

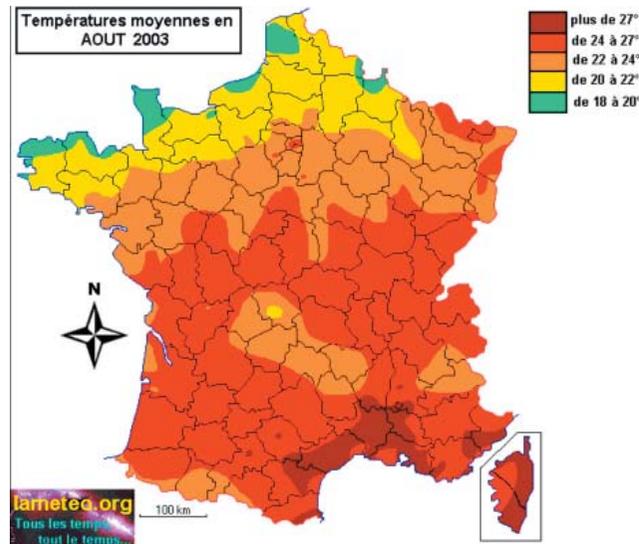
7 AWARENESS

When planning with climate change one has to raise the populations' AWARENESS on climate change effects.

EXAMPLE 1

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
TEMPERATURE RISE	Extreme heat	People	Communication campaign	Create awareness	People

Recent experiments show that in terms of climate change, ignorance is often the main reason why ambitious policies are sometimes failing. Awareness of the population, the local authorities and the decision makers is then essential. In order to raise public awareness on climate change effects, some communication programs could turn out to be very effective measures. In France, in 2003 a great heat wave as a result of TEMPERATURE RISE lasted for half a month and led to the death of thousands of persons, mainly old people, living alone in their flat without any family left. Since the death of these persons was mainly caused by dishydration and lack of basic medical precautions, the government decided to start a vast communication campaign emphasizing the need of creating solidarity networks around old, sick and lonely persons in order to prevent more disasters.



COMMUNICATION CAMPAIN IN FRANCE IN HOT SUMMER

EXAMPLE 2

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
TEMPERATURE RISE	Air quality change	Inhabitants	Taxation Incentives		

1. Through levying taxation
 - taxation as a means to regulate carbon emissions into the atmosphere
 - higher tax for less environmentally friendly fuels
2. Through giving incentives
 - to encourage adopting clearer energy, use less polluting modes of transport
 - to provide grants to help convert vehicle fleets to the cleanest technologies and fuels
3. Through more information on purchasing choices so that the awareness of the consumers increases



8 MONITORING

When planning with climate change one has to **MONITOR** the changes in the climate and its effects.

EXAMPLE 1

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
TEMPERATURE RISE	Air quality change	People	Monitoring	Reduce impacts on climate change & raise public awareness	People

TEMPERATURE RISE is one of the major topics of global climate change. The situation is always worse in densely urban areas. Hong Kong, as one of the most densely populated cities, is particularly suffering from urban heat and the subsequent air quality change. The city is located on the eastern side of the Pearl River Delta which has become one of mainland China's leading economic regions and one of the world's major manufacturing centres. The massive manufacturing centre has been attributed to the regional air pollution, while at the local level power plants and vehicles are main pollutant emission sources in Hong Kong. It poses severe health threats to the inhabitants therein. In order to provide accurate air quality data for monitoring the air pollution problems, there are local and regional Air Pollution Indices (APIs) to measure the concentrations of ambient respirable suspended particulate (RSP) and other greenhouse gases over a 24-hour period based on the potential health effects of air pollutants, giving the air pollution level in an index format. The indices provide a scientific base for monitoring the pollution problems and also for helping to evaluate the measures that have been taken for abating the problem. Moreover, with the raising public awareness of the negative impact of the air quality change, local inhabitants are benefited.

Local level

Air Pollution Index (API) in Hong Kong

Level: 5 level – low, medium, high, very high and severe (Fig. 1)

There are 11 air quality monitoring general stations and 3 roadside stations scattered in different districts in Hong Kong.

Publicity: The index updates every hour, and is accessible to the general public through internet and also reported in mass media. (Fig. 2 & Fig. 3)



Forecast - Tonight and Tomorrow's Highest	General Station	15 to 40 / Low to Medium
	Roadside Station	40 to 55 / Medium to High

HONG KONG

Air Pollution Index at 17:00 13-Sep-2006			
General Station			Station Location Map
Station	API	Air Pollution Level	Contributing Pollutant
Central/Western	35	Medium	Nitrogen Dioxide
Eastern	28	Medium	Nitrogen Dioxide
Kwai Chung	28	Medium	Nitrogen Dioxide
Kwun Tong	20	Low	Nitrogen Dioxide
Sha Tin	22	Low	Nitrogen Dioxide
Sham Shui Po	28	Medium	Nitrogen Dioxide
Tai Po	33	Medium	Nitrogen Dioxide
Tap Mun	30	Medium	Ozone
Tsuen Wan	29	Medium	Nitrogen Dioxide
Tung Chung	18	Low	Respirable Suspended Particulates
Yuen Long	27	Medium	Nitrogen Dioxide
Roadside Station			Station Location Map
Station	API	Air Pollution Level	Contributing Pollutant
Causeway Bay	47	Medium	Nitrogen Dioxide
Central	48	Medium	Nitrogen Dioxide
Mong Kok	51	High	Nitrogen Dioxide

Remark:

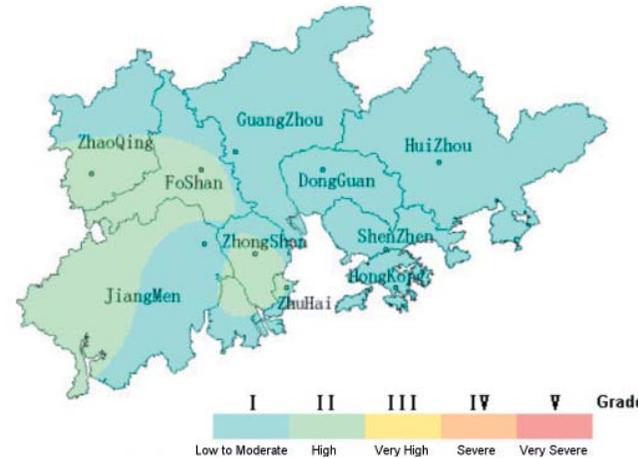
The API information is based on raw data taken directly from EPD's Air Quality Monitoring Network.



Regional Level

Regional Air Quality Index (RAQI) for Hong Kong and the Pearl River Delta
 Project: The Pearl River Delta (PRD) Regional Air Quality Monitoring Network - As a joint effort for the regional air quality objectives between Hong Kong and Guangdong Province of China
 Since: November, 2005
 Level: 5 level - The higher the index value, the higher the regional air pollution levels
 There are 16 air quality monitoring stations in the PRD region (13 in China and 3 in Hong Kong). (Fig. 4)
 Publicity: Published in form of a daily air quality report on the Internet accessible to the general public

PEARL RIVER DELTA



EXAMPLE 2

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
TEMPERATURE RISE	Air quality change	People	Monitoring	Influence traffic system	People

Brussels also has developed a network of samplers everywhere in the city. The system samplers record permanently the concentration of the following pollutants: SO₂, NO, NO₂, O₃, CO, CO₂, suspension particles, Hg and BTX. Each recording is analyzed and compiled with others into a database to create 2 air quality indicators: a global indicator and a traffic one. These indicators are dynamics and they are changed each hour. These indicators are presented on a scale with 10 values from excellent to very bad. The global indicator gives the air quality in the entire city and the traffic indicator shows the influence of the traffic on the air quality.

If this indicator is too bad, direct measures can be taken by the authorities to reduce the emissions from the traffic. For example, the entire roadway network is equipped with dynamics panels which can be used to give messages to the car users to control and limit the speed.

The screenshot shows the 'Le Pollumètre' website interface. The header includes 'BRUXELLES ENVIRONNEMENT - IBGE' and 'INSTITUT BRUXELLOIS POUR LA GESTION DE L'ENVIRONNEMENT'. The main content area is titled 'Le Pollumètre' and contains the following text:

La qualité de l'air est-elle bonne en ce moment ? Et à proximité du trafic routier ? Avec le Pollumètre, chacun peut avoir, en 1 qualité de l'air extérieur en Région bruxelloise.

Qu'est-ce que le Pollumètre ?

L'IBGE possède un réseau de stations de mesures qui enregistrent en permanence la concentration dans l'air ambiant de différents polluants, calculés afin de permettre à chacun d'avoir une idée de l'état de la qualité de l'air qu'il respire en Région bruxelloise.

Il s'agit d'indices « dynamiques » dont la valeur peut évoluer au fil du jour (plusieurs valeurs possibles par jour, valeurs qui tiennent compte donne ainsi « en temps réel » deux indices renouvelés toutes les heures.

Le Pollumètre	
Qualité de l'air le 13/09/2006	
Indices	
Exécration	
Très mauvaise	
Mauvaise	
Très médiocre	
Médiocre	
Moyenne	tronic
Bonne	
Très bonne	
Excellente	
Global	tronic

Historique sur 7 jours disponible plus bas.

Ces indices sont présentés sous la forme d'une échelle allant de 1 à 10. Un indice global de valeur 1 signifie que la qualité de l'air est « excellente » qu'un indice global de valeur 10 signifie qu'elle est « exécration ». A partir d'un indice 7, nous approchons des seuils limites de pollution.

Infos pratiques: [L'indice global](#)

BRUSSELS, BELGIUM

9 MANAGEMENT

When planning with climate change one has to **MANAGE** the risks, problems and solutions involved in the climate change to minimize the effects of it.

EXAMPLE

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
DROUGHT	Lack of water	Agriculture People	Rationalisation of water Reutilization of grey water	Better quality of water Better management of water	Agriculture People

A DROUGHT usually refers to an extended period of below-normal rainfall. The effects of drought vary greatly, depending on agricultural, urban and environmental water needs. It is an opportunity to create real management plans also for the water distribution and for a management plan for the land use, especially in susceptible dry lands. Periods of drought can have significant environmental, economic and social consequences. The effects of droughts have to be analysed and assessed on regional or local scale. Meanwhile failing groundwater recharge in a certain period does not necessarily have long lasting ecological effects, an accumulation of many events over several years can affect the entire ecological system. It is also important to take the dependence of, e.g. a groundwater system on annual recharges into account. Regions with very shallow aquifers require a steady recharge whereas deeper and larger aquifers can cope easier with drier years, simply because they store much more water. In Europe the man-made impact on droughts is considerable.

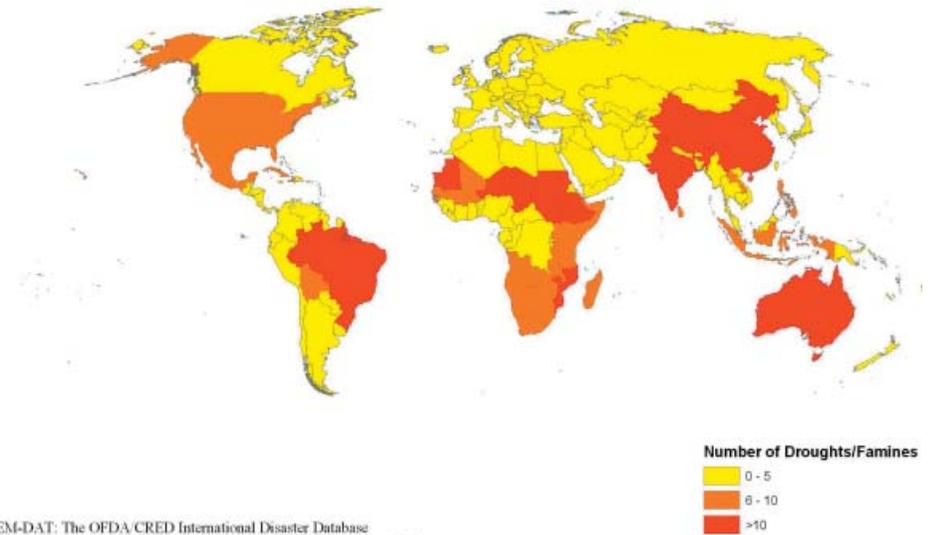
There are several examples of water resource mismanagement, such as over-pumping of aquifers, sealing of areas increasing surface runoff and restricting groundwater recharge, overuse of water in dry areas and intensive agriculture, and many more. Since climate conditions that lead to droughts are extremely difficult to predict and are usually not recognizable until they are already well advanced, the drought hazard can only be managed by the sustainable use of water resources. Water should be stored in times when it is abundantly available in order to ensure enough supply during a drought. Portugal is among the worst hit of European countries suffering from drought. Portugal will probably face especially hot and dry summers, facing the worst draughts since 1990. These aspects have a strong negative influence on productivity and on the national economy (mainly on agriculture, but also on tourism), on environmental stress



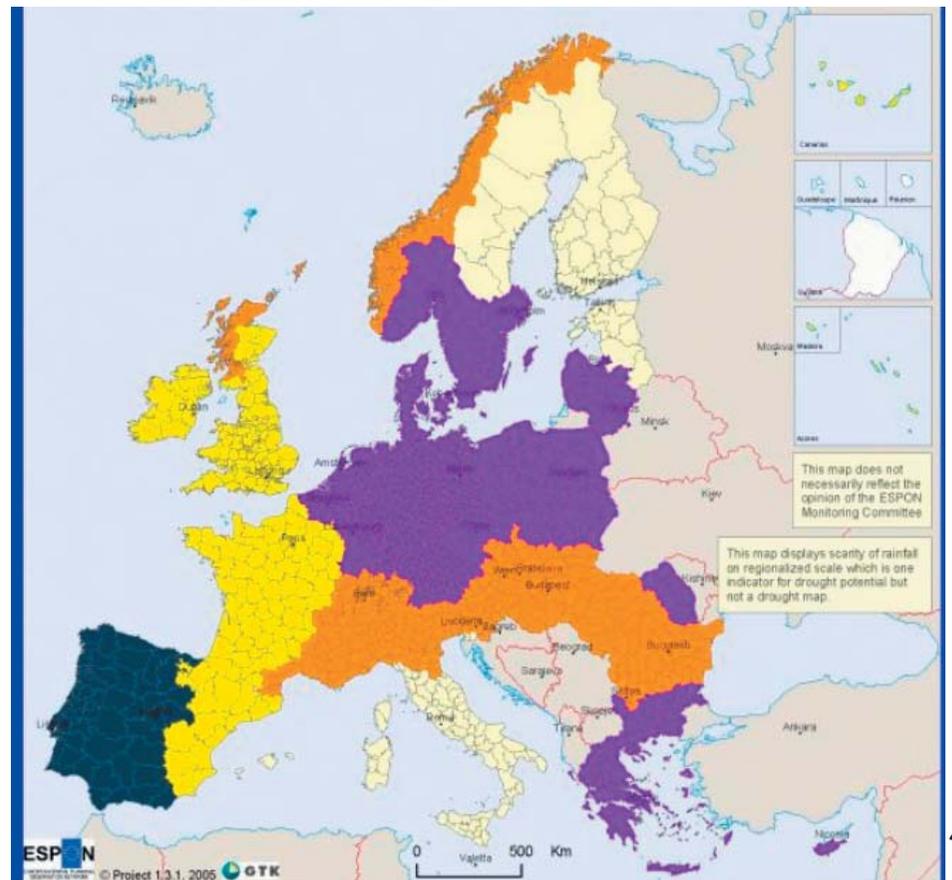
and forest degradation (increased probability of fires), and on health and life quality (decreased water quality and lack of drinking water). This winter several small villages are facing a lack of drinking water as is usually only felt during dry summers. They are already being supplied by tank trucks. In general the water quality of rivers and dams is decreasing, thus further hampering the water supply. Solutions can be provided, according to a water management plan:

- to implement the additional measures of the National Plan for Climate Change (such as: implement a Carbon tax applicable to industry, energy supply, households and services; promote the retention of Carbon in agricultural soil; promote adequate disposal of livestock waste
- to ensure that the national water supply policy adequately deals with the draught problem by striving for a reduction in losses of the water distribution grid and a more efficient consumption.
- to change the forest policy by effectively reducing the size of continuous areas of eucalyptus and pine tree, developing incentives for the planting of multifunction traditional forest based on oak and cork tree, which are more resistant to fires and more efficient in refilling ground water reserves;
- to control the level of the Portuguese most intensive water-use economic activities, like agriculture, by promoting the cultivation of less water-demanding species, and tourism, by not permitting new golf courses in potentially draught affected areas, and ensure that the watering system of the existing ones is supplied with recycled water.
- to invert the tendency for privatizing water services, guaranteeing that public water systems have public management.

EXAMPLE



EM-DAT: The OFDA/CRED International Disaster Database
www.em-dat.net - Université Catholique de Louvain - Brussels - Belgium



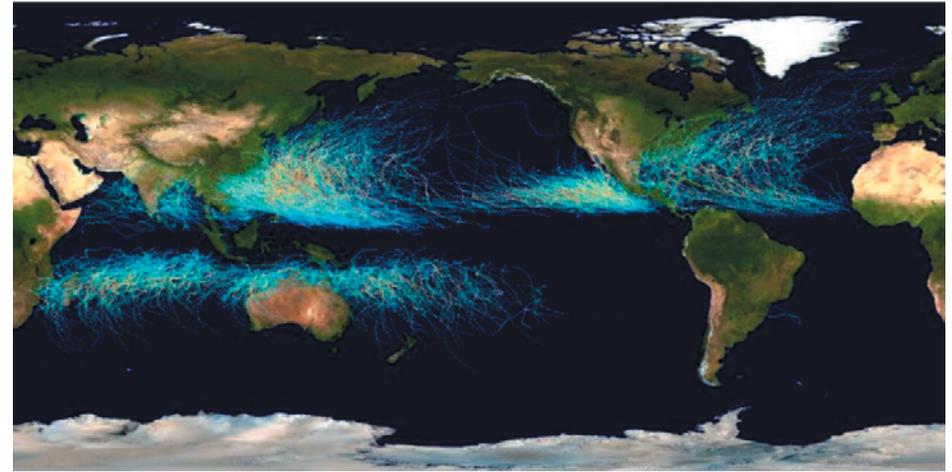
10 EMERGENCY PLAN

When planning with climate change one has to have an **EMERGENCY PLAN** for the case that the measures at hand prove not to be sufficient.

General problem	Concrete problem	Victim	Concrete solution	Opportunity	Beneficiaries
Severe Weather Events	Heavy damage construction Insecurity	Buildings Infra-structure People	Emergency Plans	Research Awareness International Cooperation	Humanity

Disaster preparedness at the local level should focus on teaching people how to act in case of a disaster and how to develop emergency plans. The emergency plans can take an important role to minimize the impacts of a SEVERE WEATHER EVENT.

The tsunami, resulting from an undersea earthquake close to Sumatra on 26 December 2004, killed around 250 000 people and affected millions in Bangladesh, India, Indonesia, Kenya, Madagascar, Malaysia, Maldives, Myanmar, Seychelles, Somalia, South Africa, Sri Lanka Tanzania and Thailand. Tsunami early warning systems must be set up as a first step to better preparedness. But if we are to reach the most vulnerable, we must also start with community-based projects. How well people react in an emergency depends largely on how successfully such plans are communicated to them. Proper planning can dramatically reduce loss of life and property. The medium- and longer-term needs of the most vulnerable in disaster-prone areas are addressed by improving the ability of communities at risk to cope with future disasters, strengthening and where possible replicating early warning systems that were successfully activated in some countries. At the same time, the capacities and capabilities of national societies will be strengthened to support community based disaster preparedness and risk reduction programmes while preparing for and responding to disasters in a timely, efficient, and coordinated manner linked to regional and international response mechanisms.



CONCLUSIONS & RECOMMENDATIONS

CONCLUSIONS

The Ten Golden Rules are related to different levels or scales depending on the measures which have to be taken: international level (international cooperation), national level (decentralization & networks), regional level (plan with dynamics), local level (emergency plan). Most of them however can be applied on more than one level of scale.

The Ten Golden Rules are not only about spatial planning, but also about other subjects: social, management, research...etc.

The Ten Golden Rules are general answers which derive from the five general climate change problems analysed in the matrix, but they can easily be applied in different climatological situations. They can even be applied to other large scale social problems (like famine, migration, social unrest, war, ...). This is a new way of thinking.

The Ten Golden Rules do not only apply to delta or coastal regions, but also to other areas which have to deal with climate change. (like drought in desert areas, the melting of glaciers in mountain ranges, ...).

The Ten Golden Rules can be applied in one specific location. When we do that, we will probably not use them all, nor use them in the same order. It will differ per location and per level of scale.

The Ten Golden Rules are sustainable if the national government makes sure they are all applied on their different levels of scale. The sum of them guarantees the efficiency of the national policy on climate change.

RECOMMENDATIONS

The sum of the Ten Golden Rules makes a national strategy sustainable. The national government has to make sure that the Golden Rules are together implemented in the communication and planning strategy.

When implementing the Ten Golden Rules in the national communication and planning strategy, it is important to make an agreement about the money: who will pay for what?

For VROM, it will be interesting to apply the Ten Golden Rules to the Randstad (the most densely populated area, and economically most important area in the Netherlands) to show the effects of the strategy on a location.

ANNEXES



ANNEXES

I - LIST OF PARTICIPANTS

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II - LIST OF PREPATORY PAPERS

Young Planning Professionals

Peter Vanden Abeele
Belgium: coast and delta

Rui Duarte
Climate vulnerability and the potential effects of
climage changes in Portugal

Jean-Philippe Lens
Effects of climate changes in Belgium. A general
summary about Belgium

Penny Pang Wai Ki
Hong Kong in the context of the Pearl River Delta,
China

Magali Volkwein
A general summary about France

Elien Wierenga
The Netherlands

Abd Elkhalek Awad
Climate changes on Egyptian Delta

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Meinte de Hoogh
Climate change in the Netherlands

Mehmet Doruk Özügül
A general summary about Turkey

Neaz Rahman Khondker
Bengal delta and coastal area: its environment
and planning

III - CD

Contents of the CD

1.
Homework Young Planning Professionals: papers
and presentations
2.
Presentation coordinators VROM
3.
Presentation coordinators ISoCaRP
4.
Final Report



