Economic Assessment of the National Project for Oil Crops in Egypt

PREAMBLE: - Edible oils are a major constituent of human food. They are also inputs to other industries. Oil crops, such as cotton's commercial seed, soybean, sunflower, canola and peanut, are the major sources of edible oil. In addition, some tree crops (e. g. oil date — palm, olives, coconut) and other field crops (e .g. maize embryo, sesame and flaxseeds) provide good sources of edible oil. In Egypt, commercial cottonseed, soybean, oily sunflower and flaxseeds are the major sources of edible oils, representing 89% of the total production of oil seeds between 1982 and 1998. This study seeks to identify the present situation of plant oils in both the world and the domestic market, with particular reference to production and consumption. It also aims at assessing the economic impact of the National Oil Crops Improvement Project, using the production and cost functions. WORLD SITUATION OF PLANT OILS: - World production of edible oil in 1997 reached 76.4 million tons, compared to 17.5 million tons in 1970. Likewise, world consumption has also increased from 17.3 million tons in 1970 to 76.4 million tons in 1997 at almost the same rate of growth. In 1970 the total world production of oil seeds was 83.26 million tons, compared to 293.65 million tons in 1998. Soybean seeds alone represented almost 50% of the total world output of oil seeds. Soybean, cotton's commercial seeds, sunflower and canola seeds collectively represent 85.5% of the world production of oil seeds. The study also indicates that the USA is the largest soybean producer. It accounts for 40% of the world acreage of soybeans and 47% of the world output in the period 93/1994-97/1998. China is counted among the large producers of cottonseeds and canola, representing 23% and 27.5% of the world production of both crops. FSU republics are counted among large producers of sunflower, representing 23.6% of the world production thereof. The study also indicates that India, FSU, Pakistan, Iran, . Egypt, Morocco, Nigeria and China accounted for almost 37.8% of the world consumption during the studied period (93/1994 —97/1998). India and China accounted 14.2% and 10.6% of the world consumption during the same period. Algeria, Iran and Egypt have experienced a decline in edible oils' self-sufficiency ratio, which fell down to 4.2%, 5.8% and 13.7 % respectively during the same period. World price analysis in this study depended on Rotterdam market's prices of the oilseed crops. Price correlation indicates that soybean, sunflower and canola also are complete substitutes and their prices are almost fully correlated and that cottonseed oil price behaves uniquely. Regression relationships denote that there is a reverse relationship between the price per ton of the plant oils and their production volumes in the preceding year. They also denote the existence of a progressive relationship between the price per ton of edible oil and the price of alternative oils. Seasonal price changes (Oct. 1997 to Oct. 1999) indicate that soybean oil price takes a downward trend from June to October annually, reaching a maximum decline in August (22% of the average price). However, it tends to catch up in November, December and January, reaching its maximum limit in November (40.7% of the annual average price). Such price fluctuations are largely attributable to U.S. production. Similar trends are recorded for sunflower and cottonseed oils. 7.1PRESERNT SITUATION OF OIL SEEDS' PRODUCTION AND PROCESSING IN EGYPT: - Oilseeds' contribution to the value of agricultural production has fallen down from 1.9% in 1982 to 1.4% in 1997. The acreage of oil crops (about 1.2 million feddans) has undergone a decline of about 16.9 thotthand feddans annually despite un increase of the cropped area during the same period. As a result, the total production of oil crops fell down 979,000 tons in

1982 to 796,000 tons in 1998. Commercial cottonseed accounts for 72% of the total production of oil seeds. It ranks first in its relative importance among the other oil seeds, despite the fact that cotton is the prime fiber crop whose acreage is linked to the overall fiber production plan. The per feddan yield of seeds is relatively stable at 0.61 ton/fed, as cotton improvement programs focus mainly on increasing cotton outturn and subsequently the decrease of seed yield. Soybean seeds account for 12.5% and ranks second to cotton in terms of relative importance. Soybean acreage fell down from 144,000 feddans in 1982 to 43,000 feddans in 1998. Likewise production fell down from 166,000 tons in 1982 to 48,000 tons in 1998. Peanut ranks in terms of relative importance. It accounts for 7.9% of the total output of oilseeds over the period 1982-1998. Sesame ranks fourth, accounting for 2.9% of the annual output of oilseeds. The relative importance of sunflower and flax was estimated at 2.4% during the same period, There exist seven subsidiaries of the holding company for food industries, working in plant edible oil processing. Their total annual productive capacity is estimated at 615000 tons produced from locally — produced and imported oil seeds. The domestic production of plant oils fluctuated drastically over the past three decades. It declined from 124,000 tons in 70/1971 to 96,000 tons in 76/1977. It increased gradually until it reached 148,000 tons in 83/ 1984, but it again fell down to 84,000 tons in 91/1992. The period 1992- 1998 witnessed irregular fluctuations due to acreage changes from one year to another. Domestic production tended to fell down in the period 70/1971 to 76/1977 by 5% annually of the average total production of that period (113,000 tons). It, however, started to increase by 4.3% annually during the period 77/1978-83/1984 for which the average production was about 136,000 tons. Analysis of the financial returns of the plant oil processing units using locally produced or imported oil seeds indicated that the domestic cost of production ratio was 1.007% for cottonseed oil and 1.136% for soybean. This denotes that the local processing of imported crude plant oil is higher in economic return the processing of the locally- produced oilseeds. As a result of a prohibitive pricing policy, acreage decreased. However, sunflower oil’s domestic production cost per ton accounts for 0.778% of that the refined imported product. Therefore, expansion of sunflower area was the best option, based on cost /benefit analysis.Domestic consumption: -The study assessed domestic consumption of plant oils over the past three decades and concluded that it has more than tripled from 299 thousand tons in 70/1971 to 1.023 million tons in 98/1999. Population growth and consumption pattern change, correlated with social and economic variables, account for such an increase. Expenditure elasticity in both urban and rural areas is estimated at 0.19 and 0.29 respectively, denoting that demand in both areas is less elastic and that income increases with positively reflect on the quantity consumed. Per capita daily consumption in urban areas was estimated at 21.9 gms, out of which 10.3 gms (or 47%) are obtained through the ration card system and the rest (11.6 gms) is obtained at market price. In rural areas, the per capita daily consumption was estimated at 17.7 gms, out of which 9 gms (or 51%) or obtained through the ration card and 49% at market price. Plant oil imports has more than quadruplicated in almost three decades jumping from 175,000 tons in 70/1971 to 904,000 in 98/1999. Self-sufficiency ratio has declined from 41.5% in 1970 to 11.6 in 1999.