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PROGRESS MADE IN THE IMPLEMENTATION OF THE WORK PROGRAMME

THE SITUATION AND OUTLOOK FOR MEAT, POULTRY AND EGGS IN THE ESCWA REGION.

Note by the Secretariat

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1. INTRODUCTION

The study entitled "Meat, poultry and eggs: situation and outlook in the ESCWA region"1/ has attempted to formulate suggestions and recommendations on achieving self-sustaining and steady development of livestock and poultry industries in ESCWA member countries through the following:

(a) Delineation of the present situation with respect to meat, poultry and egg production, consumption, and regional and interregional trade;

(b) Identification and critical analysis of constraints affecting livestock and poultry development;

(c) Projection of national and regional demand for meat, poultry, and eggs;

(d) Identification of strategies leading to livestock and poultry development in the region.

It should be noted, however, that this study does not provide hard-and-fast answers as to what each country should do. Indeed, what is best for any one country will depend on its unique setting, capabilities and aims.

2. PRODUCTION, CONSUMPTION AND TRADE: PRESENT SITUATION

2.1. Availability of resources

The total area of the region is 490,898,400 ha, of which the arable area (irrigated, rainfed and uncultivated land) amounts to 4.9 per cent of the total area (24,246,700 ha). Adding permanent pastures, forest and woodland would increase the usable land to 132,622,700 ha or 27 per cent of the total areas. Large numbers of livestock are raised in the region. The data on aggregate stocking rates indicate that in almost all of the countries there are serious problems of overgrazing. Saudi Arabia and Democratic Yemen are an obvious exception since their present stocking density is relatively low.

Except for the northern part of the region (Lebanon, western Syria, and the Jordan Valley and the mountainous areas of Iraq, Saudi Arabia, Oman, Democratic Yemen and the Yemen Arab Republic), the climate is characterized by low and erratic rainfall, high temperature and low humidity. Thus the harsh climate in most parts of the region imposes certain limitations on agriculture and livestock production. The agriculture of the region depends mostly on surface irrigation, and partly on rainfall and underground water.

The region is characterized by a shortage of feed resources, which represents the most formidable constraint on livestock development. Aridity and the limitation of water resources put an upper limit to the production of fodder and coarse grains as well as other types of vegetation.

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Total population of the region amounted to 97.9 million in 1984, of which 48.9 per cent (47.9 million) was rural. Because of the high rate of immigration to urban areas, the percentage of agricultural labour force in relation to total labour force was lower than that of rural population in relation to total population. The population density is low in terms of the total area (0.2), but is relatively high (4.0) in terms of agricultural land.

2.2. The position of the livestock sector in the economy

The contribution of agriculture to the gross domestic production (GDP) in oil exporting countries is quite small, yet it has been increasing in most of these countries during the past few years. This can be explained by two main factors, namely the high rate of development in agriculture resulting from increasing investment capacity and the decrease in oil revenues resulting from lower production and lower prices. In other countries of the region, where agriculture is more important, its relative contribution to the GDP has been declining recently (with the exception of Syria). The main reason behind this phenomenon is the higher rate of development achieved in the non-agricultural sectors owing to the relatively higher rates of investment.

The livestock sector is one of the major agricultural sources of income in the region; it accounted for about 45 to 60 per cent of the total value of agricultural production in some countries of the region. Nevertheless, the region is very much dependent on imports to satisfy its requirements for livestock products. The self-sufficiency ratio for meat is between 8 and 85 per cent, and is about the same for eggs (except Jordan and Syria). Livestock production, with the exception of poultry meat and eggs in some countries, lags behind crop production. Mixed farming is rare and integration of livestock with crop production has yet to be developed.

2.3. Production of meat, poultry and eggs

The number of livestock for the whole region was estimated at 115 million sheep-units by FAO in 1984. The major breed is of native origin (Baladi type). Annual growth rate of livestock numbers is 0.5 per cent for the whole region. The main constraints on livestock development are the capacity of rangeland, limited possibility of growing fodder and low productivity of native breeds.

In 1984 the regional production of bovine meat was 433,700 metric tons; the production of sheep and goat meat amounted to 452,400 metric tons. Egypt, Saudi Arabia, Iraq and Syria are the major producers of bovine meat. They produce about 87 per cent of the total production of the region. Meat production from sheep and goats concentrated in Saudi Arabia, Syria, Iraq, Egypt and the Yemen Arab Republic each of which contributes more than 10 per cent of the total production.

Over the past decade, the poultry industry has been developed into a modern industry. High levels of production were achieved through application of modern production techniques, superior strains of imported chicken, adequate nutrition standards and good management. Thus, the growth in production of poultry meat has more than doubled in most of the countries. In some countries, the production has increased five times or more (i.e., Lebanon, and Saudi Arabia). For the whole region, the annual growth rate for poultry meat production is 27 per cent during the period 1976 to 1984. The main producers of poultry meat are Saudi Arabia, Egypt and Syria, which produce more than 80 per cent of the poultry meat in the region. Jordan, Lebanon, Saudi Arabia and Iraq produced more than 50 per cent of their total domestic meat consumption.

Egg production has also been a success during the past decade. Total egg production has more than doubled during the period 1976-1984. Egypt, Saudi Arabia, Syria and Lebanon accounted for more than 78 per cent of the regional production.

2.4. Consumption of meat poultry and eggs

Meat consumption in the ESCWA region grew further in 1984, though at a slower pace than in preceding years. In some countries of the region (i.e., Kuwait, Qatar and Bahrain) per capita meat consumption reached the average level in developed countries. The main factor causing this increase in meat and egg consumption was the increase in real gross domestic product per caput. Population increase and rapid urbanization, associated with changing diets, in addition to government subsidization of meat consumption in several countries, contributed to the increase in meat and egg consumption.

Total consumption of meat in 1984 was 2,801,800 tons, of which 31, 28 and 41 per cent were bovine meat, sheep and goat meat and poultry meat respectively. This reflects the shift in consumer preference towards poultry meat. The domestic meat production covered only 56 per cent of the regional consumption. Egypt, Saudi Arabia, Iraq and Syria are the main meat producers and consumers in the region at the same time. They produced 78 per cent and consumed 73 per cent of the region's production and consumption in 1984.

The development of the poultry industry caused a tremendous increase in egg consumption. In 1984, egg consumption leveled off at an average per caput of 114 eggs over the whole region. Though this figure is high as compared with other developing countries, it is low compared with international standards. The region's production of eggs covered 84 per cent of its consumption of 1984.

2.5. Trade in livestock, meat, poultry and eggs

With the increase in oil revenues, meat imports have grown dramatically to fill in the gap between production and consumption. The region's imports of livestock and meat had been rising rapidly from the early 1960s, and expanded strongly in the 1970s, particularly in the second half of the decade. In the 1980s, this growth tended to level off.

The value of imported meat in the whole region exceeded 2,396 billion US dollars in 1984, of which 35 ,42 and 22 per cent are bovine, sheep and goat, and poultry meat respectively. Saudi Arabia, Egypt, Iraq and Kuwait were the leading countries in meat imports. Their meat imports accounted for about 78 per cent of the region's total imports. The main sources of imported meat and poultry were Australia, New Zealand, Europe and North America. The trade in live sheep and goats was limited to the region and East Africa. But, in the 1980s, the larger part of the number of live sheep and goats was imported from Australia. Imports from Turkey, Somalia and the Sudan were small. Beef was imported from Latin America till the early 1980s, but in most recent years the East European countries have captured a growing share of the market. Europe and Brazil were the main sources for exporting poultry meat to the region. The frozen meat (beef, mutton and poultry) and eggs are imported mainly from European countries, Latin America and Australia.

3. MAJOR CONSTRAINTS ON MEAT, POULTRY AND EGG PRODUCTION

3.1. Environmental factors

These factors may be geographic or climatic. Temperature determines the appropriate breed, and the husbandry techniques used in the country; the rainfall determines the production of forage; the geology of the terrain determines the availability of and the ease of access to underground water.

A wide variety of animal management practices has been tried to reduce the direct climatic stress, e.g., air-cooled houses, shelter and free-air circulation. These practices vary from one country to another, particularly with respect to high levels of feeding, seasonal breeding and housing. The application of these practices has imposed additional costs and therefore can be a constraint in itself.

3.2. Feed resources

The shortage of feed resources of the required quality is the most important constraint on livestock development and hence on meat, poultry and egg production in the region. The available data show the wide gap between the required and the produced feeding-stuff in the region. The rapid expansion and intensification of livestock production, especially of poultry, has resulted not only in a sharp increase in feed requirements but also in a significant change in the structure of the demand for feed. While over 85 per cent of total feed-energy supplies come from pasture,crop residues and other roughages, this proportion has declined over the past decade with the growth of the poultry sector. The demand for concentrates has grown rapidly. To meet this situation large quantities of feeding-stuffs were imported.

The permanent pasture of the region, which is the main supplier of feed for the livestock, suffers from overgrazing and improper management. The area under irrigated and rainfed forage crops are very small and thus fodder production from agricultural land meets only a small fraction of the total requirements of the livestock sector. The agricultural by-products and residues, which constitute an important source of livestock feeds, are not fully utilized.

3.3. Productivity of animals

The indigenous breeds of livestock have, invaribly, poor genetic characteristics. These are reflected in low productivity and reproduction. The Western Asian countries have two possible options for improving the genetic production potential of their livestock:

(a) To build up the necessary infrastructure for selection within and between their existing livestock strains;

(b) To cross-breed relying on imported high-producing breeds.

The two methods are not mutually exclusive. The choice of method or the optimum mix between the two approaches will depend on the species, the type of production systems, climate, level of existing infrastructure and the economic conditions of the country.

3.4. Animal health

One of the major determinants of livestock productivity is the health of the stock. Although the individual livestock owner can obviously influence the health of his stock in many ways, his control is far from absolute.

There are large differences among Western Asian countries regarding major infectious diseases like Rinderpest, Foot and Mouth Disease, Pleuropneumonia Sheep pox, Enterotoxaemia, brucellosis and a number of poultry diseases. In general, the region is within the zone where the incidence of major epizootics is on the increase.

To establish productive and profitable livestock enterprises in the region, it is necessary that risks due to infectious disease are kept at a minimum. The control and eventual eradication of the epizootics is the responsibility of the governments. Effective systems must be developed to prevent the entry of these diseases and to place veterinary services within the reach of all the livestock producers in the country.

It is recognized that the control of epizootics calls for common or collaborative efforts of all the countries within an epizootiological zone. FAO's various regional programmes, including the regional project for Animal Production and Health (MINEADEP), have endeavoured to initiate and co-ordinate a number of inter-country co-operation activities in this regard.

3.5. Marketing

Marketing systems for livestock and meat in Western Asian countries have been serving the needs of traditional animal husbandry and rather modest meat requirements of the population for centuries. Many actions have been undertaken in the region to improve the efficiency of marketing and marketing channels. These actions include construction and equipment of livestock auction markets and the improvement of transportation and slaughter facilities. Intensive cattle fattening on range supplemented with agricultural and industrial by-product is under way, and credit systems have been launched. Market data collection has been started, with an attempt to exchange information between countries, however a lot remains to be done.

3.6. Financing

The key factor in the present domination of traditional livestock marketing systems is the role of the traditional traders in providing credit to the traditional producers. In many instances the institutional credit is rarely, if ever, available to traditional livestock producers. Agricultural credit institutions need to be developed and strengthened by governments to enable the producers to get the appropriate financing in sufficient amounts to develop their production capacities. This problem has been properly treated in some of the oil-exporting countries (i.e., Saudi Arabia). A lot needs to be done in this respect in most of the countries of the region.

3.7. Pricing policies

One of the major instruments in managing development policies i.e., pricing policy, has not been effectively applied. In many cases it has been even adversely utilized. Since the livestock sectors is treated as a traditional activity with a very low cost of production, and since meat is considered a strategic commodity in urban areas, the temptation was great to control livestock and meat prices. This policy has led in some countries of the region to a distorted relationship between retail and domestic producer prices, maintaining the latter at or about unprofitable levels. The shortcoming of such policies have often been bridged by subsidies. In the long run artificially low consumer prices cannot be beneficial to the consumer, since they reduce long-term domestic supply capability.

3.8. Government supporting policies

Subsidizing of animal feed such as maize, barley and even mixed feeds is common in most countries of the region and has played a given role in stimulating livestock production. However, such policies have put other feedstuffs in an economically disadvantageous position and would hinder their production and future development.

Government intervention in the import market and internal distribution of livestock and meat in most of the region's countries is confined mainly to two areas: (a) enforcing quantitative restrictions, and/or charging customs duties or special levies; and (b) intervening in the formation of market prices through enforcing price structure of subsidizing policies.

3.9. Trained manpower needs

One of the problems facing some countries of the region in modernizing livestock production is the shortage of skilled labour. The need is urgent for initiating training programmes in different areas of livestock production.

3.10. Animal husbandry and management

The region, in general, is suffering from unsatisfactory levels of animal husbandry and management. The transhumance aspect of sheep and goat raising was not coupled with controlled grazing methods and hence the grazing land deteriorated appreciably as a result of overgrazing and misuse of land. This situation can be overcome through the development of a fully integrated extension, institutional and services framework supported by essential infrastructure.

3.11. Transfer of new technology

The transfer of new technolgoy has been mainly confined to a small sector of the regional livestock industry. generally referred to as the modern subsector. This subsector is capital-intensive and deals mainly with the intensive production of beef, poultry meat and eggs that requires a higher degree of efficiency in management. The nature of the regional livestock production and the dominance of conservative traditional producers make it difficult to introduce new technologies or improve existing ones in the absence of well-designed extension and education programmes, linked with planned and effective research and development programmes.

4. MEDIUM-TERM PROJECTIONS ON MEAT, POULTRY AND EGGS

4.1. Methodology

The study provides medium-term consumption projections (to 1990) regarding meat, poultry and eggs for the main producing and consuming countries (i.e., Democratic Yemen, Egypt, Iraq, Jordan, Lebanon, Saudi Arabia, Syria and the Yemen Arab Republic) as well as of the whole region. These projections depend heavily on the "FAO Agricultural Commodity Projection, 1975-1985", with some adjustments on poultry meat, and total meat consumption. FAO projections were classified into basic and supplementary projections. A comparison was made between the 1980s actual and projected consumption of cattle meat, sheep and goat meat, poultry meat and eggs. It was found that the basic projection fitted very well the actual data of Democratic Yemen, Egypt, Iraq, and the Yemen Arab Republic. On the other hand, the supplementary projections fitted very well the data of Jordan, Lebanon, Saudi Arabia and Syria. The only exception is the projection of poultry meat which was underestimated under both sub-sets of projections and for all countries. Thus, a new projection was made taking into consideration the 1980s consumption trend of poultry meat as well as the state of economic growth. The FAO-projected demand for meat was adjusted accordingly.

4.2. Meat projection

The consumption of meat has been rising at an accelerated rate since the second half of the 1970s, reaching a relatively high level of per capita consumption in some parts of the region (i.e. Kuwait, Qatar and the United Arab Emirates). With the continued urbanization and changes in diet, some further rise in average per capita consumption of meat is expected during the coming years. This together with population growth could result in total consumption of the red meat for the region reaching about 2 million metric tons by 1990. Cattle meat will constitute 46 per cent (913 Mt) (Metric tons) and 42 per cent of red meat and total meat consumption (red meat and poultry meat), respectively by 1990. On the other hand, sheep and goat meat will represent 54 and 28 per cent of red meat and total meat respectively. It is expected that the consumption of sheep and goat meat will increase by 34 per cent by 1990 compared with the consumption of 1984, while the consumption of cattle meat will increase by only 3 per cent. This situation means that the demand for sheep and goat meat is likely to remain particularly strong in the region,though the share of sheep and goat meat in total meat consumption of the region might decrease somewhat in favour of poultry meat.

In 1990, Egypt will represent the main country in the region in terms of consumption of cattle meat, followed by Iraq, Saudi Arabia and Syria, while the main sheep and goat-meat consuming country will be Iraq, followed by Syria, Egypt and the Yemen Arab Republic.

4.3. Poultry projections

ESCWA countries, in general, have undertaken large and intensive investments in poultry production. This has led to an increase in total regional production of poultry meat and eggs and to relatively lower prices. Accordingly, and since the income elasticity of demand for poultry meat is very high, the demand for poultry meat is expected to reach about 1.4 million metric tons in 1990. However, the percentage of increase (20 per cent) is less than that experienced in the region in the early years of the 1980s.

Poultry meat is expected to constitute 36 per cent of total meat consumption in the region in 1990. Saudi Arabia will be the leading country in this respect, followed by Egypt and Iraq. On the other hand, Syria will experience the largest increase (70 per cent) in poultry meat consumption in 1990, followed by Iraq, and the Yemen Arab Republic.

4.4. Egg projection

Egg consumption in the region in 1990 is expected to increase by about 14 per cent compared with that of 1984, reaching 612,000 tons. The main relative increase in demand will be experienced in Syria, where the quantity demanded will reach 127,000 Mt compared with 95,000 Mt in 1984. Iraq will be the second country in this respect (110,000 Mt in 1990 compared with 97,500 in 1984), followed by Saudi Arabia (127,000 Mt in 1990 compared with 113,000 Mt in 1984). the bulk of expected demand for eggs will be by Egypt (144,000 Mt), followed by Saudi Arabia and Syria (127,000 Mt each).

5. POTENTIALS FOR DEVELOPMENT OF MEAT, POULTRY AND EGG PRODUCTION

5.1. Livestock production under pastoral conditions

In the past the traditional pastoral system has been immensely successful in the utilization of the vast desert and pastures. The two main problems facing this system at present are the overexploitation and deterioration of grazing land, and the cultivation of marginal rainfall areas. As a result, the pace of desertification has advanced to the extent that it might be difficult to maintain the existing level of productivity. Except for Syria, livestock development projects were not successful. Despite the immense expenditure that has gone into the development of the pastoral sector, little has been accomplished in improving the pasture or its carrying capacity. This might be attributed to the fact that past efforts have frequently ignored the complex structure of the pastoral society. The tribal corporate structure is based on centuries of experience on how to survive in the face of drought, disease, flood, or other disaster. Unfortunately, attempts to develop pastoral systems in the region have seldom capitalized on this experience or on the expressed needs of the pastoralists. More often they have tried to impose a ranching model that arbitrarily tries to control the number of stock on a given area of land. Such models are usually based on experience in Western countries and avoid consideration of the socio-economic and cultural relationships of pastoral societies.

One of the most successful development schemes in the region, which involves both stratification and integration with crop production, was implemented in Syria, i.e. the "Hema" system. This programme tried to tackle a problem that is common to all countries in the region, how to integrate the nomadic or semi-nomadic pastoralists into the existing economic system, how to protect their basic resource, rangeland, from degeneration and destruction by overgrazing or by cultivation, and how to develop their existing stock. The programme was initiated for the improvement of the steppe after the disastrous effects of three consecutive years of drought (1958-1960) which had resulted in a reduction of the sheep population from about 5.9 million to 2.9 million. This resulted in the increase of the sheep population to about 8.8 million in 1980 and to 14 million in 1984. The general problem of improving the steppe and the lot of the bedouin has been tackled on a broad front. Grazing co-operatives were established to limit overgrazing and the destruction of the ranges. Each co-operative was given the right to graze certain demarcated areas and each co-operative family received a licence for grazing a specified number of sheep (usually 100-125). Efforts were made to keep the sheep off at least a part of the co-operative's range area during critical growing periods of the year.

In addition, the Hema system has overcome the problem of cultivating low rainfall rangeland, as well as the problem of forage shortages through production of forage crops on fallow lands.

5.2. Subsistence production system

In rural areas and in some suburban areas for keeping livestock and backyard poultry is very common and offers large possibilities of improving family diet, utilizing spare time of family members, utilizing household and farm wastes and adding to family income from occasional sales. In fact, in many countries (i.e., Egypt, Iraq, Syria, Lebanon, the Yemen Arab Republic) a relatively large portion of milk, meat and eggs produced in the country is accounted for by household production.

The relative importance of small-sized livestock production has been decreasing. This partly reflects undue attention paid by some governments of the region's countries to the development of small-holder animal producers. Among the countries which have developed relatively successful rural and small-scale commercial poultry production, as well as, other small-scale livestock production, are Egypt and to some extent Iraq. In Egypt, besides the development of intensive peri-urban poultry meat and egg production, there are a number of rural poultry development projects.

Generally, the key to developing the various subsistence-level livestock activities is the development of a system of input supply and sale of products. This system needs to be developed from the point of view of ensuring full participation and control and maximizing returns to the rural producer in order to fulfil the objective of rural development.

5.3. Production in non-traditional sectors

It appears that even in countries with relatively effective rural livestock and poultry development programmes (i.e., Egypt and Iraq), the growth of the intensive sector has outpaced that of traditonal production. Hitherto, government incentives to livestock production have generally benefited intensive farming in prei-urban areas more than traditional production in the countryside. Such incentives include; tax exemptions, low interest credit, subsidies on inputs and/or output and a liberal policy concerning the import of equipment and machinery, breeding stock and feed.

Incentives to modern livestock production in the form of cheap credit and tax exemptions have been widely used in modernization of poultry and egg production throughout most of the region's countries. This has resulted in the development of modern poultry enterprises. This appears to be closely related to the general socio-economic development of individual countries. In the higher income countries of the region (i.e., Iraq, Kuwait, Saudi Arabia, Lebanon) the share of the home-bred poultry production has reached over 90 per cent of the national consumption. However, even in some lower income countries such as Democratic Yemen, Egypt, and the Yemen Arab Republic between one third and two thirds of poultry consumption now come from national produciton.

Based on availability of fodder and feedstuff that can be used to increase meat output, and on availability of other development requirements, i.e., appropriate livestock and meat marketing systems, availability of credit for investment, and organized technical support for production as well as for marketing, a number of possible production systems may be suggested which, directly or indirectly, lead to development of the non-traditional sector of livestock and poultry production in the region:

(a) Intensified commercial sheep and goat production in range areas;

(b) Feedlot fattening of cattle, buffaloes and sheep;

(c) Fodder-based fattening of slaughter stock on irrigated farms the economic opportunity for such operations appear to exist in Egypt, Iraq and in the Jordan Valley;

(d) Intensive sheep-raising in rainfed areas by the adoption of cereal/legume rotations, and proper grazing management;

(e) Supporting small and medium-scale poultry enterprises by input supply and marketing systems and adequate extension services.

6. DEVELOPMENT STRATEGIES

6.1. Regional strategies

Co-operation in the livestock subsector among ESCWA countries plays an essential role in attaining rapid and balanced economic growth in the agricultural sector. It helps to fill in the gap in food shortage from which the region now suffers acutely. Regional co-operation will help in expanding the market and raising food productivity through joint measures. Factors calling for regional co-operation include:

(i) Similarity in the regional environment (agro-climatic and socio-economic);

(ii) Physical contiguity and continuity of shared agricultural resources;

(iii) Uneven distribution of agricultural development resources and capabilities, financial, natural and human;

(iv) More collective benefits could be gained through trade and food rserves within the region and through systematic consultation and exchange of information and experiences regarding policies adopted and development methodologies and approaches employed.

(a) Feed and natural pastures

ESCWA countries import large quantitites of grain feed and feedstuff. These imports are even expected to increase significantly over time. Joint action in the areas of feed import and building national reserve stocks will improve the bargaining power of the member countries and decrease drought risk and feed supply fluctuations.

On the other hand, the natural pastures represent the natural resources that are shared among the countries in the region. There is informal co-operation in terms of mobility of livestock (across national borders) and usage of pastures in the region. Joint action is a necessity if equitable and efficient utilization of these resources and effective control of the mobil and common factors affecting them (i.e.) groundwater, desert creep, contageous disease, etc.) are to be sought.

(b) Animal health

The movement of animals from one country to another for grazing, and the contacts which take place between herds in the common pastures in the neighbouring countries make it difficult for a single country to control animal disease, particularly epidemics and contagious deseases. In order to check the spread of these diseases and to facilitate their control, a comprehensive study of their effects should be undertaken at the regional level, coupled with the conclusion of bilateral or multilateral agreements, to curb the illegal transportation of animals, so that the movement of herds for grazing can be regulated under the veterinary and administrative supervision of the countries with common borders. Field veterinary units in the common grazing areas are required to diagnose diseases and contain and combat them in order to prevent their spread.

There is also a pressing need for ratified veterinary health certificates among ESCWA countries to aid disease prevention, confine contagion and facilitate the transportation of animals. In addition, it is necessary to step up the production of the needed vaccines which have proved effective in providing resistance and treatment to disease. The production of these vaccines and medicines should be concentrated in specific countries, each being assigned certain specializations.

(c) Investment strategy

Four broad objectives can be defined for an investment strategy aimed at developing the regional livestock and poultry sectors:

(i) To bring stock numbers and production systems into line with carrying capacity of rangeland and the supply of animal feed;

(ii) To increase the availability of feed economically, while ensuring that human consumers have first claim on available supplies of foodgrains;

(iii) To improve animal health and the efficiency of livestock management; and

(iv) To improve markets and other related institutions.

In order to implement these objectives, funds must be available to be invested in different development projects. However, since ESCWA countries differ in their capabilities for providing the required funds, the co-operation between the rich and the poor countries regarding this matter can hasten the pace of development and ensure the required funds and expertise. A wide range of joint investment projects in the livestock subsector are potentially available which would be hosted by countries having a good agricultural resource base and financed by capital-rich countries.

6.2. National strategies

6.2.1. Feed and feeding strategies. Natural pastures need intensive and continuous care. Their exploitation should be organized to prevent overgrazing. Livestock numbers must also be controlled by extending facilities for fattening and marketing. Measures should be taken to restore the fertility of the rangeland. Laws should be enforced to prevent ploughing of rangeland receiving very low and erratic rainfall. Therefore, a project similar to the "Hema" system of grazing management successfully applied in Syria is worth considering.

In view of the long-term nature and high cost of the improvement of natural pastures, it might be necessary to increase fodder production on irrigated lands or lands receiving sufficient rainfall. Extension of areas under fodder should be on reclaimed lands, and leguminous crops like clover, lentils and chick-peas should replace fallow land in the rotations.

Furthermore, intensive use of concentrated feed is required together with full use of crop by-products and agro-industries. These should be utilized in feed production.

6.2.2. Breed improvement strategies

The effect of genetic selection, together with improvements in feeding, management and veterinary care, on animal productivity has been spectacular. Experience in Egypt and Iraq has proved that the development of a Friesian cross with local cattle breeds is not much inferior to the original Friesians. Therefore, cross-breeding in cattle should be adopted as a major strategy for cattle improvement. The improvement of buffaloes, sheep and goats should be confined for the time being to selection and elimination within the species, as crossbreeding with foreign breeds did not prove to be worth doing.

In poultry, foreign strains must be used in commercial production as the region has not yet developed any distinguished breed for egg or meat production, except for the breed known as "Dokki 4" developed in Egypt for egg-laying. However, this Egyptian breed cannot compete with foreign breeds. Nevertheless, it might be used on small (family) farms in the region because of its relative advantages in adapting to local conditions and its resistance to diseases.

6.2.3. Marketing strategies

Marketing of live animals, meat, poultry and eggs did not receive the attention it deserves. In most countries of the region supply of meat, poultry and eggs is irregular, and information about the market and marketing conditions is lacking. Illiteracy and absence of statutory levels of weights and grading add to the marketing problems.

Except in a few countries where there exists a few modern slaughterhouses, a large number of animals are slaughtered in outdated municipal facilities, which means that the slaughter takes place under hygienically and technically unsatisfactory conditions.

The consumer price of meat is a very sensitive subject, and in many cases government intervention leads to relatively low meat prices, which favour the urban consumers at the cost of rural producers, a matter that adversely affects the development of livestock and meat production.

Therefore, livestock, meat and poultry pricing policy should be designed within the context of a complete marketing strategy aimed at developing markets and marketing facilities including abattoirs, refrigerated storage, meat transport facilties, etc; and improving the management of the marketing system to make possible commodity standardization, proper market regulations and dissemination of market information.