



*League of Arab States
Arab Organization for Agricultural
Development*



*Strategy
for
Sustainable
Arab
Agricultural
Development*

August 2007



Foreword

Agricultural development and food security, along with their political, economic, and social dimensions, are among the key issues that enjoy a wide range of attention at the Arab, regional and international levels. At the beginning of the third millennium, the issue of Sustainable Agricultural Development and Food Security in the Arab region topped the list of Arab leaders' interest because of the pivotal role agricultural issues are playing in the interaction with accelerating international and regional developments. It is important to tackle all environmental, technical, economic and organizational constraints that hamper agricultural development and food security in the Arab region. This would help mobilize Arab capabilities and resources to increase Arab food production and secure food safety in the light of world competition. It would also step up inter-Arab agricultural trade growth rates within the context of Arab agricultural integration.

Based on the prevailing Arab economic environment and the indicators of the current performance of Arab agriculture in general, and joint Arab agricultural action in particular, and in order to maximize the benefits drawn from existing capacity and available opportunities for realising a more prosperous future for Arab agriculture, furthering Arab agricultural development towards more technical development and modernization, and to keep abreast of current and future international and regional developments at all levels, and to strengthen inter-Arab coordination and integration in all agricultural fields, the Arab leaders issued the Tunis Summit Declaration (2004) on Sustainable Agricultural Development and Food Security in the Arab Region. The declaration calls for coordinating each Arab state's agricultural policies within an Arab agricultural development strategy that supports Arab agricultural integration and accomplishes the goals of Arab economic integration.

Convinced that the joint Arab action in the field of agriculture should have a long-term strategic framework, the Arab leaders issued the Algiers Summit Resolution (2005), which designates the General Assembly of the Arab Organization for Agricultural Development (Arab Ministers of Agriculture) to prepare a strategy for sustainable Arab agricultural development for the next two decades (2005–2025) with a view to ensure the enhancement of the competitiveness of Arab agricultural products in world markets, achieve Arab agricultural integration and meet the food requirements of the Arab countries.

Against this background, represented in the highest degrees of Arab leaders' keen interest in the reality and future of Arab agriculture, the Administration of the Arab Organization for Agricultural Development (AOAD) embarked on this historical mission, with pride of the valued trust bestowed upon it by the Arab leaders at this critical juncture in the history of the Arab nation. The most remarkable aspect of this designation is that it embodies AOAD's ever-evolving role in mobilizing the enormous potential of agricultural capacities in the Arab countries and employing them for a future in which the rights of generations to come are well-safeguarded. In doing so, relying on its staunch professional sense, AOAD has realized that achieving such an objective requires a clear vision of the region potential in the light of current developments in the contemporary world, as well as the enormous challenges imposed by these developments. AOAD has also realized that these challenges can only be faced by pooling efforts within the framework of an integrative perspective, by virtue of which all Arab countries work closely together in order to co-exist with other giant economic blocs, which have become the sign of the contemporary world economy.

It is worth emphasizing that, since assuming its responsibilities in 2001, the AOAD Administration has been preparing itself for shouldering its momentous responsibilities in the most optimal way, relying on a sound vision of the future of Arab agriculture and on an integrated



programme for developing AOAD performance, that has been created by the current AOAD Administration to bring about efficiency and effectiveness and emphasize decentralization and transparency. No wonder AOAD has thus become fully prepared to carry out its momentous responsibilities with professionalism, technical know-how, high efficiency and enlightened awareness, that would enable it to establish instant interaction with the rapid changes of the contemporary world.

It is a pleasure, indeed an honour, for AOAD to be designated by the Arab leaders to play a pivotal role in preparing the first strategy for Arab agricultural development. By being so entrusted, AOAD has determined that this strategy shall have clear objectives, specific programmes and defined roles and responsibilities, particularly as they fall within the framework of a more comprehensive strategy for joint Arab socio-economic action. AOAD has also been committed to include in this strategy an integrated approach to future agricultural issues that affect the Arab citizen, with the provision of safe food being the most important. The Organization has also been keen on enabling Arab agricultural products to have a competitive edge through interaction to meet the requirements of the international trade and what that requires in terms of an integrated perspective and approach. Therefore, AOAD has formulated the future vision of the strategy in a way that would ensure creating an Arab agriculture capable of achieving high economic efficiency in utilizing resources, as well as of achieving food security for the Arab citizen and meeting the demands of a reasonable standard of living for workers in the agricultural sector.

In order to meet this historical commitment, AOAD has prepared a sustainable agricultural development strategy for the next two decades, guided by resolutions and directives of its legislative bodies as represented by its General Assembly, Executive Board and Economic and Social Council. Such efforts have culminated in the decision by the 2007 Arab Summit in Riyadh to approve the strategy and deem it a part of the Joint Strategy for Arab Social and Economic Action.

AOAD hopes that this strategy, which is the first of its kind in the Arab region, would represent the real launch of activating and developing joint Arab action that would interact with the momentous challenges imposed by the regional and international changes that affect the Arab agricultural sector, and would help achieving the objectives of Arab agricultural policies that seek to provide safe food and economic prosperity for the Arab citizen. Optimism in achieving such goals is perhaps inspired by the concrete positive developments accomplished by all Arab countries in improving their political and economic environment making them conducive to investment and stability. Such developments are driven by the prevailing political environment and commitment to Arab agricultural growth, as embodied in the continuing interest in Arab agricultural issues at the successive Arab Summits in Tunis, Algiers, Khartoum and Riyadh.

It is a pleasure to extend my thanks and appreciation to all the Arab countries, as well as all the Arab, regional and international agencies, and private sector and civil society organizations, which have participated in preparing this strategy. Thanks are also due to the task force of Arab and AOAD experts for their valuable efforts exerted during all stages of preparing this strategy... efforts that have received consistent praise throughout the process of adopting the strategy.



Dr. Salem Al-Lozi
Director General

Table of Contents

Foreword	I
Table of Contents	III
Introduction	1
1. Lessons Learnt from Past Experience in the Development of the Arab Agricultural Sector	5
1. 1 Lack and Scarcity of Water Resources	5
1. 2 Limited improvement in agricultural technology	5
1. 3 Imbalances Between Improvement of Production and Marketing Services	6
1.4 Excessive Emphasis on the National Perspective as a Basic Guide for Development	6
1. 5 Disparities in the Concepts of Food Security and Self-Sufficiency	6
2. Challenges of Sustainable Agricultural Development	7
2.1 Improving the Capacity of Developing the Agricultural Resources With Particular Emphasis on Water	7
2. 2 Coping With Regional and International Changes	8
2. 3 Coping With rapid Technological Developments	8
2. 4 Striking Balance Between the National and Regional Perspectives in the Planning and Implementation of the Economic and Agricultural Policies	9
2.5 Increasing the Efficiency of Farmers' Associations in Supporting Production and Marketing Activities	9
2. 6 Attracting Arab Investments to the Favourable Agricultural Areas	10
2. 7 Achieving Stability in Rural Communities	10
2. 8 Provision of Safe Food	10
2. 9 Increasing the Competitiveness of Arab Agricultural Products in the International Markets	11
3. Pillars of the Sustainable Development Structure in the Arab Region	11
3. 1 The positive Developments in the Political and Economic Environment	11
3. 2 The Required Institutional Framework for the Components of the Sustainable Agricultural Development	12
3.3 The Legislative Prerequisites for Sustainable Agricultural Development	12
3.4 Existence of a Suitable Resource-Base for Sustainable Development	12
3.5 Availability of Suitable Market Capacities for Achieving Sustainable Development Objectives	13

3. 6 Availability of Human Resource-Base Capable of Shouldering Sustainable Development	14
4. The Main Directives of the Sustainable Arab Agricultural Development Strategy	14
4. 1 Water: The Key Determinant for Sustainable Agricultural Development	14
4. 2 Management and Conservation of Arable Lands	15
4. 3 The Integrative Perspective of Utilizing Arab Agricultural Resources	15
4. 4 Modernization and Improvements of Agricultural Technology	15
4. 5 Priorities of Sectoral Development	15
4. 6 Capacity-Building and Human Resources Development	16
4. 7 Joint Agricultural Investments	16
4. 8 Boosting Arab Agricultural Trade to Trigger Development	16
4. 9 Coping With the Contemporary and Future Regional and International Changes	17
4. 10 Contribution to the Prosperity of Rural Areas	17
4. 11 Participation of community-based organizations and the private sector	17
5. The Vision and Strategic Objectives of Sustainable Agricultural Development	18
5. 1 Adoption of an Integrated Approach to the Utilization of Arab Agricultural Resources	19
5. 2 Achieving a Joint Arab Agricultural Policy	19
5. 3 Enhancing the Capacity for Providing Safe Food	19
5. 4 Achieving the Sustainability of Arab Agricultural Resources	19
5. 5 Achieving Stability in Rural Communities	19
6. Developmental Programmes and Components	20
6-1 The main Programme for Developing Appropriate Agricultural Technologies	20
6-2 The Main Programme for Encouraging Investment in Agriculture and Agro-Industry in the Favourable Agricultural Environments	33
6-3 The Main Programme for Enhancing the Competitiveness of Arab Agricultural Products:	35
6-4 The Main Programme for Creating a Favourable Structure for Legislations and Policies:	38
6-5 The Main Programme for Capacity-Building of Human Resources and Institutions	44
6. 6 The Main Programme for Enhancing Rural Prosperity	44

6.7 The Main Programme for Development of Appropriate Management Systems for the Agricultural and Environmental Resources	51
7. Distribution of the Proposed Developmental Components at National and Regional Levels	55
7.1. Development Programmes and Components at Country Level	56
7.2. Joint and Pan- Arab Programmes and Components	57
8. Priorities of Joint Arab Agricultural Development Action	60
8.1 Priorities Selection Criteria	60
8.2 Developmental Areas and Components of Priority	60
9. Implementation Partners	62
9.1. Country Institutions	62
9.2. Joint Action Arab Institutions, and Regional and International Development Organizations	62
10. Funding and Potential Financing Sources	64
11. Time Framework for Implementation of the Strategy Programmes	64
12. Mechanisms of Implementation, Monitoring and Evaluation	66
13. References	69
14. Annexes : The Strategy Preparation and Discussion Team	74
Annex I: List of Members Participated in Preparing the Strategy	75
Annex II: List of Participants in the Consultative Meeting for Preparing the Guidelines for the Strategy, Amman, 24–28 April 2005	76
Annex III: List of Participants in the Expanded Coordination Meeting for Preparing the Strategy, Amman, Hashemite Kingdom of Jordan, 28–30 June 2005	76
Annex IV: List of Participants in the Meetings of Specialized Technical Committees for Discussing the Draft Strategy, Amman, Hashemite Kingdom of Jordan, 18–20 January 2005	77
Annex V: List of Technical Committee Members Participating in the 29th Session of AOAD General Assembly, Cairo, 20–24 June 2006	78

Introduction

Arab countries are suffering severe shortages in food commodities, particularly, grains, vegetable oils and sugar, in spite of the accomplishments of the country and regional efforts to provide these strategic food commodities and the surpluses in other commodities, such as fish, vegetables and fruits. This is taking place while the land and water resources of the region, albeit scarce, continue to be exposed to exploitation which is un-economical in some cases and irrational in most of them. This is clearly depicted in agricultural expansion and unplanned horizontal urban sprawl at the expense of natural resources specifically pastures and forests. Lumber jacking, deforestation and over-grazing are among the practices responsible for extensive exploitation of environmental resources and lead to soil exhaustion and rapid depletion of water resources (especially, underground water). Soil and water contamination with agricultural and industrial chemicals, ploughing of marginal lands, and the use of improper cultural practices could also be added to the mentioned factors. Land contaminated with mining and petroleum wastes does not receive treatment to help restore the vegetation cover. On the other hand, the integrative approach to the utilization of such resources is still absent and the views of individual countries are still prevalent in this regard, despite the efforts exerted to activate and enhance joint Arab agricultural action.

Against this background, the Arab leaders, aspiring for a future of safe food production in the Arab region and the sustainability of Arab agricultural resources, and taking into consideration the abundance of agricultural and natural resources in the region and the urgency of working towards the optimal and rational uses of these resources, issued the Tunis Declaration of 2004 on Sustainable Agricultural Development and Food Security in the Arab region. The Declaration calls for coordinating country-specific agricultural policies within a pan-Arab agricultural development strategy that supports the processes of Arab agricultural and economic integration and achieve the goals of Arab economic merging.

In order to pursue their interest in issues related to Arab agricultural development, as depicted in the Tunis Declaration, the Arab leaders issued a resolution at their 2005 Summit Conference in Algiers in which they designated the AOAD General Assembly (Arab Ministers of Agriculture) to draw up a strategy for sustainable Arab agricultural development for the next two decades (2005–2025) in order to enhance the competitiveness of Arab agricultural products in accessing world markets, achieving Arab economic integration, and meeting the Arab countries' needs of food commodities.

Within the framework of implementing this mandate, AOAD Administration embarked on preparations for drafting the strategy in accordance with a comprehensive and phased approach that would ensure active participation of all parties involved in agricultural development in the Arab region. Coordinating and monitoring the strategy required the formation of a core multi-disciplinary team of Arab experts, consisting of individuals with wide-ranging experience in the various areas of agriculture, to participate in the various

stages of drafting the strategy in cooperation with AOAD experts, with a view to developing the strategy's ideas, visions, proposals and main components, as well as the best possible method for compiling the document in such a manner that meets the future aspirations of AOAD Member States and copes with the Arab, regional and international developments and changes.

Work on preparing the draft strategy started with convening a consultative meeting in Amman, the Hashemite Kingdom of Jordan, in April 2005, to draft the basic trends for the strategy. An elite group of highly qualified Arab experts specialized in drafting agricultural strategies participated in that meeting. The AOAD Administration presented the outcome of this meeting to the Organization's Executive Council, which adopted the draft at its 28th Session, held in Kuwait in June 2005. The Council also adopted the methodology to be followed by the Organization in preparing the strategy. In the framework of the same methodology, AOAD convened an expanded coordination meeting to draw up the required strategy. This meeting was attended by several Arab, regional and international organizations and institutions involved in sustainable Arab agricultural development issues. The meeting emphasized that the main trends adopted by the Executive Council constituted a comprehensive framework for drawing up the strategy. It stressed that the strategy should include implementation working programmes with specific objectives, components and timeframes, with a view to coming out with a successful follow-up mechanism to ensure implementation of the strategy as required.

Accordingly, the core team of experts embarked on drafting the Strategy for Sustainable Arab Agricultural Development (2005-2025). Consequently, the results of the core team's work were presented in January 2006 to the AOAD specialized permanent committees, namely, the Agriculture and Water Committee, the Natural and Environmental Resources Committee, and the Fisheries and Aquaculture Committee. Meetings of these committees were attended by an elite group of experts and officials in charge of the various agricultural activities in all the AOAD member states, as well as representatives of the private sector and the civil society organizations in Arab countries, in accordance with the composition adopted for these committees.

During AOAD General Assembly's 29th Session, held in May 2006, the Draft Strategy was discussed by experts and technicians, representing the member states. During this session, held at ministerial level, their Excellencies the Arab Ministers of Agriculture and those in charge of agricultural affairs, in their capacities as members of the AOAD General Assembly, passed the draft strategy, as revised by the experts and technicians. The General Assembly also commissioned the AOAD administration to include in the document all the additional suggestions that may be received from the various Arab countries within a specific period of time and to pass the amended document to the Economic and Social Council (ESC). The amended document was subsequently presented before the (ESC) at its 78th Session, held in September 2006. The (ESC) commissioned the AOAD Administration

with taking into consideration any remarks that may arise from the Arab countries within a specific period of time (the end of November 2006) and to present the final draft of the Strategy to the Council's 79th Session, in preparation for submitting the document to the next Arab Summit.

AOAD reviewed the document in light of decisions adopted at the 78th (ESC) session and incorporated therein the remarks received from some Arab countries, thus enriching the document. Subsequently, the final Strategy for Sustainable Arab Agricultural Development (2005-2025) draft was presented to the (ESC) in its 79th session. During this ordinary session, the Council issued its Resolution No. 1692 on 15/2/2007, which included approval of the draft strategy in its attached form and considered it as part of the Joint Strategy for Arab Economic and Social Action. The Strategy has been added to the economic and social file, which was put before Arab leaders at their 19th Summit Conference, which was convened in Riyadh in March 2007.

On the 29th of March 2007, the Riyadh Arab Summit issued its Resolution (No. S.R.: 393 R.S. 19), which stipulates the following:

1. Approval of the Strategy for Sustainable Arab Agricultural Development (2005-2025) (separate document), Document No. C 03/79 (07/02)/05 – D (0002)).
2. Incorporating the Strategy for Sustainable Arab Agricultural Development (2005-2025) as part of the Joint Strategy for Arab Economic and Social Action.
3. Calling on the Arab Organization for Agricultural Development to embark on implementing the Strategy for Sustainable Arab Agricultural Development in coordination and cooperation with all the concerned parties and to submit periodical reports to the Economic and Social Council on the progress of the implementation of the Strategy.



Strategy for Sustainable Arab Agricultural Development for the Upcoming Two Decades

*Strategy
for
Sustainable
Arab
Agricultural
Development*



1. Lessons Learnt from Past Experience in the Development of the Arab Agricultural Sector:

The Arab countries' developmental experience during the last two decades shows that there are numerous accomplishments achieved side by side with numerous setbacks that should be tackled in the future. Here, one can point out several lessons learnt from this experience, which may be considered as major components of future action, as well as the main pillars for what the present document includes in terms of implementation programmes

1.1 Lack and Scarcity of Water Resources:

Past experience demonstrates several facts that assert the region's dire lack of water resources. In order to alleviate the negative effects of such a scarcity, the Arab countries have directed most of their concern to developing these resources, even though some of these resources lack sustainability and continuity. However, Arab countries have not paid the same attention to rationalizing those resources that are available to them. The overall outcome is that agricultural productivity has grown, but the efficiency in utilizing these scarce resources has not changed and is still questionable. As the bell of the danger of severe lack of water has started to toll in some parts of the Arab region, it is believed that its echoes will reverberate throughout all Arab countries over the next two decades. The situation calls for adopting what is necessary for truly rising up to this confrontation. It also necessitates that any policies adopted in order to confront the problem should be integrative. To achieve this, any policies and programmes that will be planned should take into consideration the following main dimensions:

1. Planning the utilization of water resources in such a way that takes into consideration the cost of making them accessible. Users of the resources should participate, even partially, in shouldering the burdens of this cost, provided that such participation should prompt users to rationalize their uses of water by adopting the appropriate technological, institutional and other measures.
2. Creating softer and more attractive credit channels to help water users implement rationalized water systems for agriculture and irrigation.
3. Special attention should be paid to research on developing plant varieties that require limited amounts of irrigation water, as well as research aiming at developing the techniques for water desalinization through the use of renewable energy sources. Any progress in this area will change the way of life in the Arab region.
4. The necessity of public awareness manipulation bodies, such as the various kinds of mass media, and all levels of education institutions, in addition to the religious preaching centres, to spread awareness amongst Arab citizens of the importance of water and the culture of its rational utilization. Such an educational and media effort is considered the essential supporter of planning and implementing policies of reasonable consumption with minimum risks.
5. Arab governments should pay special care to develop water management and distribution systems, in order to check the rates of current waste. In addition to that, they should set and implement the plans and projects oriented to developing conventional and non-conventional water resources.

1.2 Limited Improvement in Agricultural Technology:

Despite the accomplishments achieved in the technical development of Arab agriculture, they were, in terms of what could be achieved, limited in quantity and development efficiency. This has been due to the weakness of the institutional triangle concerned in this development process, comprising agricultural research, extension and credit institutions, accompanied by semi-absence

of small farmers' organizations. This can only mean that the real way to achieve tangible progress in this area stems usually from success in reforming bodies working in the agricultural sector. Reform includes three major aspects: First, intensive and consistent training of the staff and providing them with opportunities for contacting and interacting with external experiences. The second is depicted in devising realistic plans, measures and operational systems that are characterized by high levels of flexibility and harmony and by being followed up and developed step by step. The third is the allocation of funds capable of realistically achieving the objectives.

1.3 Imbalances between Improvement of Production and Marketing Services:

Past experience has shown a clear development defect between the efforts and outcome of agricultural production and those exerted for development of marketing such a production. Great amounts of funds were invested to raise agricultural production and productivity without the existence of efforts and investment proper for developing the capacity of marketing and processing of such production. The outcome was wasting a great amount of the production that had been reached, and reducing the development effect of investment spent in the production sectors. Therefore, future development programme planning requires such programmes to achieve the necessary development equilibrium amongst activities and projects of development and those of production, marketing and processing. It is worthy to point out that although the responsibility of developing the activities of agro-industry and marketing services lie on the shoulders of the private sector, planning the policies of pushing these activities forward is the responsibility of the relevant government bodies. Their responsibility includes also promotion of appropriate marketing investment projects and supporting them with an investment climate attractive to private sector businessmen's interests. In addition to this, the national legislative structure should be developed to the extent to allow creation of an active system of agricultural marketing contracting that achieves justice for the parties of the contract on one hand, and rapid resolution of field problems of implementation on the other.

1.4 Excessive Emphasis on the National Perspective as a Basic Guide for Development:

Arab development experience showed that excessive national view as a major manipulator to development's policies, plans and programmes leads to lower outcome of development, as well as lower efficiency in using resources. Despite being so limited, such outcomes are yet vulnerable to deterioration and incapability of competition in the light of an international and regional order. Here, systems of protection began to fall down and severe competition, based only on production efficiency, is increasing. Such situation requires development of policies and programmes to seek achieving a satisfactory equilibrium between national and regional viewpoints as a major manipulator of plans and projects setting and execution. This necessarily implies that the Arab countries have to strive for a better flow of production inputs and agricultural products as well, amongst them. This can achieve satisfactory share in development outcome, and increase Arab agricultural products' capability to compete in international markets, particularly as the Arab countries achieved wide strides along the way of highlighting their presence as an economic bloc. Coordination of policies and development planning is a key condition to complete the coming stages of Arab economic coordination and cooperation.

1.5 Disparities in the Concepts of Food Security and Self-sufficiency:

Achieving food security was and still is the goal on which development efforts are focused in several Arab countries. The major concept of food security focused on achieving the highest possible degree of self-sufficiency within a national viewpoint without taking in consideration the different Arab agricultural environments, and consequently, the difference in ability to produce certain food stuffs.

The concept was limited to merely self-sufficiency without showing any particular care to the rest of food security issues, especially those related to food quality and safety, or the extent of stability

of supply of major food commodities in Arab markets, in addition to the increase of the poor class's ability to get their necessary needs of food commodities. Such policies lead to development trends that damaged the recourses' base in a number of Arab Countries and restrained the ability of other countries, which have resources that could be invested in improving Arab food security. It might be useful in the future that food security concept should develop towards being a regional rather than a national one, while the programmes aiming at restraining the phenomenon of Arab food shortage, should become integrated in terms of development. This means that it should contain programmes to enable poor people to get their needs of food, along with observation of the quality and safety of food offered in the markets, in addition to achieving the highest possible degree of stability of the supply of food commodities and their average prices.

2. Challenges of Sustainable Agricultural Development:

Arab agriculture faces many development obstacles and challenges. Although numerous economists do not distinguish between development obstacles and challenges due to similar negative impacts of both on development efforts, yet it is suitable in this part to differentiate between them. For obstacles represent development problems that can be addressed on the short or medium term through country-specific or joint programmes. While, in reality, challenges represent fundamental development problems for which it is very hard to come up with curative solutions on the short term, although country-specific or collective action increases the capacity to address them. The image of challenges facing Arab agriculture becomes clear when comparing Arab agriculture situations with those of their counterparts in the advanced, or even some developing countries. Comparison shows the wide gap not only in agricultural productivity but also in the efficiency of using the resources and the agricultural sector's ability to generate income. The real fact here is that progress has a price that should be paid by those who achieve it.

Therefore, challenges of development are not only created by the agricultural resources that the Arab countries have, but also by the levels achieved by several countries around the world in investing the resources they have, as well as by comparison of the levels the Arab countries managed to achieve during the past two decades. This part of the strategy sheds light on the most important development obstacles and challenges facing Arab agriculture as well as their causes, which are reflected by the current reality. To overcome such challenges or restrain their effect, the national and regional efforts should be pooled in the confrontation battle regardless of how fierce and severe it is. Confrontation requires also introducing substantial changes in our methods of dealing with crucial agricultural issues that are reflected in these challenges by exploring the real causes and defining the most useful contemporary methods, in order to address these challenges or reduce their negative consequences. This is the major concept on which the preparation of this strategy is based.

2.1 Improving the Capacity of Developing the Agricultural Resources with Particular Emphasis on Water:

The strategy illustrates the current situation of Arab agricultural resources, reveals limited development potentials, and a clear low efficiency of utilization, The limited resources in some Arab countries, as well as the clear low efficiency of utilization form a heavy challenge to Arab agricultural development. This fact can be clearly seen when dealing with the situations of water resources, where the water supply is hard to increase and only in some marginal cases is represented in using the technologies of recycling agricultural drainage and sewage water, or directing costly investment towards improving the water supply of such resources in some water projects such as some Upper Nile projects.

Usually, success in the projects aimed at developing the water supply is in fact linked with another parallel success in Arab cooperation in recycling, harvesting, and water purification. It is linked also with cooperation in the development of shared water basins resources as well as success in coordinating inter-Arab cooperation, and cooperation with neighbouring states with which river courses are shared. While development of the water supply is more difficult and of high cost, organization of demand for water through planning and implementing policies and programmes aimed at reasonable usage of water is possible, provided such issues be taken in a highly serious concern to top the list of priorities of development issues on both national and regional levels.

Generally, the efforts exerted to develop the available resources and improve their management and usage is in fact one of the most important challenges for development during the past two decades. It could be suitable for the Arab countries to collectively adopt joint programmes and plans of cooperation to check the negative consequences of this challenge.

2.2 Coping With Regional and International Changes:

The Arab region does not work in a geographically separate and isolated world. In a universalized world, where boundaries have already vanished or are about to, powers are conflicting and changes are consecutive. The Arab countries face the fact either to be part of this universe and participate in it or to be marginal and satisfied with what is available. The world, with its diverse powers and consecutive changes puts the Arab countries and Arab agriculture as well in a challenging position. The Arab nation cannot stop the world's progress towards trade liberalization of commodities and services, or setting rights for intellectual property protection. They cannot, also overcome the emerging economic blocs that dominate and control technology as well as direct it.

The Arab countries are incapable to overcome the international political and security considerations in which economy is a key tool. Food is one of the main pressing issues of the global economy. The day will come when supplies of food will become no less important than supplies of oil and perhaps water in the time to come. Concerning the Arab nation, following the completion of the Greater Arab Free Trade Area and the invalidation of the agricultural calendar, the pending problems are still negatively affecting the potential outcome of such an area represented in lack of coordination of Arab trade policies, and failure to reach an agreement on services trade, bases of the unified origin of Arab agricultural commodities, or unified standards. All this magnifies the challenge that faces Arab agriculture in terms of its ability to interact and respond to international and regional changes.

No doubt these situations bring Arab agriculture in front of a huge, serious and crucial challenge. Either it must cope with the changes taking place on the international and regional arena in order to ensure the Arab countries' survival, or be outside the arena.

2.3 Coping with Rapid Technological Developments:

There is another problem that represents a huge challenge for Arab agriculture, which are the continuous global technological developments. The world has witnessed a leap in agricultural research that has led to improved production and productivity. Production of certified seeds, many of which are now developed and considered as state secrets, has become an industry. Production of high yielding varieties adapted to environmental and climate circumstances and having lower water requirements is a characteristic of recent decades. Where researches have no limits, inventions are going on and have reached the cloning stage. It is no longer acceptable that the productivity of a cultivated area of vegetables and fruits in the Arab countries represent 50% of its counterparts in developed countries. The same thing can be noted in relation to the livestock whether for meat or milk production.

If this trend in Arab agriculture persists, by using traditional methods of production on the one hand, and depending on importing modern technology on the other, it becomes more difficult

for Arab agriculture to reach advanced levels capable of competing with the world's modern agriculture.

Technology does not limit itself to production of high yielding varieties and improving production methods, but it extends to modern irrigation systems, marketing and agricultural extension. Arab countries need to trigger a comprehensive agricultural revolution that requires joint effort, long time and huge investment. The Arab agriculture research centres are still incapable of supplying Arab farmers with the varieties and hybrids that would enable them to introduce the required comprehensive change. Individual effort is no longer suitable for achieving progress on this track. But it needs more coordination and cooperation for promoting research centres and supplying them with the necessary facilities and creating capable research cadres, and at the same time avoid repetition, exchange expertise, and eventually increase the efficiency of research efforts and maximize their returns.

2. 4 Striking Balance Between the National and Regional Perspectives in the Planning and Implementation of the Economic and Agricultural Policies:

Along the past three decades, each individual country followed its own agricultural economic policies while narrowly taking into consideration the pan-Arab dimension, despite of all inter-Arab signed agreements. Except for countries that are members of the Gulf Cooperation Council, coordination of Arab economic and agricultural policies has been minimised. If there were objective reasons behind the national perspective at the expense of regional ones in the past, such situations should have not persisted. Past experience proved that national policies have been one of the most important problems that confront Arab economies, since most of them depend on exhaustible natural resources on one hand and are strongly affected by world prices on the other. This made Arab economies incapable of confronting unexpected severe crises. Economists unanimously see that the national level policy model has lost its role in the international economy while economic blocks have taken the lead in this respect.

Depending on this, it is clear that when setting fiscal, monetary and economic policies (including taxes, exchange rates and interest rates) regional dimension represents an active tool to achieve Arab economic cooperation that meets the Arab nation's objectives of comprehensive development, and helps to achieve accelerating growth. For the agricultural sector, the past decades' experience proved that lack of coordination of Arab agricultural policies heavily damaged Arab agriculture. Lack of coordination of production policies and exploitation of land and water resources, and weak coordination of trade policies, among other agricultural and economic policies lead to increasing ineffectiveness of resource use and weakened Arab agriculture competitiveness.

2.5 Increasing the Efficiency of Farmers' Associations in Supporting Production and Marketing Activities:

The main characteristic of Arab agriculture is small holdings, which made small farmers a majority (80%) of total workers in Arab agricultural sectors. Such farmers lack the suitable potentials for developing and improving their production, the matter which makes developing the institutions that bring them together a vital one, in order to increase their incomes by increasing production and improve marketing so as to avoid slipping into the hands of brokers. The current existing institutions, whether water users' associates, marketing and production cooperatives or producers' unions, among others, are mostly weak in some cases and dominated by big farmers and owners, in others. This should be revised to make them more effective, transparent and capable to achieve the targets of small farmers in a way that serves Arab agricultural sectors in general.

Promoting such institutions is really a development challenge in the coming two decades. Mobilization of efforts and resources of both the public and the private sectors should be encouraged

to achieve the required development goals, in addition to the importance of selecting the appropriate model of such institutions for various agricultural environments.

2.6 Attracting Arab Investments to the Favourable Agricultural Areas:

It is difficult to develop and improve Arab agriculture in the absence of necessary investment. Any progress in agriculture is linked to more investment. But the agricultural sector is not one of the sectors of attraction to investment. The reasons for this include low revenues of the invested capital, low turnover in some agricultural activities, and uncertainty. Arab agriculture does not need investment only, but a huge capital to help transfer it from the current situation to being capable of competing with counterparts in the advanced world. Private capital still refrains from investing in agriculture. Such a situation requires improving investment climate in Arab agricultural sectors and making it more attractive to investors. It requires improving investment climate, in which the major responsibility would lie on the shoulders of Arab governments to provide a suitable infrastructure and supporting institutions.

On the other hand, the taxes imposed on agricultural activities need to be revised. Providing enough guarantees to investors, maintaining political stability and security, and offering suitable facilities for export promotion will be the prime responsibility of Arab governments. Making agricultural investment more attractive to Arab investors is a real challenge. Without introducing sufficient agricultural investment, the job of decision makers and those who set and execute agricultural policies will be very hard.

Hence, the Arab countries face a complex challenge, to maintain political stability and security, to raise the revenues of invested capital, to implement policies and programmes to minimize risk and uncertainty and to activate agreements on investment of which is the unified agreement on investing Arab funds in the Arab countries themselves, which was concluded within the framework of the League of Arab States.

2.7 Achieving Stability in Rural Communities:

The great differences between the standards of living in urban and rural areas make the latter an unattractive place that creates instability in the Arab rural communities. In terms of income, the rural people's income is lower than that in urban areas, while the poverty rates amongst the rural population is high. Studies have shown that 44.6% of Arab rural population (in 12 Arab countries) live under the poverty line. All the essential services, health, education, and others that are necessary for maintaining life in the rural areas are not adequately available in many Arab countries. Women in the rural areas still suffer from illiteracy problems and low participation in development efforts. In addition to scarcity of employment opportunities in the rural area; this contributes to high unemployment rates, as well as lower wages. The consequences of such problems were rural-urban migration causing economic and social pressure, and social instability such as increasing the rate of divorce and family disintegration, as well as the social stress reflected on the community as a whole.

As the Arab rural communities are considered to be the "back bone" of Arab agriculture, agriculture itself is highly affected by conditions in the rural areas. The more the rural population feel the benefits of social security and social welfare, realize that their basic needs are being met, discover that suitable employment opportunities are being created for them, and the sources of their incomes are being diversified, the more the stability of agriculture is achieved and the way is paved towards agricultural development and progress.

2.8 Provision of Safe Food:

Over the last three decades, the Arab countries have aimed at achieving a pan-Arab food security and providing the Arab peoples with safe and healthy food. While the Arab countries have achieved some success in raising the rates of self-sufficiency in some major food commodities, such as wheat, red meat, fish and sugar, still the quality of some commodities is below international standards. We

are in a serious need of regional policies supported by national ones that would achieve a pan-Arab food security with suitable quality and prices. Such an objective is still unattainable since there is no real and active regional coordination.

Excessive use of pesticides and chemical fertilizers leads to excess chemical residues in agricultural commodities, the matter which makes them expose consumers to the danger of numerous diseases. The challenge is how to compromise between providing food at reasonable prices, on the one hand, and ensuring that such food meets the required health standards that safeguard human health, on the other.

2. 9 Increasing the Competitiveness of Arab Agricultural Products in the International Markets:

Increasing agricultural production merely is no longer in conformity with the pressing needs of life today. Indeed, increasing production is necessary, but not sufficient. In order to compete in the world markets, increasing production must be carried out at low costs, of high quality, and marketing competitiveness. So, increasing Arab marketing competitiveness is the main challenge facing agricultural sectors in the region. The prerequisites for competition include provision of investment needs to adopt modern and developed production methods, reducing excessive use of fertilizers and pesticides, paying sufficient concern to organic agriculture and bio-control, and, at the same time, encouraging the private sector to overcome difficulties of production and external marketing. It is noteworthy that any achievement in this direction requires working within an integrative package of programmes aiming at improving the production and marketing capacities of many agricultural products that can be transacted in the world market.

3. Pillars of the Sustainable Development Structure in the Arab Region:

3. 1 The Positive Developments in the Political and Economic Environment:

The Arab region has witnessed, in the past few years, important developments at the economic and political levels, inducing a position push toward a close joint Arab economic cooperation. At the political level, the Arab countries adopted, at the 2004 Arab Summit in Tunis, an important declaration pertaining political reforms. It urged the Arab countries to carry out political reforms to develop their political systems in order to cope with the contemporary life, by opening the way for a real democracy stemming from Arab environment, allowing wider space for freedom of expression, increasing people's participation in decision making, empowering women rights and activating their role in the society, and keeping human rights and maintaining human dignity, to attain rational governance.

On the economic level, the Arab countries took a series of policies that seek developing their economic systems towards reaching free economy and marketing mechanisms. They introduced structural adjustment on their economies and set reform programmes for financial, administrative and agricultural sectors, among others. They also encouraged the private sector to take part in the comprehensive economic development, by eliminating many obstacles impeding their active participation in the economic activities. Arab summits' resolutions urged candidly to solving the remaining problems facing the Greater Arab Free Trade Area. The 2004 Tunis Summit's Declaration urged for coordinating Arab agricultural policies to achieve Arab agricultural integrity and support pan-Arab food security and sustainable agricultural development. In addition, there is the Algiers Summit's Resolution of March 2005 that entitled AOAD to set a strategy for sustainable Arab agricultural development for the coming two decades. These resolutions corresponded, as a whole, with the positive political atmospheres and on-going economic reforms, and created sound pillars on which sustainable Arab agricultural development can be based.

3.2 The Required Institutional Framework for the Components of the Sustainable Agricultural Development:

No doubt that the existence of numerous institutions at national and regional levels serves the process of sustainable development. The Arab countries have ministries of agriculture, funding institutions, scientific agricultural research centres, civil society organizations, private sector institutions, farmers' organizations and departments of quality control and standards. They have also units specialized in agricultural planning and formulation, implementation and monitoring of agricultural policies, in addition to marketing firms, transportation means and bodies concerned in foreign trade. Although they have different capabilities, potentials and qualification of their cadres, these institutions can be a base and serve as a framework for sustainable agricultural development.

At the regional level, the Arab League and its specialized organizations, in addition to the international, regional and Arab funding agencies, in the forefront AOAD, Arab Centre for Studies of Arid Zones and Dry Lands (ACSAD), Arab Authority for Agricultural Investment and Development, Arab Company for Livestock Development, Arab Fund for Economic and Social Development, Islamic Development Bank, OPEC Fund for International Development, and other Arab funds that contribute to funding of Arab integration and development projects in Arab countries. Also the Inter-Arab Investment Guarantee Corporation and the special programmes brought about by Arab financial institutions, such as Arab Trade Funding Programme, all of them form the Arab institutional framework; for comprehensive agricultural development. The civil society organizations, the private sector and the specialized Arab unions can serve as institutional framework for development. Therefore, at regional and national levels, the institutional framework necessary for sustainable agricultural development is almost existing, and no need for more institutions, unless in the narrowest limits. What is required is activating, developing and building capacities of such institutions and setting mechanisms to make them fully perform their role.

3.3 The Legislative Prerequisites for Sustainable Agricultural Development:

The Arab countries achieved important strides in setting legislations and laws that define agricultural work and set the lawful framework of agricultural development. Most of the Arab countries have developed legislations pertaining to agricultural intellectual property, veterinary and plant quarantines, pesticides and chemical fertilizers, land-use, water-use and conservation, vegetation cover and desertification control, and conservation of environment in general, in addition to legislations pertaining to wildlife, rangelands and deforestation. Also legislations pertaining to plant health and consumer's protection were set, in addition to the legislations on intellectual property and encountering monopoly and dumping.

Although such legislations may not be adequate or do not exist in some Arab countries, and they may differ from one country to another and lack coordination amongst Arab countries, they create a series of legislations and laws that lay the foundations on which sustainable agricultural development could be built.

3.4 Existence of a Suitable Resource-base for Sustainable Development:

Sustainable development needs natural and financial resources, among other things. The Arab region has huge natural resources, either unexploited agricultural lands or arable lands viable for reclamation. In addition to that, there is scarce water resource, along with wide territories of forests and pastures, and huge animal and fish resources. The financial resources necessary for agricultural development is meagre and could be increased by setting a proper climate for investment and private sector encouragement.

With respect to agricultural lands, the current situation of Arab agricultural sector shows that the Arab region has approximately 70 million hectares of agricultural lands, of which 75% is under cropping, while the remaining quarter is unutilized. It has also more than 100 million hectares of

arable land viable for reclamation and cropping. Only 20% of the cultivated lands are irrigated, and the rest depends on the erratic rainfall from one season to another. The Arab region has also hundreds of millions of acres of forests and pastures, and animal resources that exceed 370 million heads of various kinds. The renewable water resource from rivers and wells is estimated at 243 billion cubic meters. Meanwhile rain waters, which are estimated at thousands of billions of cubic meters, fall annually in various intensities ranging from 150-1800 mm. per season. Unfortunately, the efficiency of using such available water resources does not exceed approximately 60%.

3.5 Availability of Suitable Market Capacities for Achieving Sustainable Development Objectives:

Market is a necessity condition for sustainable agricultural development. Yet, one of the most serious problems that faced agricultural development in the region was unavailability of proper marketing capabilities that would encourage producers to increase their production. Successive increase of production cannot be achieved without marketing channels to accommodate production with reasonable prices and profit for both consumers and producers in the market alike. As far as the course is concerned, sometimes the market size is defined by the number of population, or perhaps by the Gross Domestic Product (GDP). It might be suitable to define the market size by actual demand, which is linked with purchasing power.

The Arab region represents a large market, either in terms of the number of population which is more than 317 million, or in terms of GDP which reached approximately \$1058 billion in 2005. There is a disparity between Arab countries in population density, GDP, and per capita. Such a large market meets the active demand necessary for agricultural development within the integrative framework, i.e. on the regional level rather than the national one. The importance of Arab market stems also from the similarity in consumer preference and taste. The historical background, the shared geographical borders and the social norms and customs help to make agricultural products in any country be demanded in the remaining states.

Due to the geographical location of Arab Countries, they are linked to each other with a net of roads from east to west and north to south. In addition to air and sea transport network, there are regional and national transport companies equipped with refrigerators for transportation of agricultural commodities and products between them. Moreover, there is an agreement that organizes transit trade between Arab countries that would facilitate the transportation movement. All this form important marketing bases that can be used to achieve sustainable agricultural development.

Since marketing has been the private sector's job, numerous marketing firms have been established during the past few years to transport agricultural products inside and outside the Arab region. Within the framework of the Arab Economic Unity Council, an Arab Marketing Firm has been established, which is expected to have an important role in agricultural trade, particularly as it will start by marketing of agricultural products. Moreover, there are some marketing subsidiary services such as warehouses, refrigerators, silos and grading and packaging stations. Also AOAD and the Trade Funding Programme have a marketing information network that might help boost the marketing process.

Moreover, the existence of the Arab Trade Funding Programme of the Arab Monetary Fund, along with another similar programme of the Arab Investment Guarantee Corporation and Islamic Development Bank, helps to create marketing capabilities suitable for the private sector. In addition to this, the insurance companies and the national banks could facilitate trade at the country level.

In light of the above mentioned, it is clear that the necessary prerequisites for marketing, which represent the pillars for the basis of sustainable agricultural development, are there, and require promotion and strengthening to have all marketing facilities, within an integrative framework.

3. 6 Availability of a Human Resource-bases Capable of Shouldering the Sustainable Agricultural Development:

The Arab region has a large number of agricultural workers, scientists, researchers and professionals working in the agricultural field, research centres, universities, and training centres. As far as the agricultural work force is concerned, there are 30 million workers in the Arab region, which amount to 31% of the total Arab working force according to 2005 statistics. While the agricultural worker's share of agricultural lands differs from one country to another, the average share is about 2.39 hectares per agricultural worker.

There are more than 70 faculties of agriculture and veterinary in the region that supply the agricultural sector with graduates in various specialisations. The number of MSc and PhD degree holders in the various agricultural sciences is estimated at more than 15 thousand. There are agricultural research centres in most of Arab countries, basically specialized in breeding high yielding varieties and animal breeds adapted to the prevailing conditions in the Arab region. There are training institutions in several countries, in addition to AOAD and the Arab Centre for Studies of Arid Zones and Dry Lands, where a large number of agricultural cadres were trained in various specialisations.

On the other hand, the policies of agricultural education need to be revised, in order to upgrade graduates to meet the required qualifications, although the basic infrastructure for this task is available in the region. In terms of the working force, the prerequisite of sustainable development will be met and with wide range of specializations at the regional level, but lacking the potential of agricultural research in terms of institutional capacities and training facilities to play their role in attaining the objectives of development and bridge the gap in this respect.

4. The Main Directives of the Sustainable Arab Agricultural Development Strategy:

According to the economic situation and the performance of Arab agriculture in general and the joint Arab agricultural action in particular, and in light of the future challenges facing sustainable agricultural development, and the environmental obstacles facing agricultural development plans and programmes in the region, and to seize the available opportunities for prosperous future to accelerate the pace of development in an integrative way to establish the Arab Common Market in the scheduled date of this strategy, the AOAD Executive Council adopted in its 28th Session (2005) the following directives:

4. 1 Water: The Key Determinant for Sustainable Agricultural Development:

This includes the following issues:

- a. Improving management and conservation through developing the relevant legislations.
- b. Improving the efficiency of using irrigation water through:
 - . Policies ensuring the economic perspective of water use.
 - . Information systems on water use efficiency in agriculture.
 - . Joint investment to develop field irrigation systems.
 - . Joint researches to develop water use.
 - . Developing water resource uses and management technologies.
- c. Developing Arab cooperation in investing shared water basins.
- d. Maintaining access to coast water.
- e. Arab coordination to develop conventional and non- conventional water resources.
- f. Arab cooperation in using renewable energy source in water desalination and developing research on these sources with a view to lowering production costs.

g. Water awareness through disseminating the culture of rational water use.

4.2 Management and Conservation of Arable Lands:

This includes the following issues:

- a. Horizontal expansion in areas with relative availability in water and land resources.
- b. Conserving the environment, including lands, plant cover and wild life in the Arab countries.
- c. Coordination of Arab policies regarding land-use for agricultural and non-agricultural purposes.
- d. Carrying out joint studies and researches to encounter desertification and to stop the deterioration of lands.
- e. Coordinating Arab legislations related to rising urban sprawls, irrational land-use and overgrazing.

4.3 The Integrative Perspective of Utilizing Arab Agricultural Resources:

This includes the following issues:

- a. Building the concept and culture of integration and raising awareness towards utilization of agricultural resources.
- b. Completing assessment and classification surveys of agricultural resources available for integrative utilization.
- c. Encompassing the integrative dimension to achieve the developmental objectives in the national and regional strategies and policies.

4.4 Modernization and Improvements of Agricultural Technology:

This includes the following issues:

- a. Vertical expansion of Arab agriculture by availing the requirements of production input, marketing and subsidiary services.
- b. Building capacities of farmers in the Arab countries, particularly small-scale producers to adopt new technologies.
- c. Encouraging regional cooperation to develop traditional sectors in suitable environment.
- d. Exerting regional efforts to encourage innovation and creativity in top priority areas of agricultural technology and maintaining intellectual property rights.
- e. Assisting and developing Arab agricultural research systems to serve regional development with special focus on the followings:
 - . Transfer and adoption of appropriate technologies.
 - . Prioritizing areas for conducting joint agricultural research.
 - . Adoption of contracting system to carry out agricultural researches of top priority.
 - . Increasing the investment directed to development of scientific research and securing the required funds.
 - . Focus on development research and encouraging the role of the private sectors in this area.
 - . Benefiting from research findings and from the experience of international and outstanding regional research centres.
 - . Coordination and cooperation with Arab, regional and international research centres.

4.5 Priorities of Sectoral Development:

This includes setting priority measures for sectors development at national and regional levels:-

- a. Sustainable agricultural programme.
- b. Economic Efficiency.
- c. Suitable marketing opportunities.
- d. Opportunities and potentials of improving production.

- e. Appropriate agricultural environment.
- f. The social dimension of development.

4.6 Capacity-building and Human Resources Development:

This includes the following:

- a. Assisting national, regional institutions through designing and implementing specialized training programmes, particularly in the following areas:
 - * Technology transfer.
 - * Policies formulation and analysis and decision making.
 - * Coping with contemporary regional and international issues and changes.
 - * Negotiation skills on issues pertaining to agriculture, water and environment at regional and international levels.
 - * Organization and management of the agricultural sector.
- b. Upgrading of skills and capacity-building at various levels:
 - * Farmers.
 - * Professionals and craftsmen.
 - * Researchers.
 - * Policy and decision-makers.
- c. Developing university and vocational agricultural education and revision of education curricula to fulfil the needs of sustainable development.
- d. Securing the financial resources required for capacity-building.
- e. Introducing more effective methods for exchange of expertise among Arab countries in areas of common concern.
- f. Creating a working atmosphere that favours creativity, improves productivity, and achieves stability in the Arab agricultural sectors.

4.7 Joint Agricultural Investments:

This includes the following issues:

- a. Creating a favourable and stable climate for attracting the private sector to agricultural development activities.
- b. Setting a map for promising agricultural investment, and setting programmes to promote opportunities of investment, and providing technical and economic assistance in cooperation with the private sector.
- c. Insurance against agricultural investment risk.
- d. Revising and activating investment agreements, particularly the Unified Arab Agreement on Investment Guarantees in the Arab countries.

4.8 Boosting Arab Agricultural Trade to Trigger Development:

This includes the following issues:

- a. Raising competitiveness of agricultural commodities.
- b. Diversifying Arab agricultural exports.
- c. Encouraging the Arab private sector to establish joint projects in marketing and agro-industries.
- d. Elimination of barriers hindering intra-Arab trade in the framework of Greater Arab Free Trade Area.
- e. Improving subsidiary services of foreign trade such as information systems, finance, harbour services, transport, storage, and custom channels to facilitate trade.
- f. Coordinating Arab trade policies, measures and conditions related to plant and veterinary quarantine, pesticide registration and use, plant sanitary measures and safety, regulations regarding country of origin and other standards with the aim to unify them.

4.9 Coping with the Contemporary and Future Regional and International Changes:

This includes the following issues:

- a. Enhancing agricultural producers and businessmen to adapt to these changes, through developing programmes of awareness and familiarize them with the necessary adjustments.
- b. Coordinating efforts to serve the common interests.
- c. Introducing a mechanism to coordinate Arab stands and views on negotiation matters relevant to Arab common interests.
- d. Conducting forecasting studies to assess the consequences of future changes and the impacts of agreements at regional and international levels.
- e. Exchanging expertise among Arab countries, and with developing countries so as to join international agreements and organizations.
- f. Maximising the benefits of technical assistance programmes implemented by various international organizations with a view to upgrading the negotiating skills, particularly in the various areas of agriculture.
- g. Encompassing educational materials in universities and institutions to familiarize students with the regional and international changes, to acquaint them with the necessary knowledge to deal with such changes.
- h. Establishing a comprehensive information system on Arab agricultural trade, the relevant agreements and protocols, and enhancing the private sector's role in this area.

4.10 Contribution to the Prosperity of Rural Areas:

This includes the following issues:

- a. Preparation of national and regional programmes directed at poverty alleviation in the rural area.
- b. Focusing on income-generating activities in the rural areas, with special emphasis on developing appropriate technology for utilizing agricultural by-products.
- c. Improving the performance of small-scale supporting institutions, particularly in the following areas:
 - * Financing.
 - * Marketing.
 - * Training and upgrading of skills.
 - * Providing direct assistance in case of disasters.
- d. Increasing employment opportunities in rural areas and reducing seasonal unemployment in agriculture.
- e. Supporting integrated rural development projects and improving facilities and services in Arab rural areas.
- f. Designing effective programmes to achieve social security in the Arab rural areas.
- g. Up-grading basic education in Arab rural areas and eliminating illiteracy in the Arab countries.
- h. Designing and implementing integrated development programmes based on people's participation in the region.
- i. Supporting and encouraging women participation in sustainable agricultural development.

4.11 Participation of Community-based Organizations and the Private Sector:

This includes the following issues:

- a. Increasing the role and contribution of the private sector and community based organizations in sustainable agricultural development, through participation in development processes, particularly in the following spheres:
 - * Providing production requirements.
 - * Providing production and marketing subsidiary services.

- * Planning, monitoring and assessment.
 - * Agricultural extension.
- b. To enact regulations and laws within the Arab League Economic and Social Council's resolutions, to organize effective participation of community-based organizations in agricultural development.
 - c. Developing the necessary legislations to govern participation of community-based organizations in agricultural development.
 - d. Building capacities of community-based organizations engaged in agriculture to play their role in the process of development.
 - e. Adopting the principle of contracting community-based organizations to implement agricultural and rural development projects.

5. The Vision and Strategic Objectives of Sustainable Agricultural Development:

The vision and objectives of sustainable agricultural development strategy is based on the context of Tunis (2004) Arab Summit Declaration, which focused on the importance of coordinating Arab agricultural policies within a strategic framework, in order to achieve sustainable agricultural development. It is also based on Algiers (2005) Summit's resolution which highlighted enhancing commodity competitiveness to reach international markets, achieving Arab agricultural integration and meeting the needs of food commodities. The strategy's key trends and directives adopted by the AOAD Executive Council served as a comprehensive framework to define such vision and objectives. Special emphasis and concern have been paid to formulate the perspectives and objectives of the strategy as it will delineate the future agricultural activities in the region, and serve as the backbone of all development process programmes at both national and regional levels.

When formulating the perspectives and objectives, the following considerations, among others, were considered:

- a. The outcome and performance of development activities carried out by AOAD and other regional and international organizations in the past two decades, in order to focus on strengths and mitigate weaknesses, as much as possible.
- b. Efforts exerted at national level are basic triggers for the regional development, i. e. pooling efforts on national and regional levels to achieve consistency between national strategic objectives and its counterpart on regional levels, in the highest possible way of consistency.
- c. The strategy does not normally tend to target achieving quantitative objectives domain governing the Arab performance. These quantitative objectives could be achieved by the annual and mid-term plans, prepared by national or regional institutions.
- d. Success achieved in cooperation and coordination represented mainly in the expected success of the Arab economic block is undoubtedly linked with realizing the strategy's objectives within a future long-term vision, particularly those related to policies and legislations coordination, or boosting commodity competitiveness to compete in Arab and international markets. This means that meeting the strategy's objectives necessitates more coordination and cooperation.

Proceeding from the context of Arab leaders' resolutions adopted in Tunis and Algiers summits, and taking into consideration the huge challenges facing Arab agriculture in light of regional and international changes, a future perspective for such a strategy can be formulated as follows:

Reaching agriculture characterized by its high levels of resource use effectiveness and capable of achieving food security and providing the means of livelihoods for workers in the agricultural sector.

Five key long-term objectives of the sustainable Arab agricultural development strategy proceed out of such vision as follows:

5.1 Adoption of an Integrated Approach to the Utilization of Arab Agricultural Resources:

In view of the wide geographical expanse of the Arab countries, the Arab countries have been characterized by wide variations in their agricultural environments. Such variations made a number of Arab countries, compared with others, have a relative advantage of producing various agricultural crops. In light of the limited available agricultural resources in the Arab countries, there is an urgent need to use the available agricultural resources in developing the various production patterns within a regional framework that integrates with the national level. This means that each Arab country should shoulder development burdens and its impact that corresponds with its own resources, and the agricultural development it enjoys.

5.2 Achieving a Joint Arab Agricultural Policy:

Despite the importance of coordinating agricultural policies to achieve Arab economic integrity, reality shows a great weakness in coordinating such policies between the Arab countries. This was embodied in the disparity of production and marketing policies and the subsidiary service linked to them. It is certain that the consecutive regional and international changes affecting the Arab agricultural sector require taking steps that ensure establishment of an integrated Arab block in order to confront the challenges imposed by such changes. One of such steps is to set models and frameworks for common agricultural policies to achieve agricultural development within a regional framework, in order to reach common agricultural policies.

5.3 Enhancing the Capacity for Providing Safe Food:

In light of the current situations of production and consumption of major food commodities in the region and the self-sufficiency rates of these commodities, a main objective of this strategy should be to increase the capability to provide sufficient amounts of food through self-reliance and without neglecting the economic efficiency and environmental consideration, provided that such food would meet the necessary standards that make it safe for human consumption.

5.4 Achieving the Sustainability of Arab Agricultural Resources:

Exploiting Arab agricultural resources is largely carried out inefficiently. This could be seen in consistent environmental deterioration due to poor awareness and weak policies pertaining environment protection. In the same time, Arab agricultural resources suffer from irrational agricultural practices and over-grazing in several Arab countries, which lead to more desertification in such countries. In light of consistent environmental deterioration, there is an urgent need to link available agricultural resources with effective standards and rational use in order to keep the rights of generations to come, and to support stability and sustainability of development.

5.5 Achieving Stability in Rural Communities:

Arab rural communities suffer from low standard of living, which is represented in high poverty rates, unemployment, deteriorating educational and health situations and weakness of rural development supporting services. So, there is a need to improve the quality of life in the Arab rural areas, starting with the development of infrastructure and social services, and ending with the development of the capacities of agricultural and non-agricultural activities in generating adequate levels of income that secure a dignified life for the rural populations.

In order to realize such strategy's vision and long-term objectives, a number of medium-range objectives have been formulated to be carried out through medium range plans along the coming two decades. On the other hand, short-term objectives have been set to help realize medium-range ones. Therefore, seven main programmes were set; each one of them precedes minor programmes with development elements and components, where all of them seek realization of the above mentioned five objectives.

6. Developmental Programmes and Components

Within the framework of a future vision, and in order to realize the objectives proposed for the Strategy for Sustainable Arab Agricultural Development (2005–2025), main and sub- programmes have been developed to identify the areas and priorities of action in such a manner as to serve the achievement of these objectives.

When formulating the elements and components of these programmes, the following points have been taken into consideration:

a- Linkage between the programmes and the developmental strategic objectives:

Each one of the suggested programmes seeks to realize one or more of these strategic objectives, either directly or indirectly.

b- Coordination and integration amongst the programmes:

Any progress achieved in implementing the elements and components of a certain programme will contribute successfully to the implementation of elements and components of the other programmes, i.e. the working programmes with their minor elements and components as a whole cover most, if not all, of the development activities.

c- Focusing on development priorities:

The suggested programmes took into consideration the principle of focusing on areas and activities in which the Arab agriculture suffer from clear failure, either due to scarcity of resources or the limited efficiency of their use.

d- The Arab official commitments towards going ahead in establishing an Arab economic bloc, whose nucleus has been actually realized in the Greater Arab Free Trade Area:

The completion of such a march requires to give priority to the execution in a number of areas, in the forefront coordinating several policies and legislations dominating agricultural trade, among other agricultural policies which have similar impact on the inter-Arab agricultural trade.

e- Logical successive implementation:

Implementation of some components necessarily requires implementation of others. Therefore, the top priority components have been given a ten years time-frame to be, in sometimes, followed or accompanied by implementation of other components.

According to the strategic vision and objectives of the strategy, and along with the development priorities, the Strategy composes seven main programmes, articulated into 34 sub-programmes, with 114 developmental components. The seven main programmes are as follows:

- * The main programme for developing appropriate agricultural technologies in Arab Countries.
- * The main programme for encouraging Investment in agriculture and agro-industry in favourable agricultural environments.
- * The main programme for enhancing the competitiveness of Arab agricultural products.
- * The main programme for setting policies and agricultural legislation structures.
- * The main programme for human and institutional capacity-building.
- * The main programme for prosperity of rural areas.
- * The main programme for developing appropriate management systems for agricultural and environmental resources.

The following table shows the nature of the binding relations between the objectives the strategy is seeking to realize, and the main and sub programmes and their different components.

Following are the main and sub-programmes:

6-1 The main programme for Developing Appropriate Agricultural Technologies:

This programme contributes to realizing the strategy's objectives relevant to increasing food production, in addition to increasing the competitiveness of Arab agricultural products. It is expected that, the proper implementation of these programmes will successfully contribute to realizing the following minor objectives:

- * Rationalization of water use.
- * Increasing productivity of crops and farm animals.
- * Decreasing production cost.
- * Improvement of farmers' income.
- * Improvement of information structure.
- * Contribution to conservation of the environment.
- * Encouraging the innovative and creative capacities pertinent to agricultural development.

This main programme includes seven sub-programmes that aim at developing modern technologies to be used in the following areas:

- * Water Management.
- * Breeding high-yielding plant varieties and animal breeds to suit the agricultural environments of the Arab region.
- * Farm Management.
- * Improvement of the agricultural practices and farming systems.
- * Information and communications.
- * Development and conservation of fish resources.
- * Benefiting from agricultural by-products and residues.
- * Adoption of modern biological techniques and treatments.

6-1-1 The Sub-programme for Developing Technologies of Water Resources.

Background and Objectives:

Arab countries are suffering very severe water scarcity, which is mainly attributed to their being within the driest arid zones of the world. During the coming two decades the problem will seriously be aggravated in the light of the relatively fixed water supply in the region, and the ever-increasing demand for it. This demand is stemming from the increase in population, and the expansion of agricultural activities, in addition to other forms of water usage. The total amount of surface water available in the Arab region is only 243 billion cubic meters per annum, which means that no major change has taken place. The traditional water resources (rivers and groundwater resources), constitute the biggest part of the existing water resources, with a share up to 95%, while the non-traditional resources form only a very small part in total.

At present, most of the Arab countries are under the water poverty line (less than 1000 cubic meters annually per individual). Supposing that, the available water resources at present will be the same during the coming two decades, all Arab countries will be under the water poverty line. Since agriculture is the major user of water resources (about 80% of the total), deterioration of water situations will seriously be reflected on Arab agricultural production, because of the ever-increasing demand. The major and minor objectives of the programmes of the Strategy for Sustainable Arab Agricultural Development during the coming two decades, pertinent to water resources, will necessarily favour the use of water in agriculture.

The Matrix for the Development Programmes and their Objectives

Main and Sub-programmes	Strategic Objectives				
	Utilizing Arab Agricultural Resources from an Integrative Perspective	Achieving a Joint Arab Agricultural Policy	Strengthening the Capability to Create Secured Arab Food Stock	Achieving Sustainability of Arab Agricultural Resources	Achieving Stability of Arab Rural Communities
1-The Main Programme for Developing Appropriate Agriculture Production Technologies:					
1-1 The Sub-Programme for Developing Appropriate Techniques for Management of Water Resources		*	*	*	*
1-2 The Sub-Programme for Improving Plant Varieties and Animal Breeds in Arab Countries:	*		*	*	*
1-3 The Sub-Programme for Improving Capacity Building, Agricultural Practices and Farming Systems		*	*	*	*
1-4 The Sub-Programme for Developing Proper Information and Communication Technologies	*		*	*	*
1-5 The Sub-Programme for Developing Appropriate Fishery Techniques	*		*	*	*
1-6 The Sub-programme for Developing Appropriate Techniques for making use of the Agricultural by- products and Crop Residues	*		*	*	*
1-7 The Sub-programme For Developing and Adopting Biological Techniques in Agriculture					
2-The Main Programme for Encouraging Investment in Agriculture and -Agro industry in the Favourable Agricultural Environments					
2-1 The Sub-Programme for Enhancing the Investment Environment in Agriculture and Agro-industry	*	*	*	*	*
2-2 The Sub-Programme For Identifying and Promoting Investment Opportunities in Agriculture	*	*	*	*	*



Main and Sub-programmes	Strategic Objectives				
	Utilizing Arab Agricultural Resources from an Integrative Perspective	Achieving a Joint Arab Agricultural Policy	Strengthening the Capability to Create Secured Arab Food Stock	Achieving Sustainability of Arab Agricultural Resources	Achieving Stability of Arab Rural Communities
3- The Main Programme for Enhancing the Competitiveness of Arab Agricultural Products 3-1 The Sub-programme For Developing Quality Standards and Specifications for the Agriculture Products in Arab countries 3-2 The Sub-Programme For Developing Inter-Arab Agricultural Trade Facilities 3-3 The Sub-Programme for Following Up and Monitoring International and Regional Changes and the Required Adjustments 3-4 The Sub-Programme for Enhancing Access of Small Farmers to Markets	*	*	*	*	*
4- The Main Programme for Creating a Favourable Structure for Legislations and Policies 4-1 The Sub-Programme for Coordinating Policies and Legislations Pertinent to External Trade in Agricultural Products 4-2 The Sub-Programme for Coordinating Agricultural Research Policies and Technology Transfer 4-3 The Sub-Programme for Coordinating Policies of Investment in Joint Resources 4-4 The Sub-Programme for Coordinating Investment Policies 4-5 The Sub-Programme for Coordinating Policies Pertinent to Control of Trans-Border Diseases and Epidemics 4-6 The Sub-Programme for Coordinating Policies Related to Building Strategic Stock of Food Commodities 4-7 The Sub-Programme for Coordinating Policies Pertinent to Supporting Agricultural Production 4-8 The Sub-Programme for Developing Capacities of the National Institutions Working in the Field of Analyzing and Assessing Agricultural Policies	*	*	*	*	*



Depending on these facts and anticipations for the coming two decades, the water management issue will have the priority it deserves in the Arab Strategy for Sustainable Agricultural Development. The strategy's main target in this respect is to focus on developing and maintaining the existing water resources, and their rational utilization. It is important to note that the programme will concentrate on technologies pertinent to development and maintenance of water resources, in addition to those related to their rational and economic use. However, it is worthy to point out that merely developing water management techniques will not lead to the anticipated results, based on the mentioned objectives. There should be appropriate policies to stimulate using these techniques, in addition to the existence of institutions capable of implementing such policies. As known, the efficiency of using water in agriculture, which is not more than 60% in average in all Arab countries, is still very low.

Owing to this fact, the adoption of an active programme for developing appropriate water management techniques in the strategy will increase the efficiency to about 75%-80% during the coming two decades. This, in turn, will realize an anticipated annual saving in Arab water resources of about 35 – 45 billion cubic meters. These savings could be used in expanding agriculture in the region, where more lands could be irrigated.

Components of the Sub-Programme:

This sub-programme includes seven components; five of them are related to development and maintenance of the existing water resources. The other components are focusing on the rationalization of water use. These components are summarized as follows:

First Component: Improving the Efficiency of Irrigation Systems:

This component focuses on the expansion and implementation of suitable irrigation systems. The drip and sprinkler irrigation systems are examples of the modern systems which have already been developed, tested and implemented in some Arab countries. This component includes numerous activities that target improvement and development of more appropriate irrigation techniques and suggestion of a group of policies pertinent to the objectives of this sub-programme.

Second Component: Developing Appropriate Water Harvesting Techniques:

Water harvesting techniques applied in the Arab region vary considerably from one country to another. Each country has developed its own techniques according to some specific circumstances that impose a certain method rather than others. However, there is still an opportunity to increase the efficiency of the existing water harvesting techniques, through exchanging expertise in this field between the different Arab countries.

Third Component: Development of Suitable Desalination Techniques:

The cost of water desalination is still high, the fact that limits its use in the region. Since the future bears many serious threats related to water scarcity, the improvement of such techniques in term of per unit cost is very important, particularly in the long term. Through the inter-Arab cooperation in this area, some progress could be achieved, the matter which will help a lot in easing decreasing water scarcity in the region.

Fourth Component: Development of Appropriate Techniques for Water Treatment and Recycling:

This component encompasses conduction of so many research activities and studies on the economic feasibility of water recycling, and the introduction of the most appropriate water recycling techniques that suit the Arab region.

Fifth Component: Development of Appropriate Water for Conservation Techniques:

Although various methods and techniques related to conserving the existing water resources have been introduced, their cost is still very high. This high cost has considerably lowered their economic feasibility. The activities of this component will focus on improving the efficiencies of such techniques, as this will cause remarkable reduction in costs and encourage their wide use. National

water research centres are entitled of carrying out the major effort required to fulfil the objectives of such component.

Sixth Component: Developing Appropriate Water Delivery and Distribution Techniques:

This component contributes to raising the overall efficiency of water use. The activities to be carried out within this component will principally target; testing the currently used techniques and suggestion of the most appropriate ones in turn of cost and efficiency.

Seventh Component: Developing Suitable Techniques for Recycling of Agricultural Drainage Water:

This recycling of drainage water is only applicable in the irrigated areas. Therefore, water research centres in the Arab countries will actively be involved in the implementation of this component, to assist in developing the most appropriate technologies in this field.

6-1-2 The Sub-programme for Improving Plant Varieties and Animal Breeds in Arab Countries:

Background and Objectives:

The genetics improvement techniques have played, along the near history, a great role in achieving great production leaps. The green revolution is a clear proof of the efficiency of such techniques in increasing yields and productivity rates. In most of the Arab countries, research on improvement of plants' varieties has achieved considerable success in some countries, particularly in grain production. Yet such success cannot be compared to what has been achieved at the world's level. This means, there is a considerable potential for achieving rapid increase in productivity rates. The comparison between the efforts paid to improving plant varieties and animal breeds' shows that more research effort has to be exerted in the field of animal breeding.

Components of the Sub-Programme:

This sub-programme is based on a solid foundation of research efforts in the area of contriving high-productivity varieties and excellent animal breeds in the region. Taking into consideration the environmental conditions of each country, whatever diverse they are, it is important to note that, the suggested techniques for such improvement should be simple and easily accessed by farmers.

First Component: Production of High Yielding Plant Varieties:

The areas covered by this component vary in accordance with the diversity of agriculture in the Arab region. Priority in this component might be given to the varieties that resist water scarcity in arid areas, particularly under rain-fed agriculture. Under irrigated agriculture varieties of short stay, which save water and land as well, are very important. Suitable varieties for irrigated agriculture, particularly the crops of low demand for water, should also be targeted by research.

Second Component: Improvement of Local Animal Breeds:

This component focuses on raising the production efficiency of animal herds in Arab countries through improving local animal breeds. The shortest or the more effective way to realize such an objective is by hybridization of local breeds with foreign ones, together with selective breeding among the local breeds and ecotypes. This could be added to the other genetics improvement techniques. Other genetics improvement techniques need bigger investment and consistent research efforts, such as genetics engineering and cloning of the genetically modified organisms.

Third Component: Adaptation of High-Yielding Plant Varieties and Animal Breeds:

The component aims at expanding cultivation of plant varieties and keeping animal breeds of high production potentials. This could be done through customization of the outstanding crop varieties and animal breeds to the various agricultural environments in the region. Activities to be carried out within this component will benefit from the pilot experiences of some Arab countries in this respect. Then comes the wide spreading of the proven varieties or animal breeds to other countries of similar environments.

Fourth Component: Spreading and Adoption of Suitable Plant Varieties and Animal Breeds:

This component depends on the outputs and products of the third component. Activities here require a strong base of extension services; therefore, they need to be implemented in parallel with the components for improving the agricultural extension institutions and human and institutional capacity building.

6-1-3 The Sub-programme for Improving Capacity-building, Agricultural Practices and Farming Systems:

Background and Objectives:

One of the features and characteristics of Arab agriculture is the use of traditional practices and primitive tools, to which low agricultural production is attributed. The improvement of production systems, introduction of modern techniques and better farm management systems, would greatly improve production potentials. Enhancing productivity of field crops and farm animals requires long-term use of highly productive crop varieties and animal breeds. The necessary conditions for the overall improvement will be the use of advanced agricultural practices and farming systems.

Mostly, the highly productive crop varieties and animal breeds do not show their potentials under unfavourable environmental conditions. Other factors may include the unsuitable package of agricultural practices, in addition to the small holdings of farmers, low educational level, and the high illiteracy among farmers, lack of funds and the weak extension services. The mentioned factors stress the importance of working on the improvement of the agricultural practices and farming systems, as a target to be considered within the main objectives of this Sub- programme and the Strategy as a whole.

As known, there is a close relationship between the process of breeding highly productive plant varieties and animal breeds, and the farm management practices. It is to be noted that whatever excellent the design of a research programme, it should necessarily be accompanied by a properly designed package of farm management practices, to meet such effort. The proposed programme aims at developing a suitable package of farm management practices and farming systems, to suit the different agricultural environments in Arab countries. Another objective of this sub- programme is to increase the productivity and reduce the production costs. This endeavour will accelerate the production potentials, and raise competitiveness of Arab agricultural products. One could add two other aims that can be achieved through modernizing agricultural systems, the most important of which is the conservation of agricultural resources, specifically soil and water, in addition to the protection of the environment.

Components of the Sub-Programme:

A large number of components can be listed under this sub-programme, because of the wide range of production and management systems to be applied in the field of plant and animal production, and the diversity of crop varieties and animal breeds. Other factors like diversity of agricultural environments in which such varieties and breeds are existing with the relative diverse and scarce agricultural resources and climate changes have also been considered. However, focus will be on a limited number of components, which have advanced importance as listed below:

First Component: Fertilization:

Fertilization is one of the most important practices that influence the improvement process in general. Productivity of crops, either under irrigated or rain- fed conditions, is greatly affected by fertilization. Fertilizers rates may not be the only important factor; what is more important is how and when to carry out fertilization. So, this component will be focusing on specifying and describing fertilizer rates for application in the different environments. Activities of this component will work on finding out the most appropriate rates and methods of fertilizers application, depending on the environmental conditions and crop requirements. New fertilization methods will also be considered, such as the fertilization linked with irrigation and biological fertilization, which both have great future prospects.

Second Component: Plant Protection and Pest Control:

A considerable part of the production of the agricultural sector in many Arab countries is usually damaged by pests. This damage may sometimes reaches 30% of the total production. Therefore, this component will be focusing on describing and proposing, the most suitable mechanisms and treatments that could necessarily be used for combating pests' blights and plant diseases.

Third Component: The Good Agricultural Practices:

Agricultural practices, as known, include the different activities carried out by farmers, starting from sensing production inputs, passing through farm production processes, and ending up with harvesting and marketing of products, providing that such processes have properly been carried out, to ensure high quality products and large quantities to be produced.

Since the Good Agricultural Practices (GAPs) are among the conditions imposed by the European Union to allow for Arab agricultural products to have access to the European markets, it is important to abide by GAPs conditions. The activities of this component will be considered as part and parcel of the activities of the Sub-programme for Improving the Agricultural Practices and Farming Systems. The proposed activities will be focusing on the step by step implementation of a sound package of agricultural practices, to fit the standards of the International Trade.

Fourth Component: Land Preparation:

This component includes many important agricultural processes that impact productivity. Among them is land levelling by laser, which eventually increases crop productivity and saves large amounts of irrigation water.

Fifth Component: Development of Appropriate Package of Agricultural Practices under Non-Traditional Agriculture:

Non-traditional agriculture includes, in addition to the organic agriculture, both the clean and protected agriculture. The importance of such new systems will increase in the future, due to reasons related to quality of the products, as being free of chemicals, and have relatively higher prices. Other reasons are related to the keen interest in having other non-traditional export products.

Sixth Component: Development of Suitable Animal Production Systems:

This component plays a significant role in improving the productivity of farm animals. A number of practices and treatments could be used for increasing the overall output of the animal production sector. Such practices and treatments include: health care, artificial insemination, feeding and nutrition. It is important that endemic and epidemic diseases will be taken care of, in addition to adoption of simple technologies that farmers can easily comprehend and afford to use at reasonable costs.

Seventh Component: Developing Suitable Techniques of Animal Feed Formulation:

Cost of Animal feeds may sometimes form approximately 70% of the overall cost of animal products. So, this component is focusing on identifying the most efficient techniques for manufacturing and processing animal feeds. Such practice could help in reducing costs of animal feeds and consequently lead to reduction in cost of animal products. This component will also focus on manufacturing feeds, by making use of the locally available agricultural by-products and crop residues. It is worthy to point out that this component integrates, in this regard, with the component for making use of the agricultural by-products and crop residues.

6-1-4 The Sub Programme for Developing Information and Communication Technologies:

Background and Objectives:

It is important to note that the world is passing through revolution in both information and communications technologies. No doubt such technologies are among the basic foundations of modern agriculture, in terms of production and marketing.

In the light of market economy, access to information is one of the most important foundations of the highly competitive markets. Without adequate access to market information, decisions on production and marketing would go astray. Concerning agriculture in the Arab region, the information structure is generally weak. Transformation from the controlled economy to market economy within the framework of the Structural Adjustment Programmes has sharply revealed this weakness, where production and marketing decisions were centrally made through governments' intervention. In this case the information flow would work out at the central levels, while decisions were made at the level of the production units. The flow of information is required to reach the lower levels, or the wide base of farmers. Moreover, the flow of information in the opposite direction, from the production bases and individual projects to the higher levels, is also required, where policies and decisions are made.

Components of the Sub-Programme:

This sub-programme includes five components, which cover some important activities in the agricultural and environmental information fields. These components are as follows:

First Component: Development of Suitable Methods for Data Collection and Analysis of Agricultural Statistics:

This component deals with the ways and means of gathering and analyzing agricultural statistics related to production, yield of both crops and animals, in additions to trade statistics of the different Arab countries. The gathered data and information will be adequate enough, comprehensive and based on field results. Accordingly, accurate and specific decisions will be made, and ultimately help in following up the development of the sector and assist in solving its problems.

Second Component: Establishment of Agricultural Data-bases:

This component is based on the outcomes of the first one, where agricultural data-bases will be established by using compiled agricultural statistics.

Third component: Dissemination of Agricultural information:

Agricultural information is useless unless the beneficiaries or users, farmers, merchants, researchers or decision-makers have access to it. This component identifies a number of methods through which agricultural information could be disseminated on time and as far as possible.

Fourth Component: Experts Systems:

Experts systems help farmers to manage and solve the various problems they face, at the lowest possible cost and shortest time. This component includes a number of activities that seek to assess the previous experiences of Arab countries in establishing, customizing and expanding the use of such systems.

Fifth Component: Monitoring of Environmental Changes:

This component is concerned with gathering information pertinent to environmental changes within the large framework of the environmental observation. The importance of this monitoring is increasing, along with the increasing interest in the environment and its sustainability. This component includes many activities related to working out new metrologies and statistical indicators expressing the various environmental changes, in addition to spreading of knowledge about such indicators, and urging Arab countries to use them.

6-1-5 The Sub-programme for Developing Appropriate Fishery Resources Techniques:

Background and Objectives:

The Arab region has abundant fish resources, represented in a continental rift of 604 thousand square kilometres, internal fisheries of about 16.6 thousand kilometres and an area of reservoirs and dams of 2.4 million hectares. The biggest parts of these potentials have not been utilized yet. This could be due to numerous reasons, which include: the small capital invested in the fisheries sector and the low or poor adoption of technology and modern practices.

Such a situation leads to the remarkable low fish production in Arab countries, compared to world counterparts. Developing of appropriate techniques for increasing fish production, along with increasing investments in this field, could play a key role in increasing fish production in the Arab region. In the fishery sector, technical development and allocation of adequate capital for investment, can take place at both single-country and pan-Arab levels, particularly in Arab countries which share continental rifts. Development of fish stocks is one of the most important aspects of joint Arab action that could be done with high efficiency.

It is worth pointing out that the major part of the fish sector's technical development is linked with the investments allocated for the sector or, what is called, techniques merged with capital. Rehabilitation of the sea fishing fleet requires the two elements together, capital and advanced techniques. It is rather difficult to identify a technical development package, without setting out a clear policy for investment. However, the overall development package will also focus on elements related to the fishing process itself, such as the kind of nets, fish feeds and management of fisheries and fish farms. Therefore, this sub-programme will be focusing on such techniques in the short and medium terms, in order to provide a big push to development of fish production in the region.

Components of the Sub-programme:

The components of this sub-programme cover the major areas of fish production resources in the Arab region, which include: sea stocks, internal fisheries and aquaculture. Other components will deal with improving marketing techniques and fish stock development. These components are as follows:

First Component: Advanced Marine Fishing Techniques:

This component has an advanced position amongst the proposed sub-programme's components. One of the many reasons for ranking it first is that marine fisheries contribute to more than 75% of the total fish production in the Arab region. Any improvement in marine fishing techniques, however slight it is, would positively be reflected on Arab fish production as a whole. Most of Arab countries, as known, have shared sea coasts. This means there is a good opportunity for activating the inter-Arab coordination in developing appropriate marine fishing techniques.

Second Component: Development of Advanced Fishing Techniques in Lakes and Inland Waters

Lakes and internal rivers constitute an important fish resource. Means of fishing in lakes and the internal rivers differ greatly from those practiced in sea fishing. This component seeks raising the potentials of lakes and rivers through preventing contamination, over fishing, and developing new techniques for fishing in lakes and the internal rivers.

Third Component: Aquaculture Techniques:

The role of aquaculture fish production has increased recently in some Arab countries. This component focuses on developing appropriate techniques that suit this pattern of fish production, in a manner that secures water and makes use of feeds manufactured from the locally-available materials.

Fourth Component: Development of Marketing and Processing of Fish at the Small-Scale Level:

This component focuses on the current weak means of marketing and processing of fish products at the small-scale level. This in turn leads to wasting a great part of Arab fish production in terms of value and quality. The promotion in this respect should be carried out through establishing large firms for marketing and processing of fish and fish products at the single-country and pan-Arab levels. It is important to exert some more research efforts in improving marketing procedures and introducing simple processing techniques.

Fifth Component: Development of Techniques for Enriching Fish Stocks:

As known, the improper fishing methods lead to negative impacts on fish stocks. It is important to work on enriching fish stocks and reserves, in order to increase fish production capacity in the Arab countries. Within the framework of this component, Arab countries can use the most advanced techniques used worldwide for developing fish stocks and reserves.

6-1-6 The Sub-programme for Developing Appropriate Techniques for Utilization of the Agricultural By- products :

Background and Objectives:

Agricultural by- products in Arab countries vary greatly in type and amount according to the production systems, cropping patterns and the environmental conditions. Despite the economic importance of these by- products, the real practices taking place in the Arab region lead to wasting the biggest part of this material. Lack of awareness among farmers, the absence of suitable techniques and methods related to benefiting from the huge volumes of crop residues, in addition to lack of funds, are among the reasons behind wasting this material. Farmers' practices in dealing with the agricultural by-products and crop residues are mostly based on just disposing of them, regardless of the consequences, such as the serious environmental hazards, and the economic losses.

The expected aims of this programme include: increasing the added value of the agricultural production, and increasing farmers' incomes, in addition to reducing health and environmental hazards. Added to that is the provision of non-traditional organic fertilizers, animal feeds, raw material for some industries. This process will cement the rear and frontal binds of the agricultural sector, and merge it in the economy. Generating more job opportunities in the agricultural and rural sectors when implementing the activities included in this sub-programme, will add to the overall targeted benefits.

Components of the Sub-Programme:

First Component: Developing Food Production Techniques Using Agricultural By-products :

As known, adequate nutrition is considered one of the most important bases in animal production. Moreover, this component seeks cementing the integrative relationship between plant and animal production at farm level. Arab agriculture faces a great deficit in animal feeds, as most of the Arab countries import them either in the form of grains or concentrates from abroad. Therefore, developing appropriate techniques, for making use of the agricultural by-products, and residues, will help a lot in developing and improving the animal production sector.

Second Component: Development of Advanced Techniques for Manufacturing Organic Fertilizers from Agricultural By- products :

The main source of organic fertilizers at present is the animal and poultry wastes, but the available quantities are still very small compared to the need. It is granted that such a gap will widen in the future, along with the expansion in organic and clean agriculture systems. These two new agricultural systems depend largely on using organic fertilizers rather than the chemical ones. Therefore, this component has bilateral benefits, of which in one way it provides an added value of the agricultural by-products, and in another way, it provides a base for agriculture in general, and the organic or clean agriculture in particular.

Third Component: Development of Modern Techniques for Producing Fuel from Agricultural By-products and Crop Residues:

Agricultural by-products and crop residues can also be used in the production of fuel, either as a dry material or in the form of natural gas. As in the two previous components, there will be an added value that will increase farmer's income. Since this practice will help in disposing of waste material, thus it will positively impact the environment and secure fuel for various uses.

Fourth Component: Development of Suitable Techniques for Utilizing the Agricultural By-products in Rural Industries :

This component focuses on identifying a number of agricultural by-products, which could be used as a raw material for the small industries in the rural areas. In addition, it focuses on developing the most appropriate techniques for utilizing these by-products and crop residues. Manufacturing of packaging materials, simple house furniture, fuel and agricultural tools are good examples.

Fifth Component: Development of Simple Techniques for Using Agricultural By-products in Industries:

There are many industrial activities which can benefit from agricultural by-products and crop residues as a raw material. Manufacturing paper from rice hay, using sugar cane industry wastes like molasses and other industrial by-products in manufacturing animals' feeds and some chemical products are also good examples. This component will be focusing on strengthening the frontal ties of the agricultural sector, and consequently help in integrating agriculture in the economy.

Sixth Component: Development of Appropriate Techniques for Recycling or Disposing of Agricultural wastes:

This component focuses on the great damages resulting from the accumulation of some kinds of agricultural wastes or the improper ways of disposing of them. The current methods of recycling the agricultural wastes should be revised and enhanced to adequately reduce their negative environmental consequences. Experiences of other countries in this area will greatly help, in addition to farmers' awareness and the adequate training.

6-1-7 The Sub-programme for Developing Biotechnologies :

Background and Objectives:

The use of biological techniques in agriculture has developed by accelerating rates during the past two decades, particularly in the developed countries and some developing ones. This helped a lot in achieving unprecedented growth rates in agricultural production, in addition to a remarkable reduction in chemicals use, and a healthier environment.

The development of biological techniques opens wide prospects to work out a great change in using agricultural materials and increasing agricultural production in the future. Biological techniques are defined as the methods in which micro-organisms, either as a whole or parts, are used in improving crop varieties and animal breeds. Of these biological techniques are the processes of nitrogen fixation, abstraction and reproduction of certain strains of bacteria, in addition to the work in genetics engineering, tissues and cells transplant and embryo transfer.

In Arab countries, the application of biological techniques in agriculture is still in its initial stages and narrowly used. Such applications include biological fertilization by using certain kinds of bacteria and the tissues transplant.

The factors that confront the wide application of the biological techniques in Arab countries are several. The most important of them are the weak research structure in general, funding deficit and lack of highly qualified research cadres who are specialized in such techniques. This, in turn, attributed to the absence of clear agricultural research policies and weak research institutions, which will be explained in details within the framework of the Main Programme for Human and Institutional Capacity-Building. This Programme will focus on developing appropriate biological techniques and consolidating their role in increasing the agricultural production in the Arab region. Paying specific attention to strengthening research institutions, improvement of the existing techniques, and spreading the application of research findings on a wide scale amongst farmers are essential prerequisites.

The Components of the Sub-Programme:

First Component: Tissue Culture Techniques:

Tissues transplant techniques are relatively simple compared to the other more advanced biological techniques. Despite their simplicity, their economic feasibility is high. The importance of spreading the application of tissue culture techniques stems from the fact that some Arab countries are currently using this technique in producing some kinds of vegetables and fruits, with the quality demanded in export markets.

Second Component: Nitrogen Fixation Techniques:

This component acquires its importance from the role of fertilization in increasing agricultural productivity. Replacing the chemical fertilizers by biological azotes has so many advantages. In the forefront, is the reduction of production costs, in addition to a healthier environment, and the production of clean products with the standards that meet consumers' tastes (organic products). It is worthy to point out that this component integrates with that concerned with the biological fertilization in the previously mentioned sub-programme, concerned with improving agricultural practices.

Third Component: Genetics Engineering Techniques:

The developed countries, particularly USA have adopted this technique for producing genetically modified crop varieties such as the hybrid corn and cotton, in addition to other GMOs. Because this technique requires an advanced research structure and highly specialized cadres, this component will be having a long timeframe for the gradual application of this technology. In the initial stages, Arab countries will focus on establishing transmission techniques, then their consequent evaluation and adaptation, and then comes the establishment of a strong research base.

6-2 The Main Programme for Encouraging Investment in Agriculture and Agro-industry in the Favourable Agricultural Environments:

The previous studies have shown that, share of agriculture in the total investments is still very limited, despite the relative importance of this sector in the national economy of several Arab countries. Although there are vast arable lands available for agricultural investment, reality points out to small investments in agriculture, either by governments, or the private sector.

It is worth mentioning that any increase in the share of agriculture in general, or in the promising arable lands in particular, will require working out a high degree of integration between the private sector investments and those directed by governments. The joint responsibility of both governments and the private sector will be their direct involvement in availing the basic infrastructures that deem necessary for attracting the private sector's investments.

This programme particularly aims at achieving several targets. The Following are the most important of them:

- Creating and improving the investment environment in Arab agricultural sectors, in general, and in the areas where agricultural investment resources and agro-industry potentials, in particular, are there.
- Increasing capacity of Arab agricultural sectors, through creating favourable investment opportunities and increasing its attractiveness from the private sector's perspective. It is expected that the implementation of such programme will help achieving the following outputs:
- Joint pan- Arab agricultural investment policies.
- Joint agricultural projects.
- Developing the basic infrastructures needed to attract the private sector investments.
- Increasing capital accumulation in agriculture sectors.
- Creating more job opportunities.
- Encouraging agro-industry activities.

- This programme includes two sub programmes pertinent to the following areas:
- Enhancing the investment environment in agriculture and agro-industry.
- Identifying and promoting sounding investment opportunities in agriculture and agro-industry.

The following are the details of these sub programmes and their components:

6-2-1 The Sub-programme for Promoting Investment Environment in Agriculture and Agro-industry :

Background and Objectives:

This sub-programme seeks to improve the investment environment in the Arab region, and set the most encouraging policies and facilities that attract the private sector's investment in agriculture and agro-industry.

Components of the Sub-Programme:

First Component: Improvement of Infrastructure in the Most Promising Areas for Agricultural Investment:

This component focuses on studying the current situation of the promising areas for agricultural investment in Arab countries, assessing the infrastructure they have. Such assessment is considered very important before having any investments on the ground. The activities this component will be targeting include; cooperation between governments of Arab countries in making these areas attractive for both businessmen and the private sector, which could be done by improving their infrastructure components.

Second Component: Increasing the Efficiency of Agricultural Investment Institutions:

This component focuses on providing expertise and technical aid to the major components relevant to agricultural investment, which are actually there in Arab countries. The purpose is to assist Arab countries to establish authorities and organizations pertinent to agricultural investment, within their institutional structures. The required assistance could be, in terms of training and institutional capacity-building, as this will help these organizations to carry out all activities related to identifying suitable investment opportunities, proposing appropriate investment policies and legislations. The mentioned arrangements should be carried out in accordance with each Arab country's situation.

Third Component: Reducing Agricultural Investments' Risks:

This component seeks to create an attractive investment environment in the Arab countries, through restraining investment risks, particularly those attributed to natural factors or unsuitable marketing procedures. It is good that this component includes a number of activities that seek acquaintance with the successful experiences at either country or international level. The main objective of this component is to identify suitable procedures for restraining risk in agricultural investment, in addition to providing expertise and technical support to the Arab countries that need to establish such procedures.

6-2-2 The sub-programme for identifying and promoting investment opportunities in agriculture:

This programme seeks to identify the investment opportunities suitable for the Arab region, through activating single-country agricultural investment corporations, or through the direct cooperation with them. Moreover, the support could include planning, implementation, and promotion of the identified investment opportunities in the circles of Arab businessmen interested in agricultural investment.

Components of the Sub-Programme:

First Component: Identification of the Most Suitable Agricultural Investment Opportunities in the Arab region:

Initial feasibility studies are to be carried out on such investment opportunities, either those relevant to direct agricultural investment, or agro-industry or to manufacturing some of agricultural production tools.

Arab countries' institutions concerned with agricultural investment may shoulder the burdens of this component, along with providing the support needed to enable carrying out this role.

Second Component: Promotion of Investment Opportunities in Agriculture:

This component focuses on organizing and carrying out the activities that seek promotion of investment in agriculture, which have already been identified in the previously mentioned component. Project profiles for the proposed projects will be prepared and displayed to the businessmen who are involved in direct agricultural projects or services projects.

6-3 The Main Programme for Enhancing the Competitiveness of Arab Agricultural Products:

Competitiveness of export products in recent years appeared to be pre-requisites for countries to integrate in the world economy and maximize their consequent benefits. In the light of liberalization of world trade, the share of a given country in the consequent benefits of the multilateral liberalization or of joining an economic bloc depends on this country capability to compete and penetrate the external markets. The capability of each country to compete in terms of the overall and sector levels, along with the specialized activities, relies on several factors, the most important of which is the package of policies implemented on these levels. As far as Arab economies are concerned in general and that of agriculture in particular, these economies are now facing international and regional situations of severe competition with the more advanced economies.

At the agricultural sector's level, exports market indicators, which are the most accurate test of competition, show a humble share for Arab countries in world agricultural exports. Competition indicators on the activity level also show weakness of research and development potentials. The little use of modern techniques, in addition to the difficult access to realistic and accurate information on the international market situations and clear weakness of the strategic planning pertinent to markets also add to the previously mentioned factors. The low capability of Arab countries to compete is principally due to their adoption of policies that focus on development of the imports rather than the exports. Crops like vegetables and fruits are considered on the pan-Arab level as main export crops. However, these crops themselves, along with some other crops that have big promising potentials, are incapable of penetrating the external markets. The situation has been aggravated recently in the developing countries, because of the weak quality standards and lack of suitable marketing structure, in addition to the weak legislations, policies related to promotion of exports. The programme proposes activities that help increasing the competitiveness of the agricultural products, by addressing the most common deficiencies.

This programme aims at increasing Arab agricultural exports, through enhancing the competitiveness of Arab agricultural products oriented to both the internal and external market as this will help in increasing the inter-Arab trade and the ability of agriculture to merge in the world economy and the regional existing economic blocs.

This main programme includes four sub-programmes specialized in the following areas:

- Developing specifications and quality standards for export oriented agricultural products to access the external markets.
- Developing inter-Arab agricultural trade facilities.
- Following up and observing the international and regional changes and suggesting the needed adjustments and means of adaptation.

- Enhancing marketing capabilities of the small farmers.

Some of the most important development objectives this programme is expected to achieve are as follows:

- Increasing the agricultural exports of Arab countries.
- Improving efficiency of the basic marketing and trade infrastructure.
- Identifying suitable quality standards for agricultural products in Arab countries.
- Increasing the ability of adaptation and involvement in world economy.
- Strengthening Arab ties in the sectors of marketing and trade.

6-3-1 The Sub-programme for Developing Quality Standards and Specifications for the Agricultural Products in Arab Countries:

Background and Objectives:

Quality is one of the main elements for identifying competitiveness of commodities. Interest in quality, in particular, is escalating in the markets of developed countries, where there are high incomes and high awareness amongst consumers. As far as Arab markets are concerned, quality does not have the same concern, particularly commodities oriented to the local markets. As for export commodities, concern in quality corresponds with the requirements of the external markets. Such double standards in quality between local consumption and export demand, is considered a weakness in the overall quality system at the country level.

It is noted that a considerable part of Arab agricultural exports mostly targets markets that give priority to price more than quality. This consolidates the existence of low quality products and reduces producers' motives to improve the quality of their products. Quality standards and specifications are highly essential to identify whether commodities are oriented to local or export markets. These quality standards acquired increasing importance in trade liberalization and the implementation of World Trade Organization (WTO) procedures, where some countries tend towards taking tight measures against the imported commodities, and using these standards as protective measures.

The programme aims at identifying a number of measures and policies through which it is possible to help countries, either at the single-country or pan-Arab levels, to develop their own standards for agricultural commodities, for the fact that any progress to be achieved in this respect will greatly help achieving progress in Arab cooperation and coordination track.

Components of the Sub-programme:

First Component: Identification of Unified Specifications and Quality Standards For Agricultural Commodities:

This component focuses on studying the existing quality standards and specifications of agricultural commodities in Arab countries, in addition to clarifying the extent of disparity within these standards, as an endeavour to make the most possible coordination between quality assurance systems among Arab countries.

Second Component: Supporting the Institutions Responsible for Setting the Unified Quality Standards of Agricultural Products in Arab Countries:

This component seeks to clarify the methods through which it is possible to support and encourage the institutions responsible for setting quality standards of agricultural products to efficiently carry out their tasks, which require modernizing their equipment and upgrade the scientific backgrounds of their cadres.

6-3-2 The Sub-programme for Facilitating the Inter-Arab Agricultural Trade:

Background and Objectives:

Facilities for trade and marketing structures are the main elements that identify the competitiveness of agricultural products in Arab countries, at the overall or sector levels. Timing, cost, commitment and consistency, are among the other elements for measuring competitiveness. The previous studies have shown that trade facilities and marketing structures in Arab countries

are generally weak, particularly in relation to agricultural commodities. Mostly, exports are hindered because of the complex administrative and banking systems, and due to deficiency of freight in airports and land transportation, refrigerated areas, in addition to other basic marketing structure elements. This is reflected in high marketing cost and non-commitment to importers' orders, which is a deficiency in competitiveness. This programme seeks to identify the investment policies and legislations necessary to work out development in trade facilities in Arab countries, in addition to setting priorities for improving marketing structure along the coming two decades.

Components of the Sub-Programme:

First Component: Improvement of Trade Facilities :

This component focuses on studying the current situation of trade facilities and incentives in general, and the agricultural products in particular, in addition to identifying the points of weakness, and clarifying the methods and policies necessary to overcome these deficiencies and rising trade efficiency.

Second Component: Improvement of Marketing Structure:

This component focuses on studying the current situation of marketing structure of agricultural products in the region and identifying the deficiencies, suitable means, in addition to suggesting the required policies for overcoming these short backs and obstacles.

6-3-3 The Sub-programme for Monitoring and Follow-up of the International and Regional Changes and the Needed Adjustments:

Background and Objectives:

Since the nineties, the economic changes have speeded up at the international level and were peaked with GATT entering the stage of implementation, and establishment of World Trade Organization (WTO) in 1995. Moreover, the role of the regional economic blocs is magnified in international trade. WTO membership included, among its 150 members, a number of Arab countries, while the rest of Arab countries are on the way to join it. WTO membership requires preparing the corporation structures and the legislations and regulations necessary for following up these changes and the adaptation required, in a way that magnifies the membership's efficiency and the positive involvement in world economy.

The proposed programme seeks to help Arab countries establish units for analysis and follow-up in the relevant ministries, and to propose the legislations that would correspond with the multinational and regional agreements. This will positively contribute to enhancing the competitiveness of Arab agricultural products.

Components of the Sub-Programme:

First Component: Establishing Units for Analyzing and Monitoring Affairs of the World Trade Organization (WTO):

This component seeks to identify a model for a unit to carry out the required analysis and follow-up of the WTO affairs within the structure of the ministries of agriculture. This unit will be supported with trained human cadre, analysts and economists. The unit will also have access to aid and technical support to be more efficient in doing the job.

Second Component: Legislations and Laws Required for Harmonizing with the Global Changes:

This component focuses on identifying legislations and laws required to be issued, in a way to be identical or in line with the necessities and commitments of the WTO and the regional blocs. These legislations and laws include those pertinent to complying with the standards and rules of the international agreements and the intellectual property rights, such as the anti-monopoly laws, support prevention and dumping of markets.

6-3-4 The sub-programme for enhancing Marketing Capabilities of small farmers :

Background and Objectives:

Small farmers form the majority of farmers in most of the Arab countries. Due to the common weakness in marketing and financial access to this stratum of producers, they mostly tend to produce either for self-sufficiency or to sell the surplus in the nearby markets. Those producers rarely link themselves to advanced trade, export and manufacturing processes. In reality, this is one of the causes of the narrow agricultural export-base in most of the Arab countries, in addition to the weak response of the exports to the world changes, which means weak competitiveness in general. Therefore, this programme targets at identifying the methods, measures and mechanisms required for implementation at both country and pan-Arab levels, in order to expand the base of Arab commercial and export production. This could be done through enhancing marketing capabilities of the small producers, to enable them produce for the market, and improve their products to fit the market requirements and reduce the cost of competition among them.

Components of the Sub-Programme:

First Component: Linking Small Producers to Markets:

This component targets identifying the methods, measures, policies and institutions that could help small farmers to adjust to market changes and respond to price alternations. This framework includes farming in contractual basis, activating roles of farmers' organizations, marketing, funding and delivery of market information to farmers and marketing extension institutions.

Second Component: Supporting Marketing Services Targeting Small Producers:

This component focuses on studying the current situation of marketing services available to small farmers, and identifying their weaknesses and deficiencies, as well as identifying the methods and policies that should be applied, in order to support these services, with a particular focus on marketing of agricultural products produced by-small farmers.

6-4 The Main Programme for Creating a Favourable Structure for Legislations and Policies:

Agricultural policies are fundamental instruments accompanying the plans and programmes, assigned for achieving economic and social development through utilization and distribution of economic resources among the various usages, in order to maximize the output and achieve economic welfare. Agricultural policies are the most important prerequisites needed to link development strategies with the executive plans necessary to achieve the development targets.

Arab agricultural policies have recently been oriented towards liberalizing the agricultural sector, privatization of agricultural projects, liberalization of trade and marketing of agricultural products, in addition to encouraging investment and developing supportive agricultural services.

Arab agricultural policies have focused, during the past period, on achieving food security from the perspective of self-reliance, and giving specific particular priority to country programmes, with no consideration to the economic efficiency in allocating the available resources. All of these measures lead, in most times, to intensive use and lack of sustainability of existing resources, which are so limited in most of the Arab countries.

Due to the great challenges facing the agricultural production sectors, in the Arab region, it is important to pool and intensify all activities and efforts to increase awareness towards agricultural integration and directing investments, towards joint agricultural projects and programmes, from an integrative perspective. In this respect, Arab countries need to revise numerous pending legislations or issue new ones, in order to be capable of positive interaction with the international environment, with its accelerating changes, and with the anticipated economic environment in the Arab region.

This programme seeks to achieve the major objectives related to the increase of capability to provide food, and improve the competitiveness of the agricultural products, in addition to coordination of agricultural policies.

This main programme includes eight sub-programmes specialized in the following areas:

- Coordinating policies and legislations pertinent to trade.
- Coordinating policies of agricultural research and technology transfer.
- Coordinating investment policies.
- Coordinating policies of investment in joint resources.
- Coordinating policies dealing with trans-border diseases and epidemics.
- Coordinating policies of constructing strategic reserve of food commodities.
- Coordinating policies of supporting agricultural production.
- Improvement of capabilities of the national institutions responsible for analyzing and assessing agricultural policies.

In addition to the specialities mentioned above, it is expected that carrying out this programme will lead to the following outcomes:

- Joint Arab agricultural policies.
- Mitigating risks of changes in food markets.
- Increasing efficiency of inter-Arab agricultural trade.
- Protecting Arab agricultural environments.
- Strengthening ties and intricacy between Arab economies and agricultural sectors.

6-4-1 The Sub-programme for Coordinating Policies and Legislations Pertinent to Foreign Trade in Agricultural Products:

Background and objectives:

Systems of external trade in agricultural commodities and products differ widely inside the Arab countries. This is due to the difference in regulations and control measures that organize exports and imports, and also the difference in customs and tariffs each country imposes to protect its national products. In general, the external trade policies in the region have been oriented towards the overall liberalization of external trade on agricultural and food commodities, in addition to working out more exemptions and reductions in taxes and customs fees, improving export oriented products, opening new markets for national exports and enhancing trade relations with other countries and economic blocs.

Arab countries have enacted numerous laws and legislations necessary to organize the management of their economic affairs. Due to the changes that occurred in the economic environment, either at country level, as a result of the economic reform policies and the structural adjustments, or at the international level, represented in approving and implementing the International Agreement on Free Trade. To adequately adjust to these changes, it is necessary to work out substantial amendments in policies and legislations, needed to achieve the economic targets, particularly those pertinent to promotion of external trade.

This programme aims at coordinating the policies and legislations related to this area, such as protecting competition and restraining dumping of markets, in addition to monitoring the market's performance and improving quality assurance and quality control standards.

Components of the Sub-Programme:

First Component, is concerned with coordination and unanimity of legislations related to export and import measures and financial settlements and solution of disputes.

Second Component, is concerned with coordination of Arab policies relevant to quality control standards of commodities, packages, ordinary and refrigerated transportation means, production inputs and marketing inlets, in an endeavour to integrate and unify them.

Third Component, is concerned with coordination and unification of Arab legislations and measures related to food safety, including: sanitary and phyto-sanitary measures and veterinary and plant quarantine measures. This is in addition to fitting these legislations and measures with the international changes in this field.

Fourth Component, is concerned with coordination between Arab Countries to adopt a unified and fit system for simplifying and facilitating measures of delivery and loading in sea ports and airports, in addition to measures concerning other transportation means, like trucks crossing through borders. It also focuses on facilitating measures of issuing entrance visas to businessmen and trucks' drivers to roaming different countries.

Fifth Component, Focuses on coordination of policies and legislations related to support of the inter-Arab trade development in commodities, services, and production inputs and marketing inlets.

Sixth Component, Focuses on coordination and unification of legislations relevant to the bases of origin of export commodities.

Seventh Component, is dealing with coordination of legislations related to intellectual property rights and the protection of plant genetic resources and germs.

Eighth Component, is concerned with coordination of Arab policies related to financing of export trade, promotion of exports, in addition to availing support, incentives and exemptions for exporters.

6-4-2 Sub-programme for Coordinating Agricultural Research Policies and Technology

Transfer:

Background and Objectives:

Agricultural research is the major source of innovations and technical progress in agriculture. It is a fundamental element in vertical agricultural development. This is why it is of paramount importance to work on coordination of research programmes and techniques among Arab countries. Therefore, this sub-programme is one of the most important sub-programmes of the Sustainable Arab Agricultural Development Strategy.

Agricultural research, by its nature, requires consistent work that might take long periods of time by remarkable human cadres. This leads to two issues: **First:** the governments should carry out the fundamental role in agricultural research, where as, the participation of the private sector could be complementary. **Second:** Coordinating and pooling efforts and accumulation of research outcome realizes great results, and could significantly reduce the period of time and efforts needed for research, had it been carried out on a concrete single-country level. Similarly, it is also important to resort to technology transfer, had it been transferred from outside the Arab region to inside it, where coordinative and integrative actions could lead to cancelling periods of adaptation and reducing costs of these techniques.

By considering the current situation of agricultural research policies and technology transfer in the Arab region, it is obvious that such policies need more clarification, clear objectives, priorities and mechanisms. Moreover, scientific research, in general, doesn't have the priority it deserves on the top of pan-Arab priorities' list. This is reflected in very small financial allocations and poorly trained human cadres. Therefore the programme will start with solving these problems.

At the pan-Arab level, worthy initiatives for coordination and integration in the area of agricultural research and technology transfer have not emerged yet. This programme acquires its importance from some other programmes, within the Sustainable Arab Agricultural Development Strategy, in the forefront the Main Programme for Technical Development with its seven sub-programmes. It is therefore important to put the priorities of this programme ahead of others, and then set priorities for the programme concerned with the Coordination of Agricultural Research and Technology Transfer Policies.

Components of this Sub-programme:

First Component: Coordination of Policies of Capacity-Building and Training of Research Cadres:

This component should have an advanced priority, as the agricultural research sector in the Arab countries suffers clear deficiency in high level research cadres; therefore, it is logical for the programme to start with tackling this side.

Second Component: Rehabilitation of Research Infrastructure:

This component focuses on ways and means for rehabilitating research infrastructure in the Arab countries. It includes equipping research institutions with advanced and modern equipment, availing adequate funds. It also focuses on establishing specialized laboratories in certain modern areas, such as genetics engineering and tissue transplants.

Third Component: Selection and Adoption of Technology:

This component focuses on identifying a number of advanced technologies that can be transferred and adapted in Arab countries in addition to identifying the research procedures and protocols that should be followed to localize such technology.

Fourth Component: Evaluation and Monitoring of Arab Agricultural Research Programmes:

This is a coordinative component, through which it is possible to set foundations for following up and assessing agricultural research programmes carried out in the Arab countries. This could definitely rectify the track of some research programmes, and ensures avoiding repetition of some other research programmes, in addition to supporting research programmes that are fruitful and could be useful for one or more of the Arab countries.

6-4-3 The Sub-Programme for Coordination of Policies of Investment in Shared Resources:

Background and Objectives:

Arab countries share many agricultural and environmental resources. These joint resources include ground water reserves, surface water basins and sea fisheries among other resources. But, Arab initiatives are rare in the field of coordinating single Arab country policies pertaining to joint investment in these resources, the matter which leads to weak efficiency in utilizing them. Because each country tries to implement a unilateral set of policies for using the joint resource without taking into consideration the interest of the other Arab countries that share the same resource, such a practice leads to the abuse of these resources, and weaken the element of sustainability of their utilization. This programme seeks to set the foundation necessary to coordinate Arab policies in the area of management and utilization of the joint resources through several activities, mechanisms and measures, to be carried out within the Sustainable Agricultural Development Strategy for the coming two decades.

Components of the Sub-Programme :

First Component: Coordination of Policies for Utilizing the Shared Underground Water and Surface Basins in the Arab Region:

This component focuses on the single-country policies pertaining to joint ground and surface water basins, and on identifying the weaknesses and the negative effects of individual policies, in order to suggest the means through which such policies can be coordinated. This component integrates with the second component in the programme relevant to the integrative management of water resources.

Second Component: Coordination of Policies Pertinent to Utilization of Shared Fisheries in the Arab Region:

This component is identical in terms of objectives and elements with its counterpart in the integrative management of water resources.

6-4-4 The Sub-programme for Coordination of Investment Policies:

Background and objectives:

Most of the Arab countries tended along the nineties and the beginning of the third millennium towards developing their investment laws and legislations, and their institutional structures, in order to get a conducive environment for attracting local and foreign investments. Attraction could be through, credit facilities and tax exemptions for specified periods, and establishing free zones and

financial markets, in addition to simplifying investment procedures. Despite the efforts exerted by most of the Arab countries to develop their investment legislations, the flow of investments remained very limited and did not correspond with the set of objectives and expectations. This is due to the following:

- Inconsistency of the legislations which directly affect the investment sector. Such legislations includes: labour and employment legislations and laws, in addition to the legislations relevant to the production's standards and specification, the matter that restrains the targeted investment's attraction.
- Lack of a detailed base of information required by investors and businessmen to identify the suitable investment opportunities, which is the first step towards investment flow to the agricultural sector.

In this respect, it is highly important to coordinate the investment policies between the Arab countries and help the investors to be acquainted with the pillars of competition between Arab and non-Arab products. Then one must identify the potential policies and measures necessary to increase the competitiveness of Arab agricultural products and identify the policies necessary to improve investment environment in Arab countries, in addition to establishing numerous joint investment firms.

Components of The Sub-Programme:

First Component, is related to coordination of Arab legislations pertinent to improving investment environment and attracting investments in foregoing agriculture. This could be achieved by setting organizational measures, granting customs and tax exemptions, material incentives, in addition to protecting investors, identifying individual property, firms' registration, solving disputes, issuing contracts and setting suitable laws for contracting labourers and workers.

Second Component, is related to coordination of Arab legislations dealing with investors in internal markets, external trade facilities, in addition to establishment of joint and multinational firms.

Third Component, is concerned with coordination of policies pertaining to finance, agricultural insurance and guarantee of investment.

6-4-5 The Sub-programme for Coordination of Policies Pertinent to Control of Trans-boundary Diseases and Epidemics:

Background and Objective:

The agricultural production in the region is exposed to numerous blights that inflict crops in each country, by decreasing productivity and causes severe damage. Such blights include crop pests and the epidemic trans-border diseases, which come across borders or through trade. There are several international agreements that deal with this matter, such as the Plant Protection Agreement and the Sanitary and Phytosanitary Agreement. Due to the existence of joint borders between all Arab countries, coordination of efforts should be there, to control such diseases, and reduce damages.

Components of The Sub-Programme:

First Component, is concerned with coordination of Arab policies pertinent to control of the trans-border and epidemics. This could be done by adopting the commitments and legislations which depend on the single-country measures, in order to prevent spreading of these diseases and epidemics that move through official or non-official trade across borders, or by the nomadic grazing herds, wild animals or locust. The anticipated coordination will actually be achieved by working on legislation's consistent with the relevant international agreements.

Second Component, is dealing with coordination of agricultural and veterinary legislations and measures pertinent to health-care.

Third Component, is concerned with coordination of legislations related to food safety and phyto-sanitary measures.

6-4-6 The Sub-programme for Coordination of Policies Related to Building Strategic Food Stocks :

Background and Objectives:

The low production and deficiency in a number of the main food commodities in Arab countries leads to dependency on imports from outside. The agricultural production in the region is affected by adverse climatic changes and disasters, which make the Arab countries liable to pressures from the exporting countries. Owing to that, there is a pressing need to establish a collective system for building a strategic stock of food, in order to restrain the unexpected disorders in flow of commodities in markets, and to make Arab countries avoid the burdens of installing huge reserves at country level. The collective reserve's installation and management should be within an economic framework. This endeavour will eventually increase the capability to conduct collective deals with suitable prices.

Components of The Sub-Programme:

First Component, deals with coordination of policies pertinent to building strategic food stocks at country and pan-Arab levels, whose type, quantity and place of storage, way of purchase, distribution, funding and management should be agreed upon.

Second Component, is concerned with coordination of policies related to defining the complementary role of private sector in the establishment of strategic stocks and its effect on local production, trade and prices.

6-4-7 Sub-programme for coordination of policies of agricultural production Subsidy:

Background and Objectives:

The majority of Arab countries have still been adopting policies pertinent to supporting their agricultural production, either by supporting the prices of the production inputs, or export prices. In the light of the economic liberalization, most of the Arab countries have stopped or reduced support. The international agreements set clear measures with regard to support policies. Since disparity in support policies between Arab countries leads to disorder in the competition balance between these countries, it is necessary to coordinate these policies in order to maximize the effect of the Greater Arab Free Trade Area Agreement.

Components of the Sub-Programme:

First Component, focuses mainly on coordinating policies pertinent to supporting Arab agricultural production, and their compliance with the international and regional relevant agreements.

Second Component, is dealing with coordination of Arab legislations and measures that define the standards, definitions and levels of support oriented to production and agricultural services in the region, and to define the mechanisms of complaints and solution of trade disputes pertinent to supported commodities and the dumping of the exporting countries' markets.

6-4-8 The Sub-programme for Strengthening Capacities of the National Institutions in Areas of Analysis and Monitoring of Agricultural Policies:

Background and Objectives:

The overall and sector economic policies are the main elements in the success of the economic and social development process. Realizing that development's objectives depend to a large extent on how skilful these policies were designed, in addition to implementing, following up and assessing them in a sound way to correspond with certain conditions, in the forefront being realistic and dynamic. Such condition cannot be met with the absence of suitable mechanisms efficient enough to analyse, follow-up and assess these policies. Since the analysis of policies, assessment and following up require high skill, there should be national institutions specialized in this field, where they should have an up-to-date material potentials and qualified human cadres, in order to perform such stocks with high efficiency.

In most of the Arab countries, and despite the important changes in economic policies and corporation structures, the task of analyzing, following-up, and assessing agricultural policies are designated to the centralized traditional institutions, and carried out by underdeveloped methods with limited human cadres that lack adequate qualification. Such institutions lack specialization in this field, or suffer from interference of other administrative and technical institutions too, concerning actions of assessment and follow-up. So, there will be an urgent need for these specialized and developed national institutions to be there, in the Arab countries. The importance of the joint Arab action in this context is of paramount significance, particularly with regards to coordination and cooperation between all Arab countries.

Components of the Sub-Programme:

This Sub programme includes only one fundamental component, which is concerned with the establishment of a pan-Arab institutional body under the umbrella of AOAD, to cooperate with the concerned international and regional organizations. This body will assist in organizing and setting the foundations, methodologies, programmes and models needed for coordinating agricultural policies, and cementing ties between single-country institutions working in the field of agricultural policies and planning. This could be achieved by establishing an association for these institutions and an electronic net for information exchange, in addition to the periodical meetings of the senior technical officials.

6-5 The Main Programme for Capacity-Building of Human Resources and Institutions:

This programme aims at enhancing competitiveness of the Arab agricultural export products, in addition to supporting coordination of Arab agricultural policies, and working for sustainability of agricultural resources. The ultimate goal of this programme is to help availing adequate amounts of food in the Arab region. Implementation of such programme will lead to the following:

- Improvement of structures and systems of the agricultural institutions.
- Training and capacity-building of cadres working in the field of policy analysis, negotiations and international judgment.
- Construction of specialized agricultural extension cadres.

This main programme includes the following four Sub-programmes:

- Development of skills in the field of policy analysis, negotiations and the international judgment.
- Development of agricultural education and vocational training.
- Promotion of the specialized agricultural extension institutions.
- Institutions reform and restructuring of agricultural institutions.

6-5-1 Sub-programme for Upgrading Skills in the Field of Policy Analysis, Negotiations and International Arbitration:

Background and Objectives:

Within the main programme for Human and Institutional Capacity Building in Arab Agriculture, this sub-programme helps in the development of skills in some areas imposed by the changes at the local, regional and international levels. It is well known that a number of Arab countries enjoy WTO membership and the rest of them are in their way to join the organization. In both cases, Arab countries need expertise in negotiation capabilities, the international law, international trade and policy analysis. Current reality shows that some Arab countries who joined the WTO face problems regarding cooperation with member states, due to the limited cadres of experts specialized in this area. Also some countries have deficiency in specialized cadres in some modern fields of agriculture, trade and policy analysis. One component of this programme covers such deficiency, as it includes activities for capacity-building in the field of follow-up, assessing, analysis and formulation of relevant policies.

Components of The Sub-Programme:

First Component: Setting and Analyzing the Agricultural and Trade Policies:

This component is aiming at meeting the current deficiency in Arab human cadres capable of formulating and analyzing the effects of agricultural and commercial policies. Although this component is country-based i.e. each country can implement training programmes for its ministries of agriculture and commerce, relevant Arab and international institutions and organizations can provide adequate technical support in this field, according to the needs and circumstances of each Arab country.

Second Component: Development of Capacities in Negotiations and International Arbitration Pertinent to Agriculture:

Arab countries are in need of commercial negotiators and international arbitrators, which are taken care of through this component. The product of this component will be highly qualified negotiators and arbitrators that can be considered a mutual asset for all Arab countries.

Third Component: Development of Human Resources to Defend Arab Economic and Trade Rights:

The aim of this component is to create highly skilled and experienced Arab cadres in the economic and legal fields, to be well versed in Arab rights vis-à-vis the outside world in the economic, commercial and water resources fields. This component is based on the implementation of a number of specialized training programmes in the above areas, which will be conducted by specialized Arab and international organizations.

6.5.2. The Sub-programme for Developing Agricultural Education and Vocational Training:

Background and Objectives:

Agricultural education in Arab countries faces many problems as discussed earlier in this report. But the main problem is that the outcome of the agricultural learning process (graduates) does not meet the need of modernizing Arab agriculture regarding specializations and skills, in addition to the poor knowledge of the graduates. Perhaps this problem was the result of a relative stillness of the agricultural structures, institutions and education policies against rapid changes in the demand side of graduates due to switching to a market economy, in addition to implications of the regional and international developments. The importance of the proposed programme to develop agricultural education and vocational training within the framework of the Arab Strategy for Agricultural Development in the coming two decades stems from this fact.

There are other programmes in the Strategy whose success depends to a large extent on the products of agricultural education and vocational training, such as the Main Programme for Technology Development and its Sub-programmes for Technology Transfer in the various agricultural fields, in addition to the sub-programme for promotion of specialized agricultural extension and the other programmes that need highly specialized and knowledgeable graduates. It is not realistic to implement a successful research and technology transfer programme without a solid base of agricultural researchers. At the same time, special agricultural projects in the various production fields need specialized human resources with adequate field training; something that is lacking in the current agricultural education systems of the Arab countries.

Components of the Sub-Programme:

First Component: Studying Demand for Specialized Cadres in the Different Agricultural Fields:

There is no doubt that developing agricultural education is a very complicated process that needs huge investments, time and clear education policies. Priority should be given to this component as it is related to studying the demand for specialized cadres in Arab countries, in addition to the demand for graduates at present and within the coming two decades. Such studies will provide a data-base for designing a future plan for developing the agricultural education in the region.

Second Component: Education and Training Policies Related to the Agricultural Sector:

Based on the results of the first component (e. g. studying demand for agricultural graduates), the second component will establish education and specific training policies. These two components will deal with the current discrepancies in agricultural education in Arab countries.

Third Component: A Comparative Study on Agricultural Education Curricula:

This study will clarify the vulnerabilities and capacities of the agricultural education curricula in light of demands for graduates based on specializations. It is also possible through this component to propose amendments that would improve coordination among curricula, which makes such curricula more adequate to the requirements of agricultural development.

Fourth Component: Vocational Training in Agricultural Fields:

This component focuses on defining the main fields that vocational training programmes will concentrate on, in a way that meets the needs of other programmes of the Strategy, especially in relation to the Programme for Technology Transfer, which needs trained and highly skilled human resources for its proper implementation.

6.5.3. The Sub-programme for Strengthening Capacities of the Specialized Agricultural Extension Institutions:

Background and Objectives:

Agricultural extension is considered one of the necessary basic services to improve productivity in all sectors of agriculture. Because Arab agriculture is dominated by small farms and high illiteracy among farmers, extension services play a very important role in assisting farmers to follow correct production techniques, in order to improve the productivity of agricultural crops. Despite the clear importance of such services, the situation of the agricultural extension in Arab countries reveals massive weaknesses in several fields.

The most important of these problems is the poor role of the agricultural extension, absence of specialized extension worker, weak and poor communications methods, in addition to lack of clear definition for roles of governments and the private sector. A clear framework for the agricultural extension services in the region is to be in place. It is worth noting that the weakness of agricultural extension policies, institutions and human resources have a negative impact on the overall performance of the agricultural sector. Therefore, improvement of capacities of the specialized agricultural extension institutions should have a top priority.

Components of the Sub-Programme:

First Component: Training of Specialized Agricultural Extension Officers.

This is an urgent activity that needs to be started immediately, in order to mitigate the impacts of the current deficiency in specialized human resources in Arab countries. This matter is highly important before starting the first phases of the Programme for Developing Agricultural Technologies, within the specified strategic framework of the whole Strategy.

Second Component: Restructuring and Development of Agricultural Extension Institutions.

This component depends on carrying out a study for identifying the best structures for the agricultural extension institutions in the Arab region. Accordingly the component proposes some essential amendments for improving the capacities and restructuring of the agricultural extension institutions in each country.

Third Component: Improvement of Communication and Agricultural Extension Techniques:

This component is linked coherently with the outcomes of the second component. It focuses on modern extension procedures and means vis-à-vis traditional ones, which are currently used.

6.5.4 The Sub-programme for Institutional Reform of Agricultural Sectors in the Arab Region

Background and objectives:

The last decade witnessed the transformation of Arab economies, although at different levels, from government-based economies, where production and marketing decisions are controlled by public institutions, to market economies with an increasingly developed private sector. Naturally, this change was reflected on Arab agricultural economy. Long-term changes and developments have taken place at both the international and regional levels. The most important among these was the General Agreement on Tariffs and Trade (GATT), which entered into effect, in addition to the rise of regional economic cartels. These changes lead to a new reality in Arab agriculture at local, regional and international levels. Economic reforms in many countries advanced faster than the institutional reforms. This has led to a gap in Arab agriculture, which affected the performance negatively. Private sector institutions had not developed in a way to enable them substitute government institutions, in terms of production and marketing. Hence, this programme will work on speeding up the institutional reforms, and it will help to bridge the gap caused by this economic transformation.

Components of the Sub-Programme:

First Component: Strengthening the Role of Community-based Organizations and Cooperatives in Arab Rural Areas:

This component seems more important during the first phase of implementation of the Strategy. Within the framework of strengthening and establishing partnership in community and development decision-making, there will be need for restructuring institutions of small farmers and develop human resources necessary for managing and activating civil society organizations and cooperatives in Arab rural areas.

Second Component: Strengthening Institutional Communication Networks at the National and Regional Levels:

This component is focusing on strengthening cooperation ties between the different institutions working in the area of agriculture in the Arab region, which are connected to one another at one level and with other similar institutions at the regional level. It also proposes the establishment of a communication network between these institutions and organizations to speed up access to knowledge of information.

Third Component: Improving Performance of Agricultural Institutions:

This component deals with the current deficiencies of the agricultural institutions in the light of the transformation process leading to free economies. The component will focus on the appropriate mechanisms and procedures for improving, performance of the agriculture sector at both country and regional levels. The concerned Arab organizations will conduct a pan-Arab study, to propose the necessary adjustments on the structures and roles of current agricultural institutions, as part and parcel of the current institutional reform process in Arab agriculture.

6.6 The Main Programme for Enhancing Rural Prosperity:

The objective of this programme is to strengthen stability in rural communities and to sustain Arab agricultural resources. It is worth noting that the implementation of this programme will result in the following:

- Reduction of poverty in rural areas.
- participation in mitigating the negative impacts of unemployment.
- Increasing the participation of rural women in agricultural development activities.
- Improving living standards among rural communities.
- Reduction of rural migration to urban areas.

This Main Programme has four Sub-programmes:

- Reduction of poverty in Arab rural areas.
- Strengthening the role of rural women in development.
- Strengthening capacities to generate job opportunities in rural areas.
- Reduction of risks of investment in agricultural activities.
- Risk reduction in agriculture.

6.6.1. The Sub-programme for Poverty Alleviation in Arab Rural Areas:

Background and Objectives:

Owners of the small agricultural properties, subsistence farmers and daily agricultural workers constitute the poorest segment in the Arab region. In addition, poverty is widely spreading among school drop-outs and illiterates. The percentage is also high among families supported by women, and also in the periphery and environmentally degraded areas, in addition to remote and border areas. Poverty may reach its highest levels in areas further from capitals and big cities. The geographic concentration of poverty increases as a result of discrimination and the economic and social prejudice.

According to the International Monetary Fund's Rural Development Report on Rural Poverty Assessment in the Near East and North Africa 2003, the rural poor in 12 Arab countries were estimated at 78.6 million, 35.1% of the total population of these countries. Of those, 52.1 million live in rural areas, making 44.6 % of the total rural population, and 66.3 % of poor people living in urban and rural areas. Causes of poverty in rural areas vary from country to another. Among the reasons are: population pressures, patterns of agricultural exploitation, the weak base of natural resources, environmental degradation, and the gender inequalities.

Components of the Sub-Programme:

First Component: The Role of Education in Poverty Alleviation:

This component sheds light on the role of education as one of the most important factors leading to poverty mitigation in Arab rural areas. A study is under preparation on the effects of education on this field and an education policy is being prepared to serve this objective as part of other educational goals.

Second Component: Social Security Policies:

It identifies a group of policies being used in mitigating the negative impacts of poverty, by focusing on the poorest and marginal sectors. The policies aim at designing and implementing social security safety nets composed of, support policies, food distribution, health and education, in addition to subsidies, salaries, compensations and solidarity funds beside the other methods suggested for poverty alleviations.

Third Component: Research and Studies on Poverty Alleviation:

This component defines areas that can be prioritized by the research sector in the field of solving problems of the poor, including nutrition patterns, public health, problems of small rural producers, and research related to public goods serving basically low income classes.

6.6.2 The Sub-Programme for Strengthening the Role of Rural Women in Development:

Background and Objectives:

Rural women play an important role in Arab rural life. This takes various shapes as women participate in the work force. They may also be the bread winners in the family as known in women-supported families. A good part of farm lands is owned by women as well. In addition, women play their role in managing families and raising children. Despite these important roles to the stability and development of rural communities, reality indicates that Arab rural women face massive difficulties and barriers in playing those roles and increasing their participation in the sustainable rural developmental process. Social discrimination against women is one of the most evident difficulties since women are

not allowed to own agricultural resources most of the time. In addition to the fact that women are less educated and less paid, their participation in the decision-making process is inadequate.

This Arab programme aims at implementing some activities that will lead to strengthening the role of rural women in development. The ultimate objective of the sub-programme is to enhance social stability in Arab rural areas. The participatory approach also means that all members of the community, including women, need to participate in the developmental process, a basic condition to ensure sustainability.

Components of the Sub-Programme:

First Component: Empowerment of Rural Women:

Focuses on identifying policies that can lead to improvement of rural women situation in terms of, education, health, reproduction and skill levels, in addition to enabling them to own and manage production resources and enhance their role in decision making.

Second Component: Helping Families Supported by Women:

This component focuses on rural women, in general, and those who support their families, in particular. It identifies activities and small projects that can help improving the situation of rural women and draw policies serving this objective, including credit and marketing policies.

6.6.3 The Sub-programme for Creating Employment Opportunities in Rural Areas:

Background and Objectives:

Economies of all Arab countries are facing unemployment problems, at various degrees. Unemployment is one of the most serious problems threatening social stability and development. As known if non-agricultural sectors are unable to accommodate more workers, especially the overflow from the agricultural sector, then it is necessary to support and enhance the capacities of the rural sector, especially its non-agricultural part, to absorb the annual increases in the workforce.

That is why this sub-programme includes a number of components and activities that aim to enhance the capacity of the rural sector to absorb more manpower. The action to be carried out under this sub-programme will target to solving the unemployment problem in rural areas and enhance income generating activities that will support social stability in Arab rural areas. Some Arab countries have used certain mechanisms leading to this direction, such as establishing social development funds. But these attempts and models were not up to the task. Perhaps there was some bias in favour of the urban sector against the rural in most cases. The domestic gap between rural and urban areas was not diminished as was hoped. It should be noted that, the implementation of some economic reform and structural adjustments resulted in an increasing number of the most vulnerable segments in rural areas.

Components of the Sub-Programme:

First Component: Encouraging Medium and Small-scale Rural Projects:

This is one of the most important components of this sub-programme, as it is oriented to meet specific strategic objectives, such as achieving stability and improving living standards in Arab rural areas. Naturally, this requires designing and implementing clear policies related to formulation of small projects, in addition to specialized institutions capable of following-up policy implementation. As required, these policies should be adequately comprehensive to determine the appropriate technologies, provide training, facilitate finance and offer access to the market products of these projects.

Second Component: Small and Micro-Rural Credit:

This component takes care of expanding small and micro credit. It also considers the main driving force of the first component. This component can lay out proposals and involve private sector institutions in a way that meet the different needs, especially needs of the poorest and the unemployed segment in order to enable them own the production means and facilities.

Third Component: Agro-Food Processing:

This component is considered one of the most important mechanisms leading to the creation of new

job opportunities. Food manufacturing alone is considered an intensive field of work. Therefore, the component will focus on proposing mechanisms and policies leading to establishing food industries in rural areas. This will help a lot in absorbing a big part of the rural workforce. Such industries will simultaneously create demand on food crops as raw materials.

6.6.4. The Sub-programme for Risk Reduction in Agriculture:

Background and Objectives:

Generally, agriculture is prone to many kinds of risks and uncertainties. Perhaps Arab agriculture in particular is more open to risks, when compared to other countries. The first of these risks is related to swings in agricultural production due to environmental factors, diseases and epidemics. This kind of risks is compounded by the fact that Arab agriculture depends mostly on rains (80%), which annual precipitation rates fluctuate dramatically. Irrigated agriculture is subject to risks related to water scarcity at some times, in addition to pests, diseases and epidemics. Other risks are attributed to price swings of agricultural products and production inputs. The livestock sector is also prone to several threats, some of them attributed to pests and diseases, while others are due to natural hazards and mismanagement.

Since the great majority of Arab farmers are small, such risks result in dramatic changes in their incomes and living standards. It is an accepted fact that Arab agriculture policymakers did not give risk reduction the care it deserves. This was reflected in the inadequate legislations pertinent to risk reduction. The problem became clear when the economic reform and structural adjustment policies came into effect in many Arab countries. Prior to that, governments assumed the task of providing production inputs, determining prices of products, committed to marketing, in addition to its role in the provision of services such as combating diseases, and availing extension services and other things which could help in reducing risks.

Under the open market system, farmers have become more open to risks, especially in the absence of legislations, safety measures related to risk reduction. The objective of this programme is to analyze the situation and suggest the appropriate mechanisms pertinent to risk reduction. The proposed mechanisms will mainly focus on legislations and policy development related to solving this problem.

Components of the Sub-Programme:

First Component: Insurance and Agricultural Solidarity Systems:

This component will focus in the short and medium terms on risks related to production swings or the occurrence of large losses in agricultural assets. Its main activities will principally be oriented to reducing risks related to the production process itself.

Second Component: Stabilization of Prices of Agricultural Products:

This component will deal with marketing risks, stemming from low prices. Although it is one of the traditional mechanisms used to stabilize prices, it is an important mechanism, especially in market economies where price swings are common and monopolies dominate markets.

Third Component: Contractual Agriculture:

Contractual agriculture is an effective method of marketing crops at guaranteed prices. This will lead to reduction in pricing and marketing risks. The component will also focus on studying experiences of other countries in the field of contractual agriculture, to help designing successful models that can be applied in the Arab region. Drawing of the necessary legal and institutional framework will guarantee the rights of all parties and speed up the process of decision-making, in relation to implementation of contractual projects.

6.7 The Main Programme for Development of Appropriate Management Systems for the Agricultural and Environmental Resources

This programme aims at contributing to achieving the following strategic objectives:

- 1- Provision of food.
- 2- Sustainability of agricultural resources.
- 3- Stability in rural communities.
- 4- Combating desertification.
- 5- Management of threats and natural disasters.
- 6- Preservation of hereditary assets and genetic resources.
- 7- Comprehensive management of water resources.
- 8- Organization and management of forestry and pastoral resources.

It should be noted that the implementation of this programme will result in the following:

- Protection of the environment and sustainability of natural resources.
- Conservation of genetic resources and assets:
- Preservation of wildlife.
- Improvement of living standards for Bedouins and nomads.
- Developing disaster management systems.

6.7.1 The Sub-programme for Combating Desertification:

Background and Objectives:

It has become clear that desertification in all its aspects, is one of the most critical issues facing the development and conservation of arable lands in the region. It is estimated that 9.8 million square kilometres (68%) of the total area of the Arab region is desert. Other lands estimated at 2.87 million square meters (20%) of the total area are threatened with desertification nowadays and in the near future. If things continue the way they are now - without interventions- then 88% of the total area of the Arab region will turn into desert. Arable lands, natural pastures and vegetation cover are subjected to different kinds of desertification and at different levels. Some of these are due to climate, while others are due to irrational human practices. Examples of such factors include over-grazing and exploitation of forests. As for agriculture, these factors include land erosion, increased salination and urban expansion. These problems exist in both irrigated and rain-fed agriculture. Although some Arab countries have long been trying to apply methods for combating desertification, they have not been able to check this environmental degradation alone.

The scarcity of water resources in the Arab region plays a major role in increasing desertification levels. The practice of re-using non-treated water leads to major environmental damage in the long term. There are many interventions that can be taken within the framework of this programme and its components. The most important of such interventions are: implementation of improved management practices, applying various techniques to increase vegetation and growth, the use of proper techniques for checking desert encroachment and formation of sand-dunes in addition to enhancing skills of human resources in all fields improving extension services and monitoring procedures

Components of the Sub-Programme:

First Component: Remote Sensing and Monitoring Systems:

Remote sensing is one of the most important mechanisms for accurate and timely monitoring of desertification. It is the most appropriate way and means to be suggested for integrating capacities of remote sensing in the different Arab countries, in addition to proposing a suitable framework for increasing the efficiency of information exchange. Identification of the most suitable facilities and procedures for monitoring desertification and coordinating activities at the regional area, especially at a limited geographical area will also be proposed.

Second Component: Sand-dune Fixation Techniques:

Sand-dune movement poses a permanent threat to agricultural and pastoral lands in the Arab region. This component focuses mainly on the currently used surveying methods related to checking and control of sand- dunes, as well as shedding light on experience of other countries in this field, before formulating a number of modern methods which can be used as alternatives to the present methods, in order to combat the desertification and sand movement in the region.

Third Component: Strengthening the Environmental Extension Services:

A large part of desertification is attributed to the bad management practices of natural resources. This is presented in the overuse of agricultural lands, pastures and the allocation of lands for uses other than agriculture. This component proposes methods for enhancing agricultural extension services in the areas which are highly affected by desertification, as quick remedies for checking expansion of desertification.

6.7.2. The Sub-programme for Managing Threats and Natural Disasters:

Background and Objectives:

The Agricultural environment in the region is facing many threats and natural disasters, mainly due to the expansion of the Arab region on a large area with different climatic and natural zones. Accordingly the region is mostly characterized by droughts, Aridity, floods, out-breaks of diseases and epidemics, which are among the most dangerous threats and disasters facing Arab agricultural environments. These threats lead to a serious environmental damage which causes major losses to producers and farmers. Hence, a programme aiming at managing threats and natural disasters needs to be implemented within the framework of the Strategy, specifically to develop a sustainable Arab agriculture. Cooperation and coordination between Arab countries in this respect need to be enhanced as well, in addition to setting up powerful mechanisms for managing disasters at regional level.

Components of the Sub-Programme:

First Component: Monitoring Mechanisms and Systems of Predicting Natural Disasters:

Accurate forecast of natural disasters is a great step towards preventing risks, providing a longer timeframe to erect defences and taking emergency response measures. This component proposes the establishment of monitoring mechanisms, systems and forecasts based on efficiency and abundance.

Second Component: Establishment of Geographic Information Systems (GIS):

The geographic information system (GIS) provides voluminous geographic information that can be used in analyzing threats and natural disasters and linking it to geographical effects. The component is dealing with establishing a geographic information system at both country and pan-Arab levels, and its activities are integrated with the first one.

6.7.3. The Sub-programme for Conserving Genetic Resources and Hereditary Assets:

Background and Objectives:

The Arab region has a large and diversified base of animal resources with different types and hereditary merits. These resources are decreasing due to unfavourable environmental conditions, urban expansion, the negative human behaviour and the frequent out-break of pests, and epidemic diseases. If the current rate of extension of these assets continues, this will lead to loss of a large part of such assets in the Arab region. Some Arab countries have legislations and laws to conserve their resources, but are either not sufficient or do not cover all areas, or are not seriously implemented or being violated one way or another. As noted, the intellectual property rights registration of the indigenous species is important to some non-Arab countries that have managed to register species originating in the Arab region. As for wild life, violating hunting laws has led either to the extinction of some wild species or they are on their way to extinction.

Components of the Sub-Programme:

First Component: Establishment of Gene Banks:

This component seems to be very important, as gene banks constitute the only reliable mechanism for conserving the valuable genetics resources of the Arab region. To establish data-bases conservation of genes will help breeders to use them in genetics improvement programmes of plants and animal species. The benefits of whether a base is established to exchange genes among many Arab banks or one pan-Arab gene bank which could be established within the framework of this Strategy are great as the results will be seen during the two decades of the Strategy.

Second Component: Registration of Indigenous Plant and Animal Breeds and Protection of the Intellectual Property Rights:

Following procedures agreed upon in international conventions, especially the Convention on Property Rights, it is very important to preserve Arab rights related to ownership of its genetic resources and assets. Since registration requires many steps, procedures and technical expertise, this component comprises a number of activities which aim at providing such expertise, and the necessary technical assistance and consultations in this field.

Third Component: Natural Protectorates and Conservation of Wild Life in the Arab Region:

This component is related to activating policies and systems in the area of protecting the wild life in Arab countries in addition to protection and management of natural preservations. The overall process entails the revision and activation of laws and legislations pertinent to this matter. In this respect, appropriate pan-Arab coordination will help a lot.

6.7.4. The Sub-programme for Integrated Management of Water Resources:

Background and Objectives:

Since water is absolutely the most important natural resource, this sub-programme encompasses many components that deal with water management systems for both agriculture and natural Resources. To a large extent, it is integrated with the Water Technology Development Programme. In general, the programme is concerned with increasing benefits from water resources through its various uses in agriculture and other sectors. There are many alternative ways for increasing water supply from its various sources. In addition, there are so many uses for water in the fields of agriculture, industry, tourism and drinking. Obviously, alternative uses of water vary as do the alternative methods for increasing water resources. Hence, it is important to follow a comprehensive approach for proper management of water, as recommended by the concerned international institutions, especially after sustainable development has become known. Sustainability which takes into consideration the various uses of water at present will also consider the rights of future generations in this vital resource. Comprehensive management of water resources does not cover supply and demand alone; it also deals with the integration of the specializations of current water institutions and the implementation of the existing policies related to water management in the Arab region. .

Current realities in Arab countries point to many aspects of institutional deficiencies and draw backs in the water sector, due to conflict or duplication or lack of integration among institutions included in management of water resources. For example, ministries of agriculture in Arab countries deal with the usage of water in agriculture, while ministries of water resources deal with demand and distribution of water. Water management in this manner results in diminishing the capacities of water use in general. In other words, this means that adopting a comprehensive water management procedure will lead to maximum benefits. Coordination is another dimension connected to the comprehensive management approach, with regards to mutual benefits from the shared water basins.

A contributing factor to impeding the implementation of such proposed comprehensive management approach in the Arab region, is the lack of a clear policy to involve water users in determining costs of water delivery, which is a principle called for by many international organizations, aiming at realizing

a wise use of this valuable resource.

Components of the Sub-Programme:

First Component: Policies for Participation of Water Users in Sharing Irrigation Water Costs :

This component reviews different alternatives for participation of water users in costs of access to water, which is based on assessments of experiences of Arab countries in the field. The objective of this component is to come up with policies that can be implemented economically and socially at Arab countries level, and to identify the positive and negative consequences of such policies.

Second Component: Management of Shared Water Reservoirs and Surface Basins in the Arab Region:

This component is concerned with establishing a base for proper management of surface basins and reservoirs in the Arab region, in the light of assessing consequences of current management policies, which do not take into consideration the integration and coordination that could be achieved by Arab countries to guarantee proper management of basins and reservoirs.

Third Component: Institutional Integration in Water Management:

The concern of this component is to activate institutional integration of water management policies at country level, or in other words, institutional reform of the whole water sector, in order to confront realities in most Arab countries, where several institutions and entities are in charge of water. Therefore this component is proposed to focus on reducing inconsistencies and duplications in the specialization of these entities.

Fourth Component: Management of Fish Resources and Aquaculture:

This component focuses on describing the current situation of fisheries and marine resources of the region, in addition to their management of these resources. Experiences of other countries in this field will offer corrective actions for better management of fisheries. It also includes a coordination dimension especially in relation to countries sharing common sea coasts. This component is integrated with that concerned with developing appropriate fishing technologies.

6. 7. 5. The Sub-programme for Organizing Management of Pastoral Resources and Forestry:

Background and Objective:

The Arab region has a huge animal wealth. Most of it are herds existing on a wide area of grazing pastures. Such herds are basically concentrated in a few Arab countries, most notably Sudan, Somalia and Morocco. As demonstrated in a previous section, pastoral herds are characterized, to a large extent, by their low productivity, a way not commensurate with their real potentials. Most Arab countries import animal products from abroad. Reality indicates that bad management of grazing flocks is a major reason behind the low productivity of such flocks. Therefore, the objective of this programme is to improve management of this sector, in order to increase its production capacities, which will eventually lead to increasing the overall production of animal goods in the region through pastoral activities.

Components of the Sub Programme:

First Component: Organization of Grazing Areas :

This component is considered one of the most important mechanisms used to improve the situation of pastures and grazing flocks. It is clear that over-grazing is one of the most serious problems facing pastures' development. It negatively impacts the productivity of grazing animals. Organization of

grazing is vital in the conservation of pastures.

Second Component: Strengthening Extension, Veterinary and Marketing Services in Grazing Areas:

This component is concerned with strengthening extension, veterinary and marketing services in pastoral areas with the purpose of increasing productivity of grazing animals. Since animals perish as a result of bad transportation and marketing practices, enhancing marketing services in pastoral areas will have the same importance.

Third Component: Organizing Management of Forest Resources and Natural Reservations:

This component is concerned with developing management and investment systems for conserving natural forests and identifying investment projects benefits and returns of such resources, in addition to management of natural parks and reservations in the Arab region in an overall plan addressing conservation of biodiversity.

7. Distribution of the Proposed Developmental Components at National and Regional Levels:

The proposed developmental components were reviewed above in the context of the main seven programmes that composed of 34 sub-programmes, containing 114 developmental components. Naturally, a large part of the implementation responsibility will fall on the shoulders of Arab countries through their inclusion in programmes and projects to be implemented within the confines of their development strategy and plans. In general, the proposed developmental components can be categorized in two main groups:

The First group: Consists of the developmental components at country level which are implemented by the countries in collaboration and coordination with various concerned national entities in the context of the development programmes and plans in each country according to its particularities. These components have been selected according to the needs of Arab countries to attain their development objectives. It should be noted that some of these components can be formulated in the form of country projects in collaboration with specialized regional organizations. Necessary funding can be obtained to contribute to their implementation of these developmental components (44 components) . The implementation priorities of the components at country level are governed by the circumstances of each country.

The Second group: Includes the developmental components of pan-Arab or joint nature where implementation is assigned to joint Arab action institutions, according to their specialization, or in collaboration and coordination among them, provided that implementation is made in full coordination with the specialized institutions at the country level, in the form of programmes and projects that can be included in the plans of the specialized Arab organizations. The following parts will present the selection criteria of such components along with its pan-Arab and joint priorities in a way that achieves the objectives of the proposed strategy. The implementation of these components is governed by the priorities set by those in charge of the agricultural and nonagricultural sectors since they represent the member countries (legislation institutions) of such organizations.

The following section introduces the developmental components incorporated within each of the two groups mentioned previously.

7.1. Developmental Programmes and Components at Country Level:

The main and the secondary developmental programmes proposed in the context of the sustainable agricultural development strategy contain (48) developmental components of a country nature. These components are presented below according to the main and secondary programmes of the strategy.

7.1.1. The Main Programme for Developing Agricultural Technologies in Arab Countries:

This programme includes many of the developmental components which are implemented within development programme and plans at the country levels. These are:

- Improving efficiency of irrigation systems.
- Improving water use efficiency methods and technologies.
- Improving water distribution technologies.
- Agricultural drainage water re-use technologies.
- Improving animal breeds.
- Adaptation of animal breeds and plant varieties.
- Dissemination and adoption of best suit plant varieties.
- Improving fertilization technologies.
- Good agricultural practices technologies.
- Improving land preparations and crop husbandry technologies.
- Improving agricultural practices technologies under non-traditional agricultural systems.
- Improving animal husbandry practices.
- Improving fish processing and marketing technologies.
- Improving feed production methods through the use of agricultural residues.
- Improving methods of fuel production through the use of residues.
- Improving industrial uses through waste.
- Tissue culture technologies.
- Nitrogen fixation technologies.

7.1.2. The Main Programme for Encouraging Investment in Agriculture and Agro-industry in Appropriate Agricultural Environments:

This programme has two country level components:

- Developing the infrastructure in main investment areas.
- Enhancing the capacity of agricultural investment institutions at country level.

7.1.3 The Main programme for Enhancing the Competitiveness of Arab Agricultural Products:

This programme includes the following country level development components:

- Improving marketing infrastructure.
- Necessary legislations and laws to adapt to international developments.
- Linking small producers to the market.
- Supporting marketing services directed towards small producers.

7.1.4 The Main Programme for Setting Policies and Agricultural Legislations Structure:

This programme includes the following country level development components:

- Rehabilitation of research infrastructures.
- Testing and adaptation of modern technologies.
- Monitoring and evaluation of Arab agricultural research programmes.
- Policies determining the integrated role of the private sector in building the strategic supplies.

7.1.5. The Main Programme for Human and Institutional Capacity Building:

This programme has the following country level development components:

- Studying demand for specialized agricultural human resources.
- Vocational training in agricultural fields.

- Training of specialized agricultural extensionists.
- Improving agricultural institution performance.

7.1.6. The Main Programme for Enhancing Rural Prosperity:

This programme has the following country level development components:

- Empowering of rural women.
- Supporting single working women.
- Developing small and medium rural projects.
- Small and micro credit in rural areas.
- Agricultural food industry.

7.1.7. The Main Programme for Developing Agricultural and Environmental Resources Management Systems:

This programme has the following country level development components:

- Dune stabilization technologies.
- Geographical information system.
- Genetic resource banks.
- Protection of reservation parks and wildlife.
- Institutional integration in water management.
- Managing and improving range lands areas.
- Strengthening extension, veterinary and marketing services in range lands areas.
- Enhancing forestry and reservation parks management.

7.2. Joint and Pan- Arab Programmes and Components:

The strategy illustrated previously the development components to be implemented at country level. It is evident that the importance of those components varies among Arab countries. This variation is in turn, reflected on the priorities of implementing these components in different Arab countries. Recognizing responsibilities at country level shows that there are many development components to be implemented within a pan-Arab framework; i.e coordination of country level efforts. This part of the document aims at highlighting programmes and components that will be an area for joint and pan-Arab action to achieve the goals of sustainable agricultural development directly or indirectly by providing proper technical support to the concerned country institutions. It will also look into prioritizing implementation of pan-Arab and joint components based on a number of considerations upon which selection of components will be made.

7.2.1. Selection Criteria:

Development areas and components to be focused on by joint Arab action directly or indirectly have been selected based on the following criteria regarding the components implementation requirements :

- The implementation of a development component requires monetary or technological funding that is difficult to be realized by one country regardless of the importance of such a component and its expected impact on sustainable development objectives. Perhaps it is beneficial to Arab countries that express interest in such component to collaborate to achieve it in a joint venture that guarantees coordination in performance and exchange of experience among the countries. In such cases, one of the joint action organizations assumes the responsibility of coordination and role integration among participating countries.
- The implementation of a development component requires coordination among Arab countries, such as coordination in commercial policies. In this connection, the coming phase requires that some progress be made for meeting the obligations of the Greater Arab Free Trade Area and moving forward to a custom union as has been resolved.
- The implementation of a development component is linked to more than one country, such

as those related to management of subterranean basins and joint water courses. Therefore, implementation of such a component requires coordination and collaboration among concerned countries, which can be secured by one of the joint action organizations.

- The component by nature lies within the mandates or specialization of one of the joint action organizations based on its cumulative experience, and that it can implement in collaboration with concerned countries in the most efficient manner. This criterion is applicable to components concerned with monitoring regional and international developments, evaluating its impacts and adaptation requirements. It is also applicable to components concerned with the training and skill acquisition in new fields such as international arbitration, negotiations and other similar fields.

7.2.2. Programmes and Components:

In light of the previous criteria, the joint Arab agricultural action will take place within the following programme and components, 67 in total:

First: The Main Programme for Developing Agricultural Technologies in Arab Countries:

It includes the following pan-Arab and joint components:

- Improving water harvest technologies and methods.
- Improving water desalination technologies.
- Improving water treatment technologies.
- Breeding of high yielding plant varieties and animal breeds.
- Combating animal epidemics and plants pests and diseases.
- Improving feed production technologies through the use of agricultural residues.
- Collecting and analyzing agricultural data and information.
- Establishing agricultural information data bases.
- Disseminating agricultural information.
- Experts systems.
- Environmental monitoring.
- Modern methods of marine fishing.
- Fishing methods in inlands, lakes and rivers.
- Advanced methods of aquiculture.
- Improving fish stock developments technologies.
- Improving genetic engineering technologies.
- Use of agricultural residues in rural industries.
- Improving agricultural residues recycling and disposal methods.

Second: The Main Programme for Encouraging Investment in Agriculture and Agro-industry in Appropriate Agricultural Environments:

It includes the following pan-Arab and joint components:

- Enhancing the effectiveness of agricultural investment institutions.
- Agricultural investment risk reduction.
- Identification and promotion of investment opportunities.

Third: The Main Programme for Enhancing the competitiveness of Arab Agricultural Products

It includes the following pan Arab and joint components:

- Defining unified standards for agricultural goods.
- Support standard specification institutions in Arab countries.
- Improve foreign trade facilities.
- Establishment of units to analyze and monitor resolutions of the World Trade Organization.

Fourth: The Main Programme for Setting Policies and Agricultural Legislations Structure:

It includes pan-Arab and joint components aimed at collaboration and coordination in the following areas:

- Coordination and unification of import/export legislations and procedures.
- Measurements and standards policies.
- Food safety policies and procedures.
- Customs institutions procedures.
- Inter-agricultural trade policies.
- Detailed regulations of origin/ policies and procedures.
- Property rights legislations.
- Trade funding and export incentives policies.
- Researchers training and skills upgrading policies.
- Water reserves and joint basin policies.
- Marine fisheries policies in coastal areas of Arab countries.
- Improvement of investment climate policies.
- Legislations and procedures on dealing with investors.
- Agricultural funding, insurance and investment insurance policies.
- Trans-boundary diseases and epidemics combating policies.
- Agricultural and veterinary quarantine policies.
- Food safety and phyto-sanitary legislations.
- Policies related to building strategic reserve of food commodities at country level.
- Agricultural production subsidy policies.
- Procedures determining criteria and levels of subsidy, and the mechanism of conflict resolution.
- Establishing a technical unit under the umbrella of the Arab Organization for Agricultural Development in the field of the analysis and evaluation of agricultural and trade policies.

Fifth: The Main Programme for Human and Institutional Capacity-building:

Joint Arab action in this area will be included in the following components:

- Improving capacities and skills in the field of agricultural and commercial policy formulation.
- Improving capacities and skills in the field of negotiation and international arbitration.
- Improving the skills of legal cadres in the field of defense of Arab commercial and economic rights.
- Improving policies of education and training in Arab agricultural sectors.
- A comparative study of agricultural education methods.
- Improving and restructuring of agricultural extension institutions.
- Strengthening institutional communication networks in agricultural sector at the regional and international levels.
- Strengthening civil society and cooperative institutions in Arab rural sectors.
- Improving the means of communications and methods of agricultural extension.

Sixth: The Main Programme for Enhancing Rural Prosperity:

This programme focuses on the following components:

- Poverty reduction research and studies.
- Defining the role of education in the reduction of poverty level in rural families.
- Social security policies in rural areas.
- Insurance and social solidarity policies in rural areas.
- Supporting national price funds and budgets to reduce agricultural risks.
- Contractual agricultural systems.

Seventh: The Main Programme for Improving Agricultural and Environmental Resources Management Systems:

The components included in this main programme are the following:

- Improvement of remote sensing and monitoring systems.
- Boosting environmental extension services.
- Developing monitoring and forecasting mechanisms for natural disasters and threats.
- Registration of species and protecting Arab property rights.
- Policies on the participation of water users in its covering delivery costs.
- Management of joint surface and reserve water.
- Management of fisheries and marine resources.

8. Priorities of Joint Arab Agricultural Development Action

8.1 Priorities for Selection Criteria :

Since there are many proposed development areas and components in joint Arab agricultural development listed within the main programme of this strategy, which account for 114 components, it is necessary, for the purpose of this strategy, to establish implementation priorities for these areas and components. These were decided based on certain criteria, most important of which are the following:

- The logical sequence imposed by the nature of development components of any of the proposed programmes, as the implementation of some components has to be preceded by others.
- Meeting the requirements of boosting Arab economic integration which mandates placing certain components in advanced stages according to implementation priorities.
- Extent of development impacts, where precedence has been given to development components thought of having increased development impacts, or those affecting the reduction of development constraints and challenges.
- Current and near future perspective implementation capacities of Arab joint action institutions, which will assume the task of implementing priority development components, chief among those is what such institutions can get in monetary budget governing their capacity to meet implementation requirements.

8.2 Areas and Components of High Priority:

Based on priority criteria mentioned above, the development areas and components representing fertile fields for priority Arab joint action during the first decade of the Arab sustainable agricultural development strategy, totaling 29, have been categorized according to the above mentioned criteria into three main groups:

8.2.1. Areas and Components for Enhancing Arab Economic integration: This category includes 11 development components. Most of them make part of the main programme to coordinate Arab agricultural policies. Those are:

- Coordination of import/export legislations and procedures..
- Coordination of specifications and standards policies.
- Coordination of food safety policies and procedures.
- Coordination of customs procedures.
- Coordination of inter-agricultural trade policies.
- Coordination of detailed regulations of origin procedures.
- Coordination of trade funding and export incentives.
- Coordination of investment policies.
- Coordination of policies and procedures for combating trans-boundary diseases and epidemics.

- Coordination of veterinary and agricultural quarantine procedures.
- Coordination of subsidy policies.

8.2.2. Areas and Components of High Developmental Impact:

This group has seven components that make part of main and secondary programmes, especially the technologies development programme.

- Improvement of water harvest technologies.
- Improvement of high yielding plant varieties and animal breeds technologies.
- Improvement of genetics engineering technologies.
- Improvement of aquiculture policies.
- Improvement and dissemination of expert systems technologies.
- Management of joint water reserves and surfaces.
- Irrigation water cost recovery policies.

8.2.3. Development Areas and Components Supporting Institutional Performance to Meet Strategy Implementation Requirements:

This group has eleven components distributed on a number of main programmes. These are:

- Analysis and monitoring of the International Trade Organization's resolutions, trade and agricultural policies.
- Improvement of agricultural information data collection and analysis techniques.
- Establishment of agricultural information data-bases.
- Dissemination of agricultural information.
- Capacity building and skills upgrading in the areas of negotiations and international arbitration.
- Improvement of natural disasters monitoring and forecasting techniques.
- Registration of species and the protection of Arab property rights.
- Improvement of education and training policies in agricultural sectors.
- Identifying and promoting of investment opportunities.
- Reduction of agricultural investment risks.

9. Implementation Partners

The development programmes proposed to achieve the objectives of the Arab Sustainable Agricultural Development Strategy included 114 development components. They cover a wide area of fields of interest and development work. Some are directly linked with agricultural activities and hence they fall within the specializations of institutions interested in Arab agricultural sectors at regional and country levels. Others have indirect effects on the developmental performance of agricultural activities and hence fall within the specializations of institutions concerned with other sectors within the economic system of any Arab country. Examples are special components related to trade policies, and investment policies which affect the performance of the agricultural sector, but are considered part of non- agricultural institutions.

Therefore, because of the numerous and diversified components at the country and joint pan-Arab levels in the strategy, there is a variety of implementation partners who are interested in agricultural development issues in the Arab region. Such partners can be country, pan-Arab, joint Arab, regional or international institutions. They can be categorized into a number of homogeneous groups as follows:

9.1. Country Institutions:

Include the following:

- Applied agricultural research institutions, whether those comprising research institutions in Arab agricultural ministries or those belonging to ministries of higher education or universities.
- Agricultural extension and technology development institutions, whether those administratively belong to agricultural ministries or non-profit making civil society organizations.
- Agricultural statistics and surveying institutions being part of the ministries of agriculture, commerce or finance, according to institutional classification in Arab countries and within their implementation responsibilities.
- Fisheries management and development institutions that belong administratively to ministries or entities of agriculture or ministries of fisheries in addition to civil society organizations providing technical assistance to fishermen.
- Institutions concerned with management and improvement of the use of water resources whether those belonging to ministries of water or agriculture, in addition to institutions, organizations and associations of water users in Arab agricultural sector and the Arab Council on Water.
- Investment institutions and entities, whether interested in general investment or specialized agricultural investment in particular.
- Private sector organizations and businessmen represented in chambers of commerce, industry and agriculture and in civil society groups (NGOs) seeking to provide a better climate for investment in general and agricultural investment in particular.
- Organizations seeking standardization unification, especially ones interested in developing standards and specifications of agricultural goods and products.
- Marketing and trade services institutions, including those concerned with the management of agricultural products, whole sale markets, supermarkets and banks. This is beside those concerned with marine and air shipping and transport, marine insurance, arbitration and quality testing, export development, international trade promotion, and export risk reduction regardless of being governmental or civil society organizations.
- Formulation and implementation of trade policy institutions whether they belong to ministries of commerce or agriculture; such as veterinary services and agricultural quarantine.
- Institutions concerned with formulating and analyzing agricultural policies belonging to ministries of agriculture and other concerned institutions.
- Institutions concerned with formulating and analyzing agricultural educational policies or vocational training, whether they belong to ministries of education, higher education or Arab universities.
- Institutions concerned with women's education and poverty reduction whether governmental or civil society.
- Small and medium project support institutions comprising funds of financing these projects or civil society organizations concerned with specifying proper areas and opportunities for activities of such projects or development of capacities or skills of young people working within these projects, or supporting products marketing.
- Institutions concerned with the environment whether from government organizations and entities or civil society organizations working in the field.

9.2. Joint Action Arab Institutions, and Regional and International Development Organizations:

This group comprises potential pan-Arab, regional and international implementation partners active in the Arab region and interested in agricultural issues either directly or indirectly. Below are some of these organizations.

9.2.1. Joint Action Arab Organizations and Institutions Concerned with Arab Agricultural Sector:

They include the following:

- Pan-Arab and regional groups represented in the Gulf Cooperation Council (GCC) countries and the Union of Arab Maghreb.
- Arab technical organizations such as the Arab Organization for Agricultural Development and the Arab Center for the Study of Arid and Desert Areas.
- Arab and Islamic finance and developments funds, including the Arab Fund for Economic and Social Development, the Arab Monetary Fund, the Programme to Finance Arab Trade, the Arab Association to Guarantee Investment, the Islamic Development Bank, in addition to country level funds such as the Saudi Development Fund, Abu Dhabi Development Fund and the Kuwait Fund for Arab Economic Development.
- Arab companies and entities concerned with agricultural investment which include the Arab authority for Agricultural Investment and Development, the Arab Company to Develop Animal Wealth, and the Arab Company for Investments.
- Councils, unions and related Arab institutions such as the Arab Council for Water, the Arab Investors Union, the General Union of the Chambers of Commerce, Industry and Agriculture of Arab Countries and other quality unions and related civil society institutions.

9.2.2. Regional and International Organizations Concerned with the Arab Region :

They include the following:

a. Technical Institutions and Organizations Concerned with Arab Agricultural Sectors

This includes Food and Agricultural Organization of the United Nations (FAO), the Economic and Social Commission for Western Asia (ESCWA), International Centre For Agricultural Research in Dry Areas (ICARDA), International Food Policy Research Institute (IFPRI), International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM), International Centre for Biosaline Agriculture (ICBA), Association of Agricultural Research Institutions in the Near East and North Africa (AARINENA), the Regional Association of Agricultural Marketing in the Near East and North Africa (AFMANENA), the Center of Environment and Development in the Arab Region and Europe (CEDARE) the Regional Centre on Agrarian Reform and Rural Development for the Near East (CARDNE), the World Organization for Animal Health (OIE), the United Nations Environment Programme (UNEP), the International Atomic Energy Agency (IAEA) and the United Nations Convention to Combat Desertification (UNCCD).

b. Regional and International Funds and Entities:

These include the World Bank, the OPEC Fund for International Development (OFID), the United Nations Development Programme (UNDP), the International Fund for Agricultural Development (IFAD) and the African Bank for Development (ABD).

Naturally, implementation is expected according to one or more of the following patterns:

- Concerned country institutions carry out a specific activity or a development component taking responsibility of implementing development activities related to that component either independently in financial and technical terms or in technical cooperation with a pan Arab, regional or international organization with expertise in that field or with financial support of Arab financial institutions.
- Country institutions specialized in certain fields cooperate to meet the development objectives of one of the strategy components in which possible institutional coordination and support is provided by a concerned technical organization.
- An Arab, regional or international technical organization implements all tasks and activities of a proposed development component alone or in collaboration with other technical organizations.

10. Funding and Potential Financing Sources

According to the strategic planning concepts, sector strategies, at country or regional level, do not specify implementation costs or budgets of the elements and components of such strategies. Such matters are usually determined at project and programme implementation levels which are included in annual or mid-term plans. Budgets, methods of resource arrangement, specifying funding sources are determined by specialized institutions that will be responsible for implementation, whether at country, regional or joint level comprising the concerned Arab countries, beside Arab and regional organizations.

Accordingly, and based on the distribution of responsibilities and implementation tasks of specified development components, there are three potential funding sources for the implementation of programmes and components proposed in the strategy:

- Country level funding, which Arab countries include in their development plans according to circumstances and particularities of each, its priorities in the agricultural and other related sectors. This funding is required for proposed development programmes at country level.
- Pan-Arab and joint funding represented essentially in annual budgets allocated to specialized joint Arab action organizations, in addition to technical assistance which such organizations can attract from regional and international development agencies as contributions to funding strategy programmes and components. This funding will be allocated to the implementation of joint and pan- Arab programmes and components.
- Monetary grants from donors to fund joint or limited country projects in cooperation with specialized Arab organizations and related national institutions in countries looking for such funding.

As for joint and pan-Arab funding, the strategy proposes that all monetary allocations of the programmes and projects included in the annual budgets of related specialized Arab organizations be directed for the implementation of the strategic programmes and components during the next two decades. This implies that such organizations should ensure that their annual and mid-term programmes and plans are geared towards achieving strategic goals taking into consideration priorities specified in the strategy for selection and preference among the various programmes and components allowed by its allocated budgets without adding more burdens to the membership. In this sense, the strategy confirms that such institutions will intensify efforts to increase self- funding sources through their work as centers of specialized expertise to support financial capacities of countries and organizations to participate in implementing strategy programmes and components.

11. Time Framework for Implementation of the Strategy Programmes:

The time framework of achieving objectives of the strategy and implementing its programmes is decided based upon the close linkage between long and mid-term objectives and short-term objectives in the following manner:

General Strategic Framework:

The strategy specified a future perspective to realize the ambitions and hopes of Arab peoples to achieve sustainable agricultural development and secure safe food. According to the strategy, the time horizon defined is 20 years.

Mid-term Plans:

These plans include mid-term objectives that help to achieve long term strategic objectives. They propose adequate programmes to realize each of the strategic objectives in such a way that they include data on expected results. Mid-term plans need to be sequenced and renewable so that they can be updated every two years to be more interactive to new regional and international developments.

Work Plans:

Work plans represent a timetable of the mid-term plan for one or two years. As such they comprise the planning nucleus for implementing the strategy due to the role they play in realizing mid-term objectives, which in turn, help to implement long term strategic objectives. It should be noted that work plans of one or two years facilitate the determination of the implementation financial needs more easier compared to mid-term plans. Such programmes are implemented parallel to the logical sequence to realize mid-term and then strategic long-term objectives.

The time framework to implement the developmental components of joint Arab action to meet objectives as per periodic terms (long, medium and short) is normally governed by the four criteria defined in the strategy to select implementation priorities. These have been defined previously as:

- The logical sequence imposed by development components.
- Meeting requirements of enhancing Arab economic integration.
- Effectiveness of development action.
- Present and near future implementation capacities of the institutions of joint Arab action.

Such criteria are normally used when preparing detailed plans and programmes by different players. The following figure illustrates the objective and structural linkage in achieving long, mid and short-terms objectives. The table below shows the three planning entities that determine goals and objectives to be realized during the planning periods.

Goal and Objectives	Period (years)	Entity
Achieving strategic vision and realizing long-term objectives	20	General strategic framework
Establishing programme priorities, project funding needs and achieving mid-term objectives	6	Mid-term plan
Allocation of resources needed for programmes, project and implementation, achieving short-term programme goals.	1-2	Work plans

12. Mechanisms of Implementation, Monitoring and Evaluation

It has been noted that the sustainable Arab agricultural development strategy included many developmental components, which lie in turn within the jurisdiction of many Arab, regional and international institutions. This wide variety of specializations requires the highest possible degree of coordination and integration in implementation performance among potential implementing partners. Based on this, implementation mechanisms have to be highly flexible in specifying role without giving up on tight coordination and linkage between the role of either of the partners.

Generally, implementation of developmental components, especially joint ones, which represent a fertile field for joint Arab agricultural development action is accomplished according to the following time framework:

- Approval of the strategy by the concerned entities, especially the legislation bodies of the Arab Organization for Agricultural Development, the Economic and Social Council of the Arab League, in preparation for its presentation to the next Arab Summit taking place in March 2007.
- Distribution of roles among the organizations and institutions of joint Arab action through a directive from the Economic and Social Council in preparation of necessary implementation plans to start implementing development plans and components provided that distribution is done through a conference that brings together all concerned parties, which would be convened during the last quarter of 2007.
- Preparation of plans and implementation programmes where each of the joint Arab action institutions assumes the task of preparing mid-term implementation plans to meet their assumed roles. The plans are to be approved by legislation bodies during the first half of 2008.
- Coordination of mid- and short-term plans and programmes at the country and joint pan Arab levels whereby it is proposed that the Arab Organization of Agricultural Development, in collaboration with other implementing partners, assumes the role of coordinator between approved work plans and programmes. It is proposed that this takes place during meetings of implementing partners of each programme and developmental component starting in the third quarter of 2008.
- Proper preparation of joint projects for funding. It is proposed that the Arab Organization for Agricultural Development, in collaboration with implementing partners, formulates some activities and projects that will be placed within implementation plans and preparing them properly to attract support and funds from Arab, regional and international development and financial institutions. It is proposed that a conference be held at the end of 2008.
- For monitoring and evaluation purposes, it is proposed that the Arab Organization for Agricultural Development prepares an annual progress report, in collaboration with the Secretariat of the League of Arab States, to show the achievements at

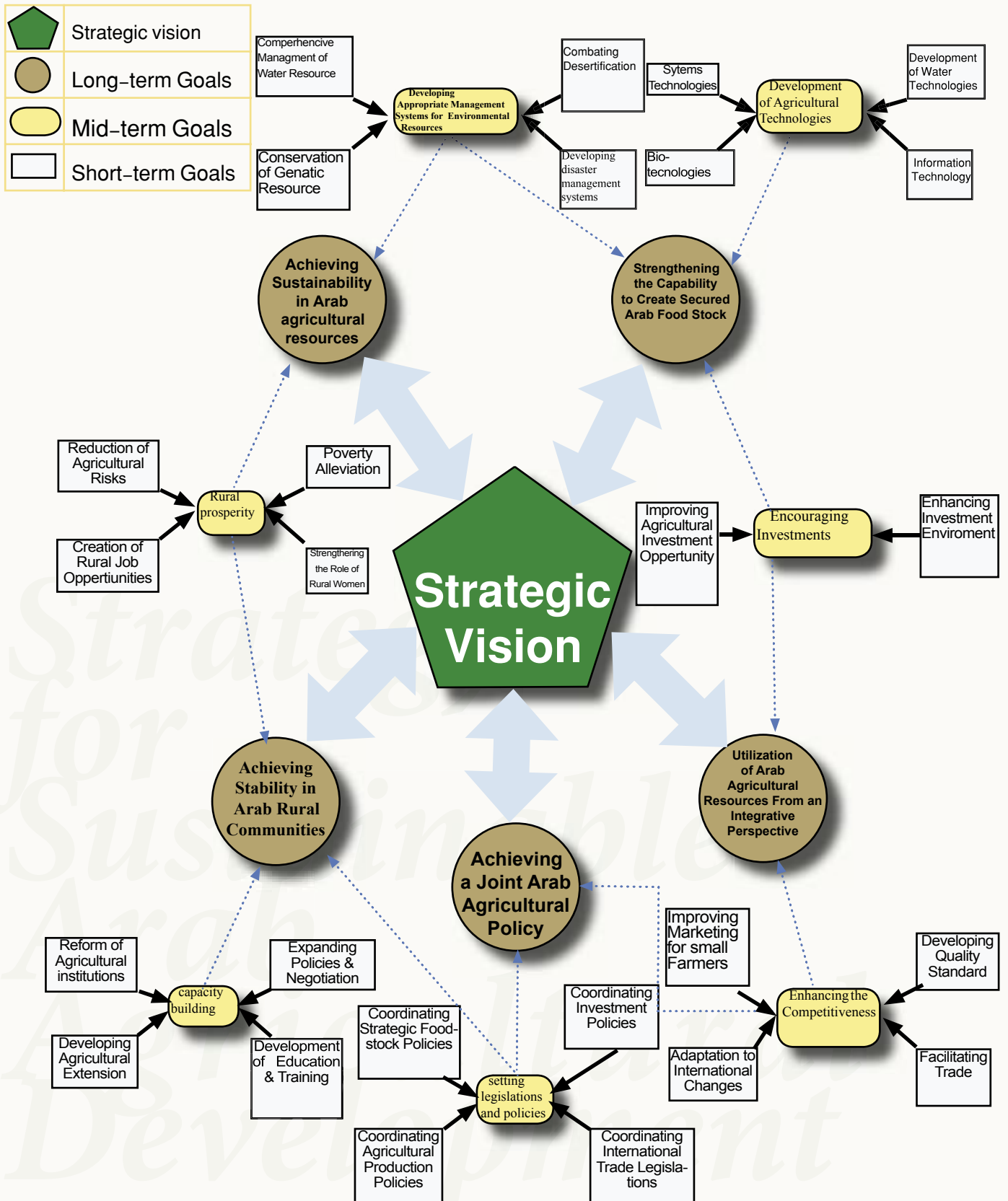
country and/or pan Arab level according to an approach approved by the Economic and Social Council and the Arab Summit starting from the Summit of 2008.

As for the developmental components that will be implemented by concerned country institutions, the implementation mechanisms are proposed as follows:

1. The Arab Organization for Agricultural Development reviews such components with concerned Arab countries to get a close look at current or planned efforts in the context of the development plans at the country levels, so as to explore their plans and determine the capabilities and requirements of implementing such programmes starting from the first half of 2008.
2. The Arab Organization for Agricultural Development formulates country specific executive projects in collaboration with the concerned institutions in Arab countries and according to each country's willingness and available budgets. The projects are assumed to be formulated in the forms that facilitates their implementations, attracting funds and support from Arab and international development and financial institutions during the first half of 2009.
3. The Arab Organization for Agricultural Development and/or other joint Arab action institutions provide the necessary technical support for implementing the formulated programmes during the first half of 2009.
4. As in the case of pan-Arab or joint programmes, and for the purpose of monitoring and evaluation, it is proposed that country institutions concerned with development components prepare an annual progress report on implementation achievements and constraints, leading up to the preparation of the annual progress reports proposed previously to be submitted to the Economic and Social Council and the Summit starting 2010.

In this regard, the Arab Organization for Agricultural Development, in coordination with concerned institutions in Arab countries will work to establish administrative units among Arab ministries of agriculture and other concerned parties tackling implementation tasks. Such units will be responsible for monitoring and evaluating development programmes and components, provided that the nature of such units and the limits of their institutional links are set according to the particular setting of each Arab country.

The Objectives and Structural Linkage of Long-term, Mid-term and Short-term Goals



13. References

References in Arabic

1. Arab Organization for Agricultural Development (AOAD), AOAD Proposed Strategy for the nineties, 1993.
2. Arab Organization for Agricultural Development, (AOAD) Proposed Strategy for the first decade of the 21st Century, August 2000.
3. Arab Organization for Agricultural Development (AOAD), Proceedings of the First Ministerial Conference on Agriculture and Water, Cairo, Egypt, 29 -30 April 1997.
4. Arab Organization for Agricultural Development (AOAD), Arab Statistical Yearbook, various volumes.
5. Arab Organization for Agricultural Development (AOAD), Annual Report on Arab Food Security Situations, different years.
6. Arab Organization for Agricultural Development (AOAD), Annual Report on Arab Agricultural Development, different years.
7. Arab Organization for Agricultural Development (AOAD), Study on Promotion of Irrigation Water Cost Recovery Techniques in the Light of the Local and International Changes, Khartoum, 2005.
8. Arab Organization for Agricultural Development (AOAD), Study on Poverty Alleviation Programmes and Projects in Rural Areas of Arab Countries, Khartoum, 2005.
9. Arab Organization for Agricultural Development (AOAD), Study on Use of Modern Techniques for Promoting Animal Production in Arab Countries, Khartoum, 2005.
10. Arab Organization for Agricultural Development (AOAD), Manual on Systems and Legislations of Food Safety Control and Consumer Protection, Khartoum, 2005.
11. Arab Organization for Agricultural Development (AOAD), Study on Rationalization of Ground Water Use in Arab Agriculture, Khartoum, 2004.
12. Arab Organization for Agricultural Development (AOAD), Maps of Joint Agricultural Investment Opportunities and Areas in Arab Countries -two volumes, Khartoum, 2004.
13. Arab Organization for Agricultural Development (AOAD), Study on Promotion of Cereals and Oil Seeds in Arab Countries, Khartoum, 2003.
14. Arab Organization for Agricultural Development (AOAD), Study on Promotion of Surface Irrigation and Drainage in Arab Countries, Khartoum, 2002.
15. Arab Organization for Agricultural Development (AOAD), Study on Desertification Monitoring Indicators in the Arab Region, Khartoum, 2002.
16. Arab Organization for Agricultural Development (AOAD), Study on Genetic Plant Resources for Food and Agriculture in the Arab Region, Khartoum, 2002.
17. Arab Organization for Agricultural Development (AOAD), Study on Possibilities of Integration in the Field of Fodder Production and Processing in the Arab Region, Khartoum, 2002.
18. Arab Organization for Agricultural Development (AOAD), Study on Improvement of the Legislations and Systems of Conservation of Land and Water Resources in the Arab Region, Khartoum, 2001.

19. Arab Organization for Agricultural Development (AOAD), Study on Evaluation of the Methodologies of Water Use and Management in Arab Agriculture, Khartoum, 2001.
20. Arab Organization for Agricultural Development (AOAD), Study on Improvement and Unification of the Standard Specifications of the Agricultural Commodities and Products for Serving the Greater Arab Free Trade Area, Khartoum, 2001.
21. Arab Organization for Agricultural Development (AOAD), Study on Evaluation of the Policies and Programmes Affecting Food Consumption and Nutrition in Arab Rural Areas, Khartoum, 2001.
22. Arab Organization for Agricultural Development (AOAD), Study on Coordination of Arab Agricultural Policies to Enhance Arab Agricultural Integration Khartoum, 2001.
23. Arab Organization for Agricultural Development (AOAD), National Study on Requirements of Enhancing the Establishment of the Joint Arab Common Market in the Field of Agriculture in Light of the Contemporary Regional and International Changes, Khartoum, 2000.
24. Arab Organization for Agricultural Development (AOAD), Study on Promotion of the Legislations and Laws of Water Resources Use and Development in the Arab Region, Khartoum, 2000.
25. Arab Organization for Agricultural Development (AOAD), Study on the International and Regional Laws and Agreements Governing the Use of Joint Arab Water Resources, Khartoum, 1999.
26. Arab Organization for Agricultural Development (AOAD), Study on Evaluation of the Impact of Privatization Programmes on Agricultural Production in the Arab Region, Khartoum, 1999.
27. Arab Organization for Agricultural Development (AOAD), Study on Analysis and Evaluation of the Policies and Programmes Affecting Food Consumption in the Arab Region, Khartoum, 1999.
28. Arab Organization for Agricultural Development (AOAD), Study on Evaluation of the Impact of Economic Reform and Structural Adjustment Programmes on the Agricultural Sectors in the Arab Region, Khartoum, 1998.
29. Arab Fund for Economic and Social Development, The Unified Arab Economic Report, different issues.
30. Arab Investment Guarantee Corporation, Investment Environment in Arab Countries, different issues.
31. Economic and Social Commission for Western Asia (ESCWA), Evaluation of Legal Aspects for Management of Joint Water Resource Use in ESCWA Organization, 2003
32. Economic and Social Commission for Western Asia (ESCWA), Production, Energy, Water, and Environment in ESCWA Area, Statistical Indicators 2003.
33. Economic and Social Commission for Western Asia (ESCWA), Rehabilitation of Ground Water and its Impact on Water Resource Conservation and Rationalization of its Use, 2003.
34. Economic and Social Commission for Western Asia (ESCWA), Environmentally Safe Technologies in Food Processing, 2003.
35. Economic and Social Commission for Western Asia (ESCWA), Micro Loans and Financing of Small Projects for Combating Poverty.
36. Economic and Social Commission for Western Asia (ESCWA), Paper on Arab Strategy for

Acquiring Knowledge and Culture for Use in the Purpose of Development at the Arab level, 1992.

37. Economic and Social Commission for Western Asia (ESCWA), Rationalization of Water Management in ESCWA Countries: Review of the Procedures Adopted by ESCWA Countries During the Nineties for Rationalization of Water Management and Building of the Sector Capacities, 2003.
- 38- Economic and Social Commission for Western Asia (ESCWA), The Millennium Development Goals in ESCWA Region: Progress Report 2004, 2005.
- 39- The International Fund for Agricultural Development (IFAD), Financial Policies in Rural Areas, 2004.
- 40- The International Fund for Agricultural Development (IFAD), The Rural Poverty in the World: Poverty Characteristics in the Near East and North Africa, 1994.
- 41- The International Fund for Agricultural Development (IFAD), The Strategic Regional Document: The Near East and North Africa, 2002.
- 42- The World Bank: The International Fund for Agricultural Development (IFAD), Animal Production Services and Poverty: International Initiatives - Experience Collection and Coordination, 2004.
- 43- The Arab Council for Graduate Studies and Scientific Research: The Conference on the Strategy of Safe Agricultural Production in the Arab Region, Part I, Cairo, Egypt, 1999.
- 44- The Arab Council for Graduate Studies and Scientific Research, The Strategic Conference on Safe Agricultural Production in the Arab Region, Part II, Cairo, Egypt, 1999.
- 45- Food and Agriculture Organization of the United Nations (FAO), FAO and the Millennium Development Goals Challenges: Future Prospective, Annex: Responses to the Millennium Declaration, the FAO Contribution upto now, 2005.
- 46- The FAO Regional Office for the Near East, Cairo, Egypt: Policies of Sustainable Agricultural Development in the Near East: Challenges, Issues and Opportunities of Agricultural Development, Agricultural Policies High-ranking Officials Meeting in the Arab Countries, League of Arab States, Cairo – Egypt, 5-6 December 2004.
- 47- Arab Planning Institute, Kuwait: The Limited Factors behind Arab Commodities Competitiveness in the International Market: Researches and Discussions of a Workshop Convened in Tunisia, 19-21 June 2000, 2001.

References in English:

48. International Fund for Agricultural Development: Regional Strategy Paper, Near East and North Africa, 2002.
49. World Bank: World Development Indicators for the Years, 2001, 2002, 2003, 2004, 2005.
50. World Bank: African Development Indicators, 2002.
51. World Bank: World Development Report for Years 2002, 2003, 2004, 2005.
52. World Bank: Little Data Bank, 2005.
53. World Bank: The Little Green Data Book 2005.
54. World Bank: Annual World Bank Conference on Development Economics, 2003, 2004.
55. World Bank: Groundwater: Legal and Perspectives of a World Bank Seminar, (World Bank Technical Paper No. 456), 2004.

56. World Bank: Standards and Global Trade: A Voice for Africa, 2003.
57. World Bank: Agriculture and the WTO: Greeting a Trading System for Development, 2004.
58. FAO: 2002 - 2007: Medium Term Plan, 2000.
59. FAO Regional Office for the Near East: Changes in Food Consumption Patterns in the Arab Middle Eastern Countries, 1994.
60. FAO: World Markets for Organic Fruit and Vegetables, 2001.
61. FAO: Proceeding Workshop on Livestock and Drought Policies for Coping with Changes, May 24-27, 1999 - Cairo - Egypt.

Strategy for Sustainable Arab Agricultural Development



Annexes

The Strategy Preparation and Discussion Team

*Strategy
for
Sustainable
Arab
Agricultural
Development*



Annex (1) :

The Strategy Preparation and Discussion Team:

The Strategy Principal Supervisors:

1- H.E. Dr. Salem Al-Lozi	Director General – AOAD
2- Dr. Abbas Abou Auf	Technical Advisor - AOAD

First: AOAD Team

Dr. Makki Madani Al-Shibli	Acting Director of Food Security and Agricultural Integration Department Coordinator
Dr. Monir Agezi	Head of Statistics Division Text Revision (Arabic Version)
Dr. Abbas Farah Mohamed Farah	Head of Follow-up & Evaluation Division Text Revision (Arabic Version)
Ms. Sa'adya Mohamed Shareef	Review Division Language Revision (Arabic Version)
Dr. Elhaj Attia Elhabeeb	Acting Director of Training and Capacity Building Department Text Revision (English Version)
Dr. Salah Abdelgadir	Head of Production & Investment Division/ Department of Food Security & Agricultural Integration Text Revision (English Version)
Mr. Khalafalla Mohamed Rahama	Expert/ Department of International Cooperation Text Revision (English Version)
Mrs. Salwa Ramsis Abdel Messih	Office of Director General Language Revision (English Version)
Mr. Ayman Bakri Khidir	Expert / Information Division Language Revision (English Version)
Mr. Abdul Razik Mohamed Ali	Expert / Information Division Text Design and layout

Second: External Team

1. Professor Mohamed Hamdi Salem– Professor of Agricultural Economy, Ain Shams University– Former Advisor at the Ministry of Economy and Trade	Chairman
2. Professor Barakat Al Farra– Professor of Economics — Economic Advisor at the Embassy of Palestine in Cairo	Member
3. Dr. Zuhair Mubarak Abdullah– Economic Advisor — Former Regional Director for Agricultural Marketing in the Near East and North Africa Region, Food and Agriculture Organization of the United Nations	Member
4. Professor Jamal Siyam– Director, Economics Studies Centre, Cairo University	Member

Annex(II): List of Participants in the Consultative Meeting for Preparing the Guidelines for the Strategy of Sustainable Arab Agricultural Development for the upcoming two decades (2005–2025), Amman, 24–28 April 2005

Name	State
1. Dr. Sami Al-Sunna'a	Economic Advisor — former secretary general, Ministry of Agriculture, Jordan
2. Dr. Abdullah Ben Abdullah Al-Obeid	Under Secretary, for Research and Development Minister of Agriculture, Saudi Arabia
3. Dr. Mohamed Ahmad Dinqil	Economic Advisor, Republic of Sudan
4. Dr. Salem Al-Najafi	Economic Consultant, Republic of Iraq
5. Dr. Barakat Al-Farra	Economic Consultant, Embassy of Palestine, Cairo
6. Dr. Mohamed Hamdi Salem	Professor of Agricultural Economics, Ain Shams University, Egypt
7. Dr. Al-Hassan Sarghini Idrissi	Director of Economic Programming, Ministry of Agriculture, Kingdom of Morocco

Annex(III): List of participants in the Expanded Coordination Meeting for preparing the Strategy for Sustainable Arab Agricultural Development for the Next Two Decades (2005–2025), Amman, Hashemite Kingdom of Jordan, 28–30 June 2005

Name	Position, Agency
1. Dr. Adel Biltaji	Director General, International Center for Agricultural Research in the Dry Areas (ICARDA)
2. Dr. Farouq Saleh Fares	Director General, International Center for the Studies of Arid Zones and Dry Lands, (ACSAD)
3. Dr. Salah Eddine Al-Kurdi	Director of Economics and Planning Directorate, (ACSAD)
4. Dr. Nasr Eddine Obeid	Director of Financial and Administrative Affairs Directorate, ACSAD
5. Dr. Mu'een Hamza	President, International Center for Advanced Mediterranean Agronomic Studies, (CIHEAM)
6. Mr. Saud Abdul Aziz Al-Dhuweikh	Representative, Federation of Arab Farmers and Agricultural Cooperatives
7. Dr. Mu'tassem Rashid Suleiman	Director, Economic Studies and Research Directorate, League of Arab States
8. Mr. Ass'ad Mustafa	Representative, Arab Fund for Economic and Social Development
9. Dr. Ahmad Mahmoud Al-Miniawi	Resident Representative of the Food and Agriculture Organization of the United Nations in Jordan — Regional Advisor on Agricultural Policies
10. Dr. Abdul Nabi Fardous	Chairman, Institutions Associations of Agricultural Research in the Near East and North Africa

11. Dr. Ibrahim Yousuf Hamdan	Executive Secretary, Associations of Agricultural Research Institutions in the Near East and North Africa
12. Mr. Mohamed Abdul Karim Haidar Al-Awamleh	Secretary General, Regional Association of Food and Agricultural Marketing Institutions.
13. Dr. Khaled Mahmoud Abu Zeid	Director, Water Resources Program, (CEDARE)

Annex(IV): List of Participants in the Meetings of Specialized Technical Committees for Discussing the Draft Strategy, Amman, Hashemite Kingdom of Jordan, 18–20 January 2005

A. Agriculture and Food Committee	
Name	State or agency
1. Engineer Falah Ibrahim Salah	Hashemite Kingdom of Jordan
2. Mr. Saleh Ben Mohamed Al-Hadithi	Kingdom of Saudi Arabia
3. Engineer Samir Al-Shami	Republic Of Lebanon
4. Dr. Ali Hussein Al-Hamidi	Socialist People's Libyan Arab Jamahiriya
5. Dr. Nabi Rasheed Mohamed	Syrian Arab Republic
6. Dr. Jameel Mohamed Jameel	Republic of Iraq
7. Dr. Ala'a Nour Eddine Juma'ah	State of Palestine
8. Dr. Rashad Mohamed Al-Sa'adani	Arab Company for Livestock Development
9. Mr. Raphael Dubbaneh.	Chairman and General Manager of Dubbaneh Brothers Company.
10. Mr. Mansour Hussein Itbeqah.	Secretary General, General Federation of Arab Farmers and Agricultural Cooperatives.
B. Natural Resources and Environment Committee	
1. Engineer Khaleel Ibrahim Al-Darrazi	Kingdom of Bahrain
2. Mr. Abdul Baqi Bou-Lebeineh	People's Democratic Republic of Algeria
3. Mr. Abdullah Safar Al-Khanji	State of Qatar
4. Mr. Jeilani Abdullah Uthman	Republic of Somalia
5. Mr. Salem Fareed Akram	United Arab Emirates
6. Dr. Hussein Ihsan Al-Atfi	Arab Water Council (NGO)
7. Dr. Mohamed Suleiman Ubeido	Arab Institute for Forests, Range and Environment.
8. Dr. Nasr Eddine Obeid	ACSAD (Observer)

C. Fisheries and Aquaculture Committee	
1. Dr. Younis Ben Khalfan Al-Akhzami	Sultanate of Oman
2. Mr. Abdul Hafez Naji Al-Simah	Republic of Yemen
3. Mr. Seidna Ould Sheikhna	Islamic Republic of Mauritania
4. Mr. Al-Ghazali Murad	Kingdom of Morocco
5. Engineer Ahmad Ben Rasheed Al-Balla'	Private Sector — National Shrimp Company, Kingdom of Saudi Arabia
6. Mr. Jamal Eddine Al-Tihami	Private Sector — Fisheries Sector, Tunisia
7. Engineer Mohamed Al-Rousan	ACSAD (Observer)

Annex(V):List of Technical Committee Members Participating in the 29th Session of AOAD General Assembly, Cairo, 20–24 May 2006

Name	State	Position
1. Dr. Mahmoud al-Najdawi	Jordan	Assistance Secretary General, Ministry of Agriculture
2. Engineer Khaleel Ibrahim Al-Darrazi	Bahrain	Director, Agricultural Extension and Public Relations Directorate.
3. Mr. Omar Ayet Amer Mizian	Algeria	Ministry of Agriculture and Rural Development
4. Mr. Mohamed Ben Suleiman Al-Mazrou.	Saudi Arabia	Ministry of Agriculture
5. Mr. Ghazi Ben Abdul Ra'ouf Yaghmour	Saudi Arabia	Director General, Directorate of Veterinary Laboratories, Ministry of Agriculture
6. Mr. Mohamed Hassan Jobara	Sudan	Ministry of Agriculture and Forestry
7. Dr. Rafeeq Al-Saleh	Syria	Ministry of Agriculture and Agricultural Reform
8. Engineer Haitham Haidar	Syria	Director, Office of the Minister of Agriculture and Agricultural Reform
9. Mr. Mohamed Al-Hariri	Syria	Director of Financial and Administrative Affairs, Ministry of Agriculture
10. Dr. Faleh Nasser Al-Thani	Qatar	Director, General Directorate of Research and Agricultural Development
11. Mr. Ali Mohamed Al-Kubeissi	Qatar	Agricultural Affairs Expert, Ministry of Municipal Affairs and Agriculture
12. Engineer Salih Mohamed Salih Al-Abri	Oman	Director General of Agriculture, Ministry of Agriculture and Fisheries
13. Dr. Mahmoud Al-Najjar	Egypt	Assistant Director, Agricultural Research Centre.

14. Dr. Izzat Awwadh Ibrahim	Egypt	President, Public Corporation for the Development of Fisheries
15. Dr. Ahmad Abdul Azeem Al-Sharqawi	Egypt	Director, Food Technology Research Institution
16. Dr. Toufiq Hassan Ali Shalabi	Egypt	Director, Institute of Animal Production Research
17. Mr. Mohamed Hassan Al-Shamsi	UAE	Director of the Western Region, Ministry of Environment and Water
18. Mr. Ahmad Bou-Qasheh	Tunisia	Director of International Cooperation, Ministry of Agriculture and Water Resources
19. Mr. Ibrahim Omar Al-Abeid	Sudan	Director, General Directorate of Quarantines and Animal Health
20. Engineer Samir Al-Shami	Lebanon	Director of Agricultural Resources
21. Dr. Barakat Al-Farra	Palestine	Ambassador at the Palestinian Foreign Ministry
22. Mr. Nizar Al-Wahidi	Palestine	Director of Information Systems,
23. Dr. Ala'a Juma'ah	Palestine	Director General of Planning and Policies
24. Mr. Jeilani Abdullah Othman	Somalia	Advisor to the Minister of Agriculture
25. Mrs. Fareedah Ahmad Mulla Ahmad	Kuwait	Director of Animal Health
26. Mr. Faisal Al-Siddiqi	Kuwait	Deputy Director General for Plant Wealth Affairs
27. Dr. Khaled Ramadan Ben Mahmoud	Libya	General Coordinator of the National Program for Plant Cover Development.
28. Engineer Kirdas Hassan	Morocco	In charge of International Cooperation Programs
29. Mr. Saleh Muthanna Nasser Al-Bishi	Yemen	Assistant Under-Secretary for Agricultural Affairs, Ministry of Agriculture.

Sustainable Arab Agricultural Development