ISSUES AND CHALLENGES relating to
“WATER FOR FOOD SECURITY”

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FOOD AND AGRICULTURE ORGANIZATION
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in partnership with the
DEPARTMENT OF AGRICULTURE
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Definition of “FOOD SECURITY” (FAO)

- Physical, social and economic access for all people to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life

Issues at stake:
- Food Availability
- Food Access
- Food Utilization
- Stability
Introduction (2)

Major International Commitments:

> World Food Summit declaration (1996) and
> the Millennium Development Goals (MDGs)

• Eradicate extreme poverty and hunger
• Achieve universal primary education
• Promote gender equality and empower women
• Reduce child mortality
• Improve maternal health
• Halt and begin to reverse the spread of HIV/AIDS, malaria and other diseases
• Ensure environmental sustainability
• Develop a Global Partnership for Development
A Major National Commitment:

Food Security is part of the section 27 Constitutional rights in South Africa.

On these rights, the Constitution states that every citizen has the right to have access to sufficient food and water, and that:

“the state must by legislation and other measures, within its available resources, avail to progressive realisation of the right to sufficient food”
Introduction (4)

A Major National Commitment:

- **Integrated Food Security Strategy (IFSS)** approved by Cabinet Lekgotla in October 2002

- Institutional arrangements for the planning, coordination and development of an “Integrated Food Security and Nutrition Programme” (IFSNP)

**IFSNP Task Teams** being established at National, Provincial, District levels to involve Social Cluster Departments:

- Agriculture
- Social Development
- Health
- Education
- Public Works
- Water Affairs and Forestry
- DPLG
SOME FACTS AND KEY FIGURES (1)

- Since 1960s, world population has more than doubled, hence also increasing the demand for food and water
- More than 800 million people throughout the world are still malnourished
- 70% of water withdrawals from rivers and underground worldwide is used for irrigation, but average water use efficiency is only of 38%, most irrigation water being lost through evaporation, drainage and water consumption by weeds (FAO)
- 14% increase in water withdrawals is expected from 2000 to 2030 to meet future food production needs (FAO)

Hence,

OPTIMIZING THE USE OF WATER RESOURCES IN AGRICULTURE IS BECOMING VERY CRITICAL!!
Main Features of the Agriculture Sector in South Africa

- **Dualistic farming systems**
  - 85% of farm land exploited in **46,000 large units** (average size 1,350 ha.) engaged in commercial farming
  - 15% remaining distributed amongst **1.4 million households** engaged in subsistence or small-scale farming

- **Agro-ecological conditions**
  - Average annual rainfall 500 mm
  - max. 1,000 mm in eastern regions
  - 21% arid area receives less than 200 mm in western semi-desertic region
  - 44% semi-arid area receives between 200 mm and 500 mm
  - Therefore, 65% of the country does not receive enough rainfall for successful dryland farming, hence exacerbating crop failure risks and food insecurity
Main Features of the Agriculture Sector in South Africa (cont’d)

- Irrigation
  - Of 17.1 million ha arable land, only 1.3 million ha (or 7.6%) is irrigated
  - 3 types of irrigation techniques:
    - Surface irrigation (33%)
    - Sprinkler irrigation (55%)
    - Micro-irrigation (12%)
  
  NB: Rain water harvesting is still very limited and needs to be developed

  - National Water Act (1998) – guiding policy on rehabilitation of existing irrigation schemes
  - Need for enforcing a holistic policy on irrigation ensuring small-scale farmers’ access to water.
Irrigation development can contribute to:

• minimizing agricultural risks through a mitigation of the negative effects of droughts

• conferring opportunities to individuals and communities to boost food production both in quantity and diversity to
  – Satisfy household food security needs
  – Generate income from surpluses

• create additional off-farm employment

BUT to have an impact on Food Security….
POTENTIAL OF IRRIGATION PROJECTS IN ALLEVIATING POVERTY AND IMPROVING FOOD SECURITY (cont’d)

BUT to have an impact on Food Security....., water resources development strategies in agriculture need to plan and integrate a full-range of Food Security related cross-cutting issues such as:

- Stability in land tenure/ownership
- Identification and development of integrated small-scale farming systems with adapted production technologies (sustainable and environmentally-friendly), including soil fertility and water resources conservation considerations
- Properly designed Project business plans to integrate a time-phased workplan including progress indicators, preliminary cost-benefit analysis, monitoring plan and an exit strategy
- Adapted agricultural extension advice..., with qualified technicians and adequate logistic capacity
- Effective participation and ownership from individuals and local communities
- Effective capacity building of communities in sustainable project management
- Marketing support
- Access to finance (e.g. micro-credit)
- Etc..
STRATEGIC APPROACHES TO IMPROVE WATER RESOURCES MANAGEMENT FOR FOOD SECURITY

What to do?:

- adapt institutional and regulatory arrangements to ensure an equitable access to irrigation water for the poor, food insecure and vulnerable individuals and communities.

- focus investment on small community-based irrigation schemes rather than large irrigation schemes that small communities would not be able to manage.

- Reform irrigation with
  - A modernization of irrigation methods and
  - A higher level of empowerment of small and emerging farmers to be organized in water-user associations.

- Ensure equity in the role of men and women because
  - Women are the main stakeholders in ensuring household food security.
  - High percentage of rural households are headed by women.
  - Rural households headed by women are generally amongst the poorest of the poor.

- Improve water-use productivity in agriculture to obtain “More crop for each drop.”
TECHNICAL APPROACHES TO IMPROVE WATER USE PRODUCTIVITY FOR FOOD PRODUCTION

➢ Development of different cropping systems associating various technical options such as:
  • Planting more “water-efficient” crops
  • Crop intensification through intercropping and improved weed control
  • Selecting and planting drought resistant varieties
  • Improving soil structure and water retention capacity
  • Minimizing evapotranspiration of crops through mulching, shading, planting of wind-breaks, etc.

➢ Development of more water-efficient irrigation methods and technologies
  • Improved knowledge of crop water requirements (How much water is required for optimum crop growth? When to irrigate?)
  • Improved community management of collective water resources
  • Development of rainwater harvesting through adapted microstructures and landscaping of catchment areas at both community and household levels
  • Development of localized irrigation technologies (e.g. drip irrigation)
OPTIMIZING THE USE OF WATER RESOURCES THROUGH AGRO-FORESTRY PROJECTS FOR FOOD SECURITY

FACTS

• A number of forest products do contribute to food security
• 1.6 billion people in the world rely on forest resources to sustain their livelihood (FAO estimate)
• Most forest or tree plantations rely on rainwater or develop around agricultural irrigation schemes.
• Agro-forestry production systems have the comparative advantage to:
  – optimize the use of irrigation water that is lost through deep infiltration
  – prevent soil erosion and loss of fertility
  – protect the environment and preserve biodiversity
  – offer a potential for the development of additional income generation activities (e.g. handicraft making, eco-tourism, etc)
FACTS

• Fish has a good nutrient profile as an excellent source of animal-protein with highly digestible energy

• Most inland fish is consumed locally by poor people

• Yields from inland fisheries/aquaculture and benefits on food security and improving family nutrition can be very substantial

BUT

• This potential has been insofar very much overlooked in the planning and development of Integrated Water Resource Management and Food Security Programmes
IMPLICATIONS OF WATER USE IN AGRICULTURE ON ENVIRONMENT AND HEALTH (1)

- **Environmental considerations**
  
  • Conventional agriculture making an intensive use of fertilizers and pesticides is a major cause of pollution of surface and underground water resources.

  • Reclamation and unwise use of wetlands may result in environment degradation and loss of biodiversity.

  • Excessive exploitation of surface and/or underground water resources may lead to:
     - the development of unsustainable farming systems on the long term and serious ecological disorders, and
     - further aggravate difficulties of access to water and food insecurity amongst poor communities.
Health considerations

• The development of irrigation implies changes in the local environment that may be conducive to the development of a wide range of water-borne or vector-borne diseases, particularly where surface or flood irrigation is practiced.

• The development of irrigated agriculture may lead to the contamination of underground waters being used for human consumption, through infiltration of chemical fertilizers and pesticide pollutants.

• The use a ‘grey water’ in home gardening and in the development of peri-urban agriculture also requires specific precautions to prevent contaminations with pathogens and occurrence of health-related problems.
IMPLICATIONS ON THE IDENTIFICATION OF A STRATEGIC FRAMEWORK FOR “WATER FOR GROWTH AND DEVELOPMENT”

MOST IMPORTANT!!

To ensure that “water for food security” issues are adequately addressed by the “Water for Growth and Development” programme, the strategic framework for “Water for Growth and Development” will need to be coherent with the framework of the “Integrated Food Security Strategy” (IFSS) approved in 2002 by Cabinet Lekgotla.
The IFSS is implemented through the “Integrated Food Security and Nutrition Programme (IFSNP) and is composed of five pillars falling under the coordination of Social Cluster Departments as follows:

1) Food Production and Trade  
   (led by Department of Agriculture)

2) Income Generation and job opportunities  
   (led by Department of Public Works)

3) Food Safety and Nutrition  
   (led by Departments of Health and Education)

4) Social Safety Nets and Food Emergencies  
   (led by Department of Social Development)

5) Food Security Information and Communication Management System  
   (All Social Cluster Departments)

Therefore, in order to facilitate planning, coordination, monitoring and evaluation of programmes and projects and to optimize their impact, it will be important to harmonize the strategic framework of the WFGD Programme with the existing framework of the IFSS and IFSNP.
**CONCLUSIONS: Recap of key issues**

- States have a legal responsibility to ensure people’s right to food and water
- Agriculture is a dominant user of surface and underground water resources
- Need to address water resources management, food security, environmental and health issues in an integrated approach
- Ensuring an equitable access to water for food security is a moral obligation and an essential element of an Integrated Food Security Strategy (IFSS)
- Therefore, the “Water for Growth and Development Programme” (WFGD) and the Integrated “Food Security and Nutrition Programme” (IFSNP) are closely inter-dependent and need to be planned, funded, implemented, monitored and evaluated in a coordinated and integrated approach, while also duly considering environmental impact and health issues at the same time.
- IFSN Task Teams being established at National, Provincial and District levels will have to play a key role in ensuring adequate integration and coordination between WFGD and IFSNP
Thank You!

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