

Forestry Activities in Turkey (In the Context of Climate Change)

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About Turkey



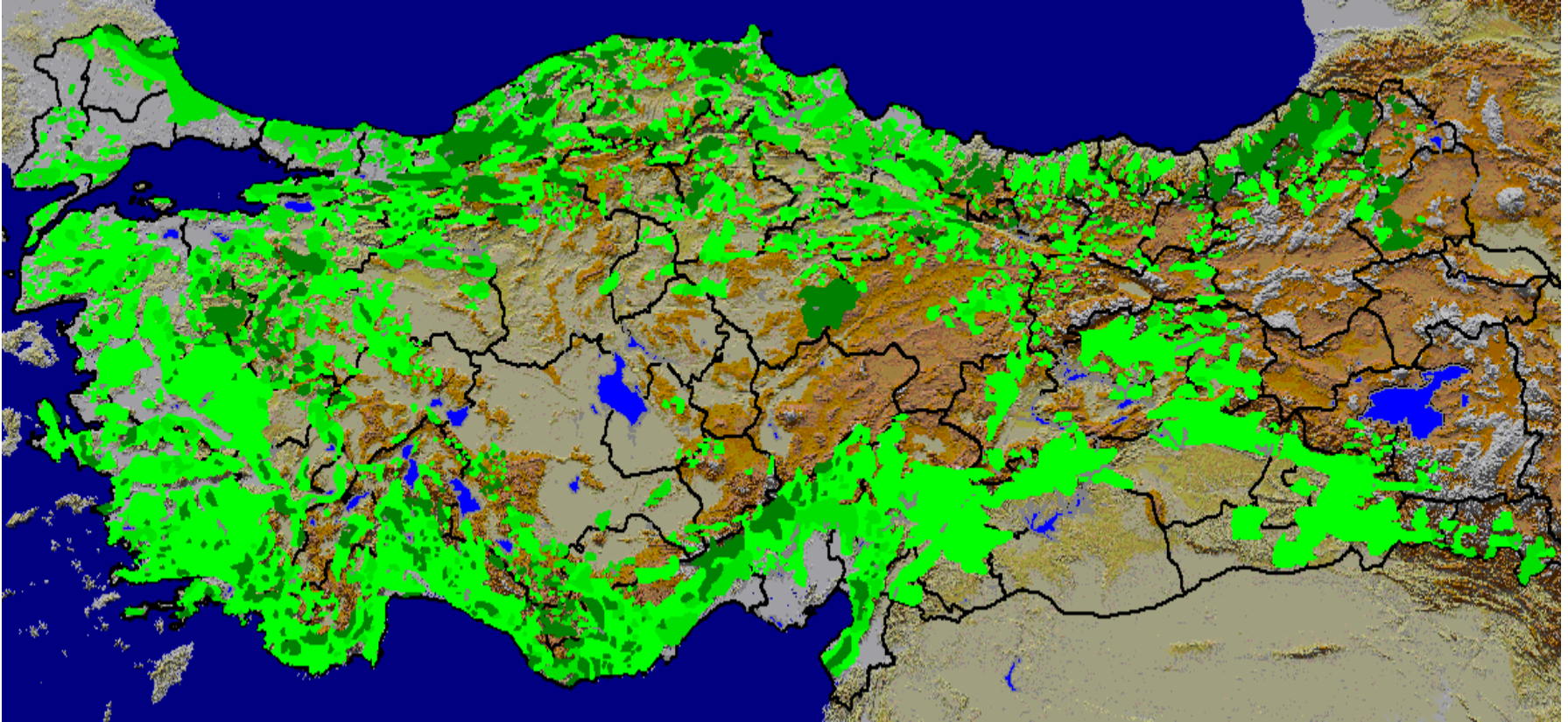
Turkey, officially known as the **Republic of Turkey**, is located in the northern hemisphere where the two continents, Europe and Asia meet. The majority of its territory extends over the Anatolian peninsula, whereas the rest lies on the Thrace, the edge of the Balkan peninsula. Three sides of the country is surrounded by sea. Greece, Bulgaria, Georgia, Armenia, Azerbaijan, Iran, Iraq and Syria are its neighbors.

About Turkey



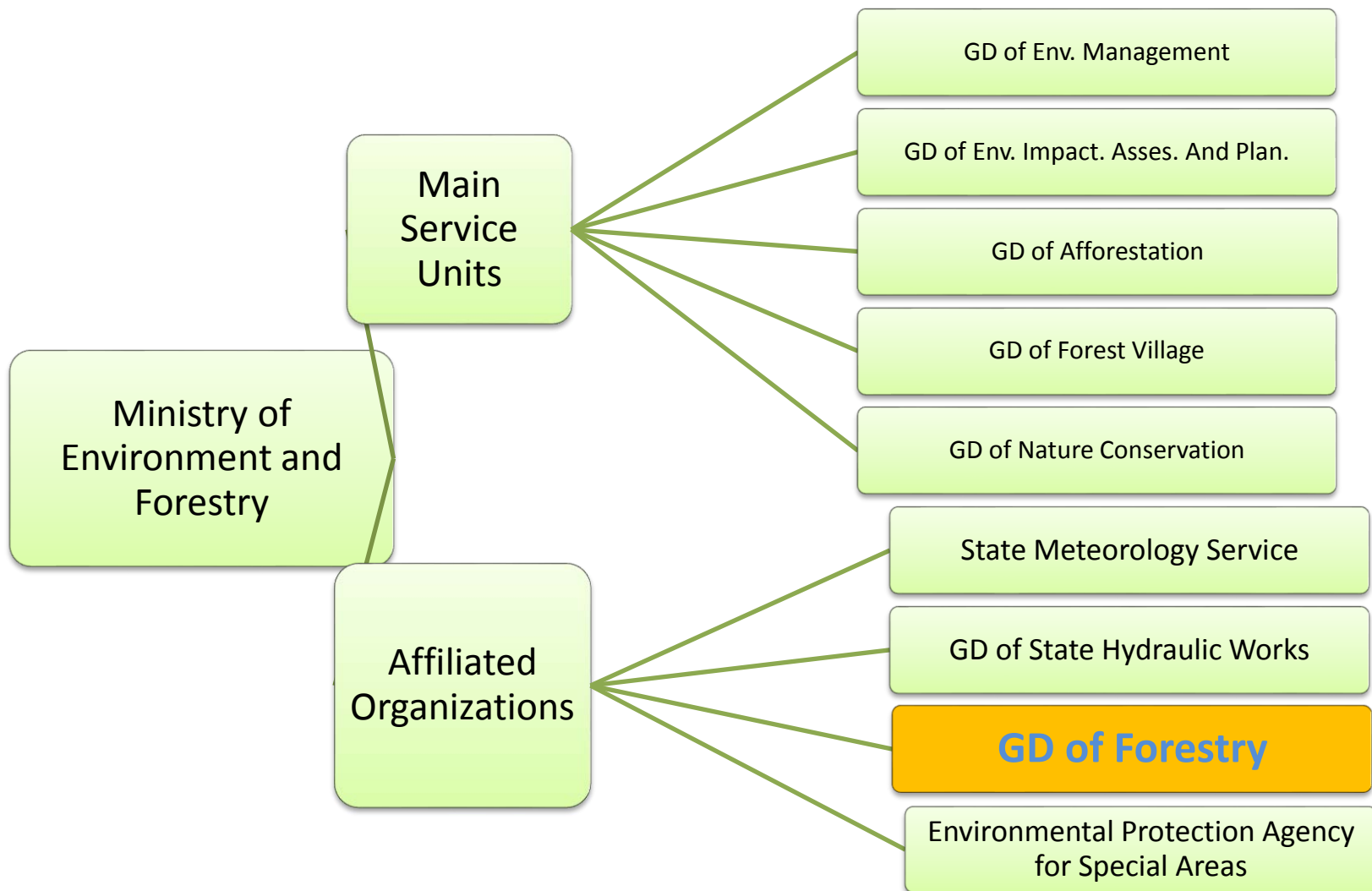
Official Language Turkish **Capital** Ankara **Government** Parliamentary Republic
Area 779.452 km² **Population** 70 million

Forest Resources in Turkey



- Turkey is a rich country in terms of plant diversity. While there are nearly 12,000 plant species in the whole European continent, there are 10,000 species, 3,500 of which are endemic, in Turkey.
- Turkey's forests are generally located in coastal and near the coastal area. Totally 21 million hectares area of land covered with forests and this comprises some 27% of national territory. But according to FAO's figures only 13% of land covered with forests.
- Over 99 % of the forests belong to the State.

Intuitional Structure of Forestry



General Directorate of Forestry

- “General Directorate of Forestry” was established under the Ministry of Commerce in **1839**.
- Scientific and technical forestry started in **1939**.
- Today, the GD of Forestry is an affiliated organization for Ministry of Environment and Forestry.
- GD of Forestry is responsible for managing forests of Turkey in a sustainable manner. It has nearly 40.000 employees and has nearly 2 billion USD budget.

Climate change effects seen at the forest:

- As a Mediterranean Country, forest fires are natural for us. But each year the fire season comes earlier and lasts longer.
- In Turkey, the forest fire season determined by law because of its huge budget (nearly 500 million USD) and it has been taken between May to October. Now, a proposal submitted to the Parliament in order to include April and November into fire season
- Fires are burning hotter and bigger. First time in the last 10 years, this year, a forest fire near to Antalya affected nearly 15.000 hectares area.

Climate change effects seen at the forest:

- The warmer winters are also affecting water supplies.
- In Turkey, forest cover nearly 27% of land but nearly 40% of rain fall down into forest. The situation of forest and tree affects water budget .
- The droughty forest soils makes trees more vulnerable to fire and insects.

What can we do as a forest service?

1. **Protecting** the existing carbon sink through **forest conservation**,
2. **Increasing carbon** sequestration through rehabilitating degraded forest land, improving forest health, and supporting sustainable forest management.
3. **The use of forest** biofuels for energy and the substitution of wood for manufactured products.
4. **Reducing** our own carbon footprint—the amount of greenhouse gases that our operations release into the atmosphere.

Protecting Carbon Sinks -Forest Fires

- Forest fires are the public faces of forest conservation activities. Each year we are spending nearly 500 million US\$ for fires.
- Some 10.000 workers and roughly 1500 technicians are responsible for fighting forest fires.



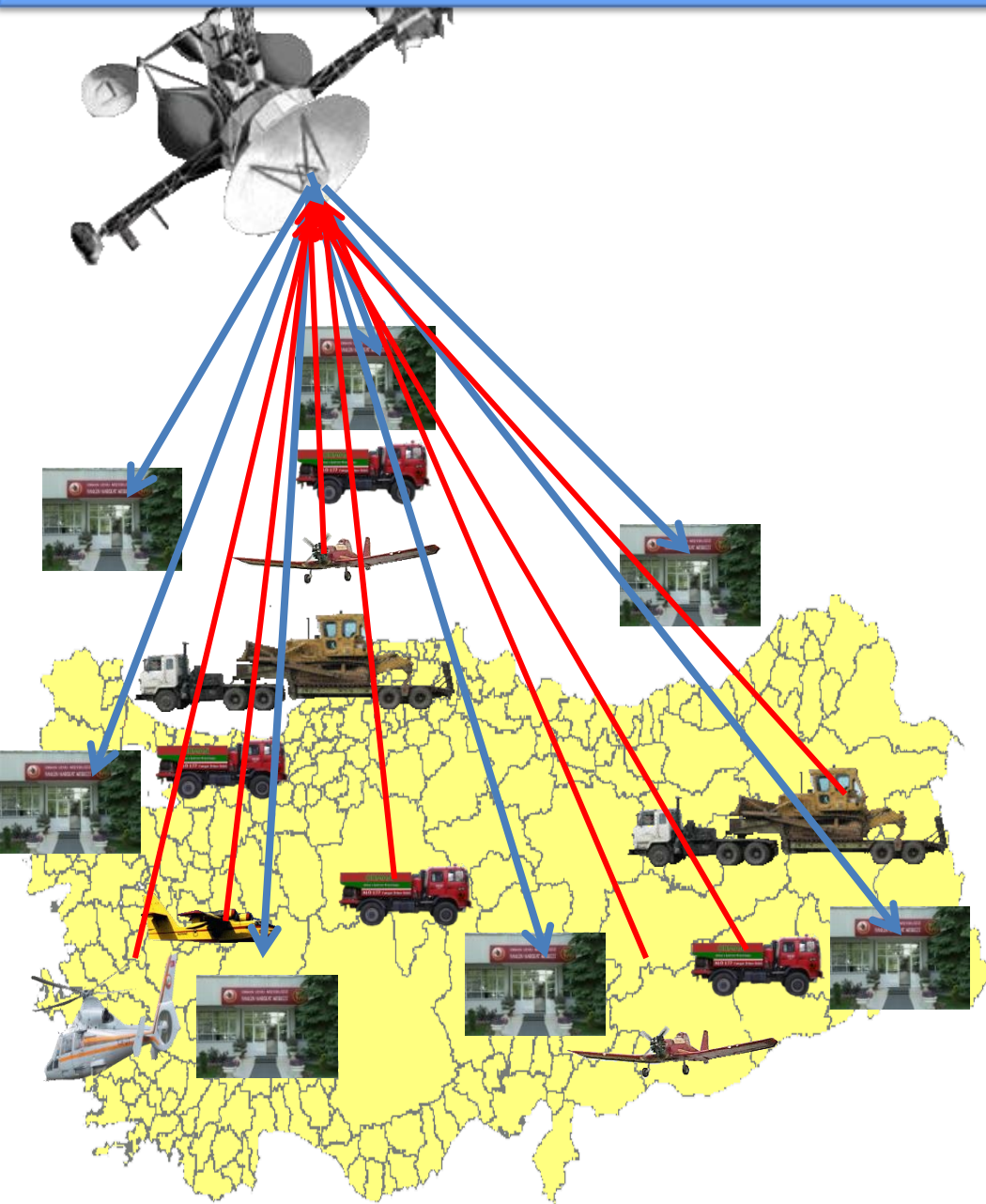
Air Force

- In addition to that; we have air vehicles like helicopters and airplane and watering trucks.
- A new plan for buying new 20 helicopters in next 5 year for forest fires adopted and approved by Prime Minister office and the procedure is under way.



Helicopter 18
Airplane 17
Helicopter (To be bought in next 5 years: 20)

Fires Monitoring and Control System



For the purpose of fighting against forest fires effectively forest fires monitoring and control systems have been developed.

<http://yanginyonetimi.ogm.gov.tr/arventosat.aspx?sid=94017MAM3Wiizlr58UULadL6PbcHKOfyQjFSmsVWWxCQb4FGqPR2sil&map=1>

All fire fighting vehicles (helicopters, trucks, motorcycles..) are being monitored by satellite. That system facilitates management of fire fighting activities and reduces costs.

Besides this, some cameras established throughout the forest to observe forest fires and to inform the employees automatically.

Protecting Carbon Sinks

Building of fire pools and ponds accelerated

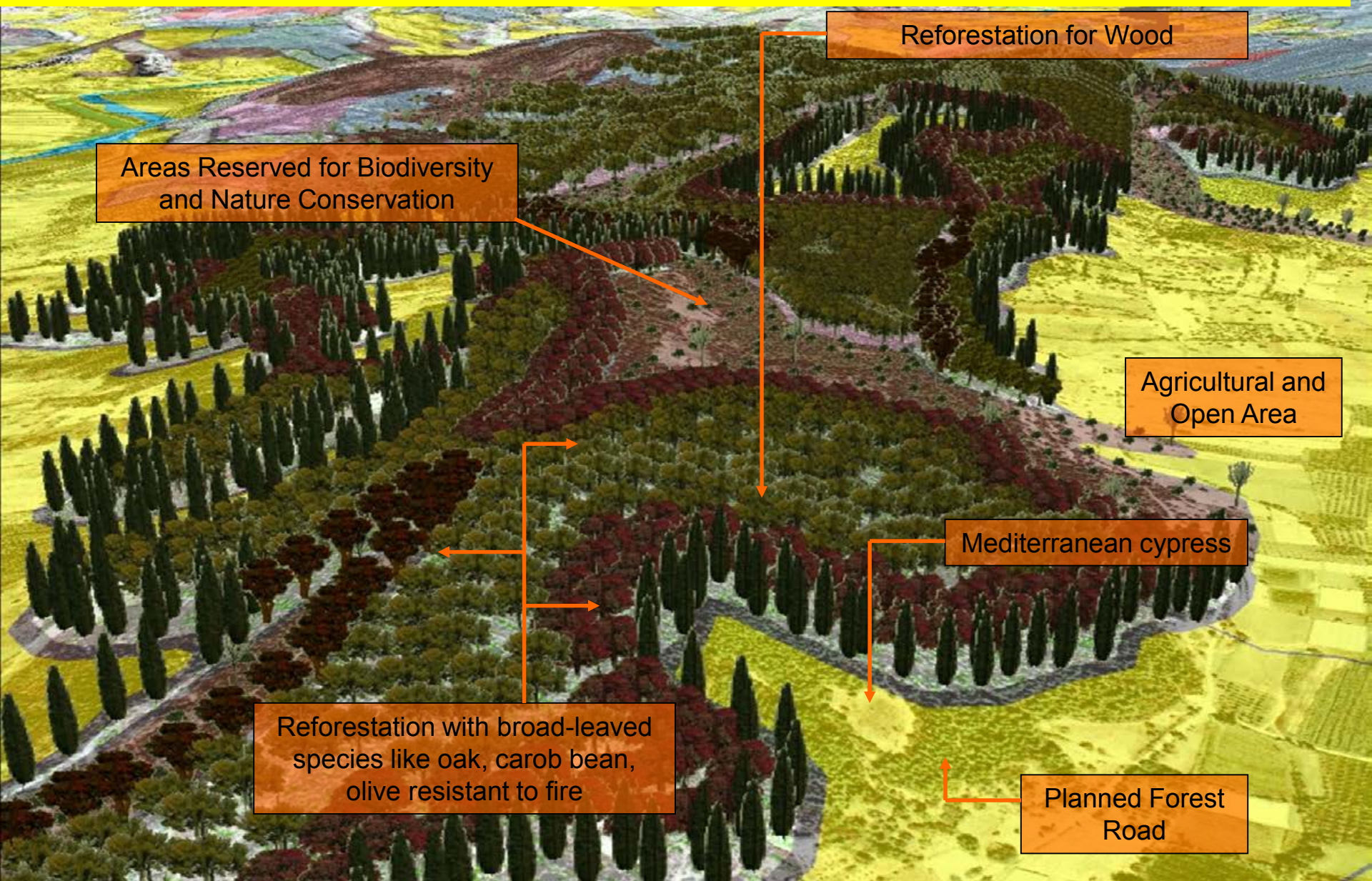
- Forest and water are close relationships with each other. With the line of “Ministerial Conference on the Protection of Forest in Europe” s Warsaw Resolution for “Forest and Water” we are trying to build watersheds near or inside the forest and fire pools have been built near the forest areas.
- These pools are used not only for fighting against forest fires but also for agricultural irrigation by local people.
- Meanwhile these pools have contributed to the climate positively .
- For that reason 600 pools, ponds have been built till now.



The Project on “Rehabilitation of Burned Areas and Establishing Forest with Fire Resistant Species”

- According to Turkish Constitution forest areas destroyed by fires can not be subjected to different uses other than forestry.
- The Mediterranean Region of Turkey is sensitive for fires and it is expected to have more fire there. Red pine (*Pinus brutia*) is the most widespread tree species here and endurable for forest. So, this year, we decided to make reforestation and rehabilitating activities with local species like oak, carob bean and olive tree.
- They are also good for nonwood forest production and useful for local people.

Setting up fires resistant forest



Reforestation for Wood

Areas Reserved for Biodiversity and Nature Conservation

Agricultural and Open Area

Mediterranean cypress

Reforestation with broad-leaved species like oak, carob bean, olive resistant to fire

Planned Forest Road

Fighting Forest Insects And Diseases

- There are about 50 harmful insects affect 2 million ha of forest in Turkey.
- GDF monitors pests and diseases and combats on 500.000-800.000 ha infected area each year, through mechanic, chemical, bio- technique and biological methods.



Increasing carbon sequestration

Increasing carbon sequestration through rehabilitating degraded forest land, improving forest health, and supporting sustainable forest management.

Afforestation & Erosion control

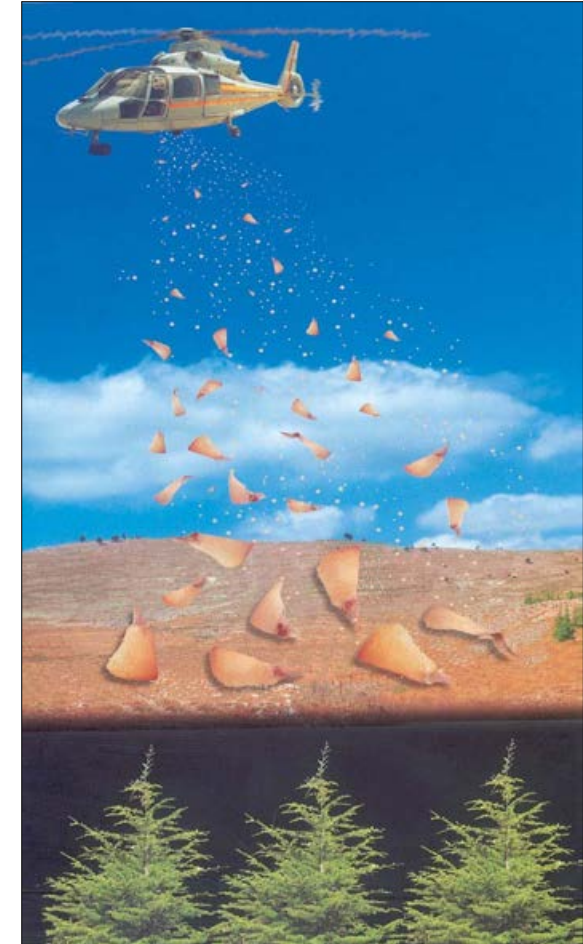
- Forests of Turkey have increased nearly 1 million hectares from 1950s to date, according to recent forest inventory
- In 2007; “National Plan for Afforestation and Erosion Control” prepared and approved by the Prime Minister. According to this plan 2.3 million hectares of land in our country will be the subject of re-afforestation, erosion control and rehabilitation between the years 2008 and 2012.

Rehabilitation of degraded forests

Nearly half of the Turkey's forest are not suitable for producing wood product. So we are trying to improve their conditions with rehabilitation methods.

5 Billion Cedar Seeds Meet the Soil

- *Cedrus libani*
<http://www.ogm.gov.tr/english/tree/agac4.htm> is a natural tree in Southern Turkey. It can be found also in Lebanon and Syria. But much of the area is unproductive and subject to severe erosion. And because of high elevation working in these area with workers and tractors is very difficult.
- So we are using helicopters and 5 billion Cedar seeds are annually distributed the Toros mountains which lies to Mediterranean region in Turkey.



http://www.ogm-mersinobm.gov.tr/haber/genel_rehabilitasyon_calismalari.html

Rehabilitation of Degraded Juniper Forests

- Juniper species (*Juniperus L.*) <http://www.ogm.gov.tr/english/tree/agac9.htm> are natural trees of Turkey; resistant to drought, lack of water and can grow with soil poor in quality. Once upon, there were 3 million hectares of Juniper forests but nowadays we have a few of them.
- Until 2000s, regenerating of Juniper was impossible because germination difficulties. Recently the problem solved and now we are producing Juniper seedlings in our nurseries. It will be wonderful for upper zone reforestation and rehabilitation. It is also resistant to different kind of climate conditions.

People and Forest

- People are the most important part of sustainable forest management.
- In Turkey, more than 5 million people live in 20.974 forest villages.
- Based on the Constitution, The Forest Service has supporting the forest villagers since 1970 to minimize their adverse effects on forests.
- Wood needs of villagers are provided at low prices by the Ministry.
- Forest villagers provided with water heating systems using solar energy.
- Credit support is provided to forest villagers in areas like animal husbandry, greenhouse farming, beekeeping, and fruit growing .
- In these villages, wood harvesting is a main source of income. According to Turkish legislation they have the right of working first. The forest service pay nearly 600 million USD annually to forest villagers and cooperatives for harvesting wood production

URBAN FORESTS

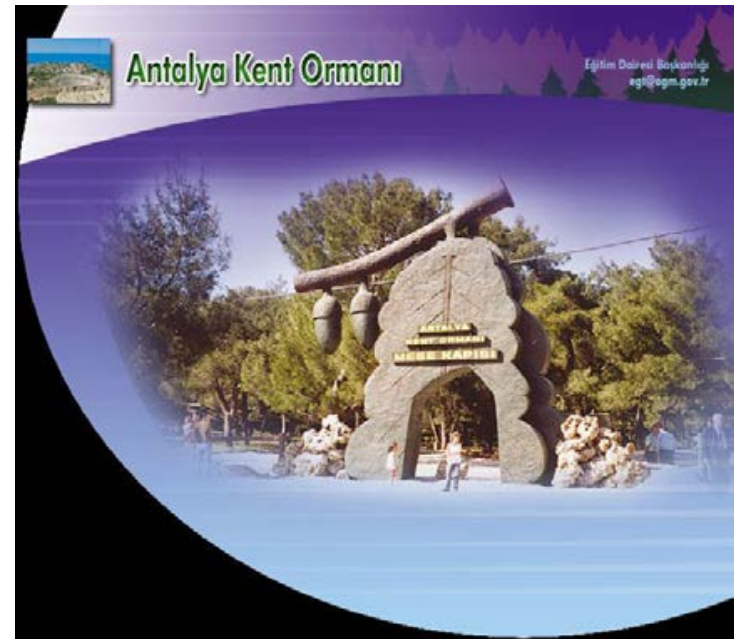
Urban forests are planned around cities for sport, recreation, etc . 62 urban forest (6691 ha) have been established from 2003 to 2007.

Yearly some 1 million people visit the urban forests.

<http://www.ogm.gov.tr/kentorman/turkiye.htm>

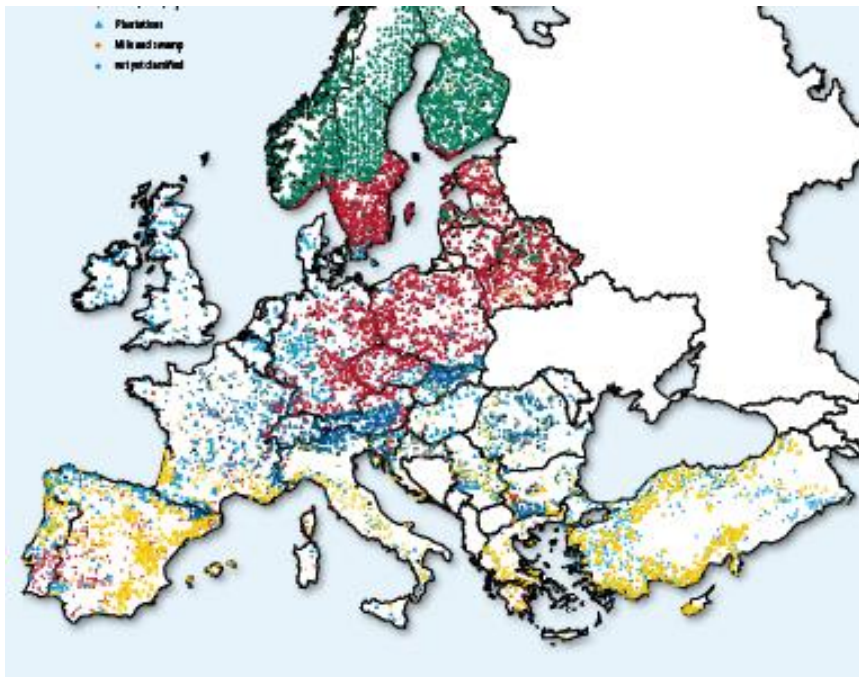
Turkey's Prime Minister

Director General for Forestry

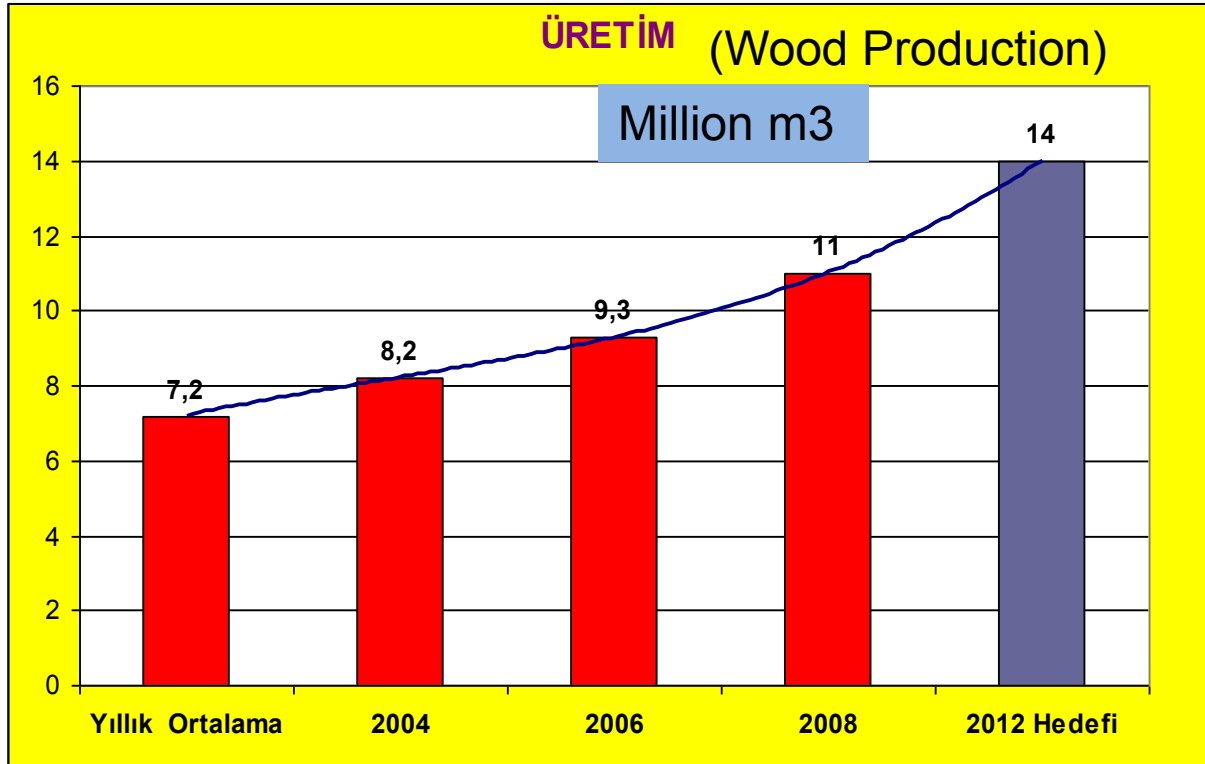


Monitoring Forest Ecosystems

- In the framework the International Co-operative Programme on Assessment and Monitoring of Air Pollution Effects on Forests , we are establishing Level I and Level II plots to monitor Turkey's Forest.



Use of Forest- Wood: Innocent source of energy



2012
Target

Wood is the most innocent source of energy.

So we are trying to increase the production of wood.

Today, Turkey is a importer country for wood products. Most of them coming from Russia and Ukraine.

Reducing our own carbon footprint

- We have been using sunlight for fire watch towers for ten years. In the years to come, it will be spreaded to our offices.
- We started to use woody biomass to heat our offices. It is very beginning but we are saying that; people should be together with his/her beloved and as foresters, we love the wood.
- Next year we are planning to generate electricity for at least 10 sub region offices using wood. Then we will spread it industry.

Reducing our own carbon footprint

- Especially in Black Sea region, where the annual rainfall is nearly 2 thousand mm, we will produce electricity using water generator needed by our remote offices.
- In Turkey, only the General Directorate of Forestry has the right of produce and selling the raw wood products. For last 3 years, we have been selling our productions using internet. It means we saved nearly 10 million USD budget yearly from postage, fax and paper.

Thank you very much for your attention.