



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



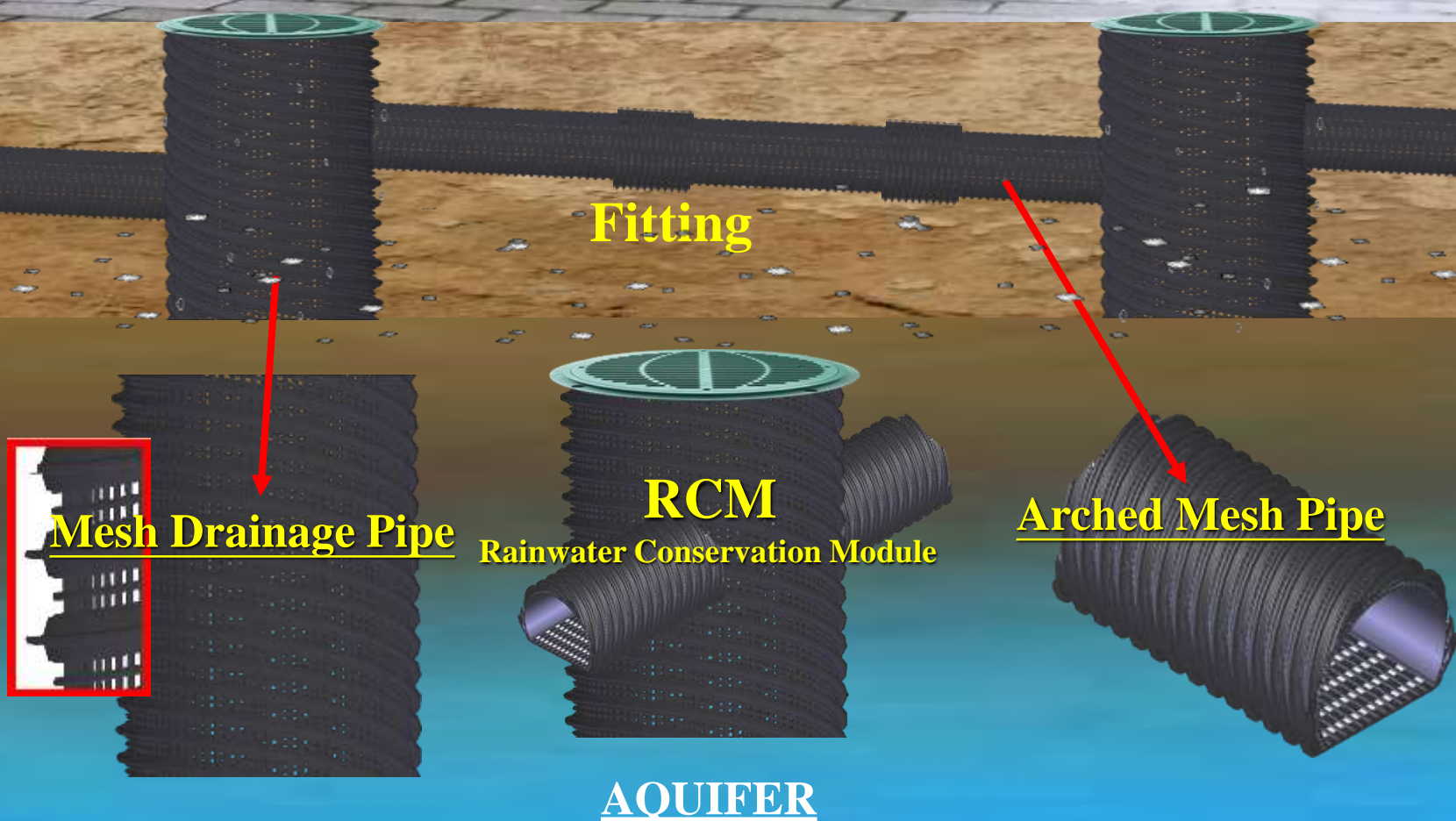
Green Infrastructure Program

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*

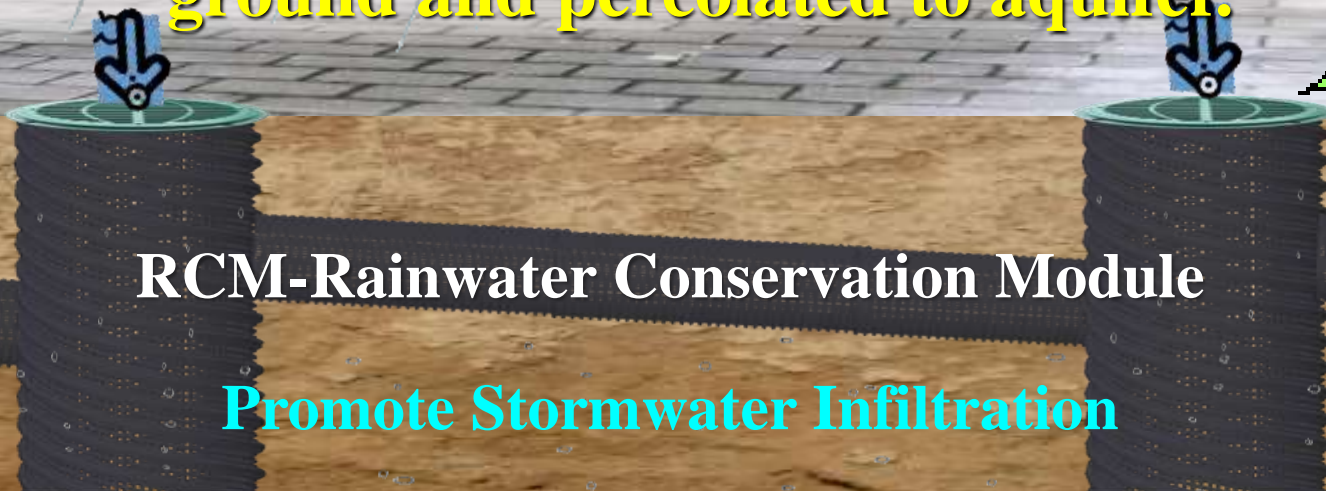




Green Infrastructure Program
Stormwater Management and Solution
RCM-Rainwater Conservation Module-function

Aquifer Recharge and Aquifer Storage and Recovery

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



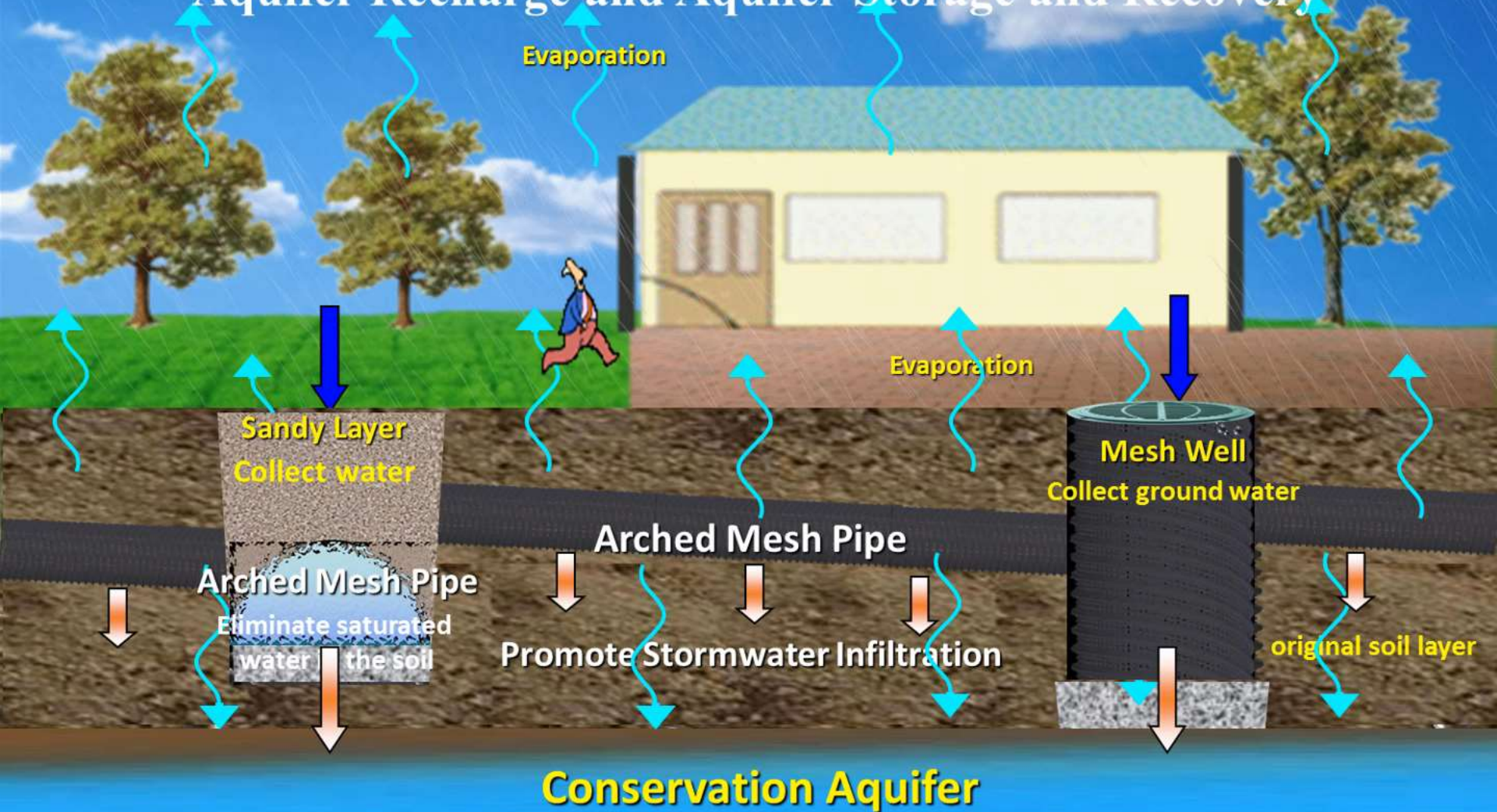
RCM-Rainwater Conservation Module

Promote Stormwater Infiltration

CONSERVATION AQUIFER

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

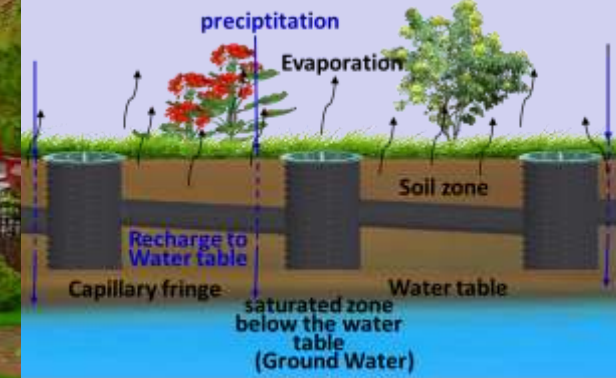
Aquifer Recharge and Aquifer Storage and Recovery

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

→ 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.*

Anti-Clog
Drainage Mesh Well

Drainage Mesh Well anti-blocking model experiment



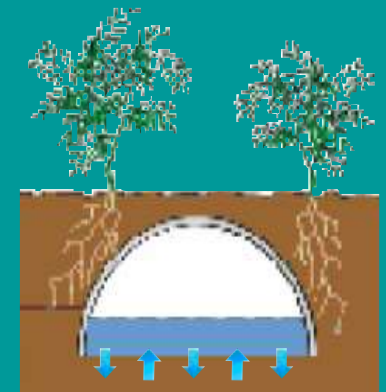
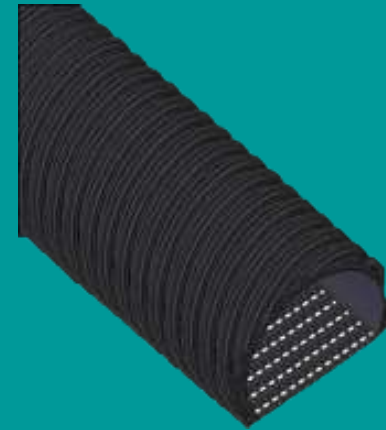


Arched Mesh Pipe –Unique Characteristics

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.

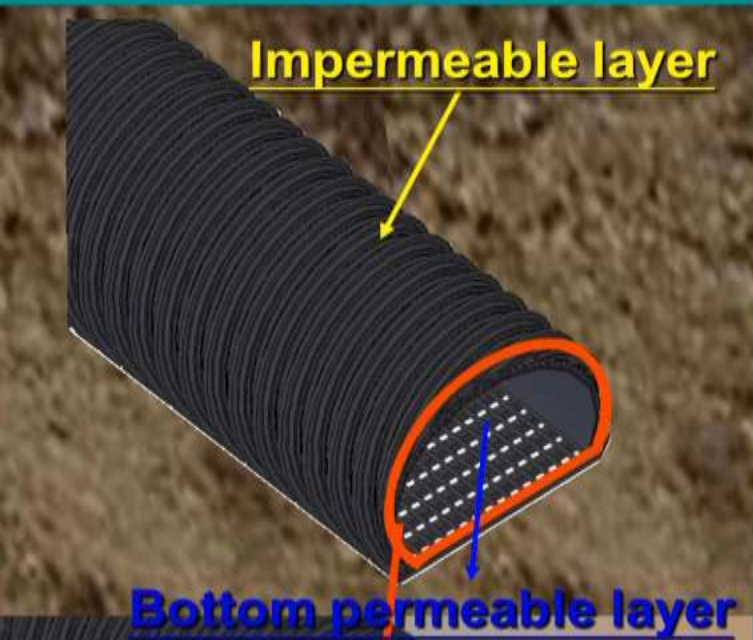
Arched Mesh Pipe Feature

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 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



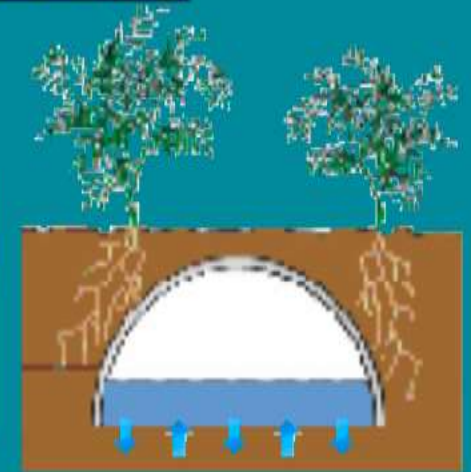
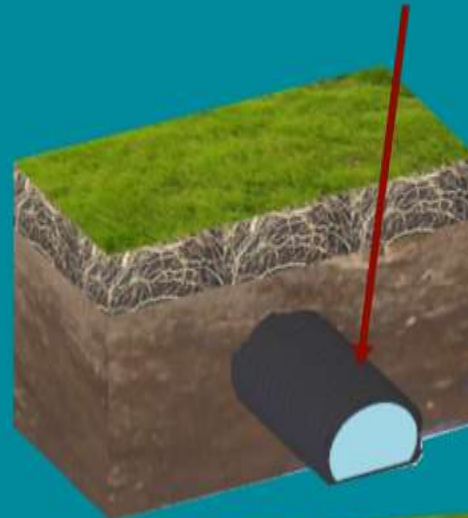
Principle

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



Gravel
Non-woven fabric

Traditional subsoil drainage pipe





ECO MESH



APEC Recommendation

Environmental Protection Green Products



ECO Mesh Pipe





ECO-MESH

RCM-Rainwater Conservation Module

Function

Aquifer Recharge and Aquifer Storage and Recovery

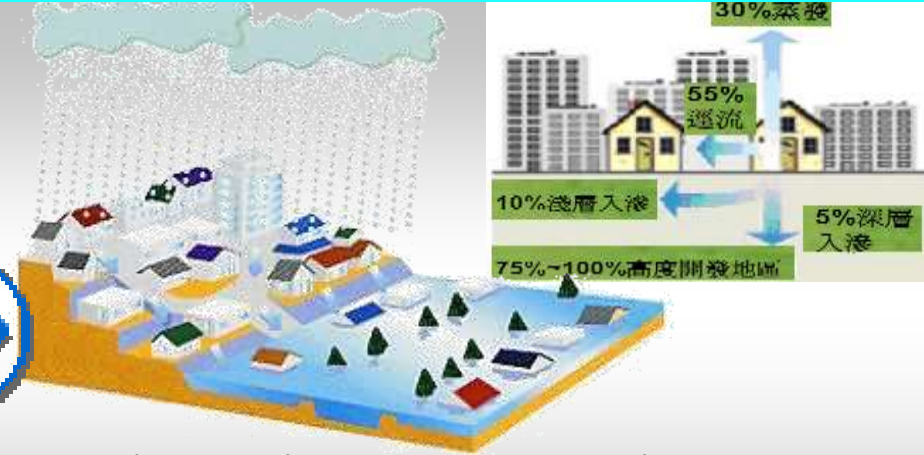


RCM-Promote Stormwater Infiltration

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

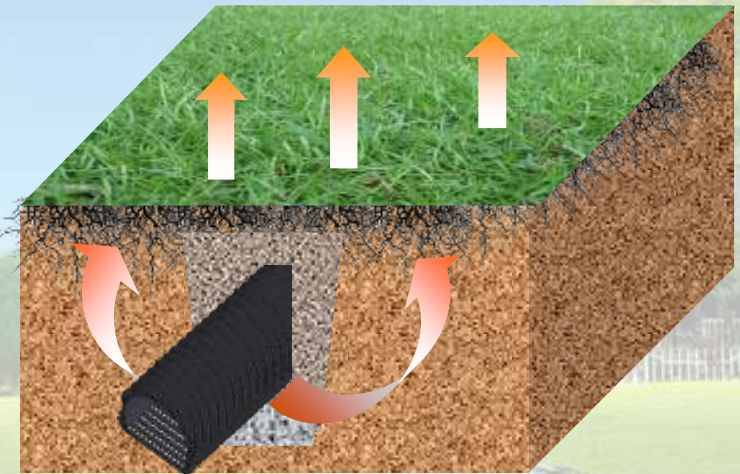
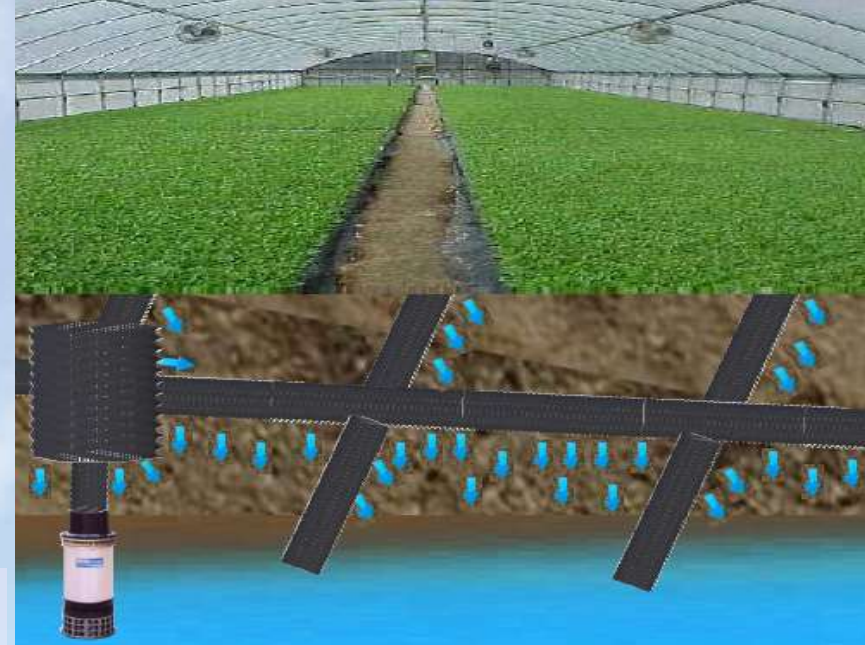
RCM-Rainwater Conservation Module

Promote stormwater infiltration to sustain groundwater for reservoirs



10 km² 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.

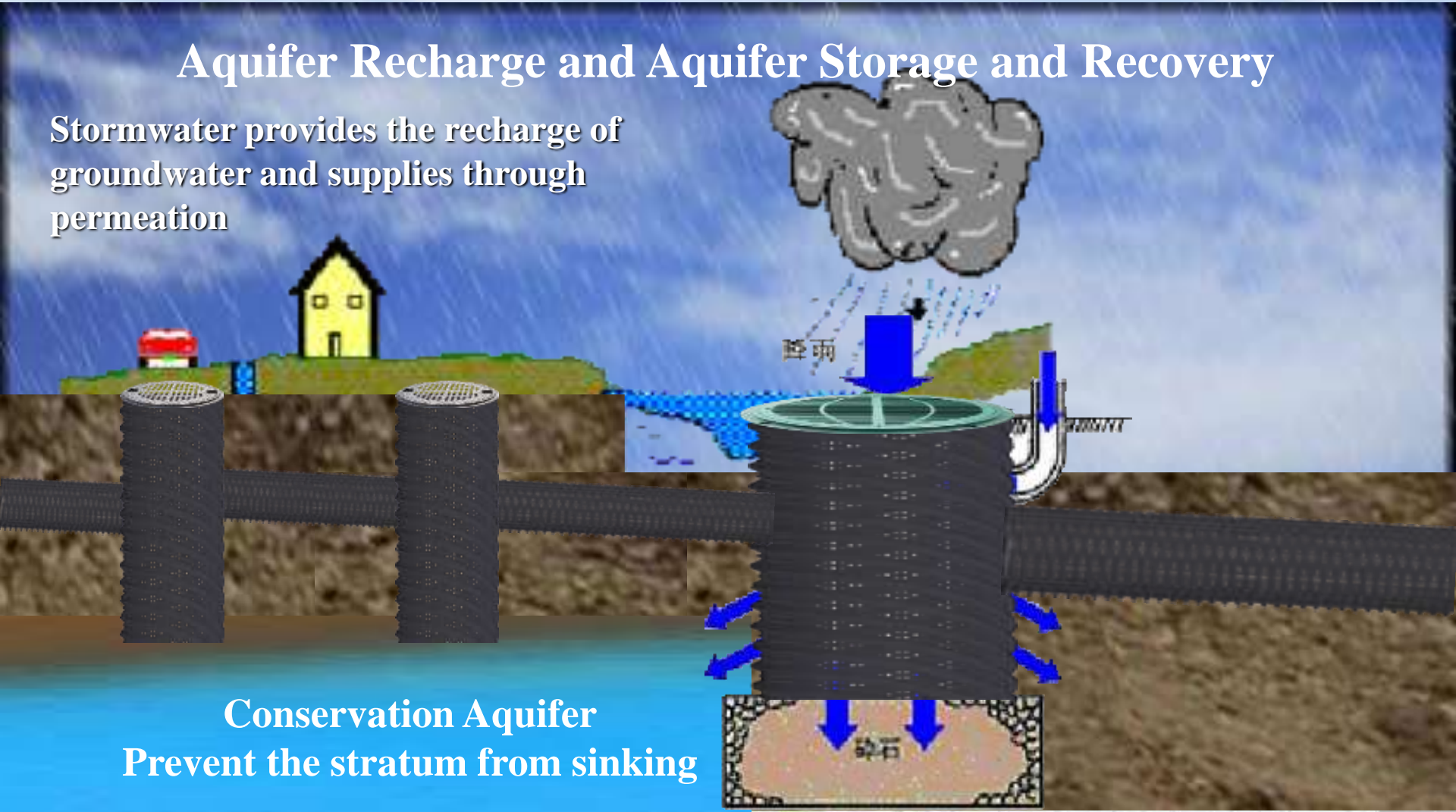


Recharge groundwater

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



ECO-MESH

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

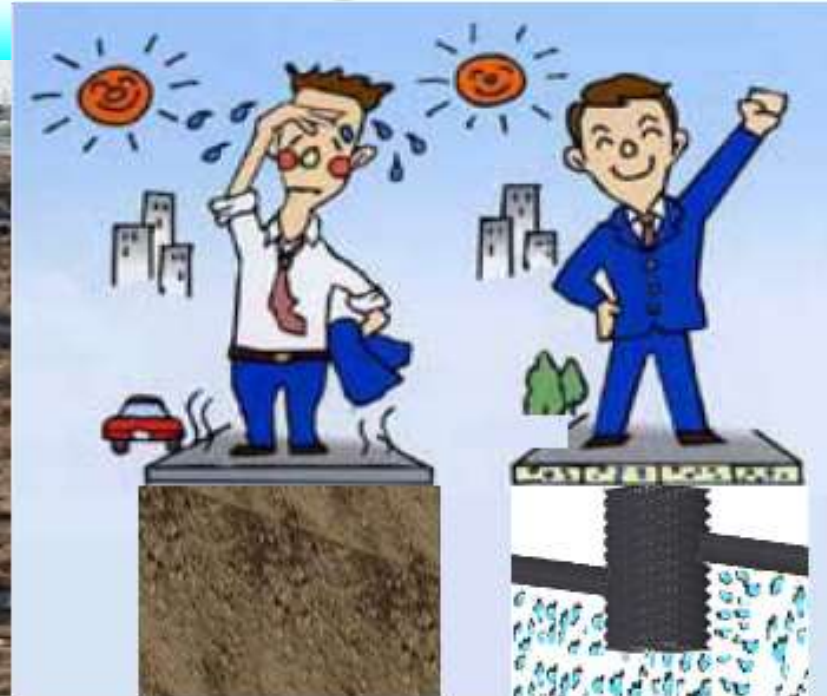
Roof & Garden Drainage



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



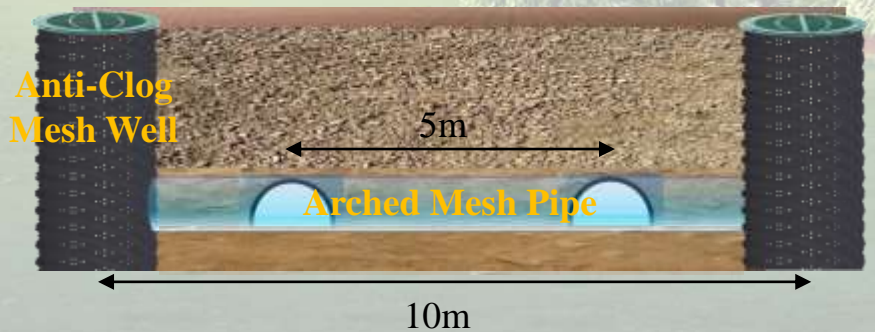
Water Retention & Temperature Moderation

Aquifer Recharge and Aquifer Storage and Recovery

The best method for pavement drainage
RCM - Rainwater Conservation Module



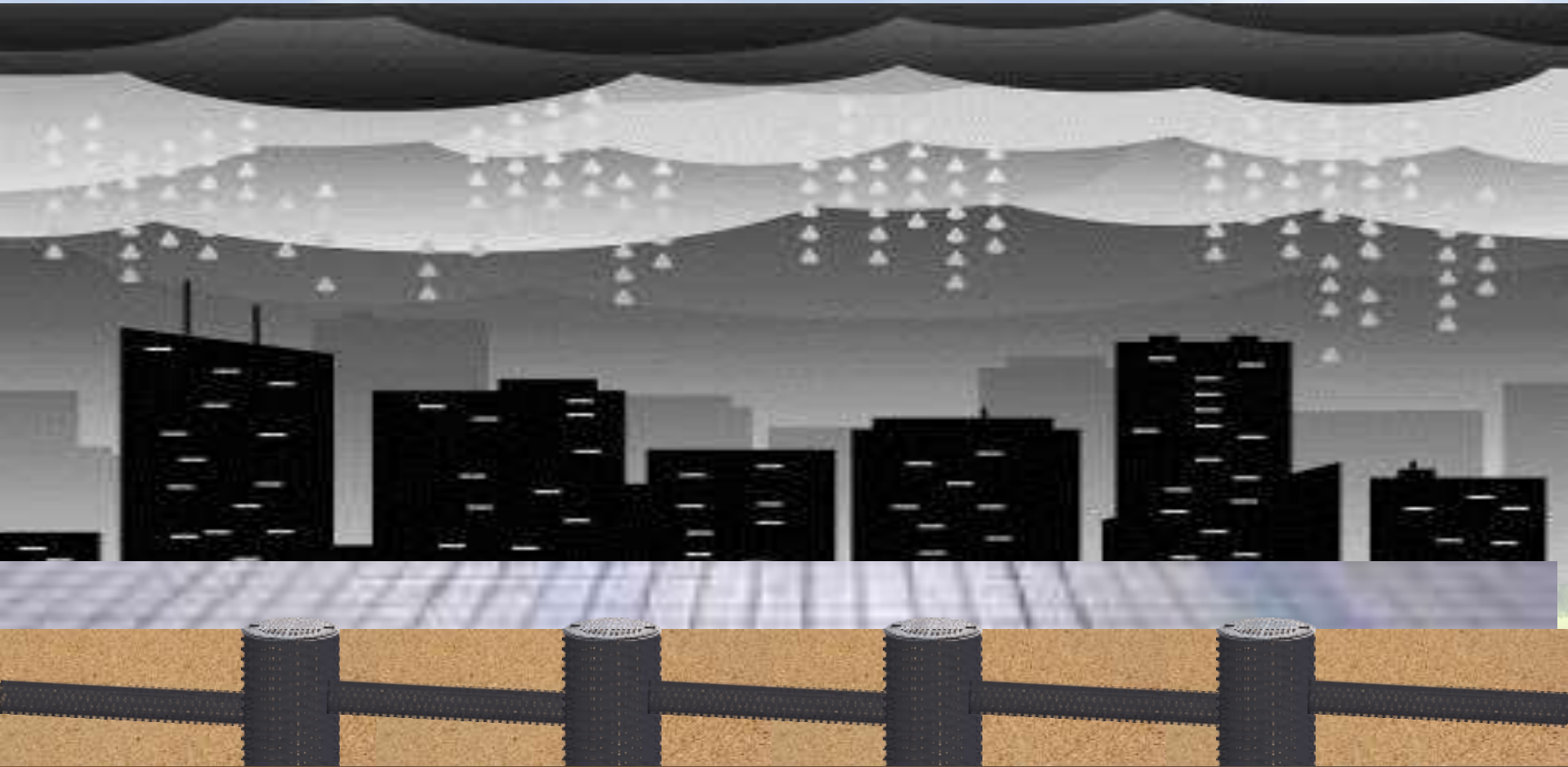
RCM-Runoff · Infiltration · Retention
Aquifer Recharge and Aquifer Storage and Recovery





RCM System- Industrial Park drainage

Promote Rainwater infiltration to reduce the field of sewage treatment capacity



Aquifer Recharge and Aquifer Storage and Recovery

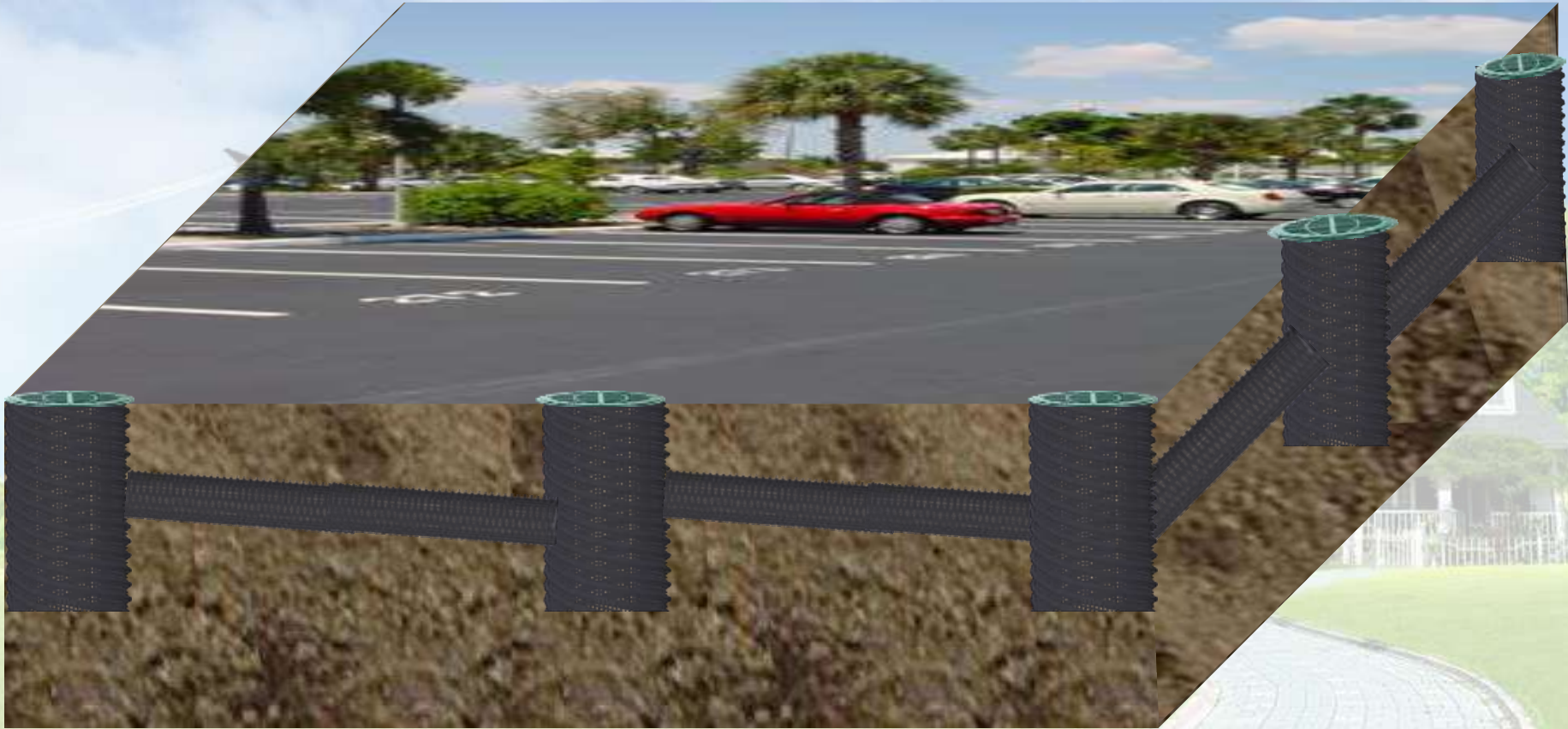
Conservation aquifer



RCM – Parking Lot Water Retention and Drainage

Promote Stormwater Infiltration and Water Retention

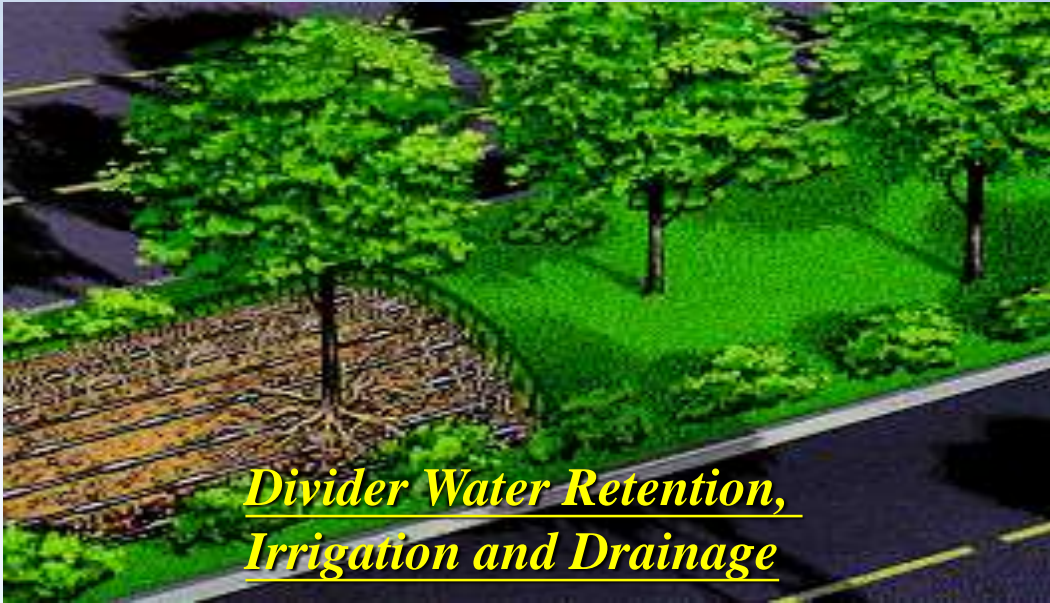
Aquifer Recharge and Aquifer Storage and Recovery





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*

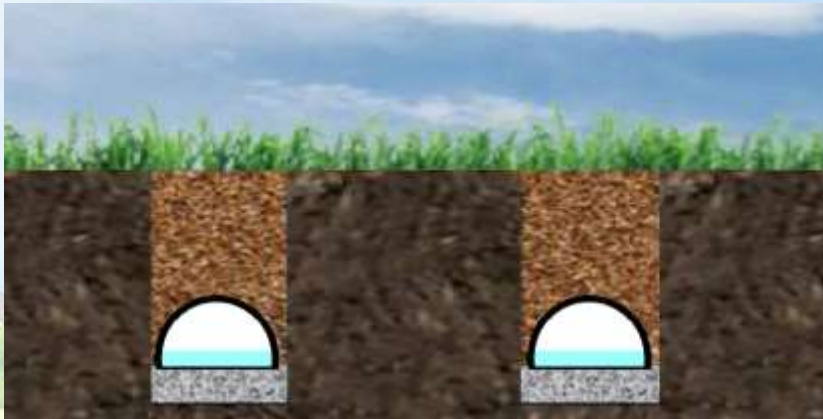


Roadside Water Retention and Drainage





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



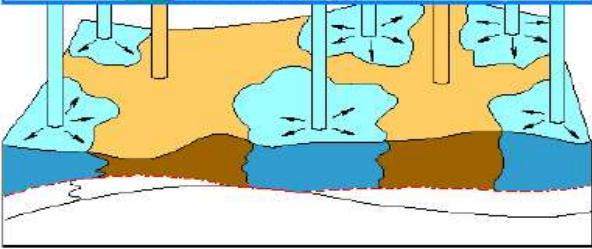
Aquifer Recharge and Aquifer Storage and Recovery



Stormwater Retention Tunnel System Aquifer Recharge and Aquifer Storage and Recovery



Promote
Water Retention



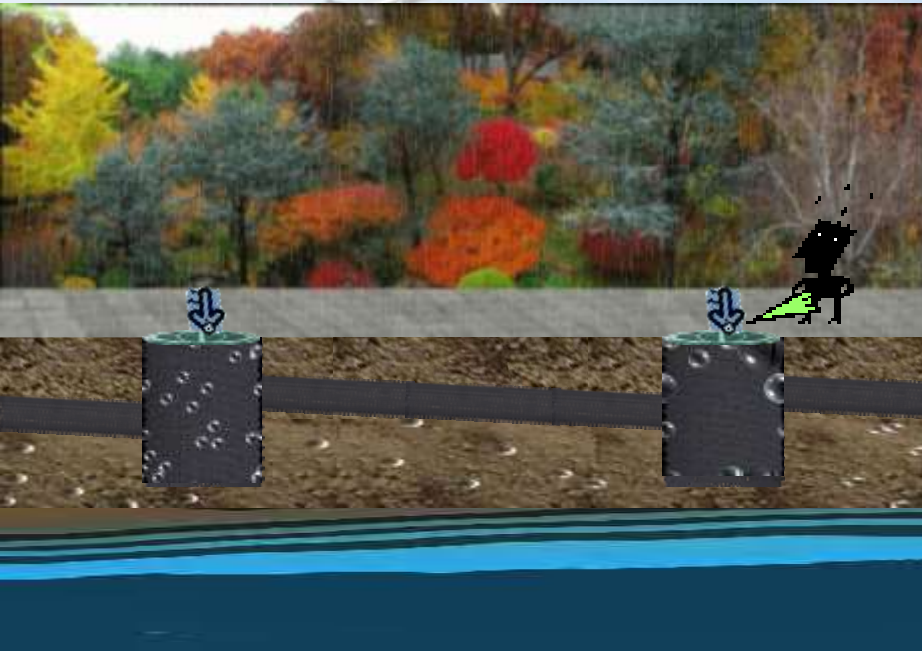
RCM Tunnel System facilities low cost, without mutual links, the Government consider Rainwater drainage system should be based on RCM Tunnel System to the main base water drainage system, will not only save a lot of construction funds, can be reached water retention, Rainwater Recycling, saving precious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



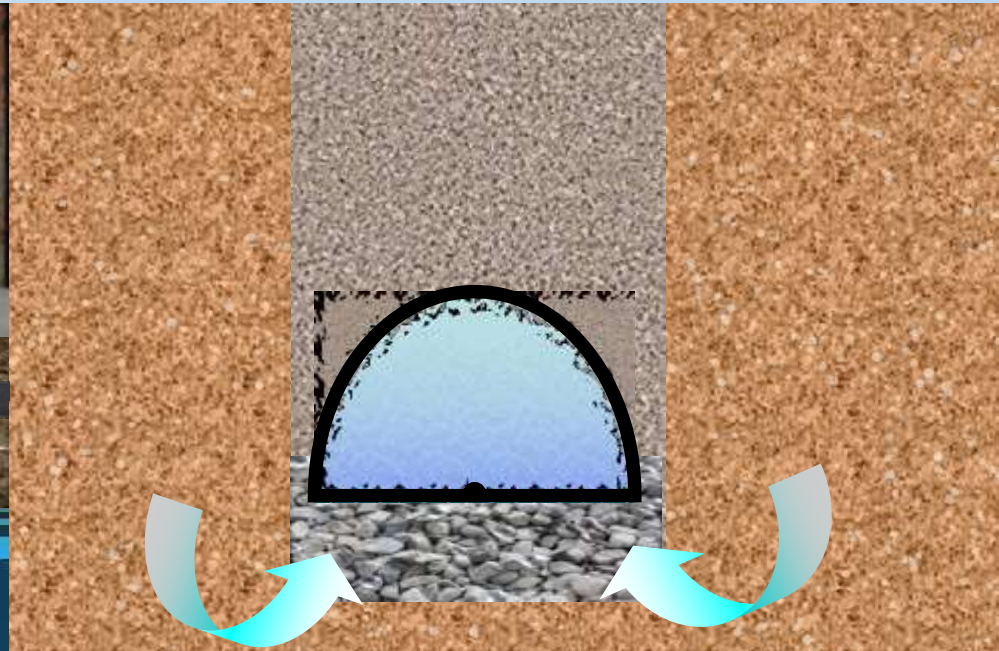
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Rainwater Conservation module - *RCM*

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

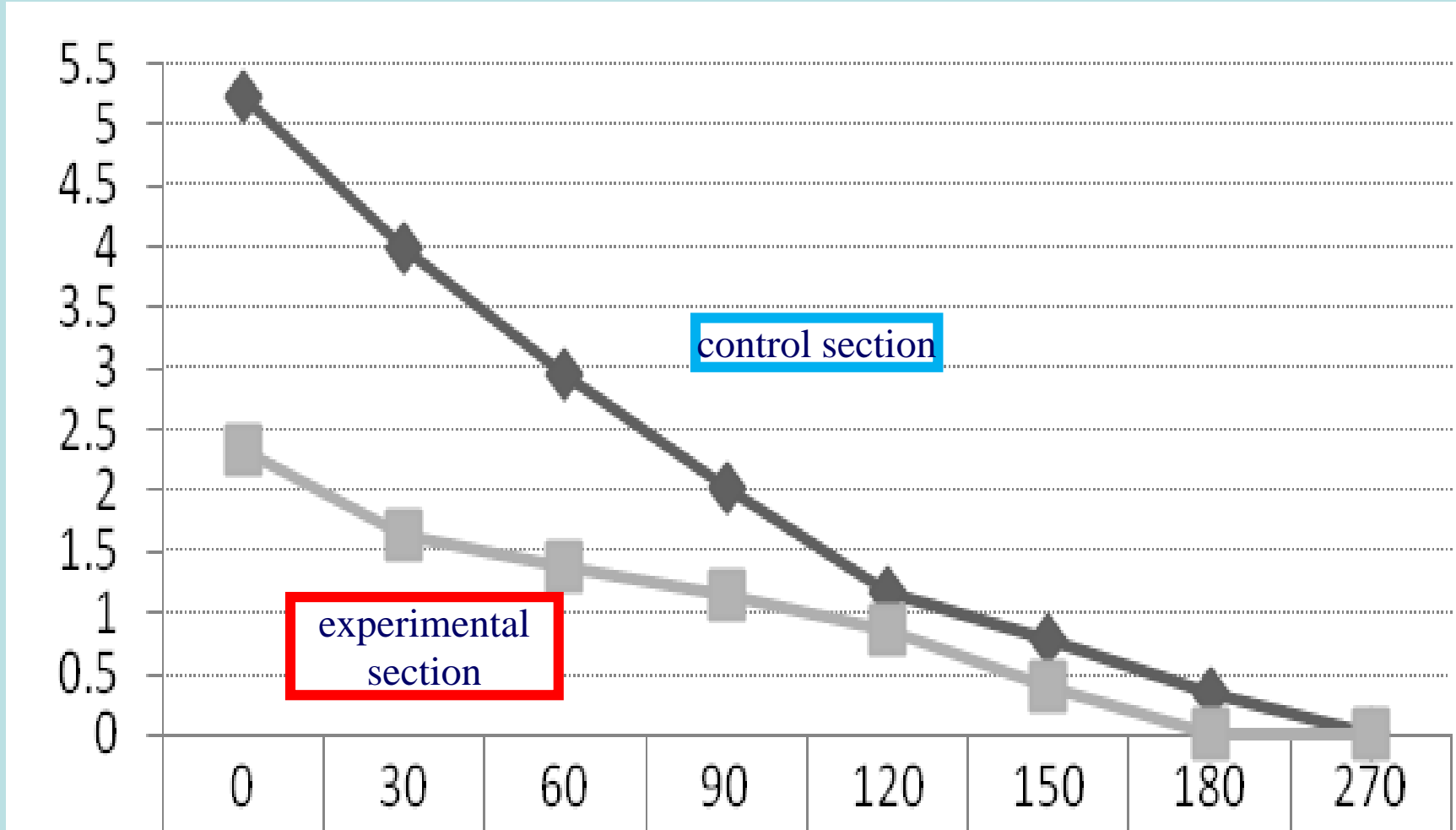
Control
Section

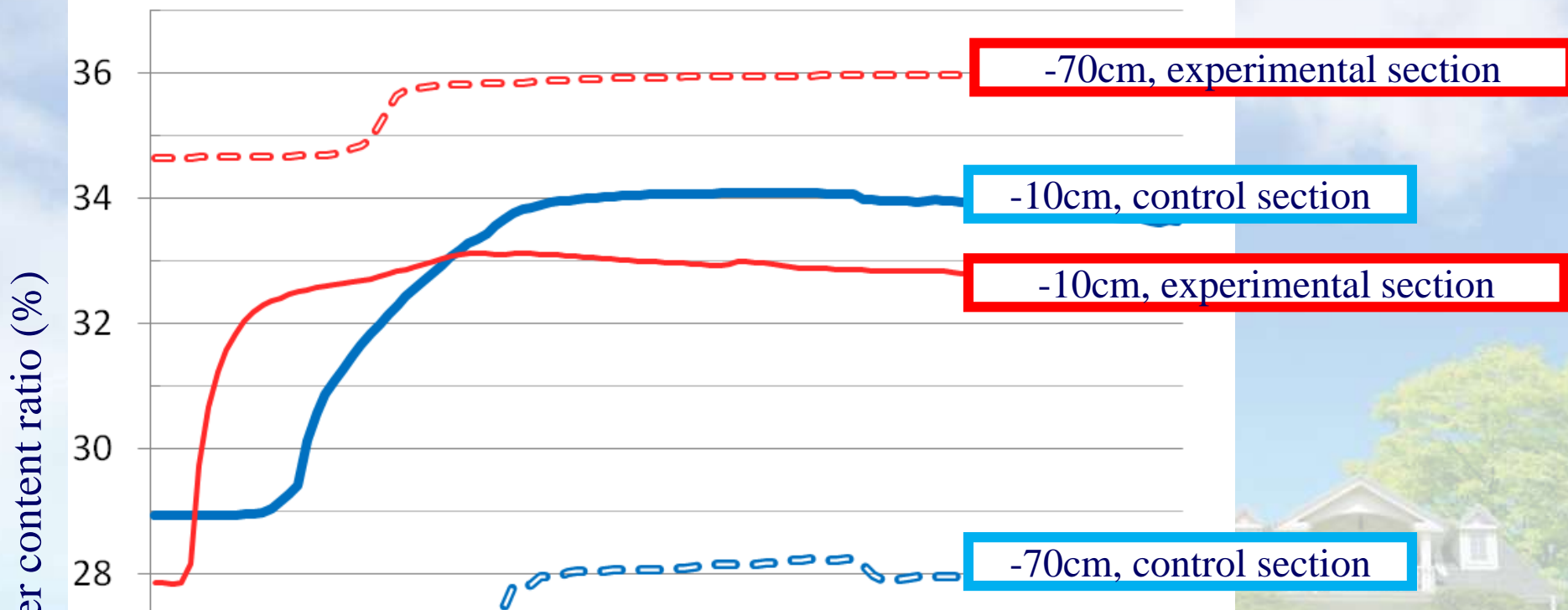
RCM

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.

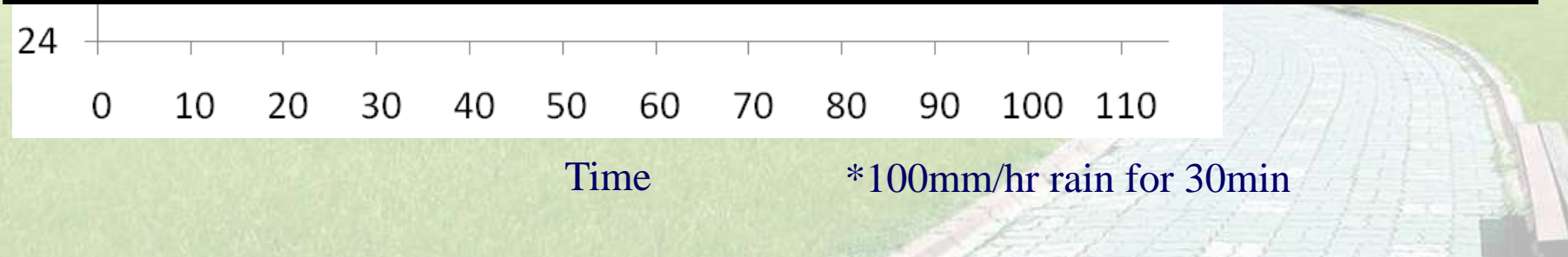
Comparison of runoff

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

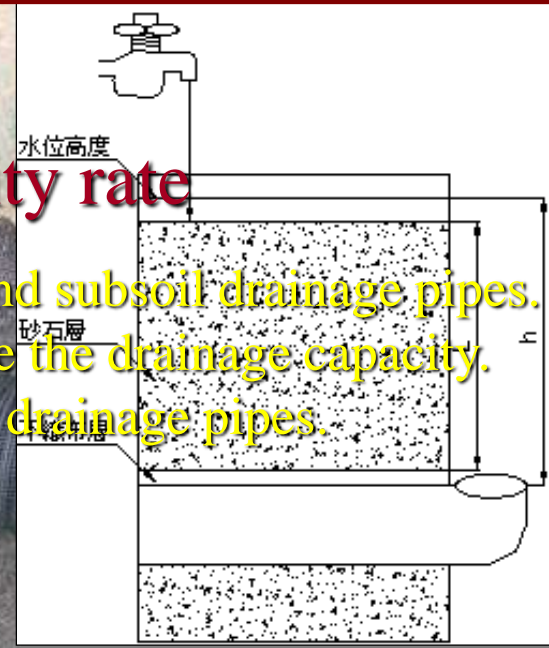




ECO-MESH

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