TRNC's Water Law and Policies

Prof. Dr.Hüseyin Gökçekuş
President of YÖDAK & Water Issue General Coordinator of TRNC
gokcekushuseyin@gmail.com www.ncyodak.eu

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Earth- Blue Planet

¾ of our Earth is surrounded with water

BUT!

- **Freshwater resources are very scarce!**
- **We are polluting!**
- **We can not Manage!**

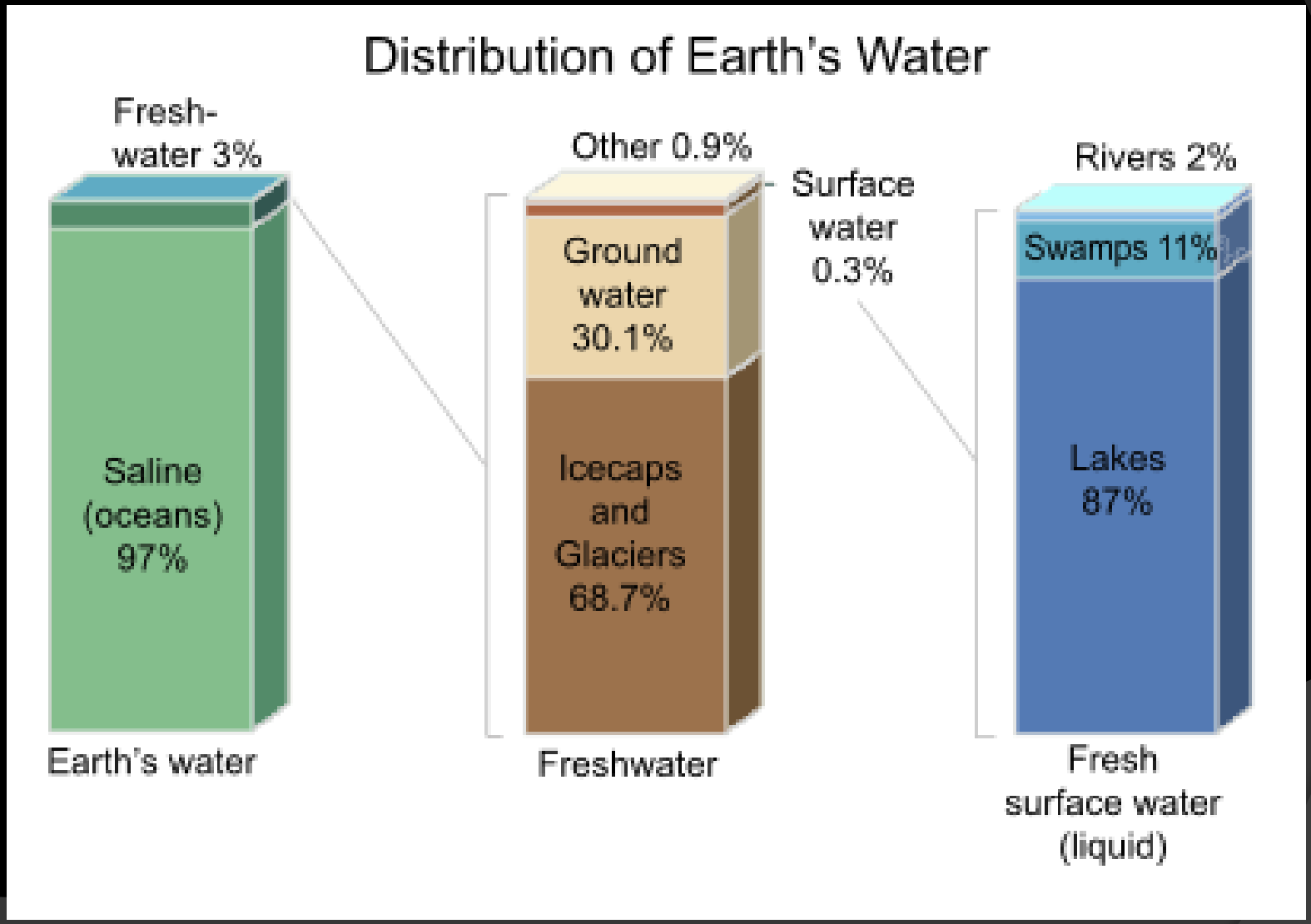
A very significant problem!!

GLOBAL WATER CRISIS!!!

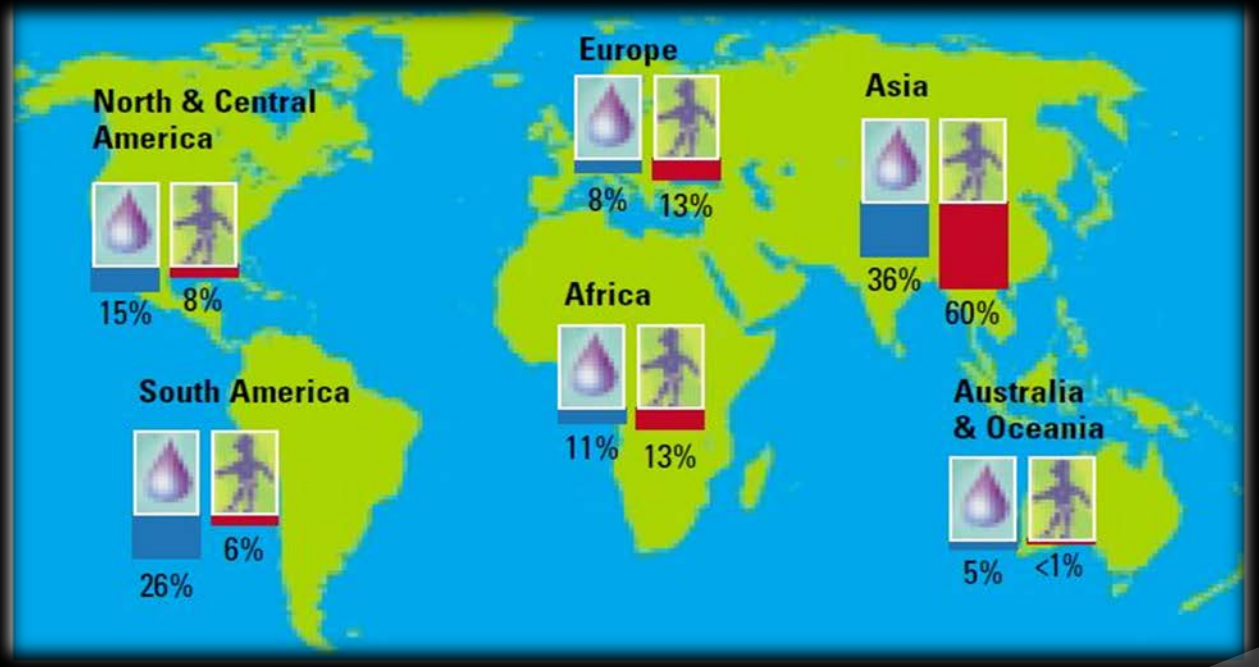
Current Situation in the

WORLD

We are using less than 1% of the worlds freshwater resouces



The Distribution of water resources according to population and continents;



Is not equal!

Daily Water Use;

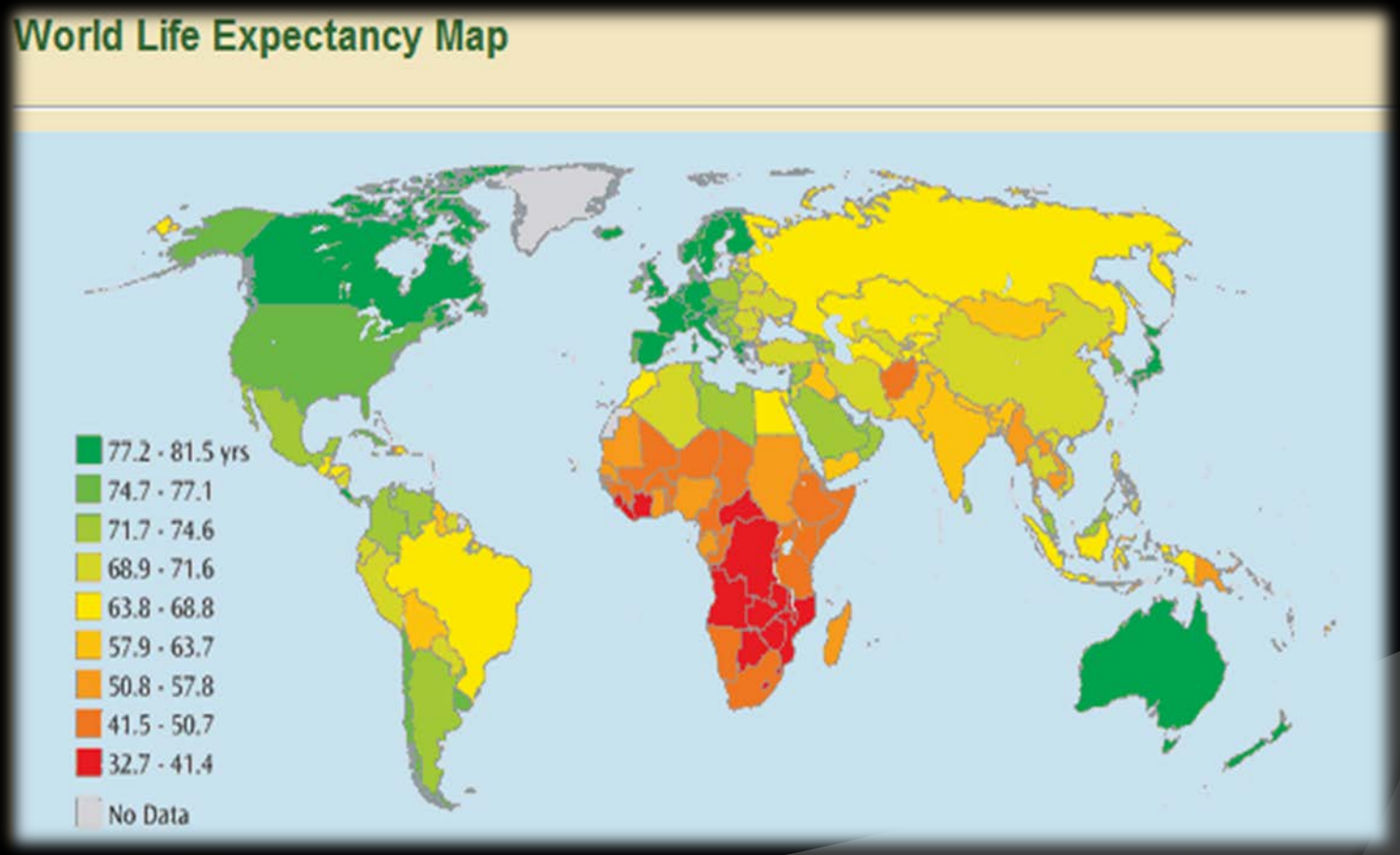
Africa: 10 litre/per day

Europe: 200 litre/per day

USA : 400 litre/per day

*** The water demand is expected to increase 40 % in the coming 20 years.**

World Life Expectancy Map



- Sewage waters are still being discharged to the streams and river beds in 90% of the developing countries,

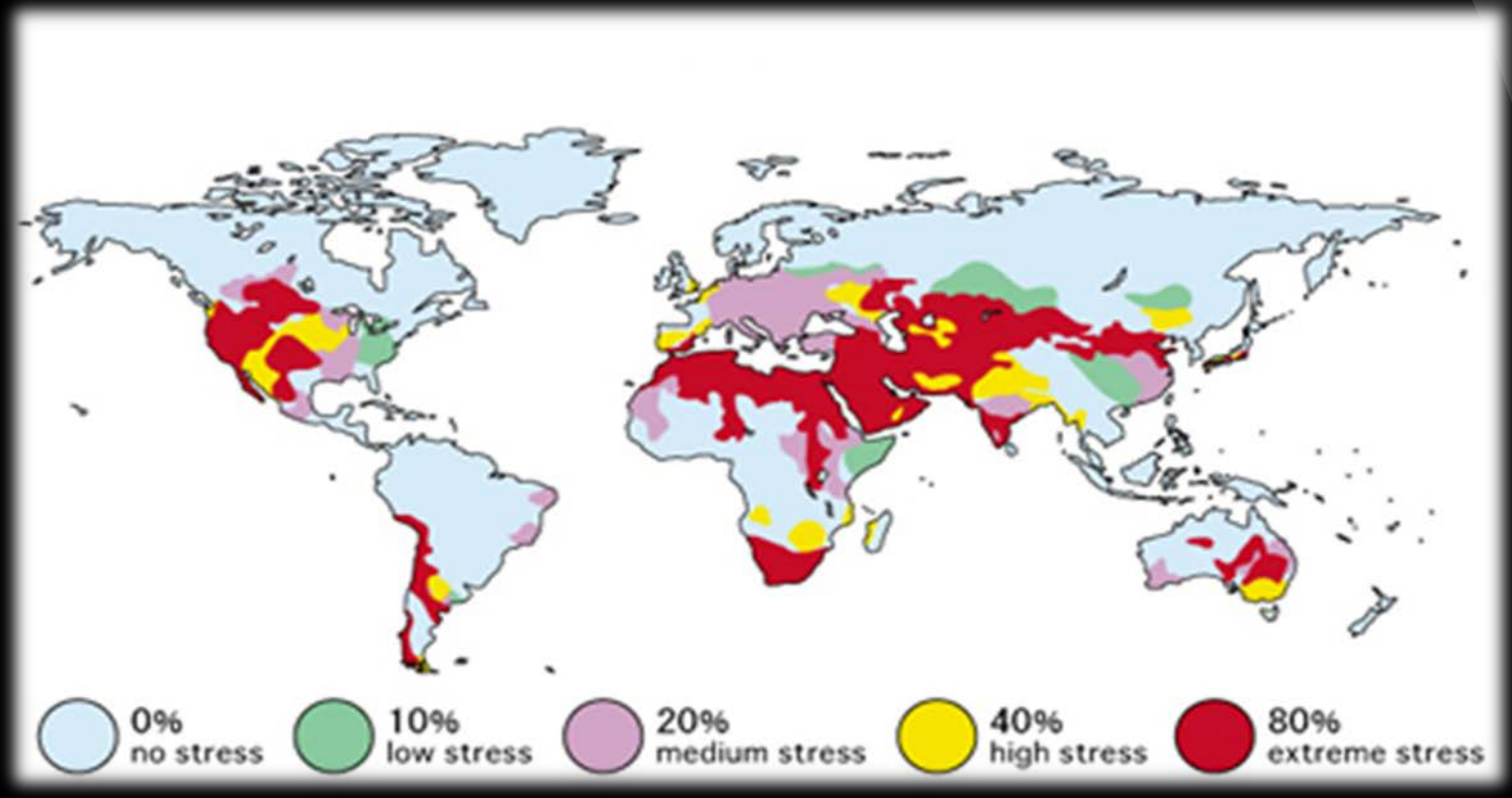
- More than half of the patients in hospitals in Africa are being treated for water related diseases.

If we consider the water crisis according to the drinking water , cleaning –hygiene (Sanitation) purposes:

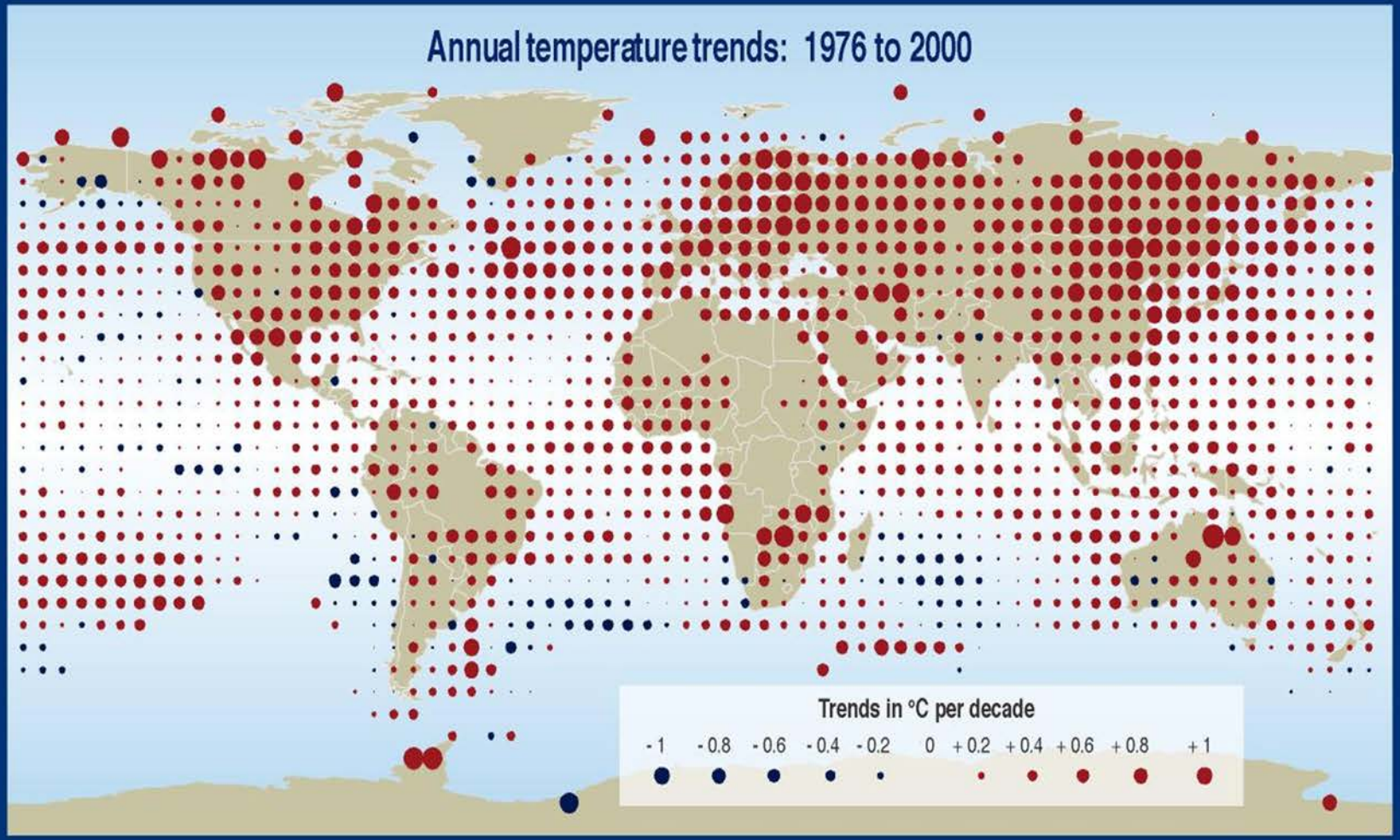
We can say that:

- 1.2 billion people of the 6.3 billion world population do not have access to safe drinking water,
- 2.6 billion people do not have access to safe water for hygiene and cleaning (sanitation). Due to this reason annually 5 million children die at the age of 5 because of diarrhea and similiar diseases caused by poor quality water.

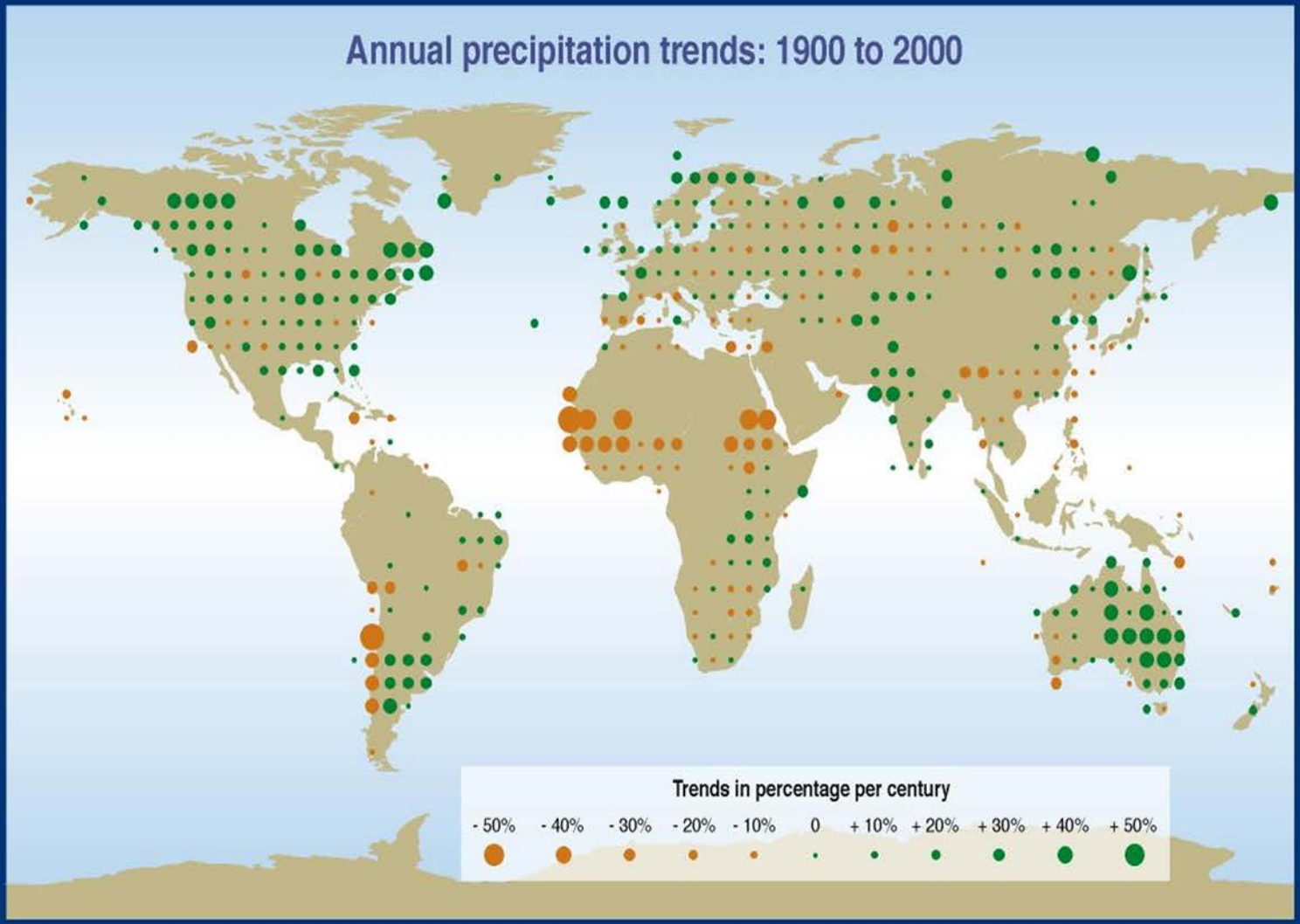
Countries which are under Water Scarcity



It has been observed that countries which have been situated in the middle East, North Africa and Central America are observed as countries which are under water scarcity. In the year 2025 the, 2/3 of the world population which is projected to be 5.3 billion people will be face to face with water scarcity problems.



SYR - FIGURE 2-6b



SYR - FIGURE 2-6a

In order to produce:

- 1 kg chocolate: 17.196 lt,
- 1 kg meat: 15.415 lt,
- 1 kg chiken meat: 4.325 lt,
- 1 kg cheese: 3.178 lt,
- 1 kg rice: 2497 lt,
- 1 kg apple: 822 lt,
- 1 kg banana: 790 lt,
- 1 kg potatoes: 287 lt,
- 1 kg tomatoes: 214 lt,

of water is needed.

WITHOUT WATER SECURITY, FOOD SECURITY CAN NOT BE ACHIEVED

Today; 900 million people are on the starvation limit,

2 billion people are being insufficiently fed,

1.5 billion people are over consuming (obesity)

To ↑ production is not only enough to obtain a sustainable food security but also conscious consuption is essentia

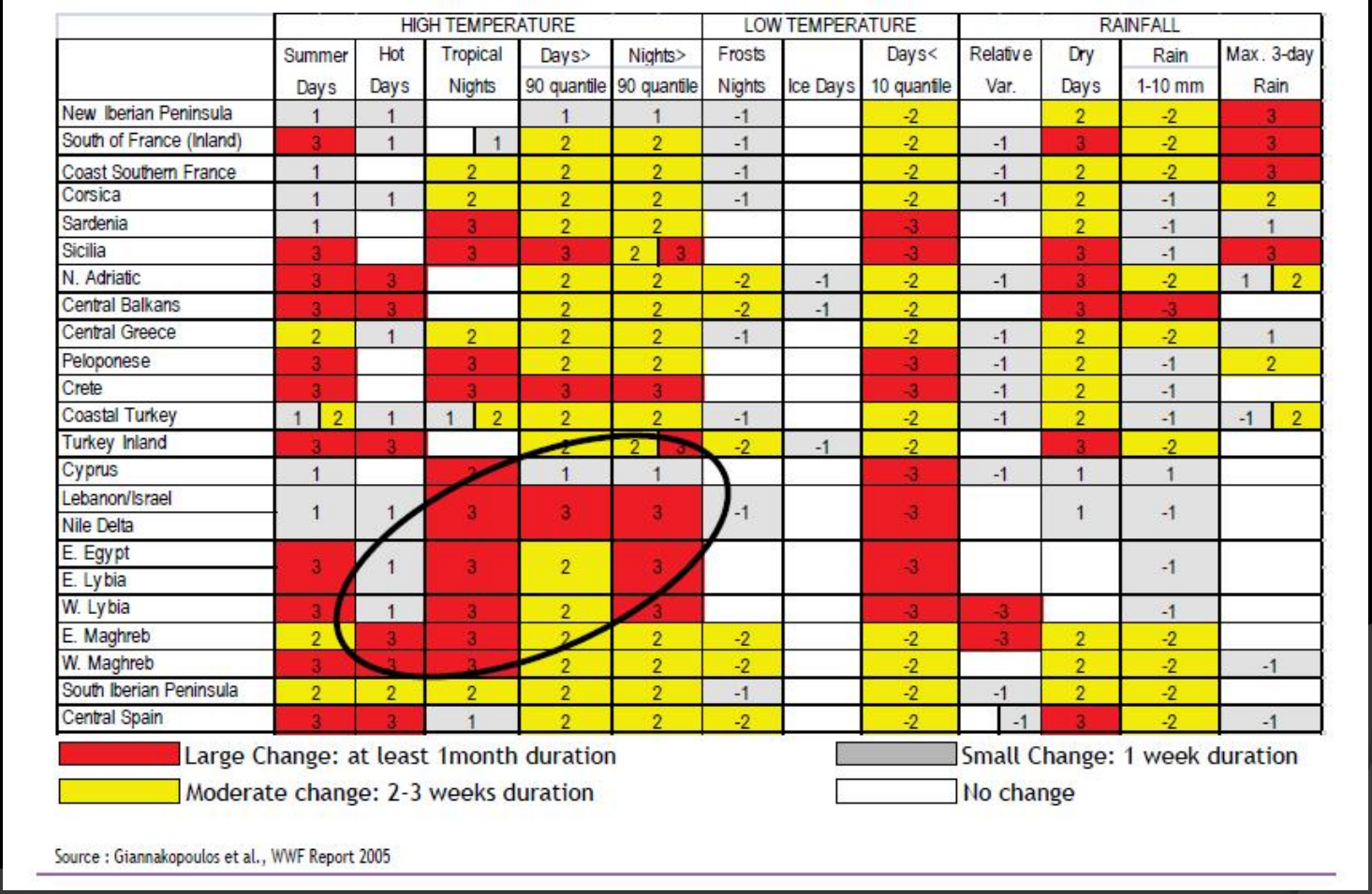
In the year 2050:

- A more serious water and food security problem is awaiting us..!
- Foreseeing that it will be essential that food production should ↑ by 70%..!
- There will be a need of an additional 6000 km^3 water..!
- Where will this water be obtained from..?
- However, according to the latest studies on global climate change, food production will ↓ by 30% until the year 2030.

Current Situation in the Mediterranean

- The effects of global climate change are felt world wide as well as in the Mediterranean Region
- In the coming 100 years this situation is expected to worsen in our geographical region specially in the Eastern Mediterranean

The Predictions for the Temperature and Precipitation changes in the Mediterranean



	HIGH TEMPERATURE					LOW TEMPERATURE			RAINFALL			
	Summer Days	Hot Days	Tropical Nights	Days> 90 quantile	Nights> 90 quantile	Frosts Nights	Ice Days	Days< 10 quantile	Relative Var.	Dry Days	Rain 1-10 mm	Max. 3-day Rain
New Iberian Peninsula	1	1		1	1	-1		-2		2	-2	3
South of France (Inland)	3	1	1	2	2	-1		-2	-1	3	-2	3
Coast Southern France	1		2	2	2	-1		-2	-1	2	-2	3
Corsica	1	1	2	2	2	-1		-2	-1	2	-1	2
Sardenia	1		3	2	2			-3		2	-1	1
Sicilia	3		3	3	2 3			-3		3	-1	3
N. Adriatic	3	3		2	2	-2	-1	-2	-1	3	-2	1 2
Central Balkans	3	3		2	2	-2	-1	-2		3	-3	
Central Greece	2	1	2	2	2	-1		-2	-1	2	-2	1
Peloponese	3		3	2	2			-3	-1	2	-1	2
Crete	3		3	3	3			-3	-1	2	-1	
Coastal Turkey	1 2	1	1 2	2	2	-1		-2	-1	2	-1	-1 2
Turkey Inland	3	3		2	2 3	-2	-1	-2		3	-2	
Cyprus	1		2	1	1			-3	-1	1	1	
Lebanon/Israel	1	1	3	3	3	-1		-3		1	-1	
Nile Delta												
E. Egypt	3	1	3	2	3			-3			-1	
E. Lybia												
W. Lybia	3	1	3	2	3			-3	-3		-1	
E. Maghreb	2	3	3	2	2	-2		-2	-3	2	-2	
W. Maghreb	3	3	3	2	2	-2		-2		2	-2	-1
South Iberian Peninsula	2	2	2	2	2	-1		-2	-1	2	-2	
Central Spain	3	3	1	2	2	-2		-2	-1	3	-2	-1

Large Change: at least 1month duration

Small Change: 1 week duration

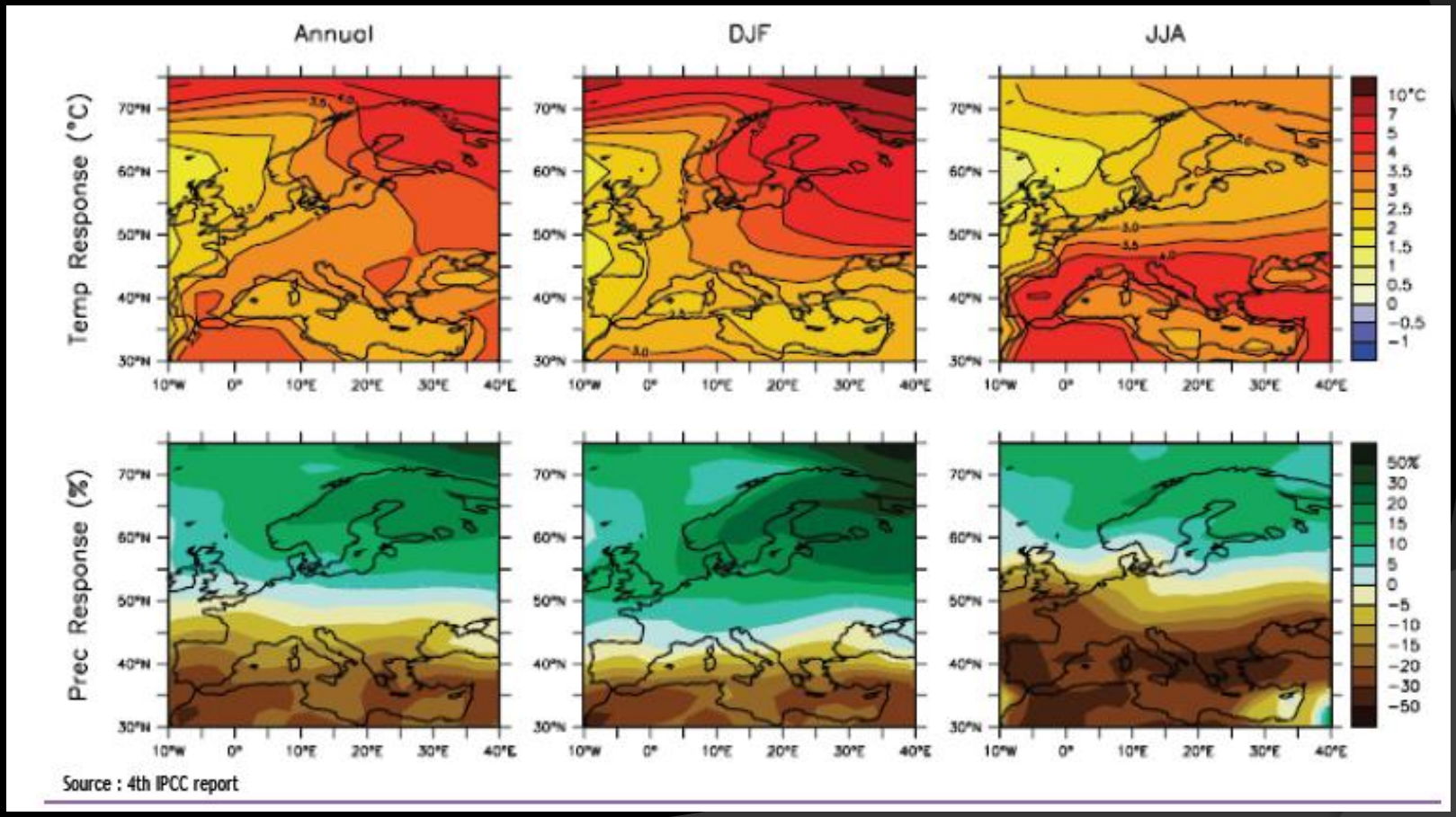
Moderate change: 2-3 weeks duration

No change

Source : Giannakopoulos et al., WWF Report 2005

- In respect to that, the future will not be better than the present,
  - Specially the Cyprus island's situation because it is located in the Eastern Mediterranean Region.
  - The authorities should search for new water resources to be able to meet the demands.

The predictions for temperature and rainfall for the year 2100



Current Situation in the

TRNC

(Turkish Republic of Northern Cyprus)

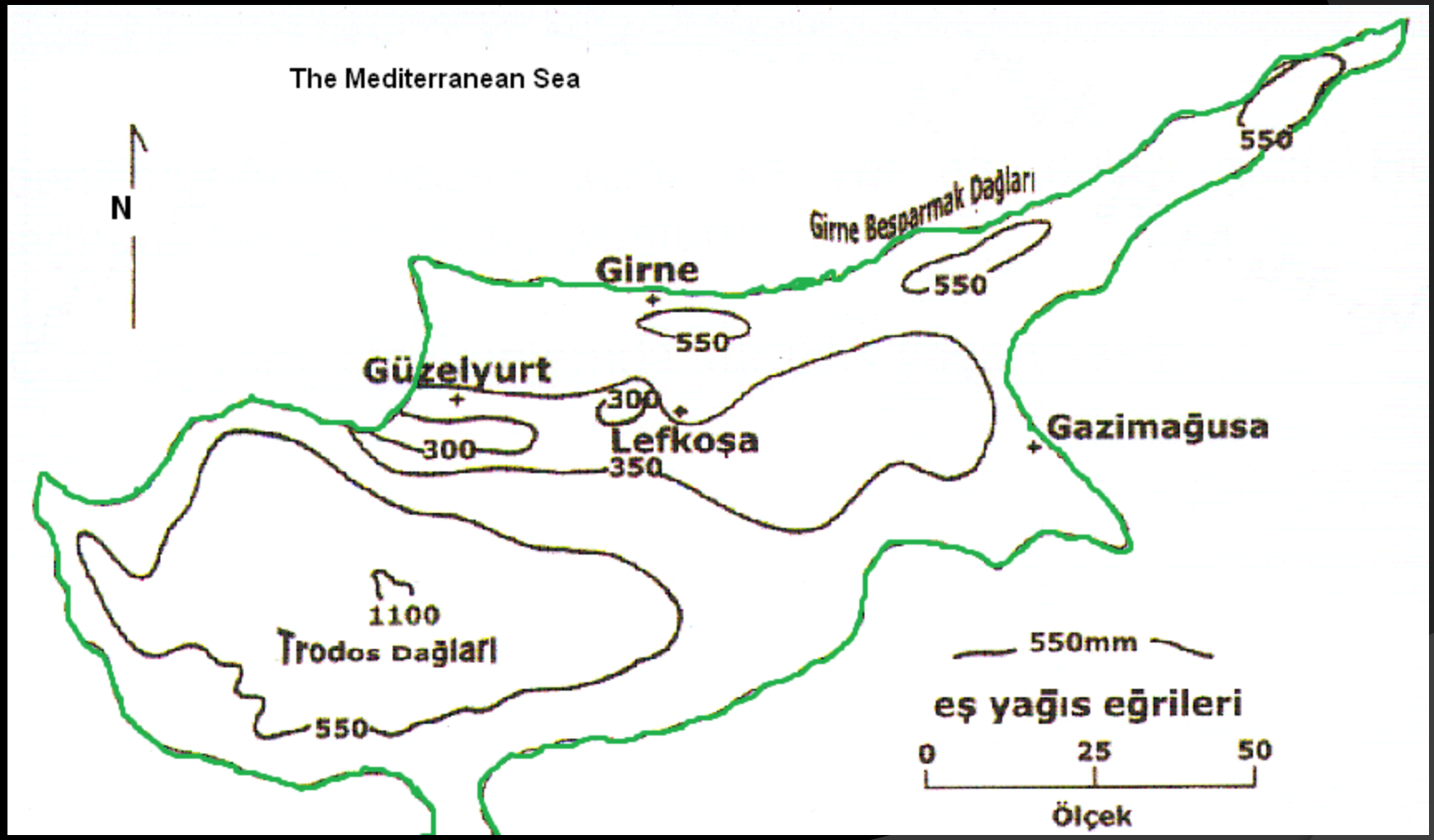
- TRNC located in semi-arid, arid regimes are also experiencing reasonable temperature ↑ and more than 25 % rainfall ↓ during the last century.

- TRNC is experiencing not only **“water quantity problems”** but also **“water quality problems”** owing to reduction in the rainfall and **“water management problems”** additionally.

- Due to decrease in the rainfall rate, the demands for water (domestical, industrial and agricultural) is obtained mostly (92% from groundwater, 5% from surface waters and 3% from desalinization water) from grounwater resources.

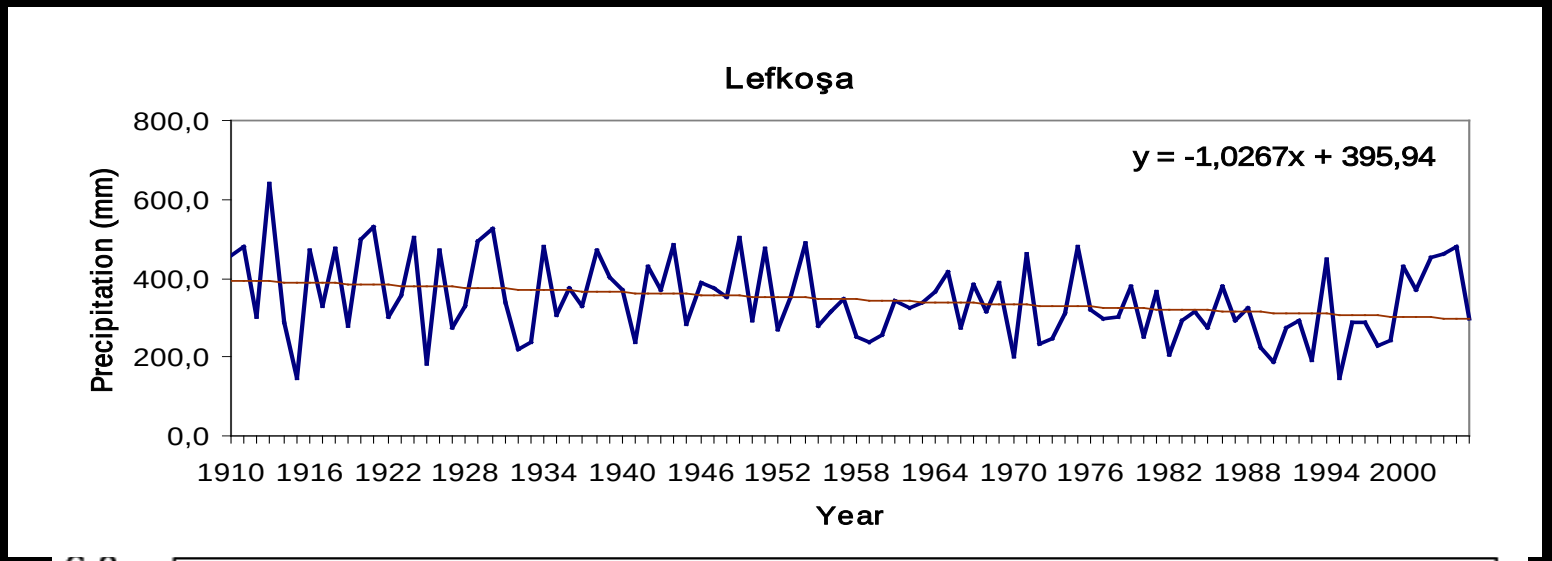
- For this reason, there has been a ↓ in the groundwater levels causing **sea water intrusion** in the shoreline aquifiers.

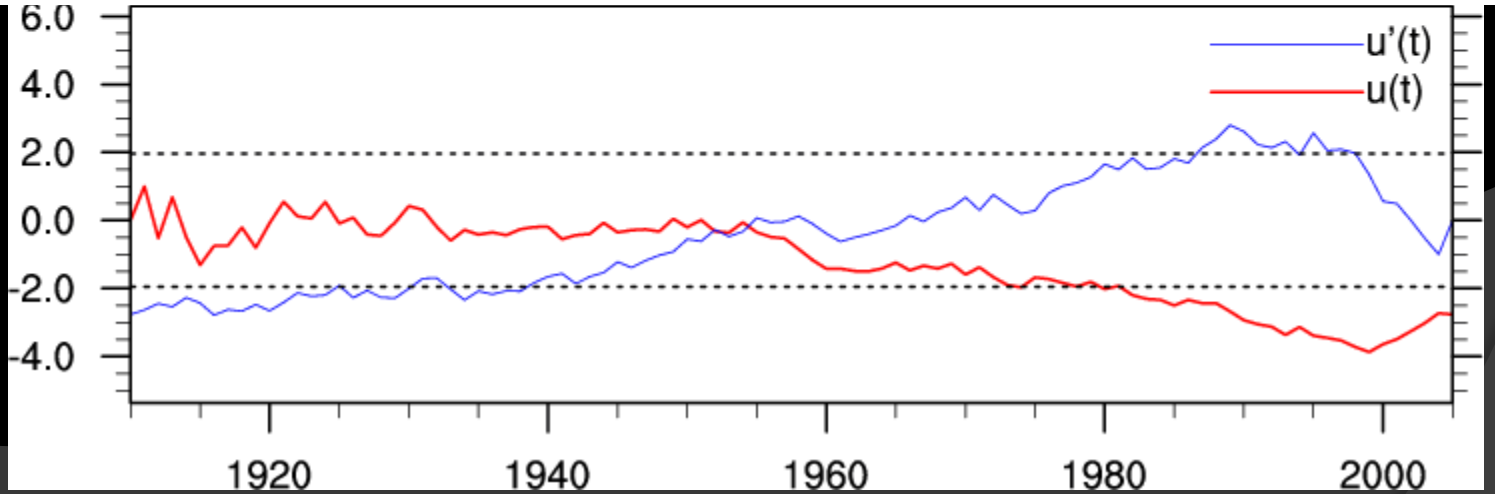
Present situation in the country



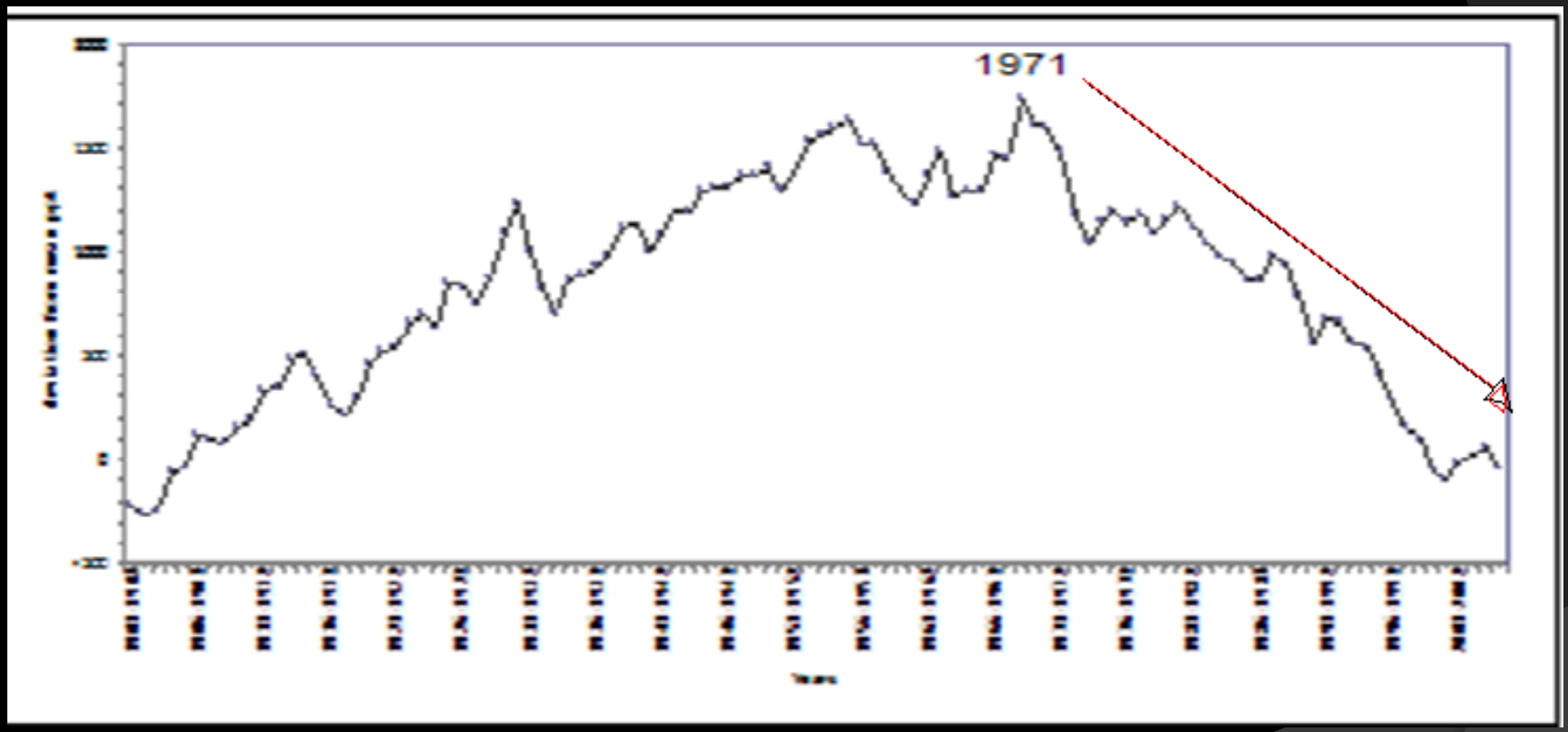
Isohyetal map of Cyprus

Decline in Precipitation (%25.9/96 per year)

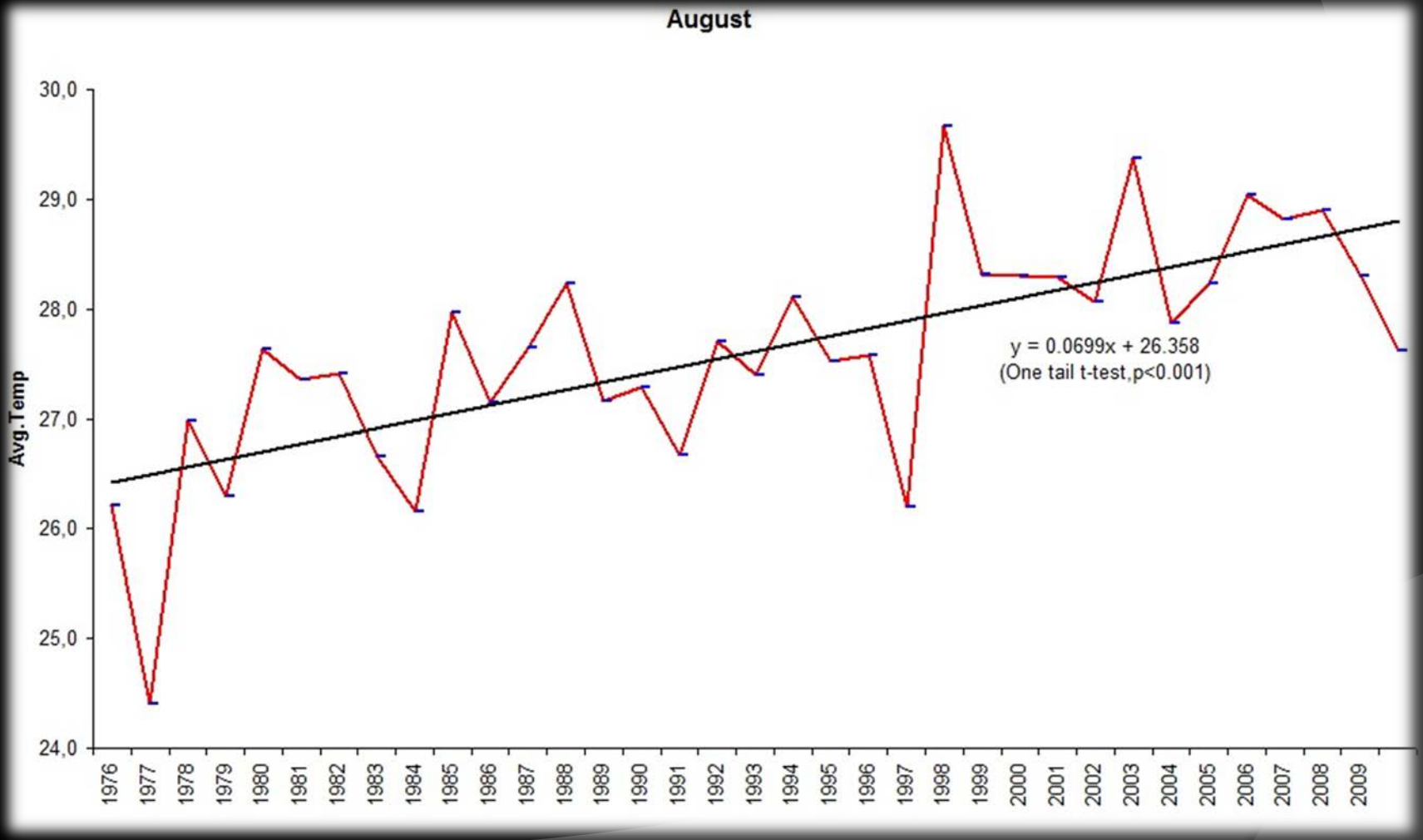




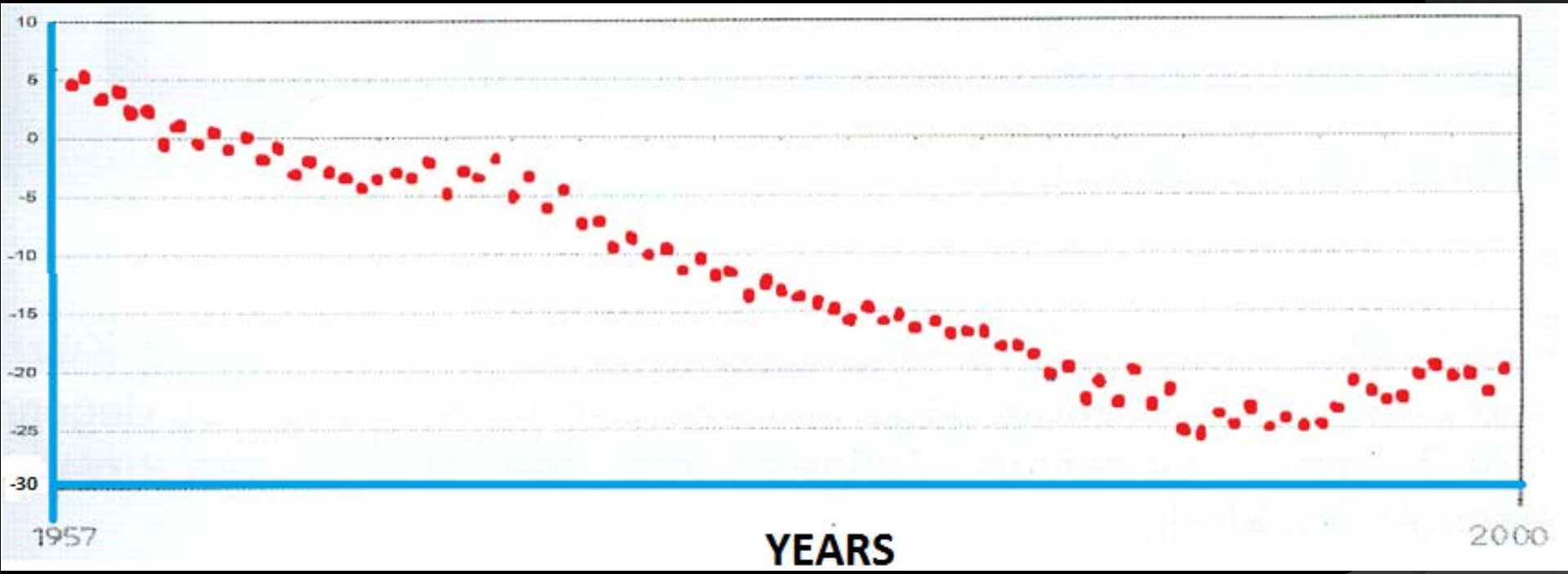
More than 40 years the TRNC is experiencing drought

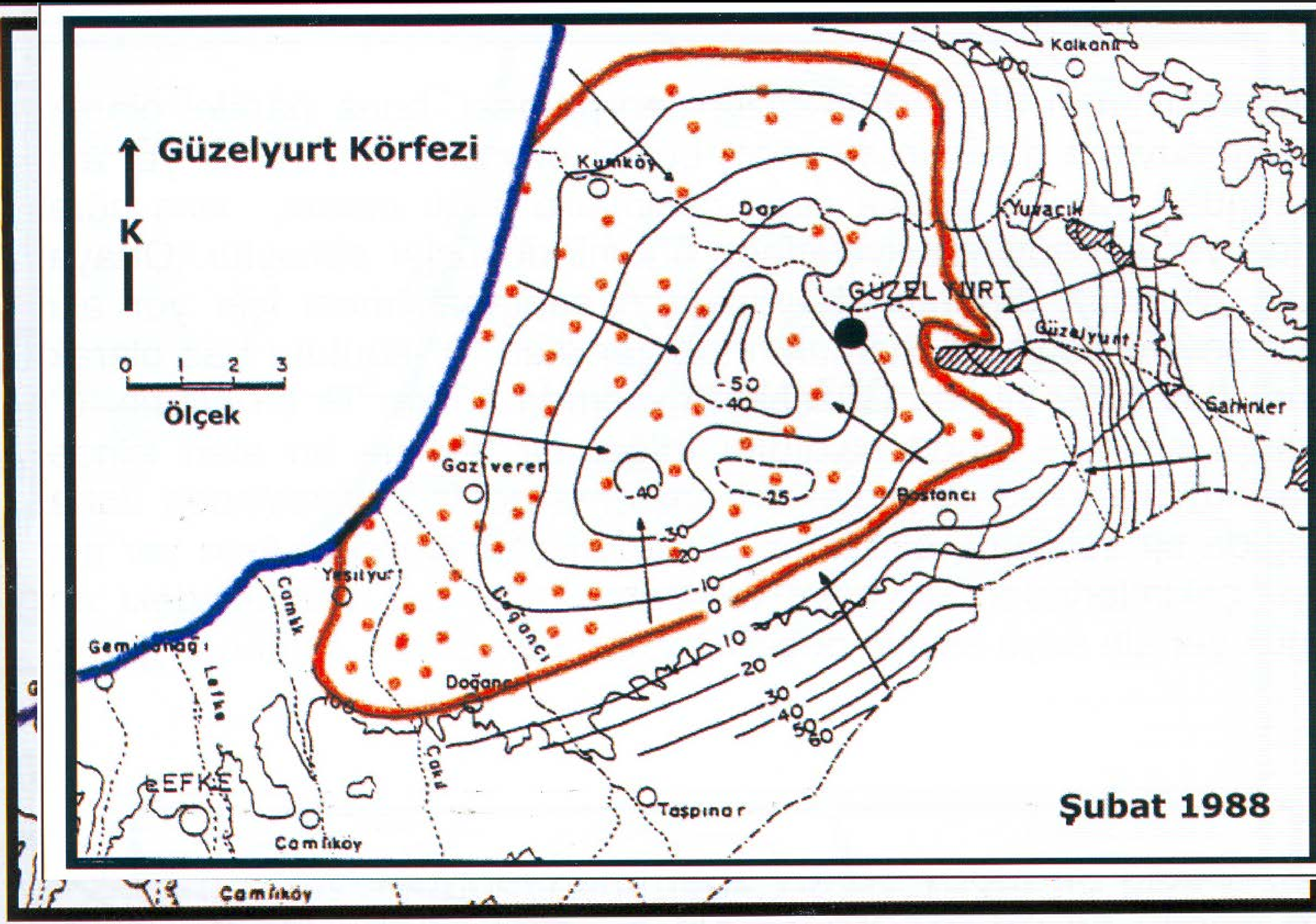


The Temperature Changes in the last 35 years in the TRNC



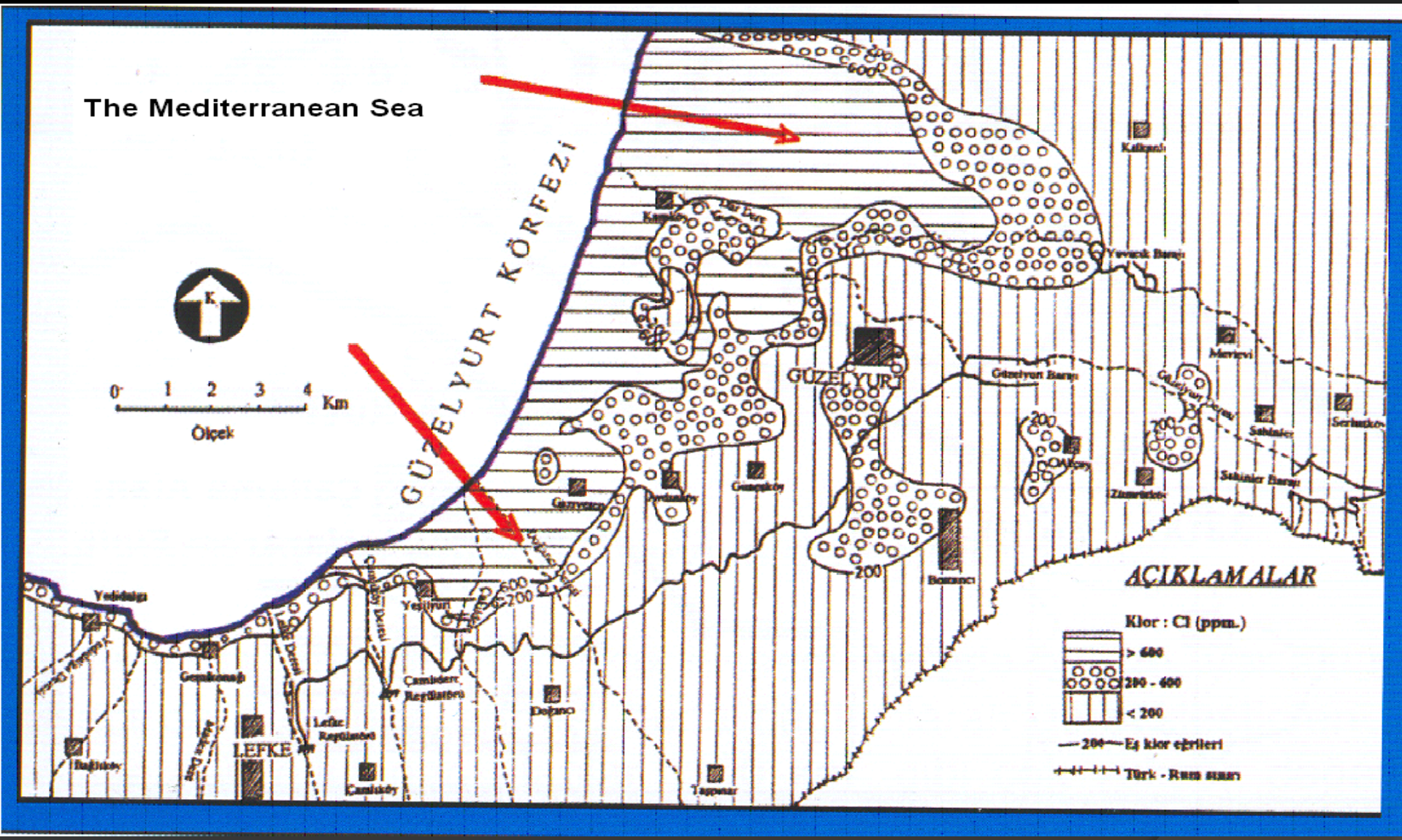
Groundwater Level Changes





Güzelyurt Körfezi
K
0 1 2 3
Ölçek
Kalkanlı
Kumköy
Yuvacık
GÜZELYURT
Güzelyurt
Gaziveren
Bostancı
Serhatköy
Yeşilyurt
Gemikonağı
Doğancı
LEFKE
Camlıköy
Taşpınar
-50
-40
-30
-25
-20
-10
0
10
20
30
40
50
60
100
Şubat 1988

Sea water intrusion in Guzelyurt coastal aquifer (2000)



The measurements taken against scarcity

- Dam construction for irrigation and recharge purposes (41 in total)
- Guzelyurt diverson channel project has been constructed although it was not completed
- Upgrading of (Drip irrigation) the irrigation system has almost been completed (98 % citrus fruits are being produced with this method)

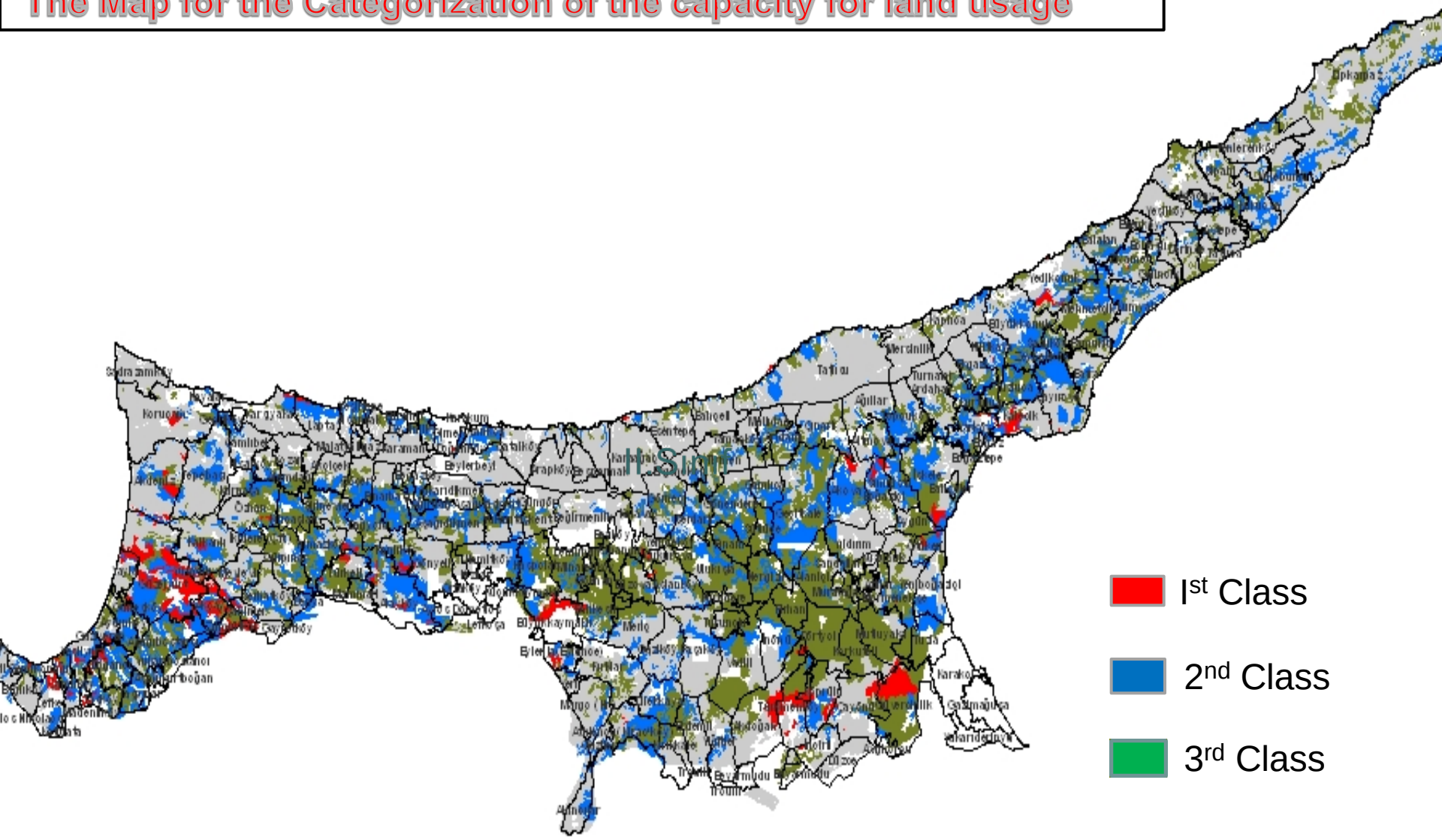
- Revalorization of water tariffs to enhance reality
- Rationing the water supplied to the users to meet the real needed amounts of water
- Renewal of the network pipes to reduce the loss and already many municipalities have renewed kilometers of drinking water networks drinking water networks.

- In very scarce periods, specially long and dry summer periods, the lack of water was a very serious problem.
- So at the end of the 90’s water was tried to be transfered from Turkey with baloons but due to some technical problems, the awaited outcome could not be achieved and this project was ended.

- Studies are being carried out all through the TRNC to indicate the most sufficient areas with the most fertile soil type which drip irrigation would be applied.

- Also, the crop pattern studies are also being carried out

The Map for the Categorization of the capacity for land usage



- As a result; the water problem which has been taking place for a long time, due to global climate change, drought is being experienced for a long time and for this reason there has been an erruption in the countries demand and supply balance and in time a deficit in the water budget.
- Although, many positive steps have been taken against these problems a solution was not found.
- As conclusion, the pipeline project from Turkey to TRNC is found innevitable for the solution of water scarcity.

Transferring of Water from Turkey to TRNC

Total Potable Water Needed in 2010
36,12 hm^3

Estimated Total Potable Water Needed in 2035
54,00 hm^3

Amount of Water to be Supplied by this Project
75 hm^3/year

Distribution of Water to be Supplied by this Project:
37,76 hm^3/year -- For Potable Water

37,23 hm^3/year -- For Irrigation

Water Transfer Project From Turkey to Cyprus

Potable Water Network Distribution

Irrigation Water Alternatives:

- DSI has prepare 2 alternative studies : the studies are being carried out!!!
- 1) The water will be distributed to the Güzelyurt irrigation lands (6400) where irrigation is being done with salty and poor quality water.
- 2) According to the soil analysis , new agricultural lands (7400 ha) will be indicated in the Middle Mesarya Region.

The Present Stage of the Project (Construction and Completion period)

- Two dams (Alaköprü:130.5 MCM and Geçitköy:26.5 MCM) and all the other land constructions have been completed.
- Treatment plant and municipal pipelines construction are going on in TRNC.
- The sea cross is also underconstruction.
- The project will be totally completed at the latest by September 2014.

- After the completion of the water transfer project on 2014, a very important milestone will be reached in “world water transportation”.

- This will bring the Turkish Republic prestige in the region and a leadership characteristic for future simliar projects.

- In the perspective of the TRNC, it will play a key role to the solution of the 50 year water problem of the country.

- It is not a dream for Turkey anymore to supply water in the upcoming decade for the Gulf and Middle East countries where serious water scarcity problems are experienced like in many other regions around the world.

- Like the Petroleum and natural gas distribution lines, water distribution lines will be constructed to share water resources between the countries who have water and who do not

- “Water” which is such an important meta, and a limited resource in the coming days will be an important element for the global powers and maybe the most important element.

- In order to obtain a sustainable developement and economic progress in TRNC, before the water transfer takes place and after it is transfered some precautions should be taken in the long run.

- By this way, we can only obtain a maximum benefit from the water which will be transferred.

- Therefore, the new conditions should be evaluated with integrated water resources management to be able to obtain a sustainable development .!!!!!!!

TRNC'S WATER MANAGEMENT LAW

What is the purpose of the water Management Law?

1. To protect and develop the existing water resources and water coming from the Turkish Republic
2. To increase the sustainability of water consumption and deminish the pollution.
3. To protect any future collusion.
4. To establish a frame work for Law, Integrated Water Resources Management approach while eliminating the flooding and scarcity effects, and protecting costal water, inland water, surface water , ground water, etc.

Content of the WATER managament LAW?

- Transfer water from Turkey
- Surface water
- Ground water
- Coastal water
- Inland water
- Treated water
- Rivers
- Dams
- Ponds
- Lakes
- .....

Principles for Water Management Law(WML)

- Water is not a commercial item
- All water resources are protected
- The principles and responsibilities considered important in the Environmental Law are regarded
- The water resources quality is proctected by the ‘’Polluter pays’’ principle
- Water quality for different regions are generated to build ‘’Water protection regions’’

Principles for WML

- Quantity and quality of water required for different regions are determined for sustainable water consumption
- All the services regarding water usage is accepted as ‘’User pays’’ principle
- Awareness, protection and active participation of the public on management of the water resources are supplied and encouraged

The water basin management plan will include a detailed program. As below:

- Control of discharges
- Water demand and management to be able to use the water sustainably
- The control of surface and groundwater discharges
- The protection of the regions which are used for domestical purposes
- The control and the prevention against pollution in the water resources
- Using artificial methods in the aquifiers to obtain good quality water

It is a priority to use water resources efficiently by protecting water resources, recycling water, the reclamation of the waste water from the desealinization

“National Water Plan” Includes Main Components Of Water Policy

- To prepare a national water plan with the quality and quantity of the resources available taking into consideration the countries **social, economic** and **ecologic** needs.

What is projected with the water basin management plan?

- The water management law will be coordinated by the coordination committe to obtain good quality surface water and groundwater.
- Climate change and environmental factors are taken in to consideration on a regional and global scale.
- Pecuniary resources are found to be able to prevent or decrease floods
- The law will be shared with the public

Minimum efficiancy goals anticipated in water management law

- **To control the water loss in the domestical use in a 10 year projection these losses will decrease 10% and in a 20 year projection these losses will decrease 5%.**
- **Re-use of water in a 10 year projection 75% and in a 20 year projection 90% of water will be replaced.**
- **Efficient agriculture: in a 10 year projection water demand in agriculture for every product withh the loss taken in to consideration.**

According To WML, Water Will Be Owned By The State.

- The groundwater, surface water, transfer water from Turkey, coastal waters , water from the water treatment plants are all owned by the government.

- Without permission these water cannot be used, treatment plants can not be constructed or changes cannot be made to any treatment plant.

Institutions who are responsible for the use of the water resources efficiently are as below:

- Geology and Mine Department
- Environmental Protection Department
- Water Works Department
- Agriculture Works Department
- Basic Health Services Department
- Urban Planning Department
- Municipalities
- District Governships
- Livestock Department

Coordination, Environmental Objections and Management Plan

- **To indicate the maximum limits of all the waters in the geographic region**
- **To indicate the regions which are out of the boarders of any water services**
- To indicate the principles including the water use criterias for all sectors

The Formation of Autherized “Water Mangement, Planning And Coordination Council”

- Water Works Departement Director or Representative
- Geology and Mine Department Director or Representative
- Agricultural Works Department Director or Representative
- Environmental Protection Department Director or Representative
- Representing the Minister of Interior Affairs the District Governer or a representative
- Urban Planning Department Director or Representative
- President of the Union of the Municipalities or a representative
- A specialist on water assigned by YÖDAK
- A specialist assingned by the Turkish Cypriot Architect and Engineer Chamber Union
- Basic Helath Services Department Director

The duties, authourities and responsibilities of the WML Coordination Council

- **The Council can inform and indicate any proposal to the Water Ministry**
- **The council is responsible of the coordination and planning of the WML Coordination Council**
- **The council is responsible of the environmental objections and precuation programs and the preparation of the water managment plans**
- **The council is responsible of the flood risks evaluation and flood managment plans preparation with the contribution of the Civil Defence Organization, District Governance and the Meteorology Department**
- **The council is responsible for the criterias of water use, urban water transfer boundaries**

- Before the pipeline project is completed the water which will be transferred should be planned for domestic purposes, agricultural and for other purposes.

- Also, these new conditions should be arranged according to the new water policies.

- In this respect, sectors like “Higher Education” “Tourism” and “Agriculture” should be taken in to consideration.

- During the construction of the pipeline network, soil classification, plant classification and water quality should be analyzed to determine the profit rate.

- Also, a market analysis should be carried out for consumers.

- It is important that the strategic plans of the TRNC should be made according to the demographic structure and climatic data.

- Also, additional alternative treatment methods should be promoted to the water resources to obtain additional resources.

- Awareness in water use should be raised starting from primary level education should be given in order to raise awareness in water use.
- In this respect, seminars should be given to students to give adequate information in different levels.
- Also, integrating some lectures to the syllabuses is very important.

- In addition to, the “water issue” should be emphasized in the media, with seminars, panels and conferences.
- These events should be intended mostly for farmers and housewives and stakeholders.

- In conclusion, the TRNC who claimed it's political independency with the 20 July 1974 Peace Operation, will claim its economic independence and obtain real independency with this project.

- The hydropolitics of the Eastern Mediterranean will be determined by Turkey who is not a water rich country (~1500 m^3/person/year) if the billions m^3 waters of the south shoreline are not sent to the sea and used wisely.

- Why not supply water to the south of Cyprus, Middle East and Gulf Countries with an additional 2nd or 3rd pipeline ?

- Briefly, if the water transfer project and the hydrocarbon subjects are managed properly by Turkey and neighbour countries will make the Eastern Mediterranean a peacefull region!!!

  I do not want to even think about the opposite!!!!

- I hope that the water transfer with pipelines from Turkey to the TRNC from Dream to Reality will bring peace to the Cyprus Community and peace to the region.

The 21st century will be the century of countries that have water and can correctly manage water.


THANK YOU