AFRICAN CENTRE FOR ENVIRONMENTAL PROTECTION

WATER CATCHMENT MANAGEMENT & TREE PLANTING FOR ENVIRONMENTAL PROTECTION IN RUMUORLUMENI, OBIO - AKPOR LGA

Date: April 12, 2016

Supported by:

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Search for Common Ground

Partners:

Rivers State Ministry of Local Government

WELCOME

Let us PROTECT our water bodies (e.g. Lakes, Streams, Groundwater and Oceans) from pollution and flooding.

INTRODUCTION

Floods are natural disasters, resulting in severe economic losses (UN, 2003; World Bank, 2003), loss of lives, destruction of socio-economic infrastructure such as roads, bridges , houses, outbreak of diseases, surface water and ground water contamination (Benka-Coker, 1998; Ekugo,1998; Gobo *et al., 2006;* Ogbonna *et al., 2004; 2006, 2008 a,b, 2011)*.

WATER POLLUTION

Water pollution is the contamination of water bodies due to the introduction of pollutants into the water bodies.

Fig 1: *Oil spill on the coastal water at Ogoni community, Rivers State, Nigeria* (*Aniefiok E. Ite, Udo, Margaret, & Sunday, 2012*)

- Oil spillages caused by either sabotage or defective equipment or rupture
- Natural disasters such as hurricanes and flash floods which may lead to intermixing of water with harmful substances on the land
- Toxic chemical polluting substances such as insecticides, detergents, industrial chemical, heavy metal and effluents resulting to **water bloom** (Eutrophication)
- Thermal pollution resulting due to the use of refrigerant and coolant in power generating plants

FLOODING

Flooding is a natural event that can be said to be water overflowing onto Land that is usually dry.

Rushing water floods Roaring River State Park, Cassville
(http://www.ky3.com/news/local/drone-video-rushing-water-floods-roaring-river-state-park-cassville/21048998_34038666)

CAUSES OF FLOODING

- Improper drainage designs and poorly drainage systems
- Dumping of refuse in drains and drainage paths
- Building along water flow paths and inadequate storm drainage channels
- Residents become homeless resulting in loss of money, damage to household and properties.
- When drainages are not evacuated of wastes, unsanitary conditions develop and pose environmental and human health risks
- Stagnant waters produce fowl illness, breed mosquitoes, obstruct movement of people and goods
- Contamination of surface and ground water
- Diseases such as parasites, tetanus, malaria, hookworm, cholera, diarrhea etc

THE WORD “PROTECT”

P: Pollution of water bodies and ground water.

Our waters can be polluted by ***chemical***, ***physical***, ***radioactive*** or ***microbial substances***. Industrial waste and toxic chemicals like paints, heavy metal wastes from filling stations and agriculture wastes should be prevented from our natural water bodies and ground water. This can degrade or destroy water purity, aesthetics due to increased sediment discharge from soil erosion, improper waste disposal and littering, leaching of soil pollutants and decayed organic materials in water supplies and bodies.

THE WORD “PROTECT”

R: Recycling of waste should be embraced by everyone in the community.

When our waste is sorted into different categories:-

Plastics, bottles, biodegradable and paper, we can properly manage our waste and reduce the dumping of waste in and around our water bodies.

THE WORD “PROTECT”

O: Organize awareness programs in the community as often as possible.

This is extremely important because it helps everyone to know what we can achieve when our water sources is clean and free from pollution. Flooding and chaos can be avoided through regular campaigns with appropriate safety measures sustained around a community.

THE WORD “PROTECT”

T: TRAINING

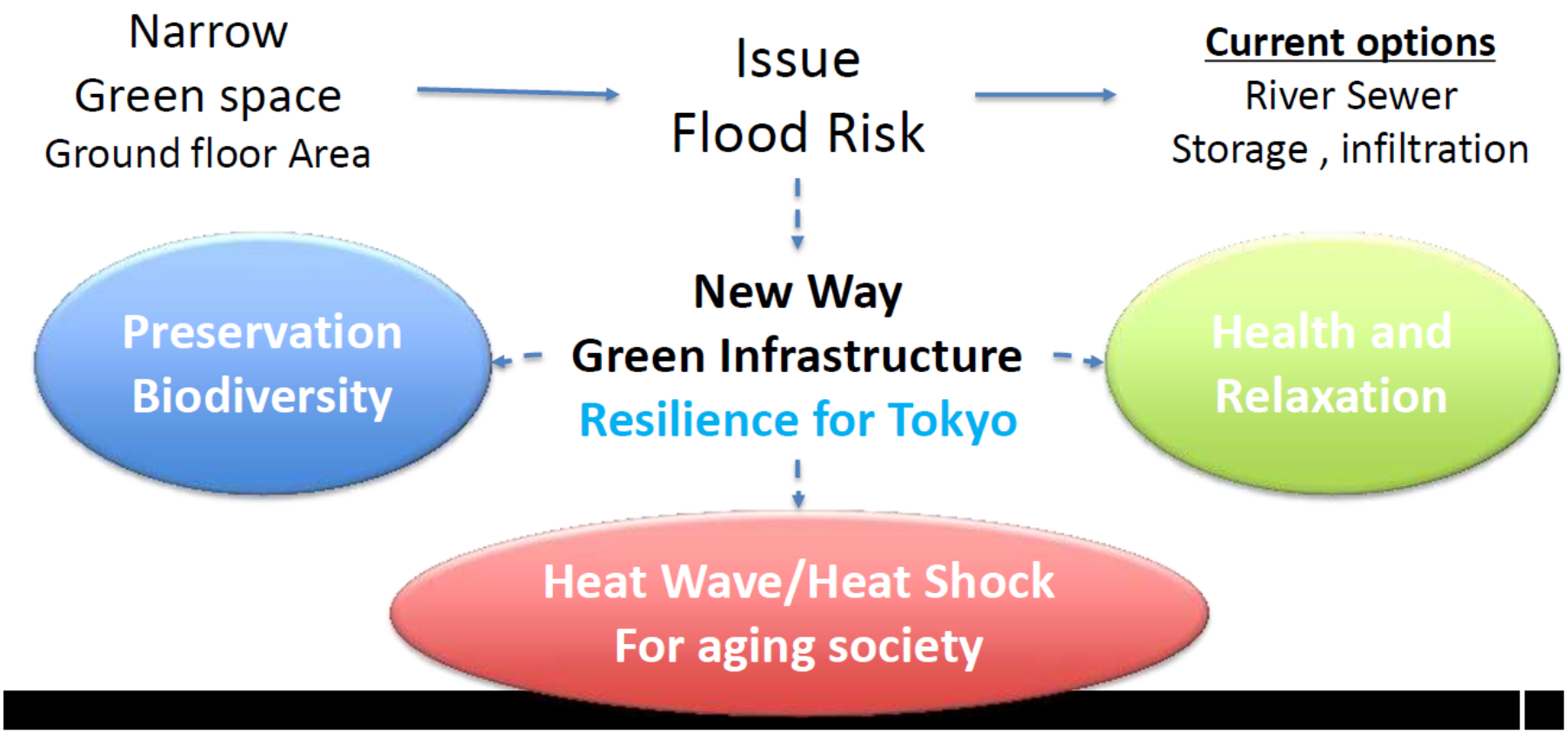
We need to be Accountable and so individuals will be trained to be water keepers.

THE WORD “PROTECT”

E: Erect water harvesting systems.

We can also build rain gardens. This is a way of controlling flooding in our community.

Reduce risk of urban flooding.
Expense of the Green Infrastructure is supposed to be improved by making incentives for residents.



✓ INFILTRATE SIDE DITCH

Downspout disconnection refers to the rerouting of rooftop drainage pipes to drain rainwater to rain barrels, cisterns, or permeable areas instead of the storm sewer.

Downspout disconnection stores storm water and/or allows storm water to infiltrate into the soil. This simple practice may have particularly great benefits in cities with combined sewer systems.

PLANTER BOXES

Planter boxes are urban rain gardens with vertical walls and open or closed bottoms that collect and absorb runoff from sidewalks, parking lots, and streets. Planter boxes are ideal for space-limited sites in dense urban areas and as a street scaping element.

BIOSWALES

Bioswales are vegetated, mulched, or xeriscaped channels that provide treatment and retention as they move storm water from one place to another. Vegetated swales slow, infiltrate, and filter storm water flows. As linear features, vegetated swales are particularly suitable along streets and parking lots.

GREEN STREETS AND ALLEYS

Green streets and alleys integrate green infrastructure elements into the street and/or alley design, design to store, infiltrate, and evapotranspire stormwater. Permeable pavement, bioswales, planter boxes, and trees are among the many green infrastructure features that may be woven into street or alley design.

GREEN ROOFS

Green roofs are covered with growing media and vegetation that enable rainfall infiltration and evapotranspiration of stored water. Green roofs are particularly cost effective in dense urban areas where land values are high and on large industrial or office buildings where storm water management costs may be high.

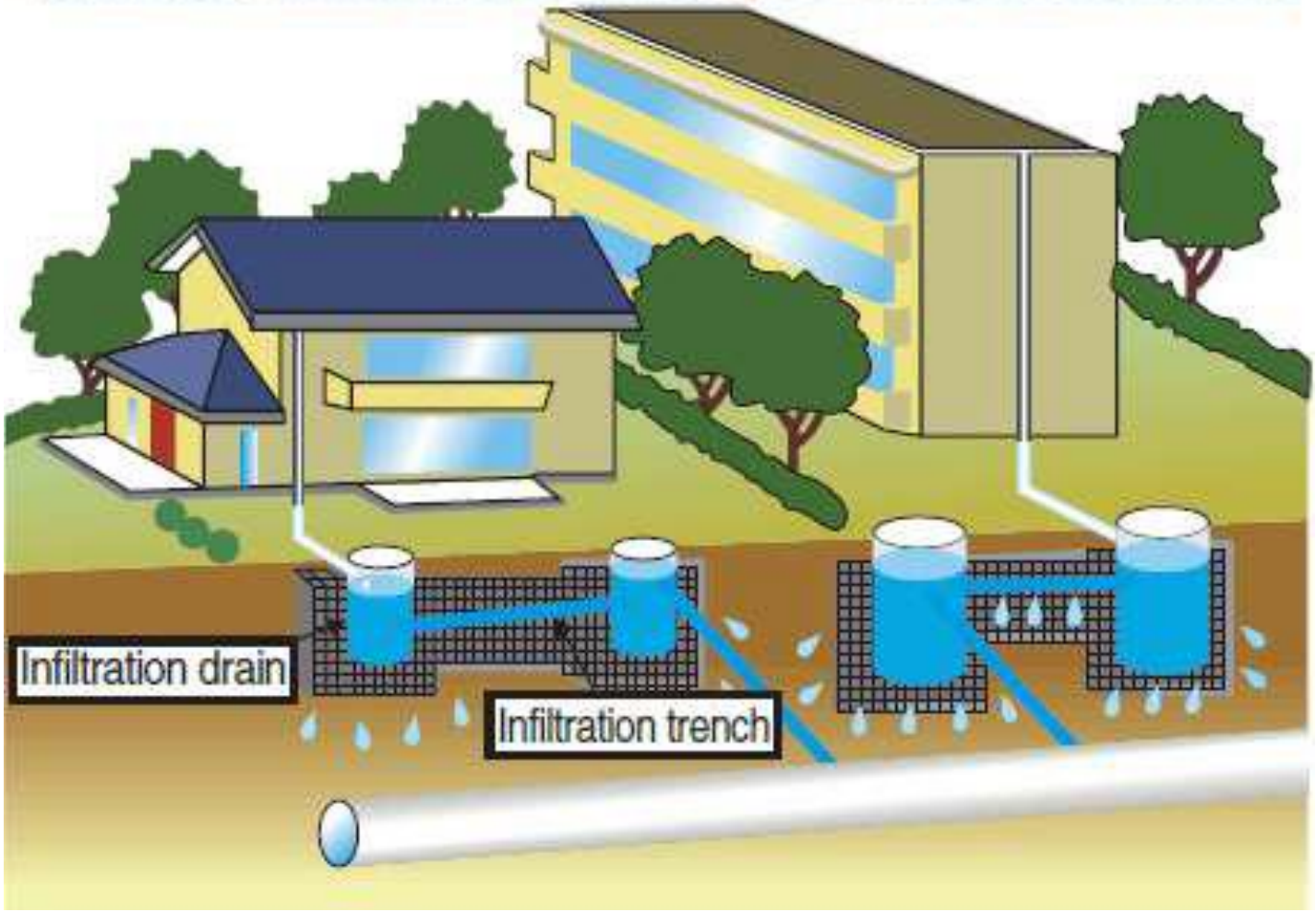
PERMEABLE PAVEMENTS

Permeable pavements are paved surfaces that infiltrate, treat, and/or store rainwater where it falls. Permeable pavements may be constructed from pervious concrete, porous asphalt, permeable interlocking pavers, and several other materials. These pavements are particularly cost effective where land values are high and where flooding or icing is a problem.

Places for installing Rain water Infiltration Technologies

- Government Facility
- Educational Facility
- Pavement
- Foot pavement

Rainwater infiltration technologies in residential areas



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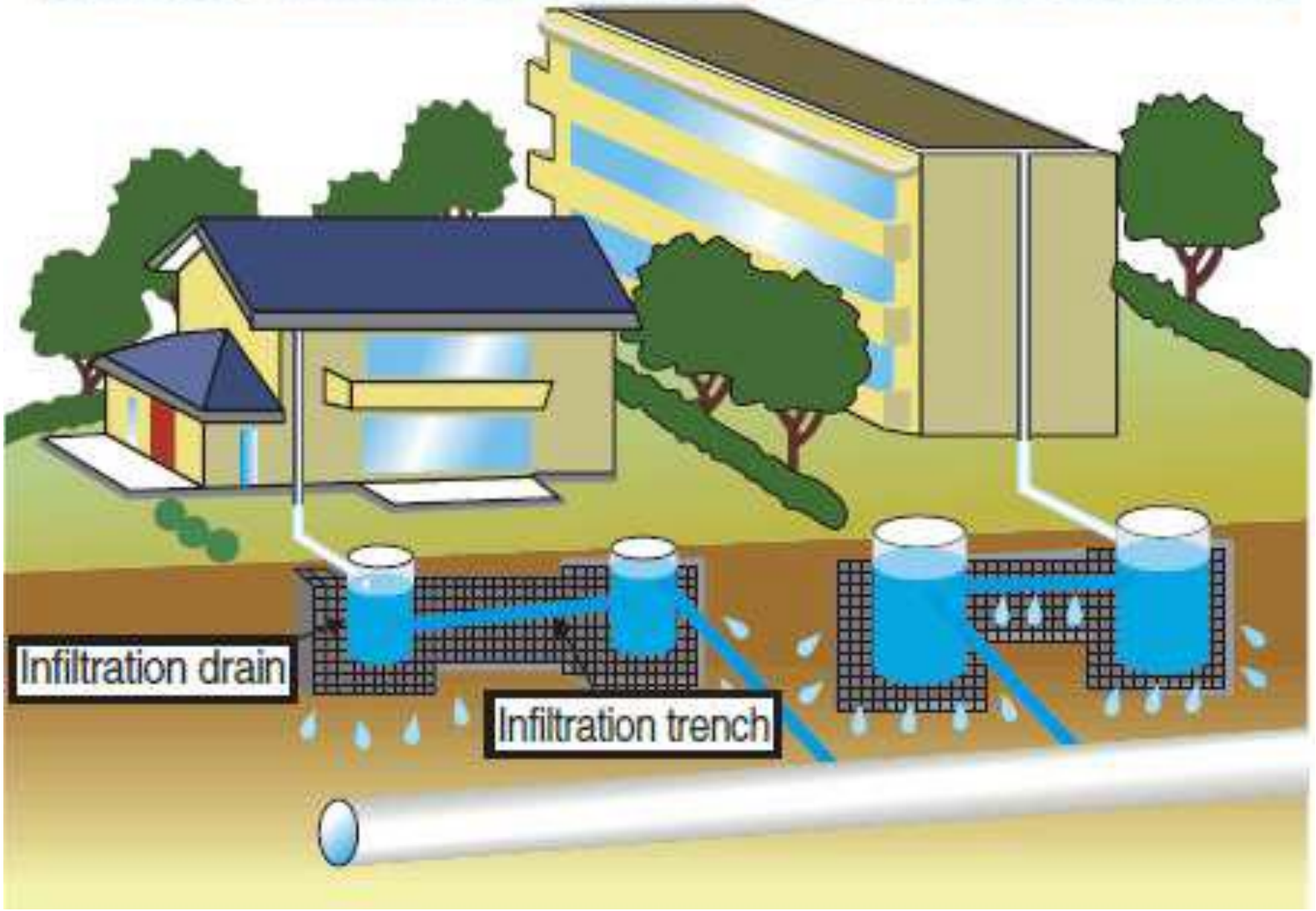

THE WORD "PROTECT"

C: Constructing buildings and structures on water ways should stop.

This will hinder the natural flow and movement of water and cause negative build up during heavy rainfalls. Also blocking our drainages leads to flooding.

Flood Control: Demolition of structures on waterways by Rivers State Government (http://www.lindaikejisblog.com/2015/10/flood-control-rivers-state-govt-begins.html)

THE WORD “PROTECT”

T: Trees can help reduce flooding by reducing runoff.

When we have trees all around us, we decrease the rate at which rainfall gets to the ground. Trees also improve our water quality by filtering out pollutants. Woods act as filter, removing damaging pollutants.

Dear Rumuolemini People, Let us PROTECT our water bodies

Prevent Pollution(P), Recycle our Waste(R), Organize Awareness (O), Train individuals/our people(T), Erect water harvesting systems(C), Don’t Construct illegal structures on water paths, Trees should be planted(T), Plant a tree today. TREES prevent or control soil erosion and desertification by absorbing water through its roots.

THANK YOU

Contact: African Centre for Environmental Protection (ACEP)

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