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A new Approach For Pricing
Agricultural Land in Egypt Considering
Policy reforms and environmental concepts

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contents

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Introduction :

In March 1990, the Egyptian government launched a comprehensive economic and social reform program, to strengthen Egypt's ongoing adjustment program; it constitutes a major break from central planning and state ownership to privatization.

This reform program aimed to modernizing the country and significantly improving living standards. Government control is being replaced by market determined production, prices, trade, and consumption.

Egypt has GDP of $67.5 billion at market prices (Fy 1996) (Internet Egypt Economic Profile).

Egypt's achievements in stabilizing its economy during 1990s have been impressive. Prices have been liberalized on almost all goods, and at the same time inflation has been brought down from over 22% in 1991 to below 9% in 1995. During the same period, the government budget deficit has declined from 17% of GDP to less than 2%, and the external current account deficit was kept below 2% of GDP. Foreign exchange reserves stand at over US$ 18 billion, real interest rates are significantly positive, debt servicing is current (no arrears), and external creditworthiness has been restored. By 1996, the current account turned to a surplus of 1.5 percent of GDP (Internet Egypt Economic Profile).

Background :

The Egyptian economy has traditionally relied heavily on the agriculture sector as a source of growth. Agriculture sector still accounts for about 20 percent of both GDP and total exports, and about 36 percent of employment (The world Bank, Arab Republic of Egypt, An Agricultural strategy for the 1990s).

Egypt has a total area of about one million square kilometers or 238 million Feddans. Based on preliminary data from the 1990 agricultural census on which compilation work is still ongoing, agricultural holdings are estimated to total 7.5 million Feddan, or only 3 percent of the total area. There are no estimates are made of unproductive, not fully reclaimed areas and/or land taken away from agricultural use.

There is no statistical series on land losses due to urbanization; Various reports suggest land losses averaging 15,000-30,000 Feddans annually. Data from the ministry of public works and water resources estimates total cultivated areas at 5.4 million Feddan of old lands and 1.9 million Feddan of new lands, lie totaling 7.3 million Feddan, based on water volumes released annually for agricultural and addition 0.2 million Feddan are reported to i.e outside of the Nile river (World Bank, Arab Republic of Egypt, An Agricultural Strategy For the 1990s).

The 1990 agriculture Census estimates that there are around 3.0 million land holdings, which if each is held by one family, suggests direct support to an estimated 17 million individuals. Table (1) In addition, the sector provides employment to landless labor in rural areas. Agricultural GDP grew in real terms at average annual rates of 2.7 percent in the 1960s, 3.5 percent in 1970s, and 2.5 percent in the 1980s (World Bank).

After separating out the cost of the High Dam, agriculture's share of public investment declined from 14 percent in 1962-1966, to only 7 percent during the second plan period (1988-1992) (World Bank). Furthermore, the government emphasized land reclamation programs within the agriculture sector, with a concomitant bias towards it in the allocation of investment funds (40 percent of the total funds earmarked for the agriculture sector were allocated to horizontal expansion; however, these investments have so far failed to generate returns on the scale expected from it. About 25 percent of the cultivable land have been reclaimed (1.9 million Feddan). However, their contribution to the total gross value of agricultural production is estimated to be only about 7 percent (World Bank) Egypt initiated the open door policy in 1974. This new policy liberalized the foreign sector by eliminating trade barriers and encouraging direct foreign investment. The government, however, remained heavily involved in domestic economy, especially the industrial and agricultural sectors. The agricultural sector suffered under the open door policy. Lower profitability discouraged investment and spread of new technology, thereby reducing growth.

To correct the severe economic problems, Egypt entered into an agreement with International Monetary Fund (IMF). This agreement ushered in the current major liberalization of both the foreign and domestic sectors (Ali Abd El Rahman, the

effects of privatization on the Egyptian fruit and vegetables sectors). These liberalization program consists of two major components, stabilization policy and a structural adjustment policy.

Many important reforms 'eliminating government control in the agricultural sector have been adopted. Examples include the elimination of farm input subsidies, interest rate subsidies for agricultural credit, government crop procurement farm price controls, constraints on private sector processing and marketing, and quotas on food products and inputs. The Egyptian agricultural strategy for the 1990s is to complete the privatization reform program, including the correction of the method of evaluating (pricing) agricultural land.

Finally, many environmental issues are engaged in water and land resources. Maintaining soil fertility and under taking soil conservation measures are important issues, besides scarcity in them. Many areas in both Delta and reclaimed lands are ill drained and suffer from high salinity levels and water logging. To tackle some of these problems, a National Drainage Program is being implemented with world Bank assistance. A law presently exists for the loss of agricultural land to urban development; that makes this transfer an offence, given that land is a natural resource, and that conversion to urban/industrial uses carries with it a form of irreversibility when viewed in an inter generalizational context, an argument can be made for retaining present controls.

The object of this paper is to achieve a new approach in pricing agricultural land and environment issues in Egypt after reforms.

Table (1) : Distribution of land ownership.

Ownership size	Percent of land owners	Percent of area owned
Less than 5 feddan	95.5	53.9
5 to 10 feddan	2.4	10.5
10 to 20 feddan	1.2	10.2
20 to 50 feddan	0.7	11.5
50 to 100 feddan	0.2	7.4
More than 100 feddan	0.1	6.5

Source :
Central Agency For Public Mobilization And Statistics (CAPMS) (1993), Statistical yearbook, Cairo, Egypt, 1985 data.

Pricing agricultural Land before policy reforms in Egypt

Regularly pricing agricultural land before policy reforms in Egypt depended on 2 methods as following :

I Similar Price :

It is the price which equals to evaluate price of an agricultural land in adequate time, similar to the same price in other agricultural land in the same area, or sold recently, relating to the circumstances which are existing in the national economy, (Mahmoud M. Moftah, 1989). This appraisal is according to adequacy of size, fertility, location, and the kind of property.

II Taxation price

Taxation price is the price, which determined according to tax appraisal. In Egypt the law No. 113 for year 1939 assessing amortizes taxes for all the cultivated land and arable land.

These taxes depend on similarity, government authority appraises the adequacy rent for every piece of agricultural land, according to its properties.

Law No. 65 for year 1949 established the real taxes equal to 14 % from the rent lease value of agricultural land. In addition; there are several types of taxes such as :

- Defence tax; it is equals to 10.5 % of rent lease value. It began from the first of January 1965.

- National security tax; it is equals to 3.5 % from rent value. It began from the first of January 1968, it was defeasible after the removal of defeat impacts.

These two types of taxes paid by the peasant of agricultural land even if he is the owner or the leasehold. Also they can

be divided between the owner of the agricultural land and the leasehold if they are crop share operating.

- Sacrificial militancy tax; it begins from 1973 by tax law No. 117; it equals 25 piasters more than 3 Feddans until 5 feddans; or 50 piasters for more than 5 feddans until 10 feddans; or one Egyptian pound for more than 10 feddans. This tax paid by the owner of the agricultural lands.

- Governorate committees tax; it equals to 15 % from the rent value of agricultural land; under the law No. 65 for year 1949. Only the owner of the agricultural land who paid it.

For small farmers there are many exemptions. As general rule; article No. 11 in law No.199 for year 1949, and the adjusted law No.46 for year 1978, that taxes can be defeasanced if the revenue of farmers are not more than 1200 L.E. , (Mahmoud M. Moftah, 1989). Annex No. (1 & 2) explain the development of total direct taxation in agricultural sector during (1981 – 1988).

Land tenure arrangements

Until the recent changes of the law, the rent of agricultural land in Egypt was fixed at seven times the land tax; and the heirs of the tenant had the deface to automatic right to inherit the tenancy contract, with the contract virtually having validity in perpetuity. For the benefit of the owners of the agricultural land in Egypt ; the past policy has now been changed, with revisions to the old law having been approved by parliament under law 96 for year 1992. With the new law there is a transition period of 5 years up to 1996/97, during which time land rent will be fixed at 22 times the land tax and owners will be able to buy back the contract from the tenant under terms defined under the revised law; at the end of the transition period, land rents will be free to be determined by the market, and owners will be able to terminate prevailing tenancy contracts. However, the value of the land tax continues to remain extremely low, at an average of around L.E 20 per Feddan (it is revised only once every 10 years). Historically, the linkage between land tax and land rents, when combined with legislation (law No. 116) which makes the leaving of land follow for more

than one year illegal, militated against the efficient use of the scarce water and land resources of Egypt. Since there were disincentives to rental values out land, given the law rent values, land-owners preferred to crop it in a manner which generates sub-optimal returns from the land; however by doing so, they combined with the law requiring them to complied to crop the land (law No. 116) and were able to protect their ownership rights over the land.

Property rights and environment :

Property rights are defined as the manner in which producers and consumers use environmental resources depends on the proprty rights governing those resources. In economics, property rights to use a resource. These property rights can be vested either with individuals as in a capitalist economy, or with state as in a centrally planned socialist economy (Tom Tietenberg 1994).

Efficient property-right structures:

An efficient structure has four main characteristics:

I. Universality, all resources are privately owned and all entitlements completely specified.
II. Exclusivity, all benefits and costs accrue as a result of owning and using the resources should accure to the owner, and only to the owner either directly or indirectly by sale to others.
III. Transferability, all property rights should be transferable from one owner to another in a voluntary exchange.
IV. Enforceability, Property rights should be secure from involuntary seizure or encroachment by others.

Scarcity rent :

Most natural resource industries give rise to a form of rent called scarity-rent (Tom Tietenberg, 1994).

David Ricardo was the first economist to recognize the existence of scarcity-rent. Ricardo suggested that the price of land was determined by the least-fertile marginal unit of land, Because

the price had to be sufficiently high to allow the poorer land to be brought into production, other, more - Fertile land could be farmed an on economic profit. Competition could not erode that the profit because the amount of land was limited and lower prices would serve only to reduce the supply of land below demand. The only way to expand production would be to bring additional, less-fertile land (more costly to farm) into production; consequently, additional production doesn't lower price, as it does in a constant-cost industry.

Other circumstances also give rise to scarcity rent for natural resources. The allocation of depletable resources gives rise to a positive marginal user cost. The existence of this marginal user cost implies that the efficient price will exceed the marginal cost of extraction , creating a scarcity rent of those resources as well.

The scarcity rent would be equal to the area under the price line and above the marginal cost of extraction (Tom Tietenberg, 1994).

Although it can be and frequently is efficient, the economic is not always efficient. Environmental problems represent one important class of circumstances in which it is not.

Agricultural externalities:

Externalities exist in situations where the activities of one economic agent affect, or spill over onto, the technology, consumption set, or preferences of another (Buchanan and Stubblebine, 1962). Externalities have both negative and positive effects.

Theory of externalities:

Externalities and potential solutions to it centered around three basic ideas. The first was Pigous's (1932) exposition of potential market failure when an externality is present. Second was the notion of sub-optimal overuse of a commonly shared resource. Third was Ronald Coase's argument that competition and bargaining can solve externality problems regardless of the initial assignment of property rights if bargaining (transaction) costs are low, (David Zilberman and Michele Marra, (1993).

Externalities as a source of market failure:

The effects of a market imperfection for one commodity end up affecting the demands for raw materials, labor and so on. The ultimate effects are felt through the entire economy (Tom Tietenberg, 1994)

Common-property resources:

Common-property resources are those that are not exclusively controlled by a single agent or source. If access to these resources is not restricted, they can be exploited on a first come, first served basis (Tom Tietenberg, 1994).

Two of our important life-sustaining resources, air and water, are treated by our legal system as common-property resources.

Two characteristics of this formulation of the common-property allocation are worth noting :

I- In the presence of sufficient demand, unrestricted access will cause common-property resources to be overexploited.

II- The scarcity rent is dissipated no one appropriate the rent, so it is lost. Thus unrestricted access to common property resources promotes an inefficient allocation.

Government failure :

market processes are not the only sources of inefficiency. Political processes are fully as culpable. Some environmental problems have arisen from a failure of political rather than economic institutions (Tom Tietenberg, 1994).

The efficiency criterion can be used to assist in identifying circumstances in which our political and economic institutions lead us astray. It can also assist in the search for remedies by facilitating the design of regulatory, judicial, or legislative solutions.

In Egypt; in the foregoing period before reforms; the interference influence of the government on pricing crops, reflect on low price for farmers, low revenue; and cause the phenomena of selling the surface layers of agricultural soil (more-Fertile Layers).

Irrigation water as a common property resources in Egypt

the Nile water agreement between Egypt and Sudan in 1959, giving Egypt 55.5 BCM[*] ; these represent more than 95 percent of the total developed water resources of the country. It means that water is scarcity resource in Egypt. Egyptian farmers do not charge on the use of water in agriculture; in the old lands. Several

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[*]BCM = Billion Cubic Meters.

constraints have inhibited the government in the past from implementing an irrigation service charge. The dominant constraint on any service charge scheme is socio_political resistance due to a variety of cultural factors. Free water is generally considered to be an inherited right of farmers. So we can say that irrigation water is a common property resource in Egypt.

Because of the common property resources, irrigation water becomes over exploited and the scarcity rent is dissipated no one appropriates the rent (cost), so it is lost in the old lands. Thus unrestricted access to common property resources promotes an inefficient allocation, because the concept of irrigation cost recovery in the new lands is fully accepted from the government. In the absence of environmental awareness; lack of knowledge and data on rural area; and the need for more environmental researches, water quality had been polluted.

Agricultural activities by farmers, affect water quality through fertilizers, pesticide, and other agricultural residues. Other major sources of pollution are the industrial and urban sectors.

Many areas in both the delta and the reclaimed lands are ill drained and suffer from high salinity levels and water logging.

A Need for Involving Environment in Pricing Agricultural Land in Egypt:

The previous descriptive appears the environmental impact of inefficient use on both water and agricultural land resources. Also there is an agricultural externalities where the activity of one farmer, or spill over onto, the technology, consumption set, or preferences of another, for example, the farmer who pollutes irrigation water, affects the other farmers activities.

Thus there is a need of economic aspects of environmental degradation for water and agricultural lands. These environmental degradation should be involving in pricing agricultural lands in Egypt.

A new approach for pricing agricultural land in Egypt:

The Egyptian Government' has been moving away from the implicit taxation of agriculture through the price mechanism, which was not only distortionary but also extremely expensive in terms of maintaining a public sector enforcement system. So there is a need for wider implementation of a cost recovery mechanism whereby farmers would increase their contribution towards the irrigation and drainage investment. Regarding taxation mechanisms, there is a need for improving the present land tax and exploring other options.

The past pricing of agricultural land had been depended on the following equation:

$$R = TV \ X \ \frac{100}{14}$$

where:

R = agricultural land rent value,

TV = land tax value which government revised per feddan every ten years its average was around 20 L.E./per feddan,

and $\frac{100}{14}$ = 7 times and tax value, (Mahmoud M. Moftah , 1989).

Tax-pricing of agricultural land :

The equation determined the tax pricing of agricultural land in the past period before reforms was as following :

TP = R * 10 * number of owned feddans

where :

TP = tax pricing for agricultural land.

R equals to the rent value, (Mahmoud M. Moftah, 1989).

With regard to the land tax, the World Bank recommended, certain key steps to be taken :

- A reassessment of the present level of land tax should be undertaken and future valuations an assessments of the land tax need to be undertaken more frequently.

- With the marked reduction in the implicit taxation of agriculture through the price mechanism, consideration should be given to bringing farmers owning less than 3 feddans within the purview of the land tax system.

- Other measures necessary include steps for improving land tax collections, as well as upgrade land register records in the rural areas.

- In the context of water, related and land reclamation projects, there is a need to adopt a mandatory policy of requiring environmental sustainability of such investments thereby, the new approach for pricing agricultural land in Egypt depends on the following concepts :

    I.   use real interest rate, to avoid inflation.

    II. rent value should be change every five years (medium term), in case of stable change in the rate of national economy, or every year (short run), if the change in the rate of national economy is fast.

    III. Determine the net farm revenue of the owners or farmers, through the receipts of buying input, and salling the production (output).

    IV. In case of low production which covers only the family consumption farmers can contact with the Ministry of agriculture to prove their conditions to delay their tax to the next year.

    V.   Add economic aspects of environmental degradation paid by the users of the agriculture land even, if they are owners or the tenants.

    VI. In case of none economic aspects of environmental degradation, tax can be used to conserve the land of these farmers.

    VII. Add flat fee charge about ½% from net farm revenue for small farmers, owned 3 feddans or less,

1% from net revenue for medium farmers, owned more than 3 feddans, and less than 10 feddans. And 2% from net farm revenue for gross farmers, owned more than 10 feddans, on the use of irrigation and drainage services, to lead eventually to more efficient use of them. This charge should be used to develop, improve, upgrade, and conservate system operation.

VIII. Charge penalty, to the farmers, who harms the irrigation and drainage system (projects).

Therefore the suggestion equations for pricing agricultural land are:

I- $R = Nr \times (1+i)^t + 1/2\% - 2\% F + E$

where

R = rent value , Nr equals to net farm revenue

I = real interest rate

T = to the length of holding period ,

F= flat fee on the use of irrigation and drainage services, and

E equals to economic aspects of environmental degradation ,which reflect, both inefficient use of natural resources, and externalities of common-property resources.

II- $TP = R \times Nf + 1/2\% - 2\% F + E$

where

TP equals to tax pricing of agricultural land

R = rent value, Nf equals to the numbers of feddans owned, and F & E as the same meaning as previous.

Summary:

In March 1990 the Egyptian government launched a comprehensive economic and social reform program. This program aimed to modernizing the country and significantly improving living standards. The Egyptian agricultural strategy for the 1990's is to complete the privatization reform program, including correction of of pricing agricultural land, and land tenure arrangements. The objects of this paper is to achieve a new approach for pricing agricultural land and environment issue in Egypt after reforms. The Paper described briefly the methods of pricing agricultural land before reforms, and land tenure arrangements. Also it scoped on some concepts ,which related to the subject, such as property - rights and environment; efficient property - right structures, scarcity rent, agricultural externalities as a source of market failure ,common -property resources, government failure ,and explained irrigation water as a common property resource in Egypt. Then the paper suggested two equations for pricing agricultural land in Egypt. These equations depend on determining the net farm revenue, real interest rate flat fee on the use of irrigation and drainage services, and economic aspects tax of environmental degradation.

Annex

Table (1) development of total direct taxation in agriculture sector in Egypt during (1981-1988)
Unit = Million L.E

Year	Total direct (1) taxation	Total tax in (2) agric. sector	2/1 %
81-82	2269.5	29.4	1.30
82-83	2092.7	30.6	1.46
83-84	2637.0	31.5	1.19
84-85	2525.9	33.0	1.31
85-86	2610.7	34.0	1.30
86-87	3407.8	36.7	1.08
87-88	4249.7	37.3	0.88
Average of the period	2827.6	33.2	1.17

Source:

I.N.P (1994) the role of government in agriculture sector during the stage of economic liberalization series of development and planning issues in Egypt No.(92), pp.24.

Table (2) development of total direct agriculture taxation and agriculture income, during (1981-1988)
Unit = Million L.E

Year	Total direct (1) agric. income	Total agric. (2) Taxation	2/1 %
81-82	3742	29.4	0.79
82-83	4375	30.6	0.70
83-84	4815	31.5	0.65
84-85	6072	33.0	0.54
85-86	7448	34.0	0.46
86-87	8640	36.7	0.42
87-88	8930	37.3	0.42
Average of the period	6289	33.2	0.53

Source:
        I.N.P (1994) the role of government in agriculture sector during the stage of economic liberalization series of development and planning issues in Egypt No.(92), pp.26.

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