

**TECHNOLOGY INNOVATION STRATEGY  
FOR AFRICA' SUSTAINABLE DEVELOPMENT: THE ARCT'S  
EXPERIENCE AND PROSPECTS FOR MSI/GSC**

**(gsc-undp/aas workshop, Nairobi – Kenya Jan 16 – 17,2006)**

**Dr. Ousmane KANE  
Executive Director  
African Regional Centre for Technology  
(ARCT)**

# **TECHNOLOGY INNOVATION STRATEGY FOR AFRICA' SUSTAINABLE DEVELOPMENT : THE ARCT'S EXPERIENCE AND PROSPECTS FOR MSI/GSC**

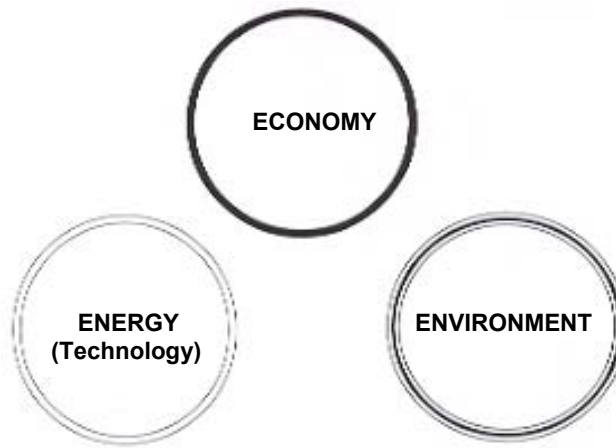
**I - GENERAL CONSIDERATIONS**

**II - MAJOR CHALLENGES FOR AFRICA**

**III - ARCT's EXPERIENCE**

**IV - PROSPECTS AND PATHWAYS FOR COLLABORATIVE ACTIONS**

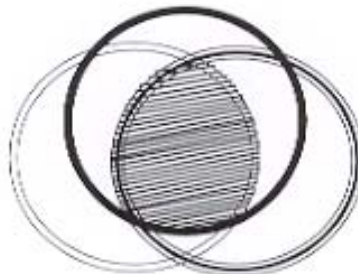
# E<sup>3</sup> Dimension of Sustainable Development



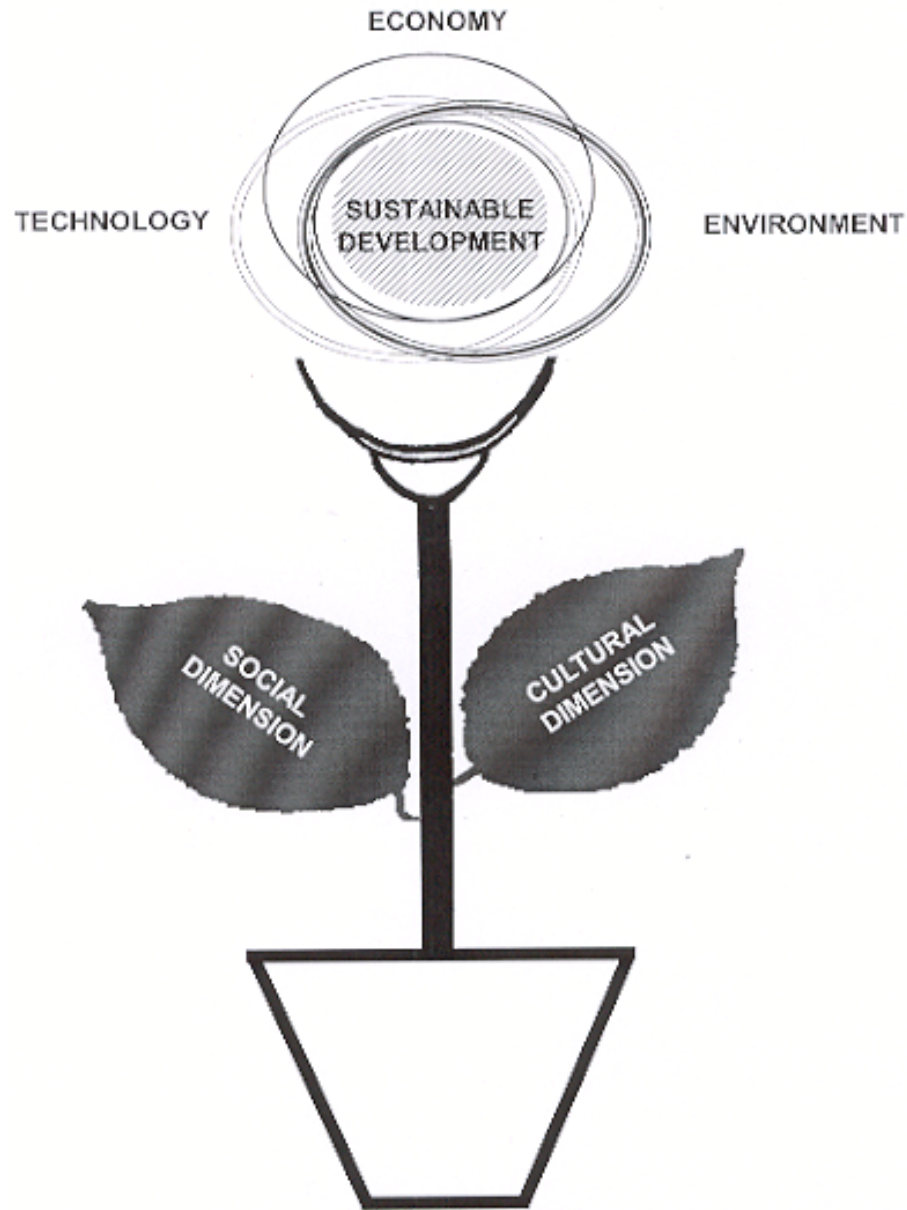
I



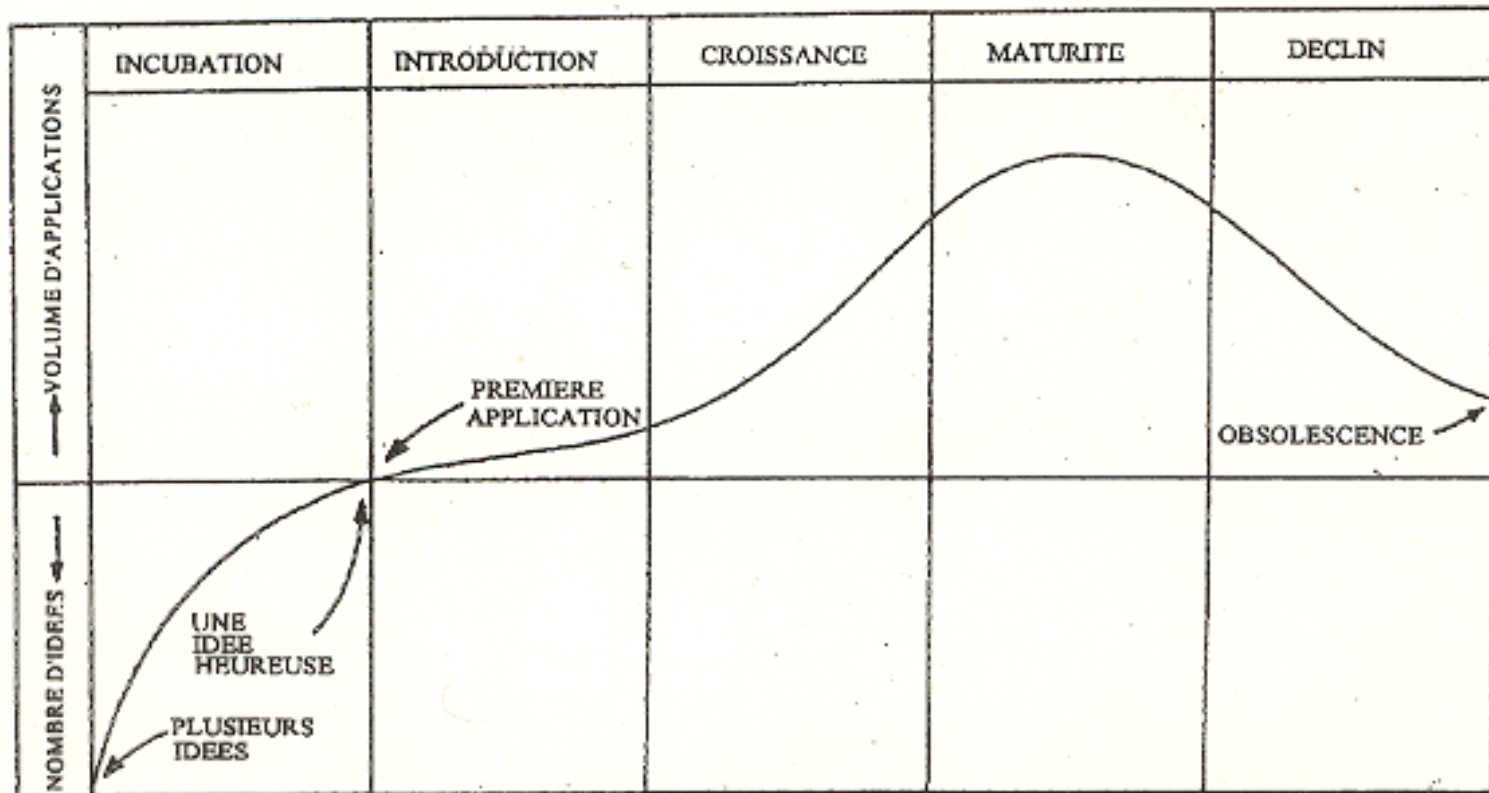
II



III

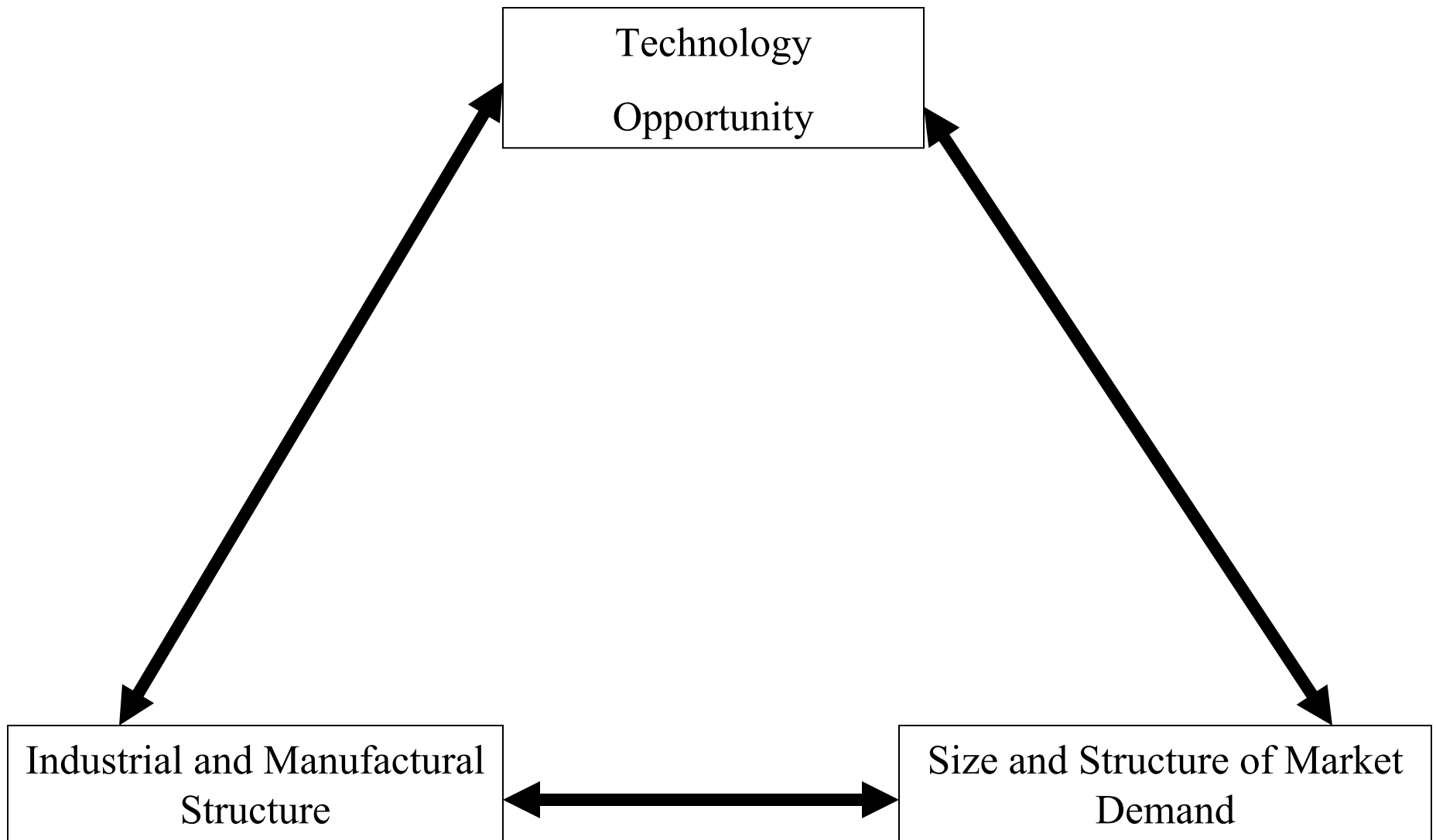


**GLOBAL STRATEGIC APPROACH OF SUSTAINABLE DEVELOPMENT  
(KANE, 1995)**

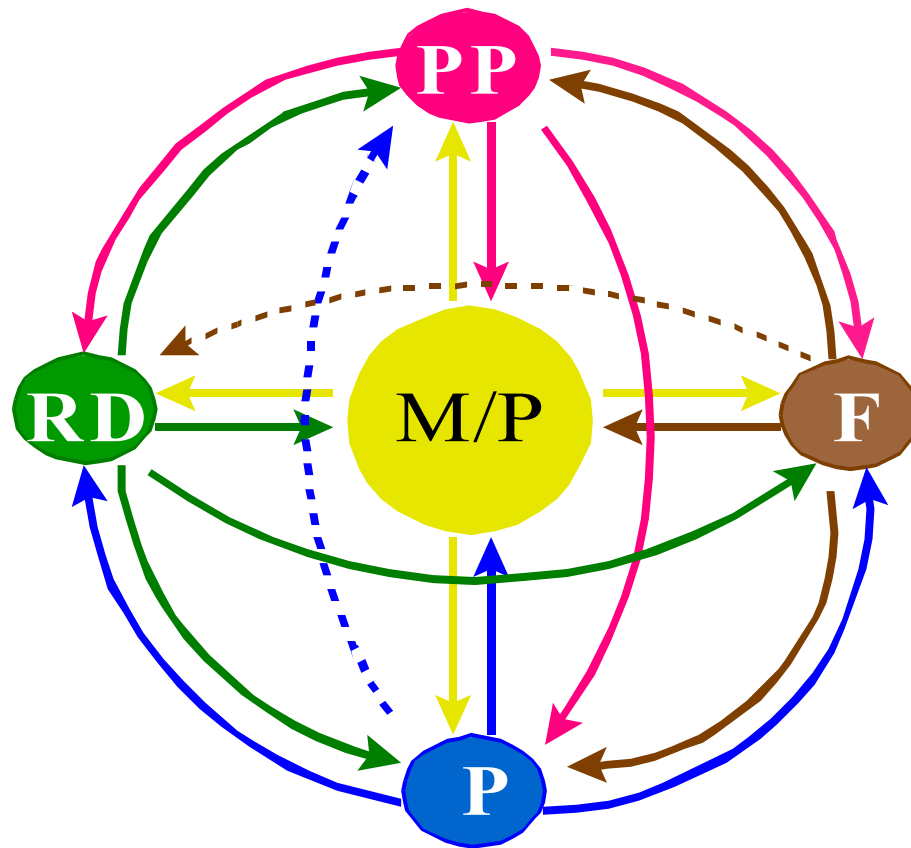


**Figure : 1 Stades du Développement Technologique**

*(Source SHARIF, N. 1983)*

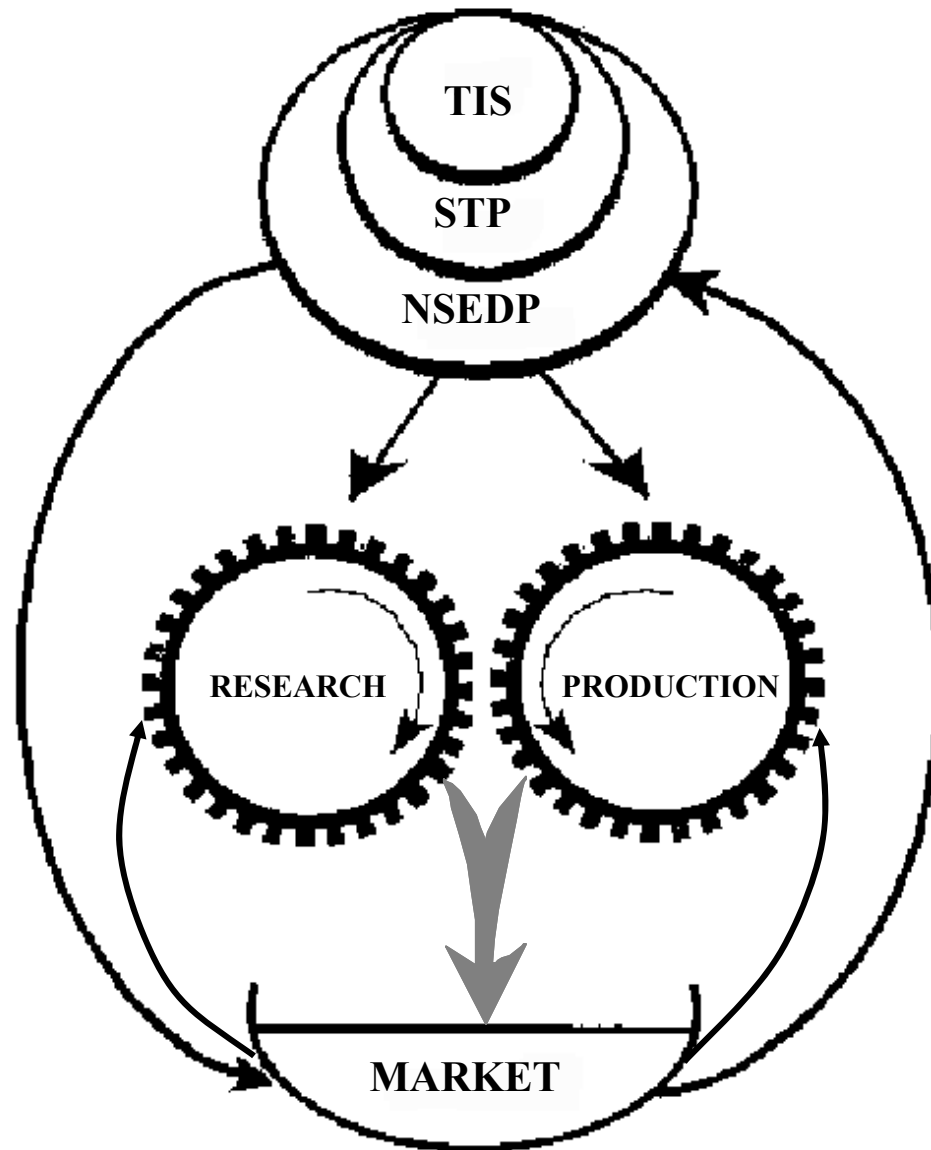


## **Technology Innovation Performance factors**



**Figure 5: OPERATEURS DE L'INNOVATION TECHNOLOGIQUE**  
**(KANE, 1996)**

- PP** = Pouvoirs Publics
- R-D** = Institutions de Recherche & Développement
- P** = Structures de Production
- F** = Institutions de Financement
- M/P** = Marché / Population



**TECHNOLOGY TRANSFER AND INNOVATION STRATEGY FOR  
COMPETITIVENESS (KANE, 1999)**



### **III - STRATEGY ELEMENTS**

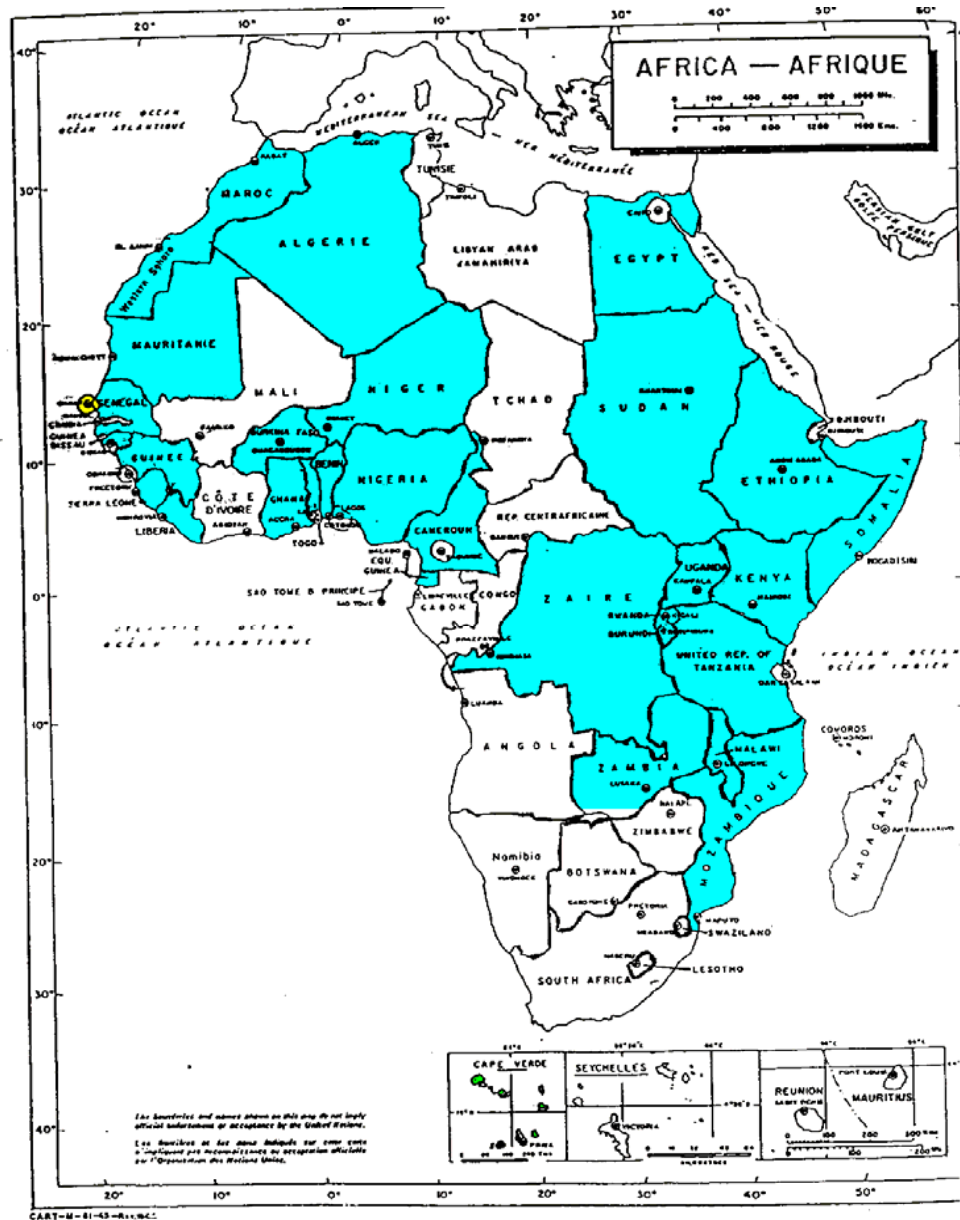
- 1. GLOBAL NEEDS ASSESSMENT**
- 2. VISION FOR THE FUTURE**
- 3. STRATEGIC OBJECTIVES AND GENERAL PRINCIPLES**
- 4. TECHNOLOGY POLICY INSTRUMENTS**
- 5. CAPACITY BUILDING**
- 6. INFORMATION AND AWARENESS**
- 7. PARTNERSHIP – COOPERATION**
- 8. EVALUATION/REORIENTATION**

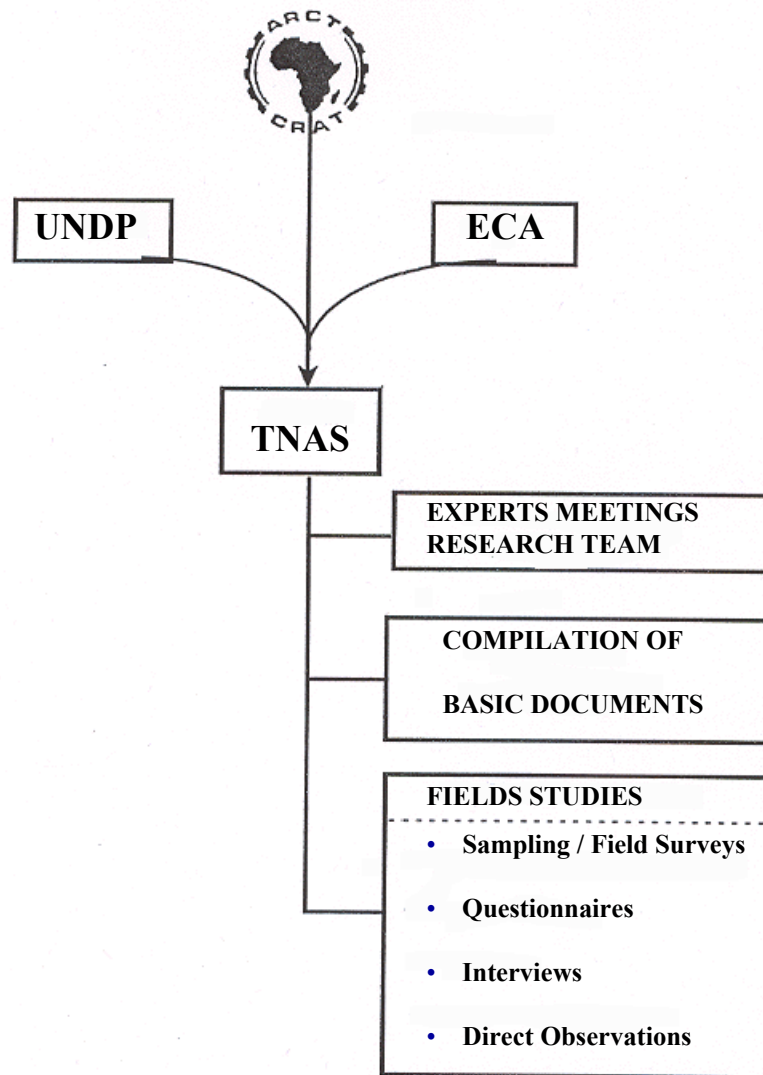
# MAJOR CHALLENGES FOR AFRICA

- lack of strong Political will for S-T ( [Vision, Commitment](#) )
- Mobilization of required Resources ( [Human, Physical, Financial](#) )
- Brain Drain / Brain gain
- Competition for Invention and Technology Innovation ( [IPR](#) )
- Privatization of R-D ( [Multinational Firms](#) )
- Vivacity of Micro-Nationalisms
- Disarticulation of National S-T Policies / Development and Cooperation Programmes
- Communication Barriers ( [Linguistic, Telecommunications, Visa, Cost of Travels, etc...](#) )
- Lack of Reliable Data on S-T Potentials

# III : ARCT'S EXPERIENCE

## 1 ETATS MEMBRES DU CRAT/ARCT'S MEMBER STATES





2. **ARCT'S TECHNOLOGY NEEDS ASSESSMENT SURVEYS (TNAS) METHODOLOGY (Agro-Food Sector)**

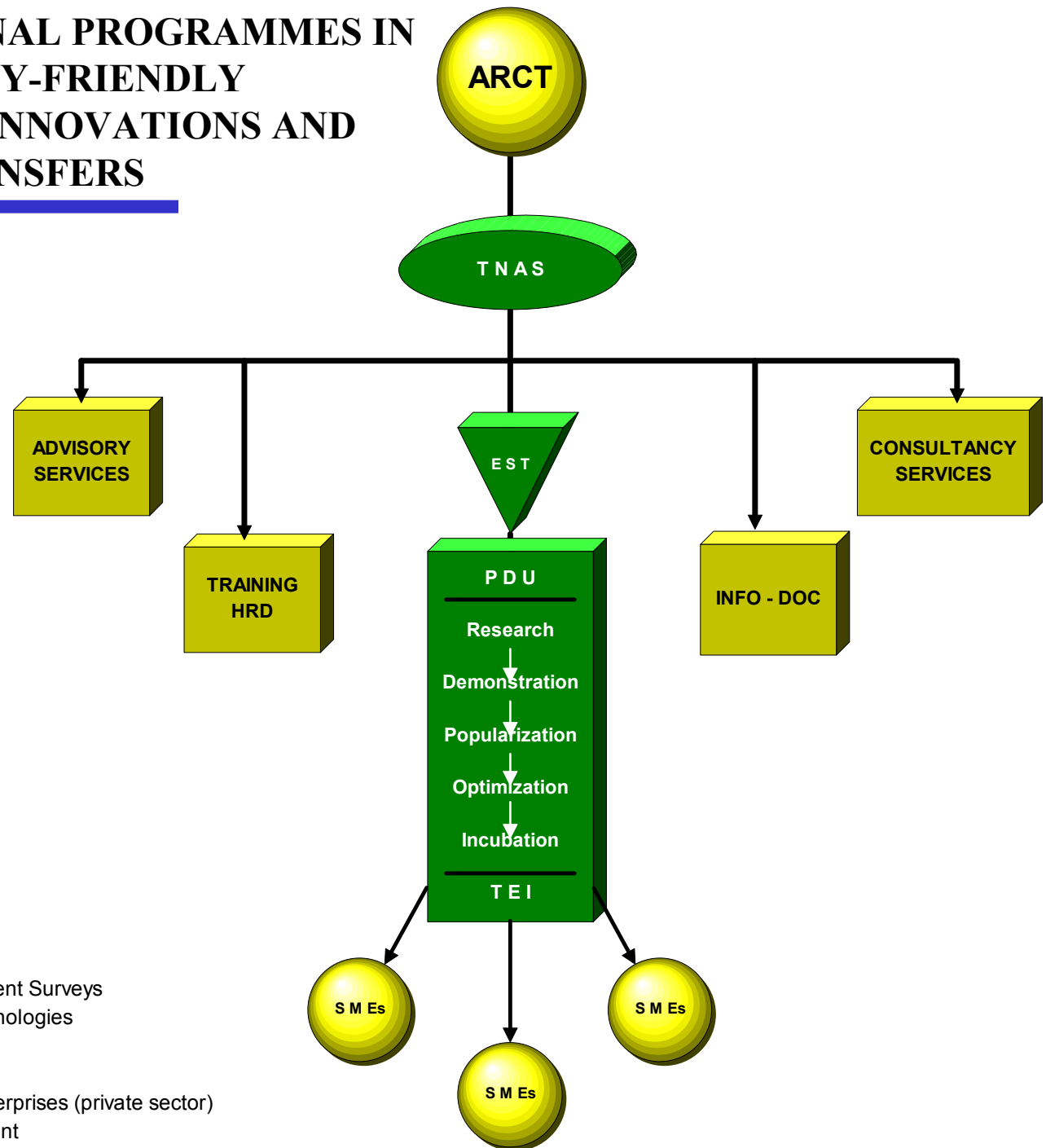
### 3. OBSTACLES SPECIFIQUES A LA COMPETITIVITE DES FILIERES AGRO-ALIMENTAIRES AFRICAINES

FILIERES	OBSTACLES SPECIFIQUES
<p align="center"><b>CEREALES ET LEGUMINEUSES</b></p>	<ul style="list-style-type: none"> <li>- Insuffisance et irrégularité de la production</li> <li>- Absence de mécanisation des opérations de récolte, de manutention, et de conditionnement</li> <li>- Insuffisance et configuration du tissu industriel</li> <li>- Stratégie restrictive des Minoteries vis-à-vis des céréales ou légumineuses locales (mil, sorgho, niébé, etc...)</li> <li>- Inadéquation des structures de prix</li> </ul>
<p align="center"><b>OLEAGINEUX ET CORPS GRAS</b></p>	<ul style="list-style-type: none"> <li>- Forte concurrence des Huiles dites "Végétales" (dérivées du soja, tournesol, colza, etc...)</li> <li>- Problème de l'Aflatoxine</li> <li>- Défi de la diversification</li> </ul>
<p align="center"><b>FRUITS ET LEGUMES</b></p>	<ul style="list-style-type: none"> <li>- Irrégularité de la production</li> <li>- Insuffisance de la chaîne du Froid</li> <li>- Manque d'industrialisation et de mécanisation des opérations de Récolte, de manutention et de conditionnement</li> <li>- Coûts et insuffisance des emballages</li> <li>- Restrictions phytosanitaires des marchés extérieurs</li> </ul>
<p align="center"><b>POISSONS ET PRODUITS HALIEUTIQUES</b></p>	<ul style="list-style-type: none"> <li>- Insuffisance des infrastructures frigorifiques (chaîne du Froid)</li> <li>- Vetusté de l'Armement</li> <li>- Concurrence des bateaux de pêche étrangers</li> <li>- Manque d'organisation de la profession</li> </ul>
<p align="center"><b>VIANDE, LAIT ET OVO-PRODUITS</b></p>	<ul style="list-style-type: none"> <li>- Incidence de la sécheresse</li> <li>- problèmes de Santé animale</li> <li>- Insuffisance de la chaîne du Froid</li> <li>- Grande dispersion du cheptel</li> <li>- Manque d'aliments pour bétail ou volaille à haute valeur nutritive</li> </ul>
<p align="center"><b>SUCRE</b></p>	<ul style="list-style-type: none"> <li>- Coûts de production (intrants) excessifs</li> <li>- Variabilité de la qualité (degré de raffinage, pouvoir sucrant, etc.)</li> </ul>
<p align="center"><b>AUTRES (THE, CAFE, CACAO)</b></p>	<ul style="list-style-type: none"> <li>- Faible valorisation locale</li> <li>- Commerce International contrôlé par de grandes sociétés de négoce, très concentrés.</li> </ul>

## **4. ARCT'S STRATEGIC PROGRAM**

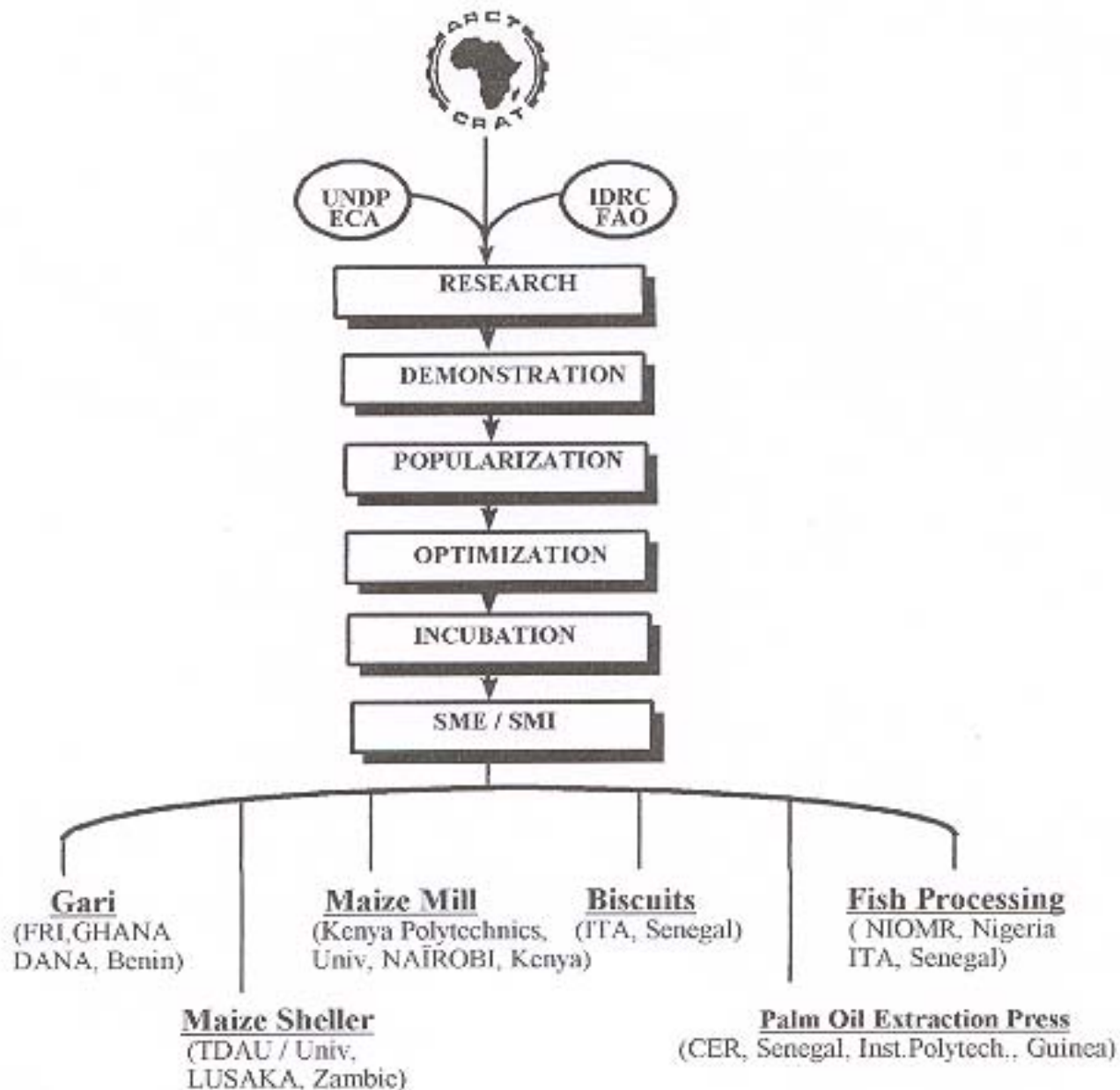
- Consolidating and Utilization of the Centre's capacity to promote an enabling environment in the Region for the development, transfer and mastery of environmentally sound technologies for sustainable development.**
- Promotion of regional employment opportunities and food security through the acquisition, development and commercial diffusion of relevant technologies required in the Food Chain;**
- Development and Promotion of socio-economically acceptable and environmentally friendly technologies for the exploitation and utilization of New and Renewable Energy Resources; and**
- Promotion of Regional Technological Cooperation and Integration through Networking and Enhanced Information and Documentation Systems.**

# 5. ARCT'S OPERATIONAL PROGRAMMES IN ENVIRONMENTALLY-FRIENDLY TECHNOLOGICAL INNOVATIONS AND TECHNOLOGY TRANSFERS



- TNAS** = Technology Needs Assessment Surveys
- EST** = Environmentally Sound Technologies
- PDU** = Pilot and Demonstration Units
- TEI** = Techno-Enterprise Incubation
- SMEs** = Small and Medium Scale Enterprises (private sector)
- HRD** = Human Resource Development

# COMPLETED ARCT'S PILOT DEMONSTRATION UNITS AND TECHNO-ENTREPREISE INCUBATORS IN POST-HARVEST TECHNOLOGIES





# **THE ARCT CASSAVA PROCESSING DEMONSTRATION UNIT (POKUASE, GHANA)**



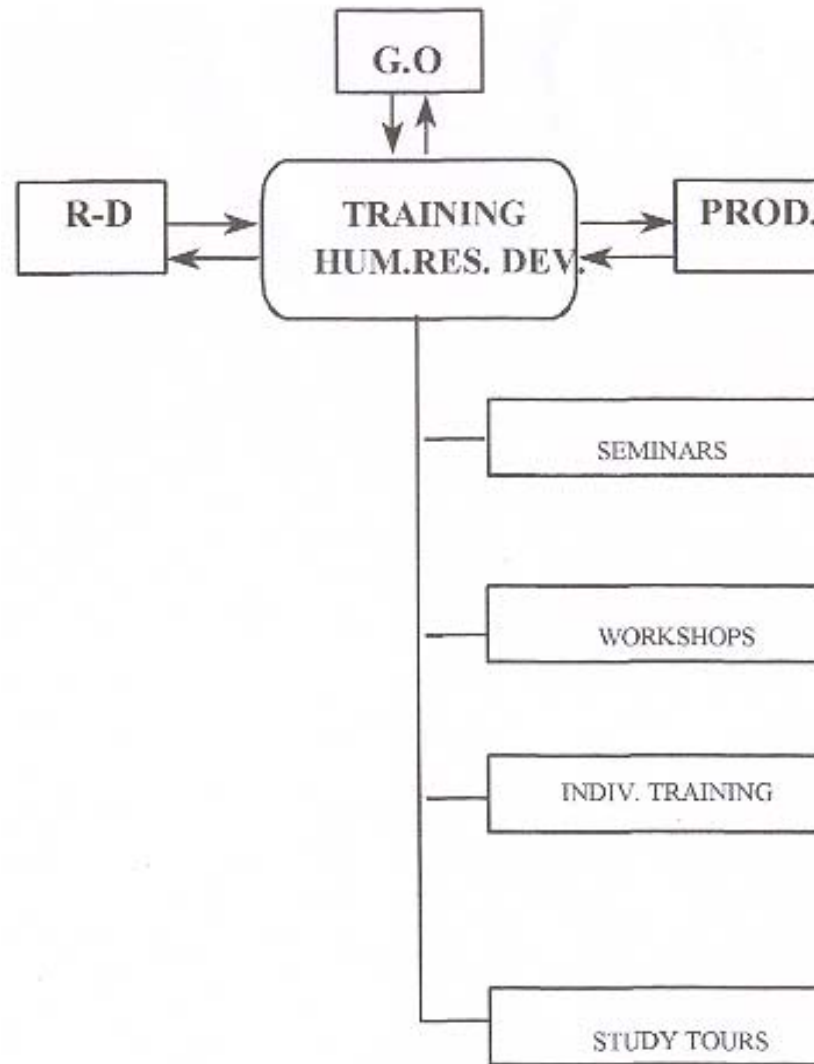
**OUTSIDE VIEW**



**THE PROCESSING HALL OF THE CPDU**



**DEWATERING OPERATION**



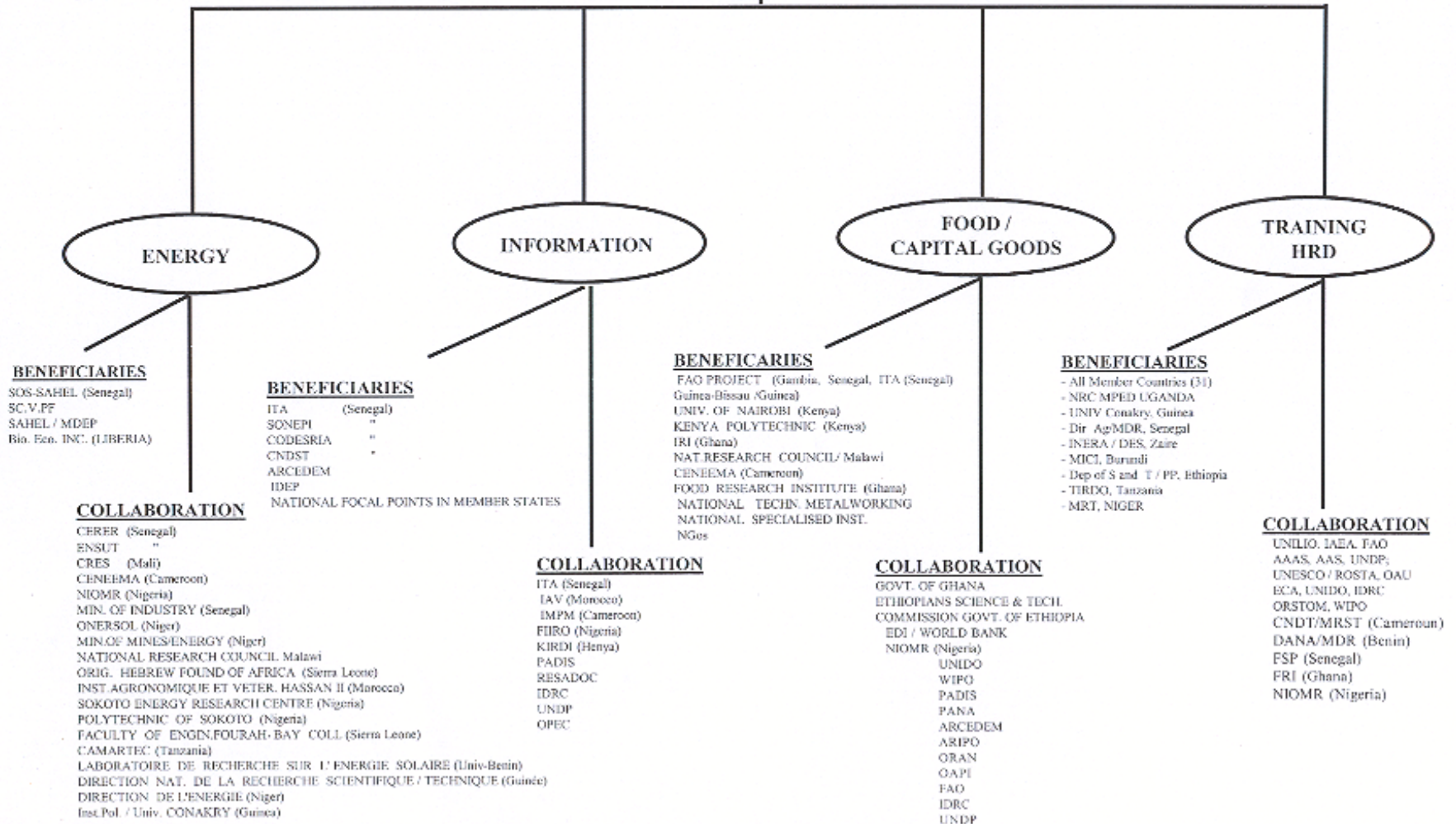
## **10. ARCT'S APPROACH FOR TECHNICAL HUMAN RESOURCES DEVELOPMENT**

BENEFICIARIES : G.O = Government Higher Officials

R-D = Researchers & Technical Officers

PROD = Producers, Entrepreneurs, Cooperatives, etc..

*(More than 60 Seminars and Workshops have been organised together with a number of Study Tours in Africa, in ASIA and Latin Ame*



## 12. ARCT'S TECHNOLOGICAL CO-OPERATION IN AFRICA

### List of Agencies

AAAS	IDEP
AAS	IDRC
AAU	INDIAN G
ADB	OAPI
AIEA	OAU
APCTT	OEB
ARCEDEM	OPEC FUI
ARIPO	PADIS
ARSO	PANA
AUPELF/UREF	PUST
BADEA	UNCTAD
CARNEGIE CORP.	UNDP
CCNY	UNECA
CFA	UNEP
CMA	UNESCO
CODESRIA	UNIDO
CRDI	UNIFEM
CRES	UNU
CSC	WB / EDI -
ECOWAS	WB / EDI -
ENEA	WFC
FAO	WIPO
IDB / OICIS-NET	



## 13. ARCT'S TECHNICAL COOPERATION WITH REGIONAL AND INTERNATIONAL AGENCIES

# IV : PROSPECTS AND PATHWAYS FOR COLLABORATIVE ACTIONS FOR MSI/GSC

## 1. PRIORITY AREAS

- ❖ Agriculture and Food (security)
- ❖ New and Renewable Energy Sources
- ❖ Public Health
- ❖ Information and Communication
- ❖ New Materials

## 2. SPECIFIC COLLABORATIVE ACTIONS

- ❖ Global Needs Assessment
- ❖ Science and Technology Policy ( [Vision, Strategic objectives, Instruments, Programmes](#) )
- ❖ Development of Human Resources ( [New and Emerging Technologies](#) )
- ❖ Strengthening / Building Institutional S-T / R-D Capacities ( [Centres of Excellence](#) )
- ❖ Exchanges / Networking
- ❖ Partnership / Cooperation ( [South-South; North-South](#) )
- ❖ Evaluation



**Dr Ousmane KANE**

# Thank you

**African Regional Centre for Technology (ARCT)**

**17<sup>th</sup> Floor, Immeuble FAHD BEN ABDEL AZIZ**

**Avenue Djily Mbaye DAKAR/SENEGAL**

**B.P. : 2435    Tel. : (221) 823 77 12    Fax : (221) 823 77 13**

**Electronic Mail : [arct@sentoo.sn](mailto:arct@sentoo.sn)**

**<http://www.obs-industrie.sn/crat>**