

DIMENSIONS REHABILITATE PASTURES IN THE WESTERN REGION IN FOOD SECURITY

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ABSTRACT: *The research focuses on the problem of the deterioration of natural pastures in the western region of Iraq (Anbar province), which threatened to drop the preparation of livestock, then dropped the average per capita share of the preparation of the animals, where the absolute number of total kinds of animals in (1986) about (12176) million head to reach in (2008) about (12093) head million negative compound growth rate (0.03%) while the increased absolute numbers the population doubled during the same period , the growth rate of a compound rate of (3.15 %). As reflected lower average per capita share of the total number of animals (head / capita) from (0.75) to (0.37) for the years 1986 and 2008, respectively, and then down the average per capita red meat ability (kg / year) for a period of (1999-2010) ranged between (2.347 and 5.104) kg/ year, and those quantities are a few percentage as recommended by the World Food Program, where the estimated need of the individual annual animal protein , including at least (12.7) kg, and this of course confirms that the production of red meat does not meet domestic demand. The number of holdings in Anbar province, about (10200) estimated the area (25464) acres, accounted for (9.59 %) of the total area of natural pastures in Iraq. In the wet area was pastoral area of land suffering from severe deterioration and the average (about 1784 square kilometers), accounted for a quarter of the total area for the pastures of the region. Said research on the importance of conducting surveys of the natural vegetation in natural pastures in the western region, especially those that are unaffordable for the climatic conditions difficult, as well as the planting before the rainy season to give the largest possible opportunity for the growth of seedlings planted and the election of varieties new plants with high resistance to drought its example forks Sham.*

KEYWORDS : Natural pastures, Absolute food security, Relative food security

INTRODUCTION

The natural pastures are considered as the Pillar of support and development of the national economy as a source of animal products which provide nutrition; it's also as a renewable wealth, if exploited, according to a sound scientific basis, being a source of income upon which a large number of the population depends upon. the economic and social interventions to human societies, had led to the disruption of the ecological balance in areas of natural pastures, of those interventions Timber cutting and cultivation of the land, including a feature contributed to their

lack of sustainable production and the disappearance of plants with the value of a common-wealth.

Estimated area of pastoral land in Anbar province, is about (25464) acres which forms about (9.59 %) of the total area of natural pastures in Iraq. In AL RUTBA area the estimated pastoral lands which suffer from severe deterioration is of the average estimated (1784 square kilometers), which accounts for nearly a quarter of the total area of pastures in that region. This deterioration Contributed to the decline in livestock numbers, where the absolute number of total kinds of animals in (1986) about (12176) Million decreased in (2008) to reach about (12093) Million growth rate of a composite negative (0.03%) while the increased absolute numbers of the population doubled during the same period, the growth rate of a compound rate of (3.15 %). As reflected lower average per capita share of the total number of animals (head per individual) from (0.75) to (0.37) for the years 1986 and 2008. Then, down the average per capita red meat ability (kg /year) for a period of (1999-2010) ranged between (2.347 and 5.104) kg /year, and those quantities are a few percentage as recommended by the World Food Program, where the estimated annual need of the individual of animal protein that should not be less than (12.7) kg, and this of course confirms that the production of red meat does not meet domestic demand.

The problem of the research: natural pastures suffer in Iraq from some wrong practices carried out by human societies to those areas, which had led to the loss of vegetations; this reflected a decline in grazing livestock in those lands.

Research Hypothesis: livestock development and the achievement of self-sufficiency for the Iraqi individual to receive his share of red meat are based upon the rehabilitation of natural pastures in Iraq.

The importance of research: the research acquires its importance from the subject of food security, which human societies seek to achieve in order to provide their members their need of food, especially meat products of all kinds.

The research aims: The research aims to analyze the reality of natural pastures in the western region of Iraq, and the state of the growth rates of livestock, and then offer a range of rehabilitation programs of pastures to achieve the principle of food security.

Food security and the importance of animal protein: Food security is one of the concepts that were put forward by the World Bank, which is meant for the humans in all times can acquire enough food that qualifies for an active and healthy life, and its basic elements are food availability (Droubi. 2008.287). According to the UN Food and Agriculture Organization (FAO), it provides a potential means of physical, economic and social development of all individuals, access to food and health is enough to contain the necessary nutrients, which help them to carry out daily activities and events.

In this sense, the availability of food security requires the following trends: availability of sufficient quantities of food and good quality, Provide individuals with the potential to get his food, Provides nutritional requirements of good health, including food content and should provide all the necessary nutrients (Zoghbi. 2006. 1).

Economic literature classifies food security as two levels of absolute and relative terms (Mohamed. 2013. 178). The absolute food security means food production within the country, to the equivalent of more than domestic demand. This level of food security conforms to the concept of self-sufficiency. This concept is widely criticized as to make countries lose the advantage of the possibility of international trade on the specialization and division of labor and the exploitation of comparative advantages. For Food security relative, means that they have the relative potential that to provide for the needs of its members of food commodities wholly or partially, on a regular basis (Droubi. 2008. 288).

Food security in this sense does not necessarily mean the relative production of all the basic needs of individuals from food, but it can be secure those needs, in cooperation with other countries, by taking advantage of the comparative advantage enjoyed by the country, in the, cooperation with others to secure food. Contain animal protein, amino acids, essential for body building and muscle composition is a tonic for the secretion of the salivary glands and secretions of the stomach. Based on a class of its importance within the criteria that is measured by the progress of people's underdevelopment (www.arabvet.com). The data confirm that the average per capita consumption of meat in developing countries does not exceed 28 kg per year, which is compared with the average consumption in Western countries is a record low reached in terms of consumption in those countries about 80 kg per year (www.alsabah.iq). The global organization feeding the minimum daily requirement of animal protein of about 35 g per day per individual (Allham. 2007. 106), which means that the need for annual per capita should not exceed (12.7) kg. In another study it was estimated that the need of an adult person of the protein by about one gram per day per kilogram of weight, a person who weighs 70 kg needs 70 grams of protein a day (www.elkhabar.com)

LANDS PASTURES: THE CONCEPT AND IMPORTANCE

The concept of rangeland

Lands known natural pastures as the land which is uncultivated and dominated by natural vegetation suitable for grazing herbivores and biting, which is not suitable for cultivation for economic and climatic factors, and the nature of the ground. This definition focuses on the most important attributes of a sovereign territory of pasture plant from natural herbs and shrubs, and not the validity of the land for agriculture because of their physical properties and climatic conditions, and the need to exploit the pastoral production (www.aoad.org.7). Therefore, we can say that any land is planted dominated by natural vegetation cover (herbs and shrubs) supplying wild animals and domesticated adequate food which sustains life called natural pastures.

The importance of grazing

Lies the importance of including natural pastures produced from pasture, and medicinal and aromatic plants and firewood in addition to being the largest waterfalls in most Arab countries, where they can take advantage of runoff through the construction of dams and canals and the use of harvesting techniques and dissemination of water. The pasture land where the places where herds of sheep, goats, cattle and camels, so the animal production is complementary to a basket of food and a source of raw materials in the industry. It should be noted that pasture land is the most important incubators of wild plants, which is the genetic origins of many food crops and pasture.

Lands also contribute to maintaining the quality of the pasture environment and provide possibilities for tourism and recreational activities. On the other hand, is a source of pasture to gain a significant slice of human societies based in the countryside and rural housing them, and rely on grazing as a source to achieve an adequate income, so as to contribute to the national economy and development (Bdu. khlif Meshaal and Abtan. Hamid Rashid. 2006.340)

Therefore it was necessary to work on estimating the financial value of what is produced from pasture herbage and environmental benefits of the space occupied by vast grasslands, as well as put some foundations and standards necessary for its preservation and development. Accordingly, A wealth of natural pastures that support the national economy, it is a pillar of support for the development of industry and animal products, which is renewable if the wealth has been exploited in accordance with the scientific basis to support this source, development and protection of natural vegetation and maintenance of overtaking him .

Factors affecting the productivity of natural pastures

Share a variety of factors determine the productivity of pastures can be summarized as follows: (Bruinsma.2003.384)

- 1: The distribution of rainfall during the growing season.
- 2: temperatures prevailing in the growing season.
- 3: terrain factors such as the degree and direction of Milan.
- 4: chemical and physical properties of the soil.
- 5: botanical patterns prevailing in the pastoral areas.
- 6: methods and practices followed in the exploitation of pastoral pastures. That's where the pastoral irrational methods eventually lead to the decline of vegetation for grazing land and the disruption of their systems and the environmental degradation of productivity.

The reality of natural pastures in Iraq (the western region model)

Natural pasture area: The area of arable land in Iraq, about 12,000 Million hectares, formed pasture land towards (6.25) thousand hectares (5%) of the total agricultural land (UN Food and Agriculture Organization. 1996) as in Table (1).

Table (1) of agricultural land and its uses in Iraq

| agricultural land | per thousand hectare area | Relative Importance% |
|-------------------|---------------------------|----------------------|
| Forests | 478.5 | 3.99 |
| pastures | 6.25 | 0.05 |
| sustainable crop | 280.0 | 2.33 |
| annual crops | 5500.0 | 45.83 |
| abandoned land | 5737.25 | 47.79 |
| total | 12000 | 100 |

Source: UN Food and Agriculture Organization. Book annual production. For the year 1995. Rome 1996.

According to estimates released by the Ministry of Agriculture in Iraq during the year (1980), the area of pasture land in Iraq amounted to about (32150) Million hectares (Ministry of Agriculture and Agrarian Reform.1980.40), classified according to what is mentioned in Table (2).

Table (2) areas of natural pastures in Iraq

| relative importance% | per thousand hectare area | Area |
|----------------------|---------------------------|---------------|
| 10.1 | 3250 | mountain land |
| 5.6 | 1800 | forest |
| 18.7 | 6000 | planes |
| 56.6 | 21100 | desert |
| 100 | 32150 | total |

Source: Ministry of Agriculture and Agrarian Reform. Worksheet General Authority for natural pastures. Baghdad. April. 1980. P 40.

The area of natural pastures in Iraq, according to estimates by the Ministry of Environment/ Department of Planning and Follow-up of art, for the year (2006) about (16,000) denim (9%) of the total land use, and also in Table 3.

Table (3) the use of land in Iraq for the year 2006

| % | Area(denim) ³ | Type of use |
|-------|--------------------------|--------------------------------------|
| 027.0 | 48000 | Arable land |
| 9 | 16000 | Natural pastures |
| 4 | 7000 | natural forests |
| 1 | 1700 | Barren mountain |
| 31 | 54000 | deserts |
| 27.3 | 47700 | water surfaces and residential areas |

Source: Ministry of Environment / Department of Planning and Follow-up Technical

We also note there is a discrepancy estimates an area of natural pastures in Iraq , despite the important economic , social and environmental enjoyed by those lands , there are no accurate statistics on the area and types of products and plant density , which means there is neglect and lack of interest in that wealth renewable , which is the source for the development of wealth animal , so it is necessary to unify efforts and develop programs and procedures to make accurate statistics about the development. The number of holdings in Anbar province, about (10200) with an area estimated at (25464) denim accounted for (9.59 %) of the total area of pasture in Iraq (**Ministry of Planning.2011-2012**) As in Table (4)

Table (4) grazing area at the level of Iraq under the results of the agricultural census for the year 2011

| % Area | ownership | | Province |
|--------|--------------|--------------------|-----------------|
| | Area(denim) | Number of holdings | |
| 9.59 | 25464 | 10200 | Anbar |
| 90.41 | 240020 | 27545 | Another country |
| 100 | 265484 | 37745 | Total |

Source: Ministry of Planning. Central Organization for Statistics and Information Technology. Yearbook of Statistics. 2011-2012

³ Hectare= 4 denim

In one study done by the group of researchers at the University of Anbar, were classified Lands pasture area(AL Routba) Anbar, according to the deterioration which, through the use of technologies of remote sensing to see changes in the vegetation of the land pastoral period (1999-2010) and as follows(**Dulaimi and others. 13**):

First: areas prone to very severe deterioration : covered an area of 6 square kilometers (0.1 %) of the total area .

Second: the areas prone to deterioration of average : estimated area of about 1778 square kilometers by (22.1%) of the total area.

Third, areas remained constant: did not happen where any change (negative or positive) covered an area (2765 square kilometers) by (34.4 %) of the total area .

Fourth: The areas where he got a positive development: hit area (1632 square kilometers) formed a proportion (20.4%) of the total area .

Table (5) Classification of natural pastures in AL Routba area (Western Region) (1999-2010)

| Relative Importance % | Area/ Km2 | State of pastures |
|-----------------------|-----------|------------------------------------|
| 0.1 | 6 | highly deterioted pastures |
| 22.1 | 1778 | Medium deterioration |
| 34.4 | 2765 | fixed |
| 20.4 | 1632 | pastures with positive development |
| | 6181 | Total |

Source: Dulaimi. And others. Study of land degradation and desertification control in the wet area of Anbar province, using RS & GIS Anbar University. Desert Studies Center. The Arab Center for the Studies of Arid Zones and Dry Lands (ACSAD). P.13

How is evident in Table (5) that the natural pastures in the wet area of about (6181 square kilometers) , while the total area of natural pastures have reached (25464) thousand acres .

The reality of livestock and meat production in Iraq: Data refer to a decline in livestock numbers absolute terms , including reduced the average per capita number of animals , as in the table (6) , which compares the number of animals and the average per capita which , for years, sporadic , stood in the range of about more than two decades. , where there is a quasi- stability , not even a drop , and seemed slightly , as the absolute number of total kinds of animals in (1986) about (12176) million and then decreased in (2008) to reach about (12093) million growth rate of a composite negative (0.03%) , while rose absolute numbers the population doubled during the same period , the growth rate of a compound rate of (3.15 %) . As reflected lower average per capita share of the total number of animals (the head of an individual) from (0.75) to (0.37) for the years 1986 and 2008, respectively.

Table (6) the average per capita and numbers of animals in Iraq for years to sporadic

| 2008 | | 2001 | | 1986 | | year |
|----------------------|--------------------|----------------------|---------------------|-----------------------|-----------------------|------------|
| 31895 (Millions) | | 24813 (Millions) | | 16110 ((Millions) | | Population |
| Head / individual | Number thousand | Head / individual | Number (thousand | Head / individual | Number (thousand) | Type |
| 0.24 | 7722 | 0.24 | 6009 | 0.55 | 8981 | Sheep |
| 0.04 | 1475 | 0.02 | 736 | 0.09 | 1476 | Goat |
| 0.08 | 2552 | 0.04 | 1232 | 0.09 | 1578 | Cows |
| 0.008 | 286 | 0.004 | 118 | 0.008 | 141 | Buffalo |
| 0.001 | 58 | 0.0009 | 23 | Zero | Zero | Camel |
| 0.37 | 12093 | 0.32 | 8118 | 0.075 | 12176 | Total |

Source: Table of the work of researchers relying on the preparation of a variety of Statistics Yearbook. Central Organization for Statistics and Information Technology.

I've had to retreat to prepare farm animals after a decline in the production of red meat and milk , and this is evident from Table (7) Despite the increase achieved in production before (2003) , where production reached during the year (1999) around (54.9) million tons , arrived during the year (2002) for some (130.5) million tons , with an average compound growth (33.45 %)⁴ , saw its output during the period extending from (2002-2010) quasi- stability , has picked up only a slight increase in absolute terms , bringing production to (131.9) million tons per year (2003) annual growth rate (1.07%) compared to 2002 , which is low if it was comparable to growth rates achieved during the four years period from (1999-2002) .

Continued growth rates for the production of red meat to rise slightly , bringing the growth rate in a year (2004) compared to (2003) (0.07%) and then connect the output to (154.9) million tons per year (2010) , the highest level reached by the production , with an average annual growth compared to (2009) estimated at (1.70 %) .

⁴ Compound growth rate: $R = \sqrt[p_1/p_2]{p_2 - 1} * 100$

Table (7) the production of red meat per capita in Iraq for the years 1999-2008

| Per capita Kg / Year | production of red meat (100) Tons | Population | year |
|-------------------------|-----------------------------------------|------------|------|
| 2.347 | 549 | 23382 | 1999 |
| 2.914 | 702 | 24086 | 2000 |
| 2.639 | 655 | 24813 | 2001 |
| 5.104 | 1305 | 25565 | 2002 |
| 5.007 | 1319 | 26340 | 2003 |
| 4.863 | 1320 | 27139 | 2004 |
| 4.795 | 1341 | 27963 | 2005 |
| 4.730 | 1363 | 28810 | 2006 |
| 4.669 | 1386 | 29682 | 2007 |
| 4.693 | 1497 | 31895 | 2008 |
| 4.809 | 1523 | 31664 | 2009 |
| 4.768 | 1549 | 32481 | 2010 |

Source: Ministry of Planning. Central Bureau of Statistics. Statistical Atlas agricultural roadmap for Agricultural Development (green economy), 2011. Pp. 18-1.

- Ministry of Planning. Central Organization for Statistics and Information Technology. Prepare a variety of Statistics Yearbook.

Note in the table (7) that the average per capita red meat ability (kg / year) for the period from (1999-2010) ranged between (2.347 and 5.104) kg / year, and those without what amounts recommended by the World Food Program, regarding the annual consumption per capita of protein that must be not less than (12.7) kg, and this of course confirms that the production of red meat does not meet domestic demand.

pasture plants in the western region: Table (8) stations pastures in Iraq for years to sporadic, where we note that the stations that have been established in Anbar province for years was an area (3990) acres, accounted for (8.15 %) of the total area of pasture plants at the level of Iraq.

Table (8) stations pastures in Iraq for years to sporadic

| Area (denim) | Year inception | Site Name | province |
|--------------|----------------|-----------|-----------------|
| 960 | 2009 | Ana | Anbar |
| 1230 | 2010 | Almay dam | Anbar |
| 800 | 2010 | Um Wazz | Anbar |
| 1000 | 2010 | Alrtkh | Anbar |
| 44961 | 2009-2010 | AL-Hadar | Another country |
| 48951 | | | Total |

Source: Data was obtained from the Ministry of Agriculture in Iraq.

As shown in Table (9) reduced grazing area in the province of Anbar (4030) for the year (2010) to about (3990) denim during the year (2011), due to lower space station by Ana (40) denim.

Table (9) pastures stations in Anbar for the period 2010-2011

| Area denim 2011 | Area denim 2010 | Station Name |
|-----------------|-----------------|--------------|
| 1230 | 1230 | Almay dam |
| 800 | 800 | Um Wazz |
| 960 | 1000 | Ana |
| 1000 | 1000 | Alrtkh |
| 3990 | 4030 | Total |

Source: Data was obtained from the Ministry of Agriculture in Iraq.

predictions for the future production of red meat in Iraq: Assuming in the table (10) that the production of red meat in Iraq brings an annual growth rate (10%) as estimated annual growth rate of the population (2.8%) suggests that optimistic estimates of the production that he could not meet the domestic demand, despite the high percentage of coverage beyond (2 %) , but Iraq needs need decades to be able to meet the needs of its population. Accordingly, it is necessary to develop appropriate solutions for the advancement of livestock production and that means interest in natural pastures, their maintenance and protection from abuse, whether human or environmental development and to ensure the development of the preparation of the animals.

Table (10) predictions for future coverage ratio of domestic production of red meat to the need of the population

| Coverage ratio of domestic production to the needs of the population% | Domestic production (100) Tons | Local demand (Tons) | Population (Million) people | Individual need yearly (kg) | Year |
|-----------------------------------------------------------------------|--------------------------------|---------------------|-----------------------------|-----------------------------|------|
| 37.55 | 1549 | 412508.7 | 32481 | 12.7 | 2010 |
| 40.16 | 1703.9 | 424053 | 33390 | 12.7 | 2011 |
| 42.99 | 1874.29 | 435914.8 | 34324 | 12.7 | 2012 |
| 45.99 | 92061.719 | 448119.5 | 35285 | 12.7 | 2013 |
| 49.21 | 2267.890 | 460654.4 | 36272 | 12.7 | 2014 |
| 52.66 | 2494.679 | 473544.9 | 37287 | 12.7 | 2015 |

Source: the years from 2011 until 2015 were estimated by the researchers for the population estimated annual growth rate (2.8%) and for the local production as much as the annual growth in domestic production (10%).

The rehabilitation of natural pastures:

First, stop the deterioration of natural pastures through the adoption of a higher roof load and pastoral work on restoring the balance between production and consumption.

Second, improve the vegetation and pastoral as a kind and includes the production of seeds and seedlings of appropriate pastoral development and application of water harvesting techniques to increase moisture in the soil, as well as the cultivation of degraded sites. Third: the participation of local communities in the management of pastoral resources, through the implementation of awareness programs and counseling and organizing producers in the framework of cooperatives or associations. Fourth: the achievement of programs for continuous monitoring of the state of natural pastures by taking periodic measurements and the application of modern technologies in order to provide the data and information necessary to achieve the sound management of pastoral resources. Fifth: to improve economic and social conditions, especially for fancier pastoral and include improving the productivity of grazing animals and promote related industries pastoral sector and encourage intensive breeding as a way to reduce the load and increase the income of pastoral educators and contribute to meeting the needs of the local market. Sixth: to achieve sustainable management of pastoral resources and includes the preparation and application of systems and appropriate pastoral courses and provide necessary services in locations such as water resources, grazing and feed stores and veterinary units and linked to the process of organizing pastures. Seventh: providing pastures typical goal of increasing the productivity of livestock and the provision of feed cheap, and the reduction of the phenomenon of desertification through the cultivation of marginal areas, management well to prevent the deterioration of soil fertility and erosion and to collect rain water for use during the summer for supplemental irrigation and livestock watering through the creation of rainwater harvesting cisterns. Seventh: sitting pastures in targeted areas are carried out rehabilitation programs pastures and organize meetings with the local community in these areas to inform the population on the goals and the importance of the project.

Eighth: rehabilitation programs pastoral areas degraded by the following:

A - Farming because farming can be applied to the process of natural pastures where this process leads to increased feed production. B - create a pastoral and environmental reserves are those where one of the most effective means of preserving the natural pastures and development and to avoid exposure to the exploitation of the land as a result of an intensive increase in the number of animals for energy pastoral ideal for pasture, as well as the establishment of projects for water harvesting. C - Publication and distribution of rainfall and floods on pasture land Through the creation of earth dams on valleys and coral different degree of slope and depth in order to compile and disseminate varying amounts of rain and flash floods in the pastoral areas, leading to increased coverage and plant density and increase the productivity of plant and pastoral leading to the survival of the species green for a longer period after the end of the rainy season is reflected its effect by lengthening the grazing season on the one hand and raising the nutritional value of plants pastoral second hand.

D - Create feed stores

E - the establishment of plants propagation plant seeds of local pastoral

Ninth: conduct an inventory of plants in pastures nature, which bore the difficult circumstances and resisted for breeding, as it is necessary to cultivate land pasture before the rainy season to give the largest possible opportunity for the growth of seedlings planted and the election of varieties new plants with high resistance to drought its example forks Sham.

RECOMMENDATIONS

First, the development of natural pastures in areas affected by erosion as a result of grazing and lack of rain , it is necessary to work on an inventory of plants in those areas or close to it being passed of natural selection , and resisted the difficult conditions , so it should propagate them and that is agriculture in the field of sustainable before the rainy season to give greater opportunity for the growth of seedlings planted , and the election of a new plant varieties with high resistance to drought , including what is known (shok -alSham) .

Second, should make all efforts and harness the possibilities and means available to preserve what remains of the natural pasture land , and the development of pastoral areas degraded . Through the preparation of an integrated and multi-stage involves assessing the current state of pastures and stand on their causes in terms of practices and policies and choose the packages of technical and non-technical for the development of pastoral areas degraded , and to reconsider the laws and regulations to protect the grasslands of vandalism and abuse , and to ensure the success of the programs and operations of culture and Alastbmar , it does not each must be made and applied research efforts to provide the necessary material and plant breeding and the development of appropriate ways for the success of the farming operations .

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