



8 Green Belts

Greater Cairo (Cairo, Giza and Qalioubeya) Green Belt

Introduction

Greater Cairo is subjected in some seasons of the year to air suspended dust emanating from plateau and desert areas adjacent to it. In addition to some pollutants of factories emissions, using fuel energy, open burning of garbage waste and emissions of various means of transportation as well as burning the agricultural waste in neighboring governorates. All this results in weakening the ecosystem and makes it incapable of performing its functions of reducing the pollutants.

The Ministry of State for Environment Affairs therefore opted to start cultivating a green belt around greater Cairo as well as cultivating green belts for the main cross-roads (junctions) and establish green belts around the new cities. Also, it launched

afforestation, planting trees and cultivating green planes and parks to 50 kilometers off the Greater Cairo region.

Green Belt

It is an intensive tree belt surrounding Greater Cairo at a length of one hundred kilometers with 500 thousand trees, map (8-1).

A medium high tree daily absorbs about 1.5 kg carbon dioxide. If a medium size car when moving for 50 km generates 11.9 kg of carbon dioxide; then this will require planting 7 medium size trees to remove the carbon dioxide resulting from only one car. Given that in Cairo, there are about 1.5 million vehicles moving daily, thus it is required to plant 10.5 million trees.

Green Belts

Green Belt Project depends on benefiting from the treated sewage water instead of wasting it in the desert without making use of it after having made huge investments spent on its treatment with the objective of providing employment opportunities to the young people. This will also achieve an economic return from cultivating timber trees and protect Cairo inhabitants from chest diseases.

Afforestation by using treated Waste water

Introduction

Wastewater contains after its treatment a mixture of organic and non organic compounds besides micro organisms with vastly variant concentration based on the following elements:

1. Sources and quality of used sewage water (entering to the treatment station/ plant).
2. Method of designing and implementing the treatment plant.
3. Technique of operating and maintaining the treatment units.

In the recent years ending 2004, the implementation of the infrastructure and plantation of 10350 feddans of afforestation irrigated by treated sewage water was completed. Another 845 feddans were planted in 2005. The existing forests are distributed on 24 sites in 16 governorates map (8-2) and table (8-1).



Photo (8-1) *Jatropha curcas* trees producer of bio-oil



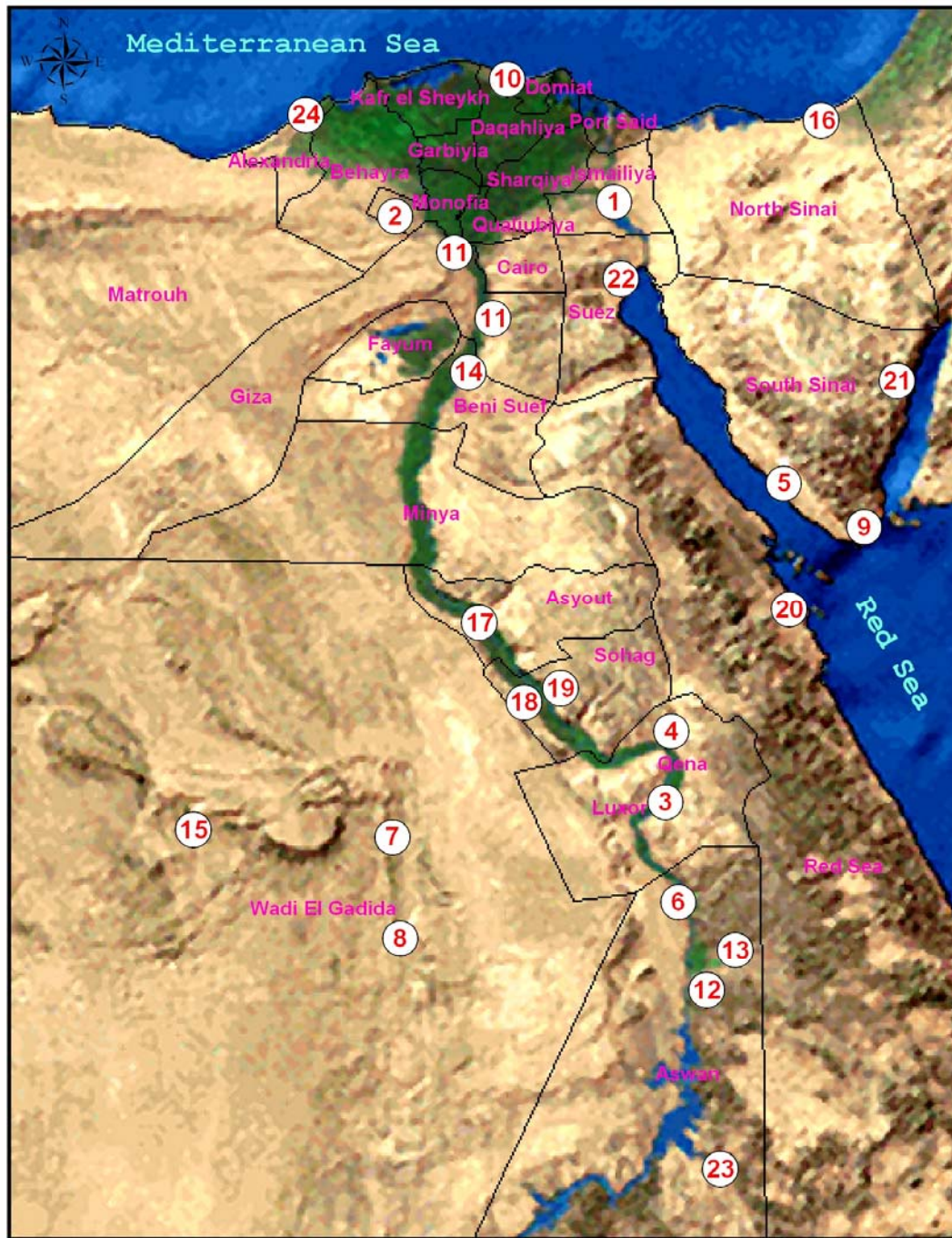
Photo (8-2) *Jatropha* Plantations in Luxor Forest



Photo (8-3) Edfu Khaya *Senegalensis* Forest

Map (8-2)

Forests Locations in Egypt



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Scale : 1:4,500,000

Table (8-1) List of established and under establishment Afforestation Areas Irrigated by Treated sewage water

Sr	Governorate	Forest	Area (Feddan)	Plant Discharge Capacity (m ³ /day)	Irrigation System	Cultivated plant varieties
1	Ismailia	Saraboum	500	90000	Drip irrigation	Cupressus sp.-Pinus sp.- Khaya senegalensis- Casuarina sp.- Eucalyptus sp.- Agava sisalana- Dendrocalamus strictus
2	Menoufia	El Sadat	500	18000	Drip irrigation	Cupressus sp.- Pinus sp.- Acacia saligna- Casuarina sp.- Eucalyptus sp.-Agava sisalana- Morus Sp.-Khaya Senegalensis-ornamental trees and plants
3	Luxor	Luxor	1700	30000	Drip Irrigation and Modified Flood Irrigation	Khaya senegalensis- Eucalyptus sp.-Acacia saligna-Morus sp.- Jatropha curcas
4	Qena	Qena	500	23000	Modified flood Irrigation	Eucalyptus sp.-Khaya senegalensis
5	South Sinai	Tur Sinai	200	3500	Drip Irrigation and Modified Flood Irrigation	Casuarinas sp.- Eucalyptus sp.-Morus sp.- popular sp.- Concarpus sp.
6	Aswan	Edfu	300	8000	Modified flood Irrigation	Khaya senegalensis
7	New valley	El kharja	400	13000	Drip Irrigation	Khaya senegalensis- Casuarina sp.- Eucalyptus sp.- Terminalia sp.-Tamarix sp.
8	New valley	Paris	200	18000	Drip Irrigation	Cupressus sp.-Pinus sp.- Acacia saligna- Casuarina Sp.- Eucalyptus sp.
9	South Sinai	Sharm El Sheikh	60	3000	Drip Irrigation	Casuarina sp.- Eucalyptus sp.- Decorative trees and plants
10	Dakahleya	Gamasa	150	1500	Drip Irrigation	Cupressus sp.-Pinus sp.- Concarpus sp.
11	Giza	El Saf	500	65000	Drip Irrigation	Khaya senegalensis Casuarinas sp.

Table (8-1) continued: List of established and under establishment Afforestation Areas Irrigated by Treated sewage water

Sr	Governorate	Forest	Area (Feddan)	Plant Discharge Capacity (m³/day)	Irrigation System	Cultivated plant varieties
12	Aswan	Blana	1230	32000	Drip Irrigation	Khaya senegalensis-
13	Aswan	Nasr El Nouba	100	14000	Drip Irrigation	Khaya senegalensis-Eucalyptus sp.-Terminalia sp.
14	Beni Sueif	El Wasta	500	10000	Drip Irrigation	Khaya senegalensis-Jatropha curcas
15	New Valley	Moot	700	10000	Drip Irrigation	Terminalia sp.-Khaya senegalensis
16	North Sinai	El Arish	200	15000	Drip Irrigation	Khaya senegalensis Jatropha curcas
17	Assiout	Assiout	40	50000	Drip Irrigation	Khaya senegalensis Jatropha curcas
18	Sohag	West of Sohag	1000	28000	Drip Irrigation and Modified Flood Irrigation	Khaya senegalensis—Jatropha curus
19	Sohag	East of Sohag	1000	28000	Drip Irrigation and Modified Flood Irrigation	Khaya senegalensis—Jatropha curus
20	Red Sea	Hurghada	200	10000	Drip Irrigation	Casuarina sp.
21	South Sinai	Noueiba	200	4000	Drip Irrigation	Casuarina sp. Khaya senegalensis
22	Suez	Attakah	400	30000	Drip Irrigation	Jatropha curcas-
23	Aswan	El-Alaki	550	8000	Drip Irrigation	Khaya senegalensis-Eucalyptus sp.-Terminalia sp.
24	Alexandria	N ⁹	60		Drip Irrigation	Casuarina sp. Khaya senegalensis
Total			11195			

Future Plan 2007-2012

Ministry of State for Environment Affairs pays a great heed to Afforestation programs, plantation of green areas and making use of treated wastewater in afforestation and planting green belts to evade air, soil or water pollution.

Completing green belts plantation irrigated by the treated wastewater is one of the state priorities whether by completing the second and third phases of the green belt around the ring road of Greater Cairo or planting green belts on the cross sections with the ring road at a depth of 25 km. Further to planting green belts around new cities in Greater Cairo.

With the continuous increase of the treated wastewater quantities and subsequent establishment of new treatment plants for the sewage water in all parts of the Republic; it is expected that the treated quantity of this water which currently amounts to 2.4 billion cubic meters/year would increase to more than 4 billion cubic meters/year during the few coming years.

Hence, the state is working on making use of water quantities after treatment in planting forests in all governorates of the Republic. The program of making use of this water in producing some crops of high economic return i.e., Jojoba and Jatropha which the Egyptian code stipulates for using this water as it greatly reduces soil or underground water pollution.

References

- (1) Housing and Building Research Center – Ministry of Housing, Utilities and Urban Communities 2005: Egyptian Code of Using Treated Sewage Water in agriculture.