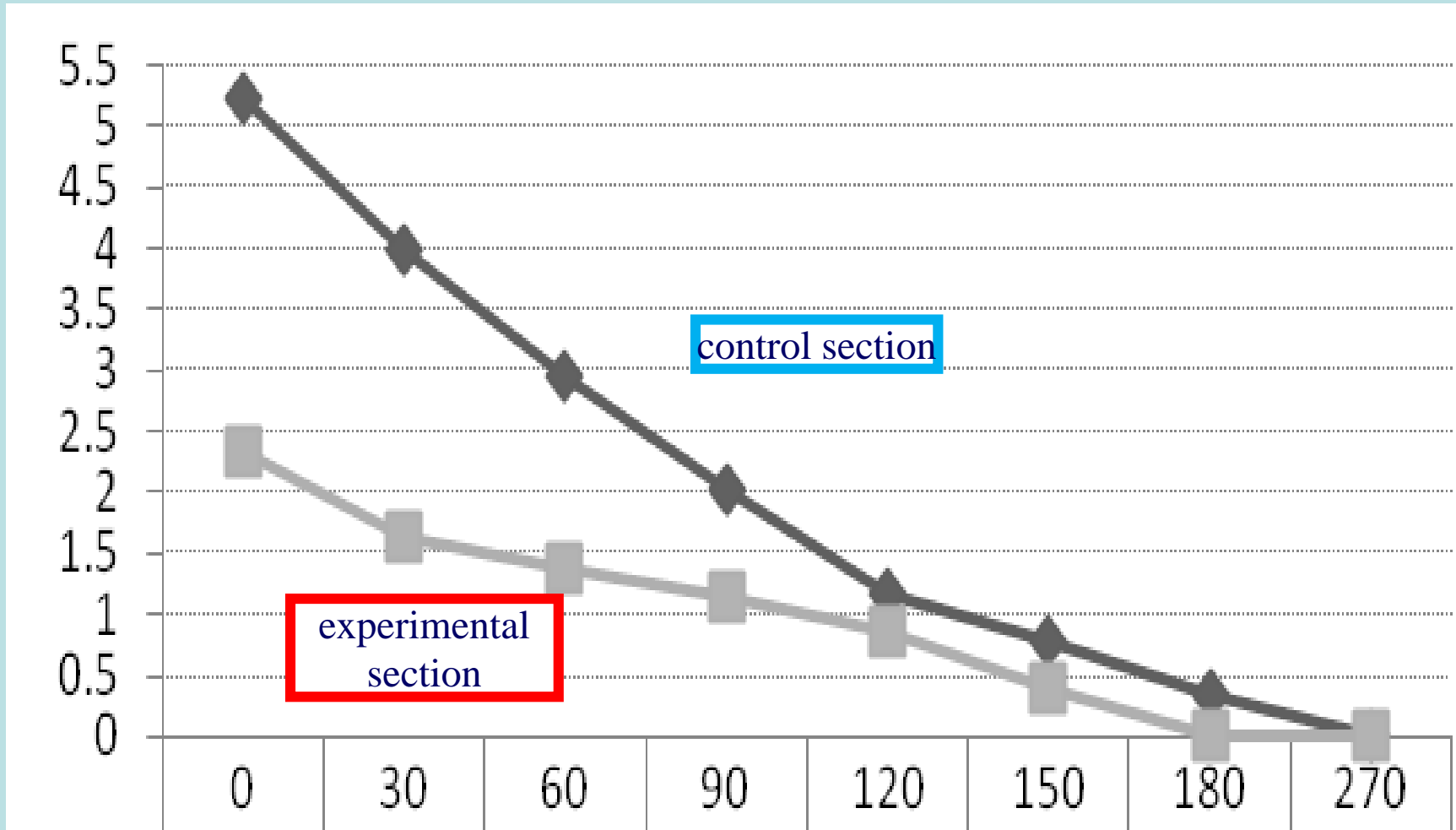
Control  
Section

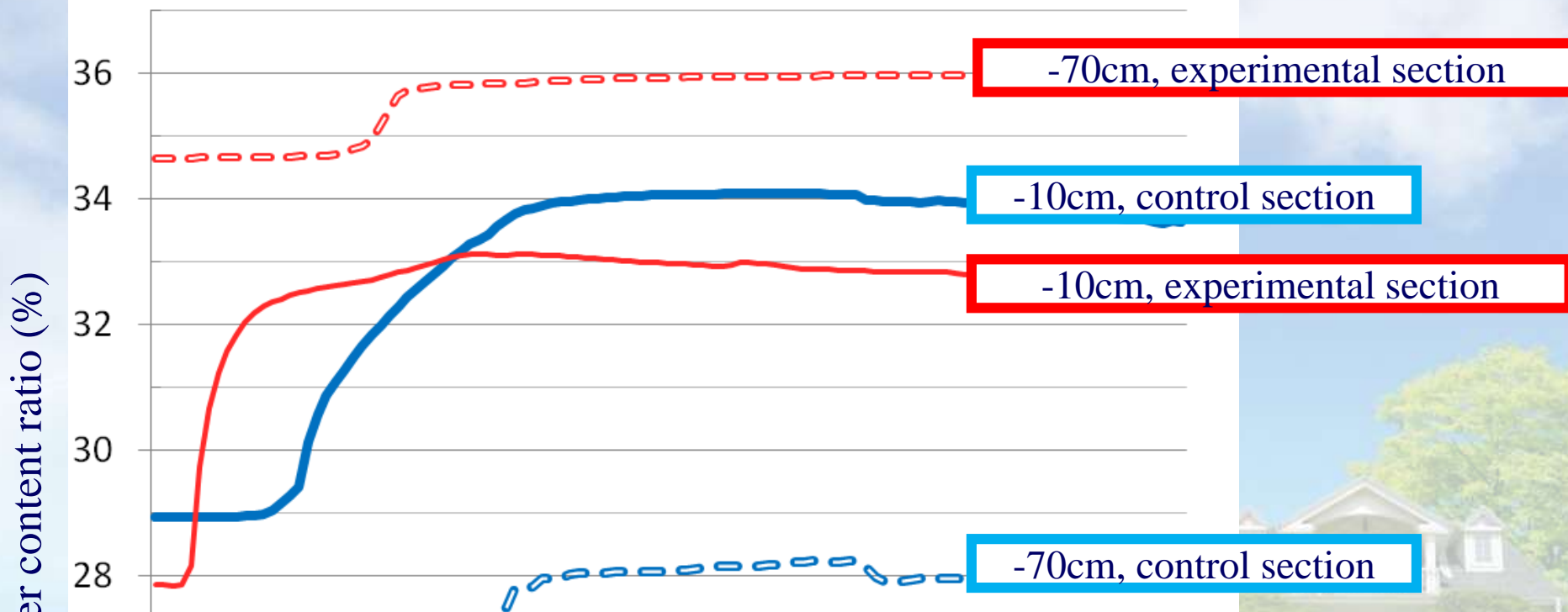
**The permeability in the experimental section with the conservation module outperforms obviously the one in the control section with no conservation module.**

**This experiment clearly demonstrates the good permeability provided by the Rainwater conservation module.**

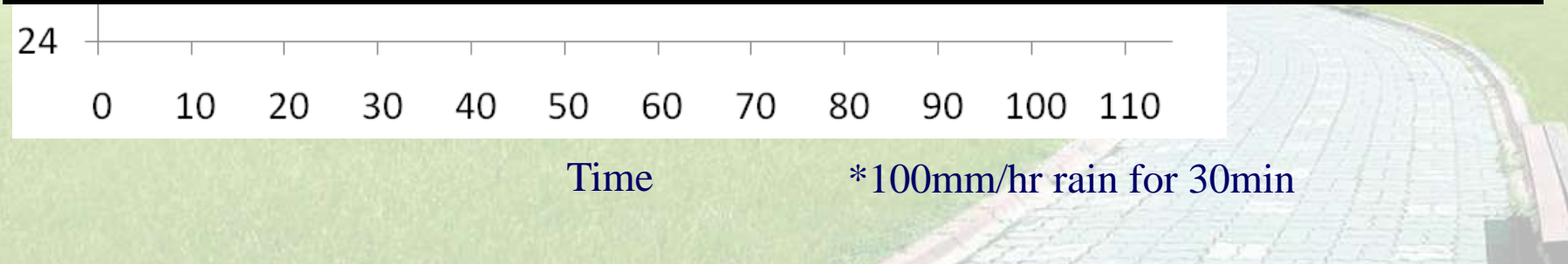
# Comparison of runoff

Accumulated runoff water level (cm)





It proves that the permeation well system® have high potential to keep the deep soil with high water content ratio, which is benefit to eco-environment and flood mitigation

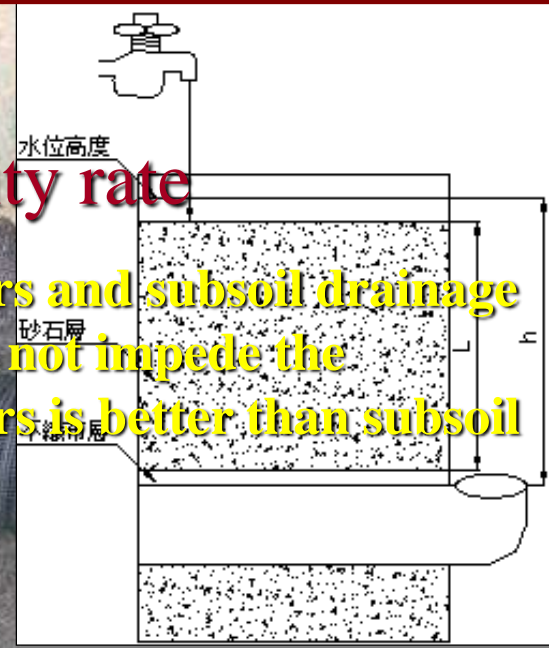




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## Experiment of Water permeability rate

The experiment tested the flood capacity of water chambers and subsoil drainage pipes. Experimental results show that water chambers did not impede the drainage capacity. The permeability rate of water chambers is better than subsoil drainage pipes.



## Experiment of RCM clog-resistant observing

Monitored RCM clog resistance & permeability over 36 months

Experimental results show that there is no difference in the drainage capacity. There is no blocking phenomenon.



## **Conclusion**

**Low Impact Development**

**Stormwater Management**

**Water Retention**

**Creates ecological balance**

**RCM - Economical & Simple Water Solution**

**RCM - Aquifer Recharge and Aquifer Storage and Recovery**