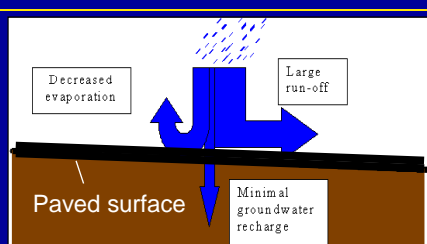
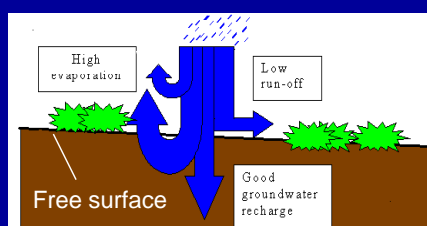


NEW WATER PARADIGM and its contribution to reduction of flood and droughts risks and adaptation to climate change on local, national and global level

Martin Kováč, Association of Towns
and Communities of Slovakia

ProVention Forum, May 15 2009, Istanbul

IMPACT OF DEFORESTATION, AGRICULTURE AND URBANIZATION



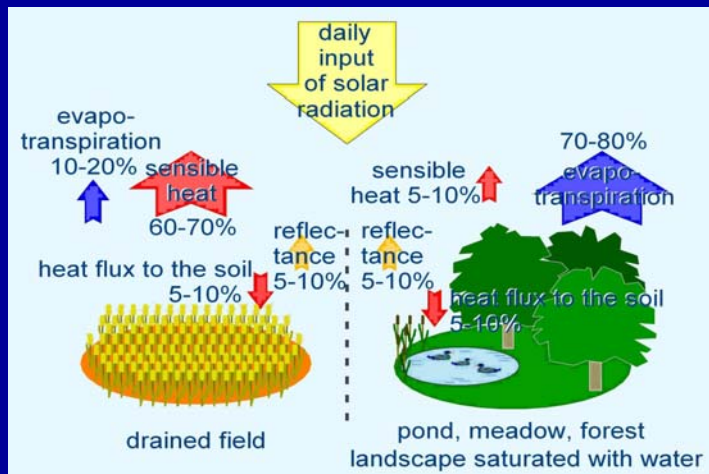
REALITY – BOTH URBAN & FARMS

OPTIMUM

In distribution of rainwater, landscape has three basic functions:

- optimally infiltrate water to the soil profile and ground, based on their natural physical parameters
- create favourable conditions for water evaporation from soil, plants, water bodies and surfaces
- drain only natural surplus water from basin through the river basin network

DISTRIBUTION OF SOLAR ENERGY



INCREASE OF ABOVE SURFACE TEMPERATURES:

Impact of CO² increase - 1-2% on sq. meter

Impact of forest converted to dry land - 200-400% on sq. meter

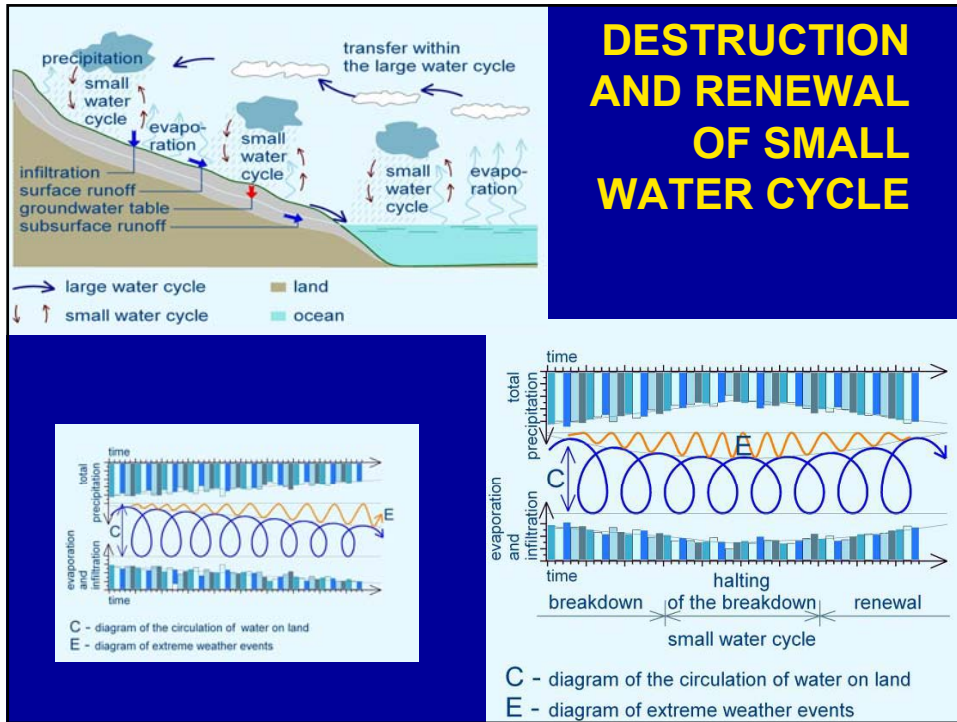
Dry land: Most solar energy is changed into *sensible heat*,
Wet land: most solar energy is consumed in phase change
WAY WE USE THE LAND PRODUCES A LOT OF HEAT
 that rises climatic extremes, forces regional and global climate changes

WHAT TYPE OF MEASURES ARE MOST NEEDED?

1. Reassessment of present land adjustments; identification of potential for the improvements and measures application
2. Economical practice – a need to apply:
 - Zero drainage of the rainwater and treated waste water from towns and communities / transformation to evaporation mainly
 - No till farming methods on farms - European scale / Worldwide
 - Economical motivation to any landowner to produce water by its retention / new water retention spaces of the land/buildings combined with proper vegetation structures
3. New structure of the landscape – a need to apply proper combination of flood-prevention and flood-protection measures:
 - rainwater harvesting and anti erosion (soil protection) measures on massive scale in farms, forest, urban land and river network / ideal is maximum forestation of unused land

The need for urgent NEW WATER DEAL - can secure renewal of small water cycle over land and growth in water reserves; creation of over 50 million jobs; water retention measures to collect 700 km³ of rainwater a year during ten years period (methodology known)

THESE TYPES OF MEASURES HAVE HIGHEST AND IMMEDIATE IMPACT TO DECREASE THE FLOOD RISKS AND DROUGHTS RISKS



IMPACT OF THE ACTION / ADAPATION

more useful and moderate clouds

less climatic extremes

more soft and useful rain

more air humidity

higher cooling effect of the landscape

more evaporation from lands / increase of biodiversity / less runoff

more vegetation, stored water and protected soil = less transformation of solar heat to sensible heat

more groundwater recharge

Principles of IWRM focus on:

1. spatial flood prevention measures in river basins (forest, farms, urban land, rivers)
2. respecting importance of rain water and role of landscape in rain water distribution
3. cooperation of land and building owners to use rain water and to protect soil against soil erosion
4. assessment of planned investment and economic activities on water cycle
5. reassessment of present land adjustments which influence water cycle
6. cost effective and sustainable sanitation for every community
7. water efficiency and water recycling
8. establishment and implementation of real water pricing
9. local water planning tools and instruments

Integrated water resources management (IWRM) is a complex process of water resources use and protection which respects water cycle in ecosystems and stability of water regime in the landscape.

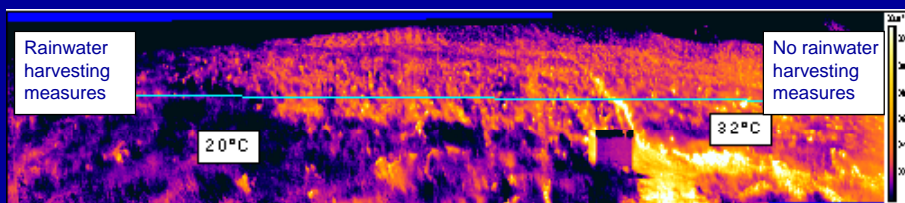
Provocative or real? Key points

- Decrease the flood risks and droughts risks / economical damages from 10 % - 80% based on scale of measures implementation and size of the territory
- Key relation to examine and exercise - impact of landscapes changes on climate changes due to change of water regime of the landscapes and vegetation cover of the land
- We can revert the trends and easily start to increase existing pie/cake of the water on the continents and for the local economies and ecosystems - instead of using the same or decreasing amount of the water in the landscapes
- Water has no borders in its circulation, cleans itself, we can bring more water to the continents by systematic retention of the water in combination with effective vegetation cover and soil management measures together with decreasing and moderation of the climatic extremes
- Less water on continents (ongoing desertification) means less weight of the continental tables – more water in the oceans (rising the sea levels) – higher sensitivity of the land to earthquakes

ACTIVITIES OF THE ASSOCIATION OF TOWNS AND COMMUNITIES OF SLOVAKIA

- Developing:
 - own policy papers on sustainable water management
 - internal expert capacities, international expert network, own information and monitoring system and methodology for local water planning (based on principles of partnerships, solidarity and subsidiarity)
- Why we use the knowledge and findings of NEW WATER PARADIGM – it is cheap, simple and effective system:
 - to decrease flood and drought risks in the regions and settlements of Slovakia
 - It is expert and knowledge base for local water planning
 - real opportunity to achieve good stage of the water from quality and quantity point of view
 - full implementation of the integrated water resources management, soil protection and climate change adaptation measures, strategies and policies
 - local answers to global questions – immediate impacts and results
 - brings global understanding and context for local and national actions

Thank you for your attention



Temperature differences of two parts of one forest – better and worse saturated water- Infrared picture of Water Forest in High Tatras, Slovakia

For more details please contact us

WE ARE PREPARED

FOR MODEL
IMPLEMENTATION

WE LOOK FOR
PARTNERS

www.zmos.sk

kovac@zmos.sk

www.ludiaavoda.sk

www.municipalia.sk

www.waterparadigm.org