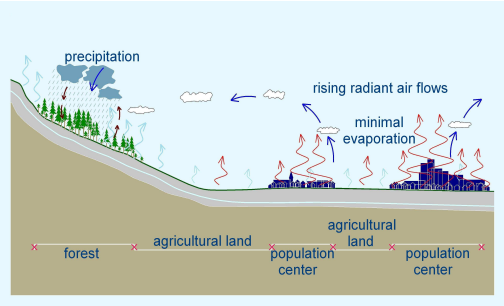
HUMAN DRAINING OF LAND AND WATER CYCLE DISTORTION

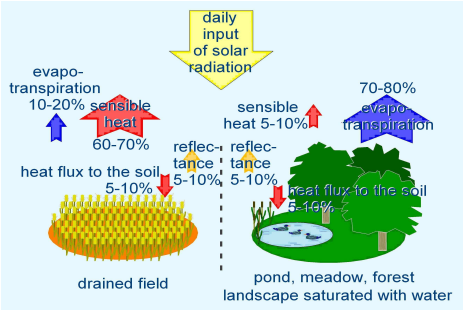
by Michal Kravcik,
NGO People and Water, Slovakia
www.waterparadigm.org

Humanity, through deforestation, agriculture and urbanization accelerates the runoff of rainwater and drains the land. In Europe we sluice away into sewage about 20 billion m^3 of rainwater each year. “Hot plates” we create so cause breakdowns in the stable water cycle, rise in climatic extremes, more frequent flooding, longer droughts, extreme heats, forest fires, drop in groundwater reserves, decrease in soil fertility and biodiversity. However, the impact can go in both directions. The part of climatic change, which is the result of human draining of a land, can be stopped and renewal of a healthy water cycle achieved by comprehensive program of rainwater harvesting, conservation, infiltration and evaporation.



OVERLOOKED RELATION: WATER CYCLE AND ENERGY FLOWS

by Jan Pokorny,
ENKI, Czech Republic
www.enki.cz



Vegetation well saturated with water evaporates several litres of water on a sunny day per m^2, while each litre transfers 0.7kWh solar energy into latent heat of evaporation. Water vapour then condensates in cool places and latent heat is released, which moderates temperature differences. If there is insufficient water on land, immense flows of solar energy are instead changed into sensible heat. Growing temperature gradients distort water cycle, trigger extremes of weather and contribute to climate change. Daily series of distribution of solar energy in vegetation and drained surfaces are shown. Examples of thermo-vision and satellite pictures showing role of plants and water in air-conditioning of landscape are given.

INVITATION

Many climatic change scientists state that, in parallel to greenhouse gases, it is also necessary to pay much more attention to investigating the relationship between the hydrosphere and climatic change. If you would like to encounter some fresh ideas about the topic, you may find interesting conference of the authors of the publication **"Water for the Recovery of the Climate - A New Water Paradigm"** (downloadable in English on www.waterparadigm.org) and their like-minded colleagues from six countries of Europe. **You are warmly welcome!**

"To all the aristocracy and towns, I hereby issue an order to build ponds industriously to provide fish to the people and to gather marsh and morass water, so that it might be evaporated by the sun and as a water vapor to fully benefit the vegetation. A pond is to retain a large amount of water in times of lasting rains, and in doing so, shall avert the sudden flooding of downstream lands..."

/Charles IV, Czech king and Holy Roman emperor, 1356/

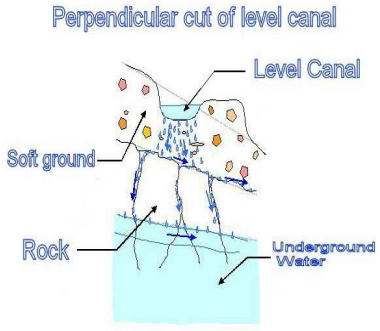
THE ROLE OF EVAPORATION IN URBAN AND GLOBAL CLIMATE CHANGE

by Marco Schmidt,
Technical Univ. of Berlin, Germany
www.gebaeudekuehlung.de

The amount of evaporation is reduced significantly due to the loss of forests worldwide, the increase in urbanization and reduction of agricultural land. This causes the urban heat island effect and the global warming. High amount of energy transfer consumed in water evaporation (680 kWh/m³) is used in the project "Adlershof Physik" in combining elements of decentralized water management with reduced energy consumption for cooling and ventilation. Rainwater is stored and used for the irrigation of the facade greening system and evaporative cooling systems for air conditioning. Some of the roof surfaces are also extensively greened to assist in retaining and detaining stormwater runoff.

POSSIBILITY OF GROUNDWATER RESERVES RE-CHARGE

by Jean-Marc Hauth,
Les Biefs du Pilat, France
http://perso.wanadoo.fr/biefs.dupilat/

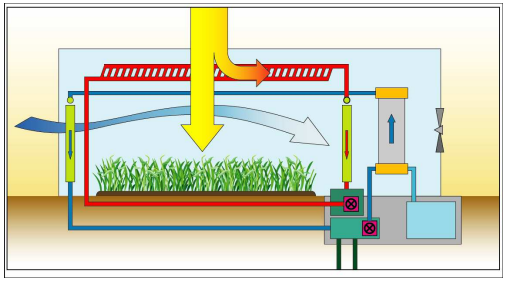


The decreasing of the recharge and the over-pumping of underground reserves of water have direct effects on CO2 increasing and level of warming effect. The Global Water Resources Management is a concept of repartition of water which allows the runoff water to be catched and re-infiltrated in the underground spaces by the way of a network of level canals complementary to the natural streams and rivers network. This concept of global harvesting may be an important tool to recover the climate but it is also renewable energy and supplying system of water.

THE SAHARA FOREST PROJECT

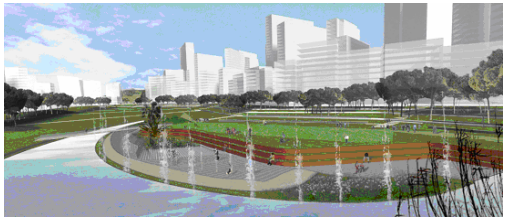
by Charlie Patton,
Seawater Greenhouse, Ltd.,
United Kingdom
http://www.seawatergreenhouse.com/

The Sahara Forest Project is a scheme to provide fresh water, food and renewable energy in hot, arid regions as well as re-vegetating areas of desert. The scheme combines two established technologies – the Seawater Greenhouse and Concentrated Solar Power – to achieve highly efficient synergies. The Seawater Greenhouse has demonstrated the potential to create surplus freshwater from seawater and provide ideal growing conditions in arid regions. Concentrated Solar Power is one of the most promising forms of renewable energy, producing electricity from sunlight. By combining these technologies there is huge commercial potential to create a sustainable source of energy, food and water.



THE SUSTAINABLE STORMWATER MANAGEMENT & URBAN LANDSCAPE DESIGN

by Alessandro Mazzotta,
Polytechnic of Turin, Italy
www.torinoyouthforum.org/ricerche/1/22.pdf



The conventional treatment of stormwater in urban development in the past has been driven by the aptitude “out of sight, out of mind.” Now the trend could be: “in the sight, in the mind.” The principle of integrating sustainable water management solutions in the open spaces of the site involves a multidisciplinary approach based on the integration between architecture, engineering, biology. It is evident that the best opportunities to reduce urban runoff occurs during the planning. Sustainable water management could be an instrument for urban open-space landscape design and could be also a strategy to spread the idea of the environmental issue as an opportunity for quality of human habitat rather than a “trouble”.

THE NEW WATER PARADIGM ON LOCAL AND NATIONAL LEVEL

by Martin Kovac,
Assoc. of Towns and Villages,
Slovakia
www.zmos.sk

The Association of Towns and Communities of Slovakia presented in May 2008 document “Principles of integrated water resources management in municipalities and their river basins”, which promotes qualitative and quantitative improvements of water resources and prevention of deterioration and depletion of available water resources. It is based on the expertise of new water paradigm. The “principles” cover areas like: rainwater protection and utilization; planning processes and reassessment of land changes; economical sustainability aspects and local water policy applications. The association organises own significant research of the stage of water resources and its management in the territories, develops special information system and supports training in the field.

SPEAKERS

Dipl. Ing. Michal Kravčík, CSc., *founder of the NGO People and Water, a holder of the Goldman Environmental Prize. His focus is on a small water cycle recovery.*

RNDr. Jan Pokorný, CSc., *director of the beneficial society ENKI, a scientific staffer at the Czech Academy of Sciences. He deals with interrelation of vegetation - solar energy - water cycle.*

Dipl. Ing. Marco Schmidt *works at the Technical University of Berlin on water balance modifications in urban areas, esp. on evaporative cooling systems.*

Ing. Jean-Marc Hauth *experiments with the level canals concept. He founded NGO ”Biefs du Pilat” awarded with Vivendi and N. Hulot Foundations prizes.*

Charlie Paton *elaborated the concept for the Seawater Greenhouse. Starting with an experimental pilot in Tenerife, he has designed and built two further Seawater Greenhouses in Abu Dhabi and Oman.*

Arch. Alessandro Mazzotta, *a researcher at the Polytechnic of Turin. His activities are focused on the integration of the stormwater management solutions in the landscape design.*

Dipl.Ing. Martin Kováč *works as specialist for anti-flood prevention at the Association of Cities and Municipalities of Slovakia.*

(Moderator) ***Prof. Larbi Bouguerra*** *is in charge of “the Water Program” of the NGO Agter, as well as the head of similar program of the French-Swiss La fondation Charles Léopold Mayer pour le progrès de l'homme.*

Conference Program:

Human draining of land and water cycle distortion
Michal Kravcik, NGO People and Water, Slovakia

Overlooked relation: water cycle and energy flows
Jan Pokorny – ENKI, Czech Republic

The role of evaporation in urban and global climate change
Marco Schmidt, Technical University of Berlin, Germany

Possibility of groundwater reserves re-charge
Jean-Marc Hauth, Les Biefs du Pilat, France

Sahara forest project
Charlie Paton, Seawater Greenhouse, Ltd., United Kingdom

The sustainable stormwater management as instrument for urban landscape design
Alessandro Mazzotta, Polytechnic of Turin, Italy

Application of the New Water Paradigm on local and national level
Martin Kovac, Association of Towns and Municipalities, Slovakia

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EXPO ZARAGOZA 2008

EXPO Zaragoza 2008

Water Tribune Conference

"Water for the Recovery of the Climate – A New Water Paradigm"

23rd August, 10.00 – 13.00
Water Tribune pavilion
(Auditorio)

Motto:
Not a single drop of rain-water must be allowed to go to the sea without first being of service to people.
/Parakramabahu the Great, King of Sri Lanka, 1153-1186/