

## 6. Regional Demand for Products of Irrigated Agriculture (FAO)<sup>3</sup>

### BACKGROUND AND JUSTIFICATION

Agriculture is the most important rural enterprise in Sub-Saharan Africa, contributing an average of 30% of total gross domestic product (excluding South Africa and Zimbabwe) and up to 40% in many countries of the region. Agribusiness is responsible for an additional 20%. Agriculture and the rural economy account for some 67% of employment in the region. Furthermore, agricultural growth can have significant multiplier effects on employment within the local non-farm economy through increased demand for goods and services from the small-scale enterprise sector. Since roughly 80% of the region's poor live in rural areas, agricultural growth is the key to poverty alleviation.

Recent estimates by FAO indicate that 75% of the agricultural growth required in SSA by 2030 will have to come from **intensification** (in the form of yield increases and higher cropping intensities), with the remaining 25% coming from arable land **expansion**.

Sub-Saharan Africa presently has an estimated 5 million ha of irrigation (of which half is located in only two countries – Sudan and Madagascar). However, this area represents less than 15% of the physical potential and less than 5% of total arable land area, and. Moreover, the rate of new development is probably less than 1% per year. A recent analysis by FAO of irrigation growth in SADC countries indicates an annual growth rate of no more than 0.5%. This compares with an average growth rate for all developing countries (93) of 1.1%.

Notwithstanding the negative perceptions of under-performance/inefficiency within the sector referred to earlier, the picture that emerges from development to date is not uniformly bleak. For example, half of the 5 million ha currently irrigated have been developed 'informally' (i.e., by smallholders, without government or other external support) and are apparently self-sustaining and, in that sense, successful (although per ha crop yields may be less than optimum). And there are an increasing number of cases in which smallholders have, on their own initiative, taken advantage of market linkages, such as the spontaneous development of irrigation for sugar cane production in Swaziland, as well as innovative approaches, such as Masaku Ndogo in Kenya for export horticultural crop production.

However, although there is substantial remaining potential for irrigation, it should also be clear that this is finite and that even if the whole of this potential could be developed, it would still cover only one third of the total arable land area. Assuming a uniform population distribution, this suggests that possibly two thirds of the population of SSA would not derive any direct benefit from irrigation development and would remain exposed to yield instability. Furthermore, those who are excluded are likely to include many of the 'poorest of the poor'.

It should also be clear that not all of the potential could be developed for high value crops, because of the finite nature of the market for such crops. This suggests that a proportion of the potential would have to be developed for lower value crops, including food crops (and indeed NEPAD/FAO's rationale for increased investment in agricultural water management is based on the need to meet the future regional demand for food). Yet experience shows that it is difficult to justify and sustain the cost of conventional irrigation for low value crops – which often also have their own marketing problems.

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<sup>3</sup> As suggested by FAO, we have used the detailed TOR previously agreed, for this chapter.

Two needs emerge from this. Firstly, although every opportunity to exploit the market for high value crops must be taken, there is a need to identify and develop viable alternatives to irrigation, such as water harvesting and soil moisture conservation, for wide-scale application to stabilise yields of lower value crops. Secondly, there is a need to identify more cost-effective solutions for conventional irrigation than those of the past, as well as to improve market access for lower value crops.

Despite its potential and obvious under-development, water use for agriculture in SSA is under threat. It already uses around 80% of annual withdrawals from rivers and aquifers (i.e., 80% of what is available from development to date) and is regarded as an inefficient user. With intensifying competition for what is becoming a scarce resource there is strong pressure to reduce allocations to agriculture and to divert water to other sectors (urban, industrial, mining and environmental/tourism) that are thought to be more profitable. Agriculture is now expected to produce 'more crop per drop'.

As a consequence, water sector reforms in some countries of the region have pursued a somewhat negative approach to agricultural water development and use, sometimes in direct contradiction to recently prepared Poverty Reduction Strategy Papers that emphasise such development. Under the circumstances, since they have little or no voice in water debates and catchment planning, it is often the rural poor who are the most vulnerable to water sector reforms. A third need, therefore, may be the rationalisation of water sector reforms, to facilitate poverty reduction strategies.

### **FAO's Support to Agricultural Water Management**

FAO maintains a strong country presence in sub-Saharan Africa and delivers support to agricultural water management through direct assistance in its technical co-operation program and the water control component of the Special Program for Food Security.

FAO's support to the region is focussed on the improvement of agricultural production and related services to address food security, poverty alleviation and economic growth targets. Programs are tailored to individual countries on the basis of their individual agro-ecological and socio-economic settings. In undertaking policy and program support, close attention is paid to the fundamental drivers of food demand, population growth and dietary preferences as analysed in FAO's *World Agriculture: toward 2015/30. An FAO Perspective*. Attention is also paid to supply of key agricultural products through the Global Information and Early Warning System on Food and Agriculture (GIEWS).

The harmonisation of country programs is dependant upon the development of regional perspectives based on national data compiled as part of the AT2030 Study (including water resource data derived from FAO AQUASTAT) and the regular regional GIEWS analysis of food supply and crop prospects for sub-Saharan Africa. It should also be noted that the AQUASTAT program is undertaking a comprehensive update of the whole of Africa. This update will be completed at the end of 2003. But preliminary indications are that there has been zero growth of irrigated area over the past decade.

In the past, the emphasis from many countries in the region has been a pre-occupation with realising irrigation potential on the basis of physical assets, on the assumption that specific nutrition gaps will persist and that irrigation would be a key instrument in closing those gaps.

This expectation has not been validated. While these gaps do persist, the solution is not necessarily found in irrigation alone. Certain countries in the region have shown that improved rainfed production can have much more impact, in terms of food security and poverty alleviation, for lower inputs.

There is an urgent need to consolidate recent analysis of the region's comparative advantage and potential in agriculture (Institute of Economic and Social Research 1999; Food Security Research Project 2000) and measure this against the prospects for the evolution of domestic and export markets and associated value added services. To date there exists no comprehensive analysis of the region's markets in irrigated agriculture produce. The bulk of regional irrigation analysis and operation has been squarely focused on the supply of agricultural services and an assumption that enhanced production will be taken up – a tacit assumption of demand. It is of vital importance that national agriculture policies internalise a realistic assessment of market structures, conditions and prospects and assess their comparative advantage in a regional setting. Implicit in this is the need to validate estimates of food supply and demand and rates of growth required in both irrigated and rainfed agriculture to meet these demands internally, as well as assessing the farm-gate price prospects for food crops and the impact these might have on investment returns.

Prior to any direct investment in irrigation, the macro-economic circumstances, regional trade flows and the relative balance between rainfed and irrigated production in the region needs to be understood.

Once the scope of the problem is understood to a sufficient degree of precision, more detailed regional and national analysis of real opportunities for agricultural water management can be undertaken. A regional study is already in preparation with WB/FAO/ADB/IFAD/IWMI and FAO has a growing portfolio of irrigation strategy TCPs in the region (Zambia, Swaziland, Botswana, and Nigeria).

## **OBJECTIVES AND SCOPE**

The objective of the demand study is to establish a regional perspective on market opportunities for the products of irrigated agriculture. The study outputs will form the basis for the production of the synthetic report.

The purpose of the study is to prepare a diagnosis of the opportunities and prospects for national, regional and international markets in irrigated agriculture for the Sub-Saharan region that can be fed into the synthetic report.

## **METHODOLOGY**

The work would be carried out by means of a **desk study** and a series of visits to specific country and regional economic organisation institutions (SADC/COMESA/ECOWAS/ECA etc.) as required. It is expected that this work will be presented together with **case studies/box material** on current or recently completed projects dealing with irrigation strategy formulation. The desk study will have three components:

**First**, a **baseline** of current production and consumption patterns (including imported and exported products) will be established. This baseline will detail the following:

*Demand:*

- national demands in food as projected by AT2030
- distribution, structure and character of agricultural markets across the zones, from small remote communities to large centres of demand along principal trading routes; and
- comparative analysis of internal produce flows and transaction costs where data is available;
- an analysis of market regulation (informal and formal).

*Supply:*

- distribution of production centres and zones and relation to agro-ecological zones and farming systems  
(<http://www.fao.org/WAICENT/FAOINFO/AGRICULT/AGL/agll/gaez/index.htm> and <http://www.fao.org/farmingsystems/>)
- the structure of the irrigated sub-sector based on the FAO typology (see attached Annex 6.2).
- value added processing; and
- Imports and exports: external produce flows and transaction costs in regional and sub-regional markets

**Second**, a *diagnosis* of market performance and constraints within the given baseline will be prepared and is expected to focus on the following.

*market performance*

- production chain for irrigated agriculture – does it match demand?
- market linkages – local, regional and global
- market regulation (informal and formal) (possible SADC data)
- profitability

*market constraints*

- access to natural resources – land tenure and water rights
- access to capital and the role of credit
- access to labour and the impact of HIV/Aids
- entrepreneurial skills/quality control
- access to transport

**Third**, a *projection* of market evolution in the region will be prepared. The latter will include the following:

- projection of demand for irrigated produce (drawing on AT2030 analysis)
- impacts of expected policy shifts and institutional adaptation
- development of staple markets
- development of alternative, non-traditional export crop, markets
- macro trends in the sub-regional markets (possible SADC data)
- prospects for expansion of irrigated food commodities – sugar, rice, wheat
- prospects for expansion of supplementary irrigated food commodities - maize
- prospects for expansion of high value agrifloral and horticultural produce

**Consultant Inputs and FAO Advisory Services**

It is proposed that the desk and case studies would be carried out over as a series of discrete exercises by a core team of three consultants – an Commodities and Marketing Specialist, an Agricultural Economist and an Irrigation Specialist. Individual terms of reference for the

study team will be prepared in accordance with standard FAO procedures in order to fulfil the study specification.

FAO advisory services will be drawn from the Agriculture Department and the Economic and Social Department to guide and contribute to the inputs of the consultant team.

### **ACTIVITIES**

- Collection of report and literature review
- Development of baseline
- Preparation of diagnostic
- Development of projection
- Case Studies - report writing
- Pooled data analysis and integrated report
- Expert meeting

### **SYNERGIES WITH OTHER COMPONENTS**

This component will provide information on country/sub-regional/regional/international trends on consumption and production for key crops and information on markets. Results of this study can feed into the planning component as well as the private sector study. The assessment of potential study can also use the information generated by this component to validate its base data used for simulation exercises.

### **OUTPUTS**

The output from the proposed study would be a final report that comprises summaries of the baseline and diagnostic components and an elaboration of the projection. The final report will integrate case study material. Annexes for the baseline and diagnostic components will be presented as separate volumes.