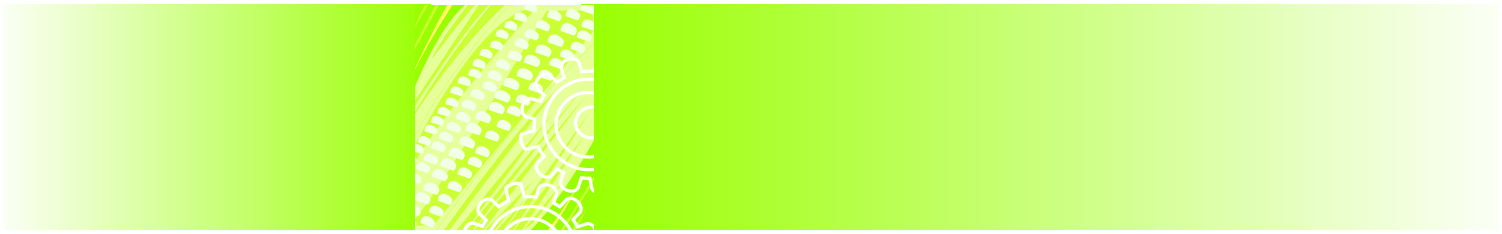
African Technology Policy Studies Network

Annual Report 2003



Science & Technology and Food Security in Africa

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ATPS VISION

To become a centre of excellence and brokerage between science and technology policy researchers and technology makers and implementers, and to become a centre of reference on key issues of technology policy in the sub-Saharan region.

ATPS MISSION

To improve human and institutional capacity for technology policy formulation, implementation, research, analysis, assessment, monitoring, evaluation and dialogue.

ATPS OBJECTIVES

Capacity building and enhancement for technology policy formulation implementation and research.

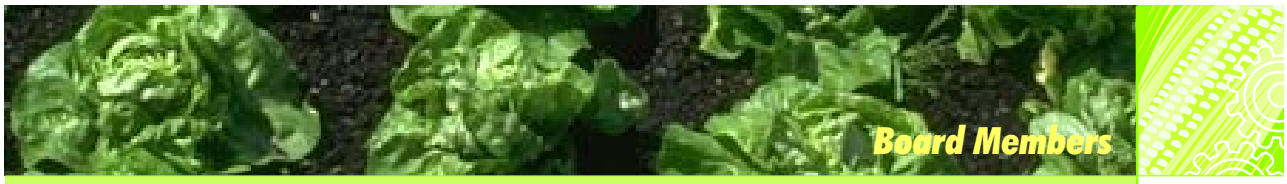
Generating a critical mass of knowledge on technology policy issues.

Fostering networking and collaborative research.

Dissemination of research results.

Acronyms & Abbreviations

AAS	African Academy of Sciences
AU	African Union
AU-IBAR	African Union- InterAfrican Bureau for Animal Resources
BINARI	Biotechnology & Nuclear
CKRC	Constitution of Kenya Review Commission
COMESA	Common Market for Eastern and Southern Africa
DOSATE	Department of Science and Technical Education
EAC	East African Community
ECA	Economic Commission for Africa
EPRC	Economic Policy Research Centre
FDI	Foreign Direct Investment
GDP	Gross Domestic Product
HCDA	Horticultural Crops Development Authority
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
IAP	InterAcademy Panel
ICIPE	International Centre for Insect Physiology and Ecology
ICTs	Information Communication Technologies
ICTSD	International Centre for Trade and Sustainable Development
IDRC	International Development Research Centre
IDEP	Institute Africain De Developpement Economique et De Planification
IGAD	Inter-Governmental Authority on Development
IOC	Indian Ocean Commission
KNUST	Kumasi National University of Science and Technology
MoHET	Ministry of Higher Education and Technology
MSEs	Micro and Small- Scale Enterprises
NCS	Network Computer Systems
NEPAD	New Partnership for Africa's Development
NICs	Newly Industrialized Countries
NUL	National University of Lesotho
OAU	Organization of African Unity
PRS	Poverty Reduction Strategy
PRSP	Poverty Reduction Strategy Papers
RCZ	Research Council of Zimbabwe
SADC	Southern Africa Development Community
UNAS	Uganda National Academy of Sciences
UNCST	Ugandan National Council for Science and Technology
UNCTAD	United Nations Conference on Trade and Development
UNU/INTECH	United Nations University-Institute for New Technologies
USSIA	Uganda Small Scale Industries Association
WPS	Working Paper Series
WTO	World Trade Organisation



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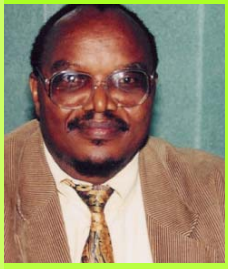


Prof Sam Wangwe

Yolanda Richardson

Message from the Chair

The World Hunger Report 2003 has revealed that the southern part of Africa, comprising Lesotho, Malawi, Mozambique, Swaziland, Zambia and Zimbabwe are facing serious food shortages, with some 14.5 million people requiring emergency food aid. In Lesotho alone, 650,000 people, representing 30 percent of the population are in need of food aid and the numbers are projected to increase. In Zimbabwe, the looming crisis is even bigger with about 50 percent of the population in need.

In the Horn of Africa, the eastern African countries of Ethiopia and Eritrea are experiencing increased food insecurity with between 12 million to 14 million people estimated to be at risk. The situation in the Sudan and Somalia is no better and news from many other countries across the continent demand rapid responses to avoid disaster.

The issue before us is not only serious but also humanitarian in nature. The numbers I have mentioned are not mere statistics; they represent our brothers and sisters dying because they don't have enough food to last them one more day. It calls for serious soul-searching.

On a brighter note, I wish to recognize that even though the situation looks grim, we are not without hope. The events and outcomes of the green revolution demonstrated to us that technology can overcome some of these constraints, and that is where ATPS comes in. We believe that science and technology, though not sufficient on its own, provides a sure route to food security in Africa. We know that generating technology alone is not enough, but that the management and application of that technology is equally important. Proper use of science and technology will no doubt deliver the kind of agricultural revolution needed to feed the hungry and growing population of Africa. That is why ATPS emphasizes building human capacity in a deliberate attempt to generate a critical mass of experts with the ability to evaluate and manage science and technology in Africa.

We also recognize that policy improvements are necessary to provide an enabling environment for science and technology to thrive. ATPS has always given modest funds to researchers in various countries to carry out science and technology policy research. Our hope is that the results from such research will inform policy choices in Africa. In agriculture, for example, the advances in biotechnology hold great promise for reducing hunger in Africa. Yet, controversy fuelled largely by lack of the requisite capacity to analyze scientific technologies is threatening to deny Africa the benefits of this revolution. It is important that African countries develop their analytical and regulatory capacities to ensure that the need to exercise caution and protect human and

environmental health does not compromise the survival of her people.

Another requirement for food security in Africa is strengthened political will to accord science and technology the support it needs to function. The political establishments need to acknowledge that about 70 percent of the African labour force is involved in agriculture. Therefore, when agriculture remains under developed so does Africa.

The ATPS Network has embarked on a capacity building program for our parliamentarians aimed at sensitizing and improving their ability to enact enabling science and technology policies and supporting legislation. It is my hope that as our politicians learn more and more about the need to accord priority to science and technology, they will channel the much-needed capital investment to scientific research and development, education and training of scientists.

Let me remind you of one fact of history. In the not so distant past, it appeared the Chinese were doomed to perpetual hunger and famine, that food production could not match their rate of population growth. Today, Chinese farmers have adopted agricultural biotechnology and they are exporting food to other countries.

In India, a country of one billion people, where these people seemed to be eternal hunger victims, famine has been averted and the country is on its way to food sufficiency. No doubt, both countries still have hungry people, but a combination of science and technology and good policies have reduced the numbers tremendously.

If it has happened elsewhere, it can happen in Africa and we have a responsibility to make it happen.

Thank you very much.

Prof Norah Olembo
Chair, ATPS Board

Message from the Executive Director

ATPS has been at the forefront of reminding and agitating African national governments and her development partners for the recognition of the critical role of science and technology on all aspects of her development agenda. We have been prying-open strategic initiatives, such as the poverty reduction strategic papers and other such recovery and strategic plans to reveal the futility of such plans without adequate roles assigned to knowledge generation and use, and science and technology (S&T) more generally in meeting the objectives of these plans.

At ATPS we do not simply remind those in authority, we insist and sometimes lobby. The role of S&T in economic and social reconstruction of Africa should be self evident, but not so for some of our leaders and those who help in drafting these plans give it a peripheral role. We have now raised the pitch of our message and we can safely say that the message is beginning to hit home. Even though we still have a long way to go, there are incremental signs that African leaders may not be hard of hearing after all. Many of Africa's new leaders are paying increasing attention to S&T. But more importantly, they are beginning to pay attention to what African scientists say.

It is against the backdrop of sense of optimism and heightened awareness of the many options, which science and technology presents to us that we can discuss how science and technology can be deployed to tackle Africa's food insecurity.

In the dawn of the 21st Century, Africa is blaming Mother Nature, drought, and desertification, among other calamities for food insecurity. It is extremely distressful to see African leaders, year after year, on international television and radio pleading for food aid without internalizing the lessons of the previous cycles of food insecurity in their various countries. It is sad that in the age when S&T is allowing man to reach new frontiers; to explore other planets; to conquer most diseases; to use same telephone number any where in the world; and to produce new forms of life, Africans are dying because of drought. From the Horn of Africa, to southern Africa and parts of West Africa, the prediction is gloomy: without massive food aid, Africa's women and children will die of hunger. Yet, the real desert countries of this world, outside sub-Saharan Africa, are producing food and Africa is importing them, with only a limited number of our people able to afford imported food. Farmers in Europe and America are paid not to produce in order not to depress prices. Some of the excess production finds its way to Africa in form of food aid. India has revolutionized its Agriculture and is able to feed her billion people. There is no doubt that pockets of food insecurity exist all over the world. But there is no other continent

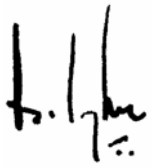
where a significant proportion of its people suffers with frequent regularity massive nutritional and caloric deficiency as in Africa with huge implications for the HIV/AIDS pandemic, high child and infant mortality, maternal deprivation and stress, and low productivity.

ATPS is conscious of the fact that there are many other international institutions and knowledge networks that are addressing this issue. People have asked us why we are getting involved in an issue as big and complex as this when there are many other institutions with huge resources trying to deal with it. ATPS is fully aware of this but notes with concern that the locus of effort is often far removed from the locus of the problem. The universality of science and hence technology is often exaggerated. Knowledge is transferable but the investments in institutions including norms and practices, and capabilities required for effective transfer are often underestimated. The science of production of wheat, sorghum or millet in the Americas is quite different from that required in the Horn of Africa. Even where applicable knowledge is available, tough intellectual property rights regimes are limiting access. New institutions are now being created to deal with this obvious impediment to the deployment of science for public good. But more importantly, it has to be understood that science must have a context. That science and technology must be integrated in a people's way of life, their culture and should be used to solve their problems as they have defined them. That good science must first understand the people for which it is intended. Certain 'good science' might offend the sensibilities and moral mores of African people leading to its rejection or ineffective adoption. It is, therefore, imperative that science and technology should be used to improve the knowledge base of a society not to replace it; to improve its production processes not to discard them.

In short, as late Professor Claude Ake used to say, "People must be developed in the indigenous. It is not their way of life that is the impediment but our lack of understanding of this way and applying science and technology inappropriately that is the problem." As in many of these issues, ATPS' role is to raise this consciousness among scientists, African leaders and development partners and to 'force' the African perspectives into the international discourse on ways of combating food insecurity in Africa.

Intellectual dependence and commercialization of knowledge have often forced African governments to neglect the views of their own institutions and scientists, as if one part of the world was a locus of generation of knowledge and another of its use. Given the right environment, Africans have the capacity to "think ourselves out of our problems". In the true spirit of the New Partnership for Africa's Economic Development (NEPAD), we would want to encourage new forms of partnerships, one that recognizes the centrality of African institutions in Africa's developmental discourse and accords preference to the use of African experts where ever they may be in tackling Africa's problems. This much was agreed by the African Ministers of science and technology in a declaration issued at the end of the first NEPAD ministerial conference on science and technology in Johannesburg, South Africa.

May God bless you all!



Dr. Osita Ogbu
Executive Director

ATPS Partnerships

The benefits derived from collaborative research activities are numerous. Collaborative research enables mutual sharing of information and data that may have been previously unavailable. The African Technology Policy Studies Network (ATPS) is encouraging diverse partnerships are created with other institutions to contribute to the education of science and technology of the current and future workforce.

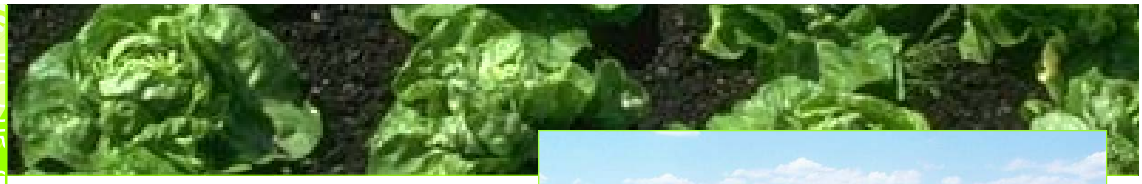
The first African Ministerial Conference on Science and Technology, Johannesburg, South Africa, 4-7 November 2003

Partnerships to promote Africa's scientific and technological development is recognized by such regional agreements as the Treaty establishing the Common Market for Eastern and Southern Africa (COMESA), article 21 of the Southern Africa Development Community (SADC) Treaty, Article 103 of the East African Community (EAC); the treaty of the Economic Commission of West African States (ECOWAS) and the Constitution of the African Union.

The New Partnership for Africa's Development (NEPAD) also recognizes that Africa's economic recovery and transition to sustainable development will be achieved if science and technology are "harnessed and applied to solve pressing food production, diseases, energy, insecurity, communication and environmental problems."

The African Technology policy Network (ATPS) and NEPAD Secretariat have signed a memorandum of understanding (MOU) to carry out projects jointly. In this regard, ATPS has positioned itself as a partner to provide intellectual input to the science and technology (S&T) agenda of the NEPAD.

The first African Ministerial Conference on Science and Technology under the auspices of NEPAD was held in Johannesburg, South Africa from 6 to 7 November 2003. ATPS was invited to participate. Dr M. H. Timamy, Research Associate, ATPS and Dr O. Ogbu, the Executive Director, ATPS, prepared one of the two documents for the expert group meeting that was convened before the ministerial conference. The paper, Science, Technology and the NEPAD Agenda: Towards Assessing the Status of Science and Technology in Africa, underscored the imperative of establishing a framework for measuring S&T development in NEPAD countries. The paper addressed some of the critical drawbacks behind Africa's failure to measure, assess and monitor the status of S&T in various African countries. It discussed the need for, and the strategic significance of, mounting national initiatives to establish and regularly update the status of S&T in Africa. The authors argued that neoclassical conceptualization of the S&T relationship that African leaders, policy makers, and planners have imbibed has inherently conditioned the requisite institutions to focus on a very narrow set of variables hardly capable of providing a comprehensive picture of a country's S&T status. Thereafter, the apparent belief generally held by African policy makers that their countries have been integrating S&T into development, yet no systematic regimes of measurement were established to assess the trends and guide development policy was critically discussed. An overview of relevant S&T indicators followed. The paper proposes how NEPAD could facilitate the regularization, systematization and formalization of national assessment surveys designed to produce, at specified intervals, S&T country status reports to ultimately generate strategic S&T information whose instrumental significance would be to assist policy makers harness Africa's scientific and technological potential, influence and harmonize her development policy thrust, and deepen her prospects for achieving sustainable economic renewal early this century.



The second paper, Financing Research and Development in Africa, by Dr Akin Adubifa, an ATPS consultant sensitized the African S&T specialists to seek new and innovative ways to support research and the acquisition of knowledge to bring the fruits of science to their societies. He defined the characteristics of science and technology in Africa as one that "lags behind the continent's economic potential". He encouraged that several opportunities are now appearing in the horizon and many countries are determined to use them effectively to accelerate their national development. He cited the following reasons:

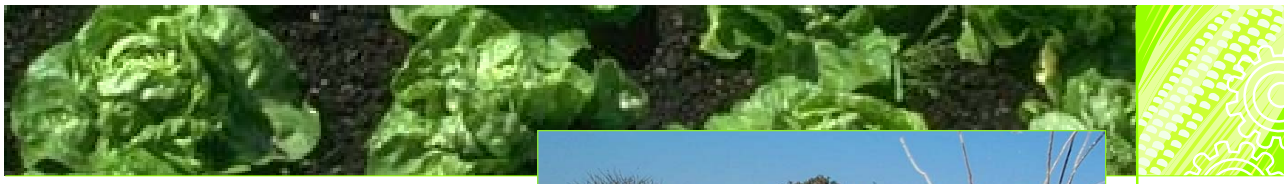
- A new generation of scientists and academics is emerging as university enrolment soars and competition for science courses increases
- Literacy and educational levels are rising in all countries
- Skilled entrepreneurs with talent and dedication are increasing in number, and they are equally increasing their global reach through application of the new information and communication technologies
- Democracy, accountability and the rule of law are spreading rapidly across the continent
- New wireless technologies and mobile computing devices are enabling institutions and civil society to leapfrog into the digital world, avoiding the high costs previously associated with computer and telecommunications infrastructure

Adubifa said that regional cooperation offers the possibility of inter-country collaboration on issues of mutual concern, benefiting from specialization, and achieving larger scale and scope of research. By harnessing collective resources, such cooperation can:

- Ensure the production of public goods that benefit more than one country
- Establish critical mass along important research themes by joining skills across countries and across institutions
- Generate purposeful experience with regional specialization

The author proposes the creation of a regional trust fund for research and development in Africa by member countries. The fund is expected to foster strategic research with a regional focus in which the participating countries will identify priorities and determine how to finance the research projects. Africa will derive several advantages from the proposed trust fund, such as:

- Providing sustainable and continuos flow of financial resources for regional research, particularly agriculture
- Promoting increased competitiveness of the region's products
- Creating a forum for harmonizing and prioritizing regional research areas



- Fostering cooperation to support important research work that individual countries could not have been able to undertake on their own

The paper was exploratory indicating what ATPS could do to support the NEPAD agenda once the requisite resources are in place. The conference formulated an action plan and a declaration elaborating the S&T agenda for NEPAD in the coming years. In the Declaration, the ministers pledged their commitment to provide appropriate political support for scientific and technological development of Africa.

ATPS presence at the ministerial conference was useful in networking among the big players in S&T in Africa. More importantly, the forum provided the opportunity to present ATPS to a new audience and also acknowledge the institution as an important partner to NEPAD.

Partnership with the Government of the Kingdom of Lesotho

The ATPS Board requires those national chapters that volunteer to host the annual conference and workshop to demonstrate strong links with the government and policy community. In addition, the government of the hosting chapter is expected to make financial and logistical contribution towards the Workshop.

The Government of the Kingdom of Lesotho offered financial, material and logistical support towards the 2003 ATPS Annual Conference and Workshop through the Ministry of Communication, Science and Technology, the Department of Science and Technology and the ATPS Lesotho Chapter. There was a strong sense of ownership, collaboration and participation by policy makers from the government.

Below is the opening speech delivered by the Hon. Minister Of Communications, Science and Technology on the ATPS/MCST Conference and Workshop on Science and Technology and Food Security in Africa Maseru Sun Cabanas 10 to 15 November 2003

His Majesty King Letsie III
The Right Honourable Prime Minister
Honourable Ministers
Your Excellencies Members of the Diplomatic Corps
The Principal Secretary, Ministry of Communications, Science and Technology
Vice Chancellor of the University of Lesotho
Senior Government Officials
Chairman of the African Technology Policies Studies
The Local Coordinators of ATPS
Distinguished Participants
Members of the Press
Ladies and Gentlemen

On behalf of the Government of the Kingdom of Lesotho, and on my behalf, I wish to extend a warm Lesotho welcome to you all and greet you with our traditional greeting, KHOTSO (PEACE BE WITH YOU). In particular I would like to heartily welcome and thank the chairman and members of the ATPS Board for having kindly honoured us to host this unique gathering which indeed is one of its kind in Lesotho. This is not the first time that we find ATPS in our midst. Earlier this year we were privileged to host another ATPS activity which we would believe, was time well spent

I wish to welcome with pleasure all esteemed members of the science and technology policy fraternity, researchers, academia, government representatives, our development agencies and international partners of varied levels of expertise and experience from all over sub-Saharan Africa; west, east and south. I am informed that we also have specialists from as far a field as India, Canada, Uruguay and USA. I am encouraged to note that our own Lesotho citizens are participating in large numbers and some are actually presenting papers at this conference. It is a learning opportunity of rare value.

Master of Ceremonies
Ladies and Gentlemen

I am greatly honored that the Government Of Lesotho, Through The Ministry Of Communications, Science And Technology, is hosting this very important and educating experience, which we hope our people will use to their greatest advantage especially given the relevance of the theme for this third annual conference/workshop, which is Science And Technology And Food Security In Africa.

This theme is only timely but so relevant, considering the current economic predicament that Africa faces. The theme hits very close to the bone for us in Lesotho given the severe drought and subsequent poor harvest over the last two ploughing seasons. The time has come for us to think of more innovative and technology driven ways of ensuring better food security.

Those of you who arrived by air must have noticed the devastation on the ground in terms of the dongas and dryness. Thus for us this seminar is not just an academic exercise but also something which should be taken seriously. We are reminded of the basic necessity of food and the fact that millions of Africans are starving everyday and several thousands continue to die due to starvation and related diseases including the great pandemic, HIV/AIDS. We all need to ask ourselves how prepared we are to protect our peoples from utter starvation in spite of plentiful human and other resources. We need to accept the responsibility to work together to prevent and eradicate the prevailing evils of poverty, starvation ad pandemics. If the most regular onslaught of drought should cause so much misery (in southern Africa especially), what we do to make food security and community health our foremost priority concerns and challenges? I wish this conference could challenge us to think critically and creatively of

alternative ways to address the issue of food security among our peoples. Food security doe s not merely refer to effective production of crop and animal products, but also to various ways of storing and preserving these foods for both local and regional use. Africa should be challenged to undertake critical studies into indigenous and current systems of food production, food storage, food preservation and dissemination and develop these systems to meet the challenges of today.

The pervasive role of Science and Technology in driving the economy of modern nations is no longer in doubt. I am sure you will agree with me that science includes all careful and objective reflection of research and practice and heir fruits, which constitute technology. Furthermore, varied stock of knowledge instruments and tools and infrastructure constitute observable aspects of our technologies. Technological advancement is also used today as a measure of progress and civilization. This therefore, depicts the need for critical assessment of our position in it. If we in Lesotho and in most of Black Africa remain mere consumers of other peoples of scientific and technological products, can we ever hope to advance in these important areas of development? Perhaps the primary clarion call should address our attitudes towards sciences, mathematics and technology. Unless and until our individual and group attitudes and practices towards these subjects change we cannot hope to develop. This further calls for a strong support for research and development in order to turn our knowledge into goods and services. We need to re-tap our indigenous technology capabilities of food production (like seasonal planting and harvesting, traditions and practices such as weather forecasts, "ho upa linonyana" and others), for food storage and preservation practices. In this era of the information age, one cannot overlook the practical role played by new emerging technologies, such as information and communication technologies (ICT) as well as Biotechnologies towards sustainable development. The evitably includes poverty alleviation and food security, which are to be addressed in accordance with the declared United Nations Millennium Development Goals.

It was only last Thursday and Friday that I joined several other African Ministers of Science and Technology in the context of NEPAD. What an eye-opener it was. Amongst the papers prepared for that conference was one prepared by our very own Executive Director, Dr. Ogbu in collaboration with Dr. Khalil Timamy who hit a very raw nerve when they said most African countries "romances Science and technology" and that most policymakers although they emphasize the seriousness of science and technology most governments merely pay lip service and technology.1
I hope the outcome of this conference will produce more tangible results.

In conclusion, Master Of Ceremonies

Allow me to highlight that, the challenges indicated above are not only our individual national priority areas for human development but, are the regional and international concerns of such bodies like Africa Union and the New Partnership for Africa's Development (NEPAD), the Commonwealth, UNCTAD as well as United Nation Commission for Science and technology should therefore recognize the broad opportunities that emanate from the support and initiatives of these bodies.

The challenge to the people assembled in this hall today, is to come up with solutions of how science and technology can be utilized to satisfy the urgent economic and social needs o f the region.
I wish you successful deliberations so that you can achieve the set objectives. Allow me Master of Ceremonies once more to reiterate my welcome to you all. I am aware that you will take off your busy schedule to visit Mohale Dam, one of the two Lesotho Highlands water Project dams. Enjoy the scenic view and enjoy the refreshing mountain air. My I also thank the ATPS Board, management and the organizing committee for making this conference a success.

Ladies and gentlemen, it is now my singular honour to declare the third ATPS annual conference and workshop officially opened.

KHOTSO! PULA! NALA!

ATPS Research Programmes

ATPS 2003 ANNUAL CONFERENCE AND WORKSHOP, MASERU, LESOTHO, 10-15 NOVEMBER

Annual conference

ATPS organized a two-day conference with the theme Science and Technology and Food Security in Africa, in Maseru, Lesotho from 10 to 12 November 2003. The choice of theme was largely influenced by the intractable problem of food insecurity especially in Southern Africa. The ATPS Board approved this theme for the 2003 annual conference and the Government of the Kingdom of Lesotho, the co-host, consented.

The objectives of the conference workshop were:

- To bring African perspectives to bear on the perennial problems of food insecurity in Africa
- To discuss ways in which science and technology policy could enhance food security in Africa
- To share knowledge, experiences and expertise on science and technology initiatives in Africa and beyond, with a view of improving food security in Africa
- To appraise African scientists of the scientific, technological and biotechnology initiatives in other countries to draw useful lessons in reducing food insecurity in Africa
- To review research proposals on science and technology policy
- To hold the annual meeting for national coordinators
- To hold the ATPS Annual General Meeting

The keynote speaker was Dr Tom Randolph, representing the Director General of the International Livestock Research Institute (ILRI), Dr Carlos Seré. His presentation was on Innovation in Research to Improve Food Security in Africa. According to Dr Randolph, the challenge for Africa was impressive achievements in science and technology, yet food security and other threats continue. He posed the following questions:

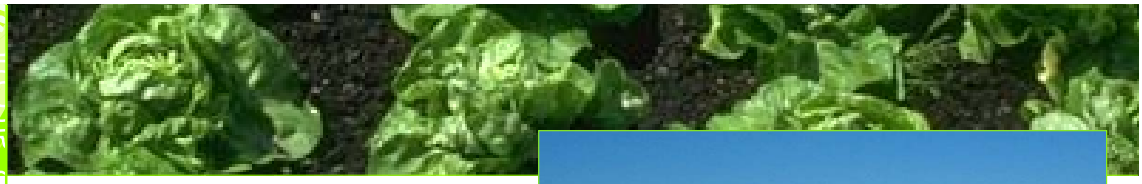
- What are we doing wrong and how can we reverse the trend?
- How can we enhance the impact of science and technology on improving food security?

Dr Randolph explained that the International Livestock Research Center (ILRI) was prepared to handle these challenges through a new approach: outcome-oriented research. The outcome-oriented research shifts focus from research solution to innovation outcome by:

- Identifying research priorities
- Defining the research agenda
- Organizing research teams arranging new partnerships

The speaker also demonstrated the need to re-engineer the Consultative Group on International Agricultural Research (CGIAR) system. He said that the impact of the outcome-oriented research would be a shift from isolated, self-contained research body with supply-driven focus on generating solutions to an increasingly networked, demand-driven research body trying out a number of institutional innovations.
Other presentations during the plenary session include:

"The WTO and the Future of African Agriculture" *by Dr. Ablassé Ouedraogo, former Deputy Director General, WTO*
The paper addresses food security and competitiveness of African countries' agricultural commodities on the external market. The author also indicates that many of the factors that are apparently on the periphery of the



agricultural negotiations and are addressed on the sidelines thereof, equally play an important role, and should be taken on board or discussed more actively by African countries. Among them are productivity-related issues that affect mainly investment in the sector, production techniques and access to technology.

"From Science to Products Transmitting Knowledge to African Rural Farmers: What Works and What Does Not Work" *by Prof. Babatunde Obilana, ICRISAT*

The paper describes and discusses the transfer and exchange of knowledge to/with the rural African farmers, to achieve food security in sub-Saharan Africa. It presents few case studies on what works and what doesn't, and why. It provides some background related to the topic; identifies some food security issues; and provides suggestions on policy actions that may be taken.

"How Viable are Indigenous Technologies Towards Realising Africa's Food Security?" *by Martin Kimani, Africa Regional Centre, Centre for Agriculture and Biosciences (CABI), Nairobi*

The paper discusses the rationale for integrating indigenous technological knowledge, as well as scientific knowledge. He argues that though the two methods may have different philosophical roots and other differences, they are compatible and they can generate richer and deeper knowledge, and more effective and appropriate technology. The challenge, therefore, is to put in place incentives measures for combining the two worlds at farmer, scientific, extension and policy level in order to achieve improved security in Africa.

"Biotechnology and the Implications of the GMO Revolution for Africa's Food Security: The African Perspective" *by Dr. Victor Konde, UNCTAD*

This paper addresses a number of these issues from an African perspective and seeks to bring out alternative models that Africa could adopt to realise the maximum benefits. It draws lessons for other countries, sectors and past agricultural initiatives to illustrate ways of meeting the different challenges under the current public debate on safety and developing regulatory regimes.

"Biotechnology and the Implications of the GMO Revolution for Africa's Food Security: Lessons from Asia and Latin America" *by Dr. Padmashree Gehl Sampath, United Nations University/Institute for New Technologies*

The paper analyzes the costs and benefits that genetic modification technology holds for Africa and the flexibility that the international policy framework on agricultural biotechnology gives to member countries. It also assesses the dilemmas inherent in reconciling the potential benefits and costs of agricultural biotechnology for Africa and sets out the priorities for policy makers, based on the experience of other developing countries.

"Harnessing ICTs for Improved Agricultural Performance in Africa" *by Dr. ZM Nyiira, Executive Secretary, Uganda National Council for Science & Technology and former National Coordinator, ATPS Uganda Chapter*

The paper discusses the opportunities for increasing the potential impact of ICTs on social and economic development in African countries, especially in addressing food security problems. Several impact studies

showing that ICT is a cost-effective in improving agricultural production in Africa are cited. The conclusion is that agricultural constraints facing African producers can be alleviated through the use and applications of ICTs for accessing and delivery of essential production technologies and dissemination of market information. Such positive impact of ICT is likely to translate into increased agricultural production, food security and improved nutrition.

"Why has Africa Fallen Short of Building Dynamic Agro-Processing Capabilities? Options, Constraints and Prospects?" *by Dr. Wellington Otieno, Foodlink Resources (Kenya) and Ms. Ada Mwangola, OXFAM (Kenya)*

The performance of the agro-processing sub-sector in Africa is analyzed in the context of food security. Food industries are deemed to play tactical and catalytical roles within agricultural led development strategies. The paper suggests that African countries have come back full circle to accept agriculture-led development strategies as the appropriate response of agricultural countries to deepening continent-wide crises of poverty-driven hunger and malnutrition. Training and effective research and development support are required to build and sustain entrepreneurial capacities in food processing in Africa.

"Lesotho Initiatives Toward Food Security: A Situation Analysis" *by Prof. Mafa Sejanamane, National University of Lesotho*

The author discusses Lesotho's efforts to ensure food security, citing the government's indecisiveness to establish elaborate policies to address self-sufficiency as part of the problem. However, the government, since 2003, has begun to address the issue as is evident from such policy documents as: Subsidies in Agriculture Sector: Policy Statement and Implementation Framework, Agricultural Sector Strategy and Market Liberalization.

"Gender Dimensions of the Current Agricultural Performance in Africa" *by Dr. Rose Rita Kingamkono, Tanzania Commission on Science and Technology*

Agriculture in Africa is the main stay of the majority of the population particularly in rural areas and backbone of the economy of the majority of the countries. It provides linkages with non-farm sectors through forward and backward linkages with agro-processing, consumption and exports, thus providing an opportunity for improved livelihoods of people. Sadly, Africa's agricultural production per unit area of land is the lowest in the world and the sector's growth is less than it could be. Although women produce the bulk of food consumed in particularly in sub-Saharan Africa, agricultural policies in all respects are gender insensitive particularly against women. Lack of empowerment of women as the main agricultural labour force compromises agricultural productivity. Africa stands to benefit if only some measures are deliberately taken to embrace policies and practices that are gender sensitive will bring positive changes to the sector. This paper attempts to discuss the intimate relationship of gender and agricultural performance in Africa. Consideration of the linkages is important in future policy formulations and developmental plans for sustainable development in Africa

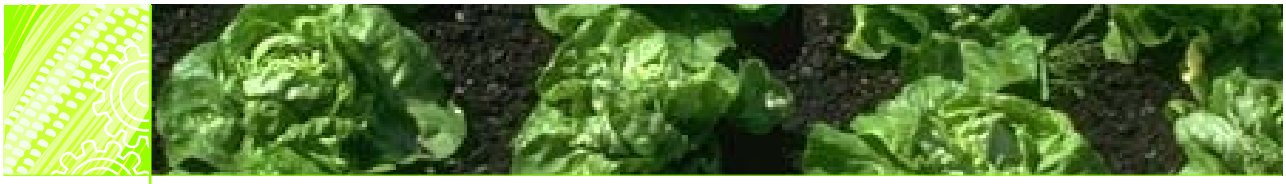
"Markets, Institutions and Agricultural Performance in Africa" *by Dr. Julius Mangisioni, Bunda College of Agriculture, Malawi*

The paper shows the linkage among markets, institutions and agricultural performance in Africa. It demonstrates that African farmers face problems of transaction costs, missing markets, agricultural risk, and institutional constraints that limit the benefits they realize from agricultural production. Further, due to the limited success of the structural adjustment programs, the paper recommends that Africans should be in charge of their own development programs. In such programs, much emphasis should be placed on market development to address the problem of limited market access.

"Research Priority Areas for Africa's Food Security" *by Prof. Shellemia Keya, TAC Executive Secretariat, Food and Agricultural Organisation of the United Nations, Italy*

The paper outlines the challenges of sustainable agriculture and indicates the priority setting in agri-research. Basic steps in priority setting and African research priorities, such as improving genetic material, increasing productivity of livestock production systems, strengthening ICT, among other issues are discussed.

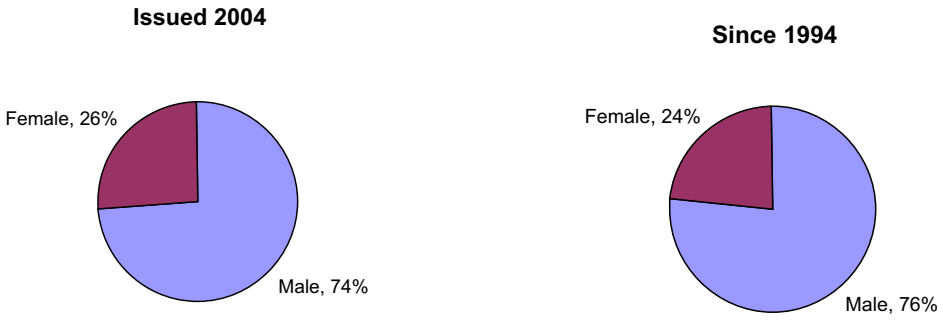
ATPS Small Research Grants



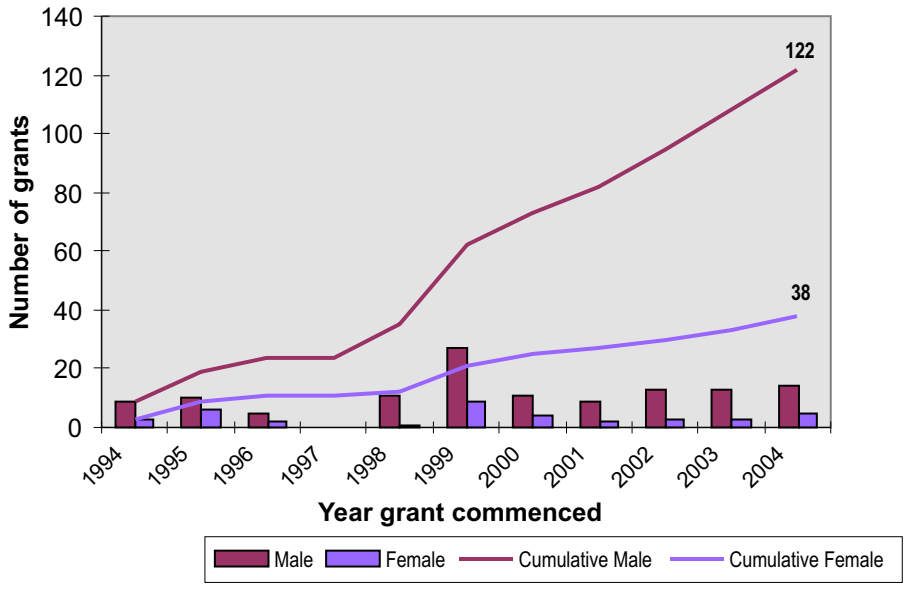
The Secretariat received over 60 proposals but could only fund a limited number. Thirty-nine proposals were presented on the following themes were presented for peer review: Agricultural Technology Policy; Information and Communication Technology Policy; Technology Transfer, Trade and Industry; and Gender and SME Technology Policy issues. The peer review, guided by distinguished resource persons, was informative. The ATPS Board later met in Nairobi and awarded 19 grants and 4 seed-grants to the researchers. This brings the total number of small research grants issued since 1994 to 160The seed-grants should enable the researchers to strengthen their proposals for presentation at the next annual workshop (see annex -----) .

Grants to be issued in 2004

Distribution of grants issued by gender

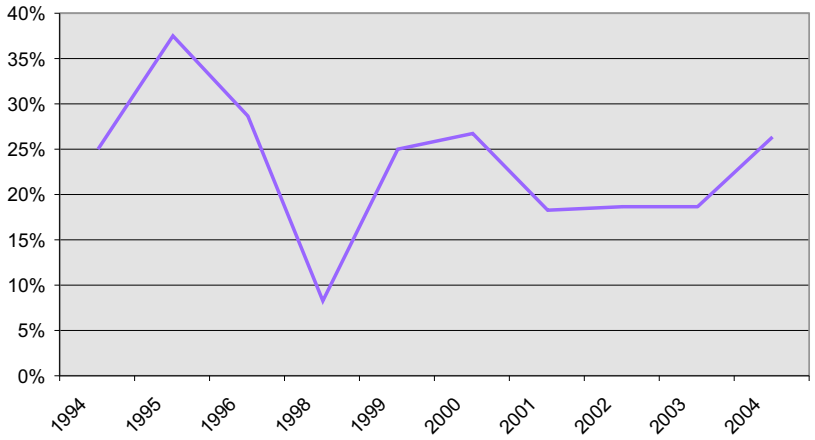


Distribution of grants issued by gender Since 1994



Percent of grants issued to female principal researchers since 1994

Year	
1994	25%
1995	38%
1996	29%
1998	8%
1999	25%
2000	27%
2001	18%
2002	19%
2003	19%
2004	24%
AVG	23%



Research methodology and writing skills workshop

The annual workshop featured a research methodology and writing skills workshop. This workshop, presented annually, gives both the old and new researchers an opportunity to acquire new skills and to improve on their research proposals, research design and analysis. New researchers find this exercise enriching and see it as a significant contribution of ATPS to capacity building especially for young scholars. The sessions follow the format below:

Introduction: Objectives of session, expectations from participants, expectations from publishers, a rationale for writing and a rationale for publishing

The process: The writing, editing and production process: An overview

Copy Presentation: Paper identity, title, heads, sub-heads, more folios, end of paper. Spacing, leading, tracking, readability, legibility, end of folios. One-sided printing, double-sided printing, margins, indenting, citations, footnotes, endnotes, references. Bibliography, appendices, tables, figures, illustrations

Common Mistakes in Writing: spelling, punctuation, grammar, sentence constructions. Phrases, clauses, repetition, redundancy. Tautology, accuracy, distortions. Figures, statistics, tired words, clichés, designations and honours. Use of capitals letters, use of lower case. Names of people, organizations and projects. Omissions.

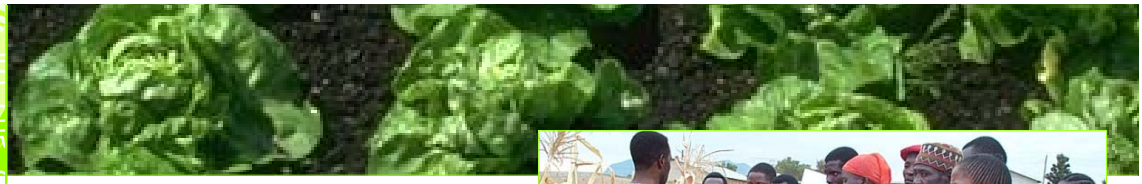
Editing: Definition, historical context, rationale for editing, roles and responsibilities of editor, roles and responsibilities of writer, limitations of an editor

Practical Work: writing

Practical Work: editing

Practical Work: Case studies

Wrap Up: Discussion and evaluation



The ATPS phase V strategic plan

The Phase V plan is a strategic framework for guiding the activities of the African Technological Policy Studies Network over the period 2004-7. In setting the strategic priorities and programme objectives for Phase V, ATPS has sought useful feedback from various sources. The programmatic focus is motivated by the ATPS mission of supporting research in science and technology, building capacity for research and policy analysis, and dissemination. However, in Phase V, the key concern of ATPS will be on closing the loop through outreach, knowledge brokerage and dissemination.

The ATPS Strategic Plan was presented, first to the ATPS Board, resource persons and national coordinators and then to the ATPS Annual General Meeting. The draft strategic plan had benefited from continuous consultations with ATPS constituents throughout the year, but a final validation exercise exploiting the large number of ATPS members at the workshop, researchers and policy makers, greatly enriched the document. The ATPS Board approved a final draft during the meeting in Nairobi late in November.

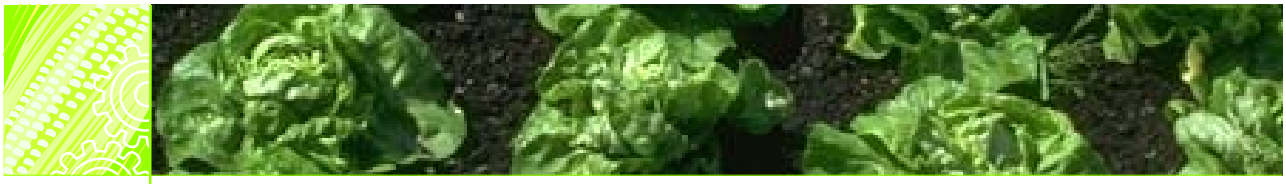
The National Chapter Awards

One of the highlights of the annual conference and workshop was the first national chapters' awards presentation during the ATPS General meeting. The ATPS Board instituted these awards to recognize chapters in various categories of performance and to motivate the national coordinators to provide greater leadership to chapter activities. The categories were:

- Best Overall Chapter
- Outstanding Effort
- Most Innovative Advocacy Activity
- Best Research Published in the Year
- Best Exhibition and Presentation
- ATPS Young Scholar Award

Lesotho was the best overall chapter for the year for its high-impact, high visibility activity represented by the training seminar organized for the parliamentarians and for exceptional leadership demonstrated by the National Coordinator. The outstanding effort award went to Ethiopia for consistently pursuing the mission and vision of ATPS. Ghana won the most innovative advocacy activity award by demonstrating the relevance of science and technology to a rural community in the language they understand in the presence of high ranking government officials. The best exhibition and presentation went to Tanzania for its focused and pictorial display of its activities during the annual conference and workshop.

Regional Research programmes



While ATPS continues to address its core activities of research support and capacity building of scientists, the Network will pursue regional research projects. These projects seek to address emerging issues on globalization and international trade with the aim of balancing its impact on African societies and economies, the roles of biotechnology policy, information and communication technologies (ICTs), and health technology policy issues that have emerged in response to HIV/AIDS and other pandemics.

Strengthening National Information and Communication Technology Policy in Africa: Governance Equity and Institutional Issues (report by the Project Co-ordinator, Prof Melvin Ayogu)

This project is motivated by the need to explain the significant gap between the evidently widespread appreciation and acceptance of the social benefits of information technology [IT] in Africa, and the slow institution of information communication technology [ICT]. In comparison to its huge expected benefits, the slow spread of ICT is undoubtedly troubling and hence calls for a serious inquiry. The gap, many would argue, are rooted in the lack of enabling policy environment for investment in the necessary information infrastructure; the environment variously characterized by inconsistency in some countries and completely absent in others.

Unfortunately, this otherwise interesting and healthy debate about the roots of Africa's slow inclusion into the global information society is occurring at a time that Africa can little afford such marginalization (whether self-inflicted or circumstantial). It is increasingly recognized that because ICT sector policy spans several other policy areas, ICT is a "strategic" sector. A sector is strategic if its industry grouping exhibits positive externalities with other industries thus contributing to social welfare in excess of private returns enjoyed by the sector's direct stakeholders. This feature of ICT policy coupled with its cross-cutting nature makes coordination (governance) an important ingredient in fully realizing the sector's potential benefits.

Additionally, the fact that information technology infrastructure often functions as a system makes property rights in ICT vulnerable. Sustaining vulnerable property rights requires that the governance architecture provide incentive compatible mechanisms for political officials to honor their pledges to continue to protect those property rights. The issue of rights ought to be of great concern to consumers and investors alike because of the interdependency between the supply side ICT and the demand side of IT and ICT. Therefore, getting the governance issues right holds significant implications for the future evolution of ICT in the region and by extension its impact on the economies of the region.

Although it is generally well appreciated that how ICT is governed determines its future evolution, it is not altogether clear that the stakeholders understand the nature of the strategic interdependence in play. Presently, our concern is that if Africa is to become a part of the information society, we must critique existing institutions of governance, determine whether they should be reformed, and how best to reform them to achieve equity and efficiency, as well as flesh out other burning issues.

The overall objective of this research program is to strengthen national ICT policy in Africa in order to promote wider if not universal (but certainly affordable) access without compromising the continued development of the sector. Specifically, within a cross-country (comparative) framework we explore how best to establish institutions

of governance that produce a triumvirate of potential investors, incumbents, and consumers. In our setting, the consumers in principle are politically powerful but in practice are often neglected. Therefore, the winning governance regime yields a three-way success in which consumers demand the products, incumbents provide the services efficiently, honor agreements and rules as well as accommodate new investors (either as partners or as potential competitors).

Research findings

The final project workshop is scheduled in the first half of 2004. The progress workshop was held in Nairobi, Kenya from 23 to 26 June 2003. It featured 16 presentations comprising preliminary findings from country teams, re-presentations to clarify issues but incorporating new knowledge acquired during the workshop, a methodological session from one of the resource persons, a thematic paper presentation by a resource person, and a summary presentation of the abiding issues by the project coordinator. The project coordinator's presentation was geared to sharpen the content of the final research output.

Below, we summarize and interpret the findings.

1. Many of the African countries with ICT policy (Morocco and South Africa for example) or in the process of its formulation (Rwanda, Mozambique and Nigeria for instance) are concerned with the ability to implement the policies. Many of these countries have come to appreciate that policies are not self-implementing. Consequently, there is a trend towards the setting up of ICT policy implementing agencies. Mozambique, Nigeria, Rwanda, and Kenya are cases in point. However, this trend has revealed a weakness in the policy process that is being closely examined in the current research project, extending possibly beyond the life of the present project. The revealed weakness is the habit of separating design and implementation in the policy planning process. This approach although false is nonetheless widespread and noted in the developmental policy literature: "…reference to such issue as a good plan implemented badly often heard in development planning is a false dichotomy between formulation and implementation. If a plan is supposed to be a feasible action program, then it must have been designed on the basis of realistic assumptions regarding the expected behavior of economic [and political] agents. Difficulties regarding implementation should arise only from unanticipated exogenous shocks".

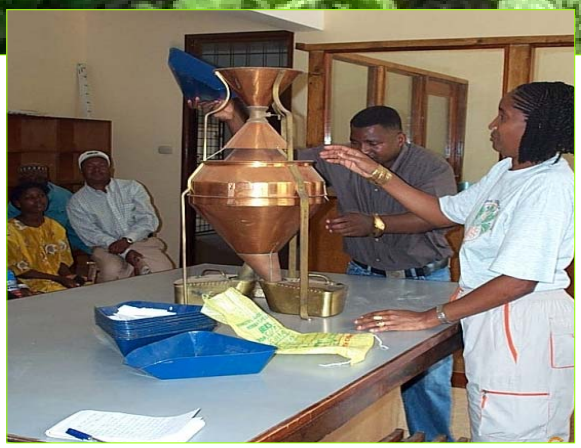
2. Consequently, the team adjourned from the progress workshop resolved to direct efforts toward exploring how to reintegrate existing policies with implementation strategies so the rules work. When rules work, they yield policy certainty that is said to be an important requirement for investment and growth.

3. Cross national comparisons of factors that weaken or strength institutions revealed the importance of building and sustaining institutional memory. The high turnover of bureaucrats within ministries and other agencies makes clear that building institutional memories is essential. How to build these memories seems to depend on

the structure of political institutions across the countries. These are issues of continuing research but more importantly, we have now become aware of this problem, and of how it can hamper growth in the ICT sector. One of the ways in which countries are now addressing this problem has been highlighted in item 1 above as part of the trend towards establishing implementing agencies for ICT policies. The design specifics are yet to be addressed but it is being suggested that with regard to ICT agencies, a crop of technocrats can be placed in charge, with appropriate career incentives to reduce attrition rate. The unresolved research question is to determine whether these career concerns and other incentive issues have been addressed in the framework setting up these implementing agencies.

4. Regulatory commissions and other related governmental agencies are often rendered ineffectual because of conflicting goals, too many masters to serve (normally as a part of the constitutionally mandated checks and balances), challenges from procedural issues such as how the job should be done, when it should be done. Budgetary allocations are frequently inadequate in comparison to allocated tasks. In the few countries where regulatory commissions and ICT legislation are in place, agency heads complain that they are subject to intense interference from politicians. Where some of the agencies have investigative mandate as part of their portfolio, resource constraints reduce severely the number of complaints it can process timely. Conversely, it reduces the quality of consumer protection available or forces it to attend selectively to complaints, invariably to complainants that have more resources since they can mount sustainable pressure to obtain agency attention. Such an outcome is inequitable as it represents an unfair dispensation of public services.

5. In principle, the system of checks and balances is designed to keep independent government agencies autonomous and hence responsive to the polity. In practice, the few African countries with working ICT regulatory infrastructure and legislation appears to confront a situation in which the gravitational pull of the executive branch of the government and the dominance of a ruling political party disturbs the equilibrium. Effectively then, the will of the executive branch is reflected in the policy process, often favoring a certain interest group instead of addressing public policy concerns as laid out in the legislation. For instance, the success of the Moroccan regulatory agency owed much of its accomplishments to the support enjoyed by the agency head from the Monarchy. By contrast, the claimed autonomy of the regulatory agency in South Africa is thwarted by budgetary constraints that have resulted in a thin staff complement that are inexperienced and under-resourced. It has thus been unable to police the sector operators adequately and many of the service providers have seized upon this weakness to tie up the agency in endless court process. In turn, the cabinet has taken advantage of the inexperience of the agency to seize the initiative and exercise many of the regulatory functions through a line ministry. More troubling is the general lack of awareness of the extent of consumer protection available to the public. For instance, fines up to 500,000.00 rands (about $75,000.00) can be imposed on both a supplier and a user of “non-type-approved” telecommunications equipment. These include TV remote control extenders, PABX's telephones, fax machines and modems. For such stiff penalties to exist on common household



equipments as listed above without being well advertised to the consuming public is disturbing. Team members working on the South Africa case study admit to having become aware of this regulation during this research project. Another instance from South Africa is the requirement that broadcasters keep copies of materials broadcast for 30 days before destroying them. This leaves a complainant with only 30 days window within which to lay a complaint about broadcasting content. It is doubtful that up to 40% of the broadcasting audience in South Africa is aware of this window rule even though far more than this proportion is presumably aware of content regulation and the existence of a remedy. There is therefore a seemingly huge gap between form and substance with regard to broadcast content regulation. An important lesson to be drawn is the general need for public empowerment of the regulator by means of the regulator educating the public as to the type of information it needs to be fed. The public acts as the watch dog, setting off fire alarms to alert the enforcer.

6. Another issue regarding the effectiveness of regulatory agencies that is receiving attention in the final report is the extent to which effectiveness will depend on if control of government is divided between political parties. In general this is an important structural issue in Africa because control of both the executive and the legislature vests often in one political party. If electoral forces keep widening the divide between parties thus forcing internal cohesion within parties, the impact of parties and consolidation of political power will become even more significant in the region; then the issues that parties choose to address or focus on will take on more importance. This also teaches that we must examine the judiciary because when the two legs of the triangle collapse into one, it is conceivable to expect "politics by law" as a means of redress to those who may feel marginalized.

7. Regarding licensing and universal access, many of the country reports (particularly Uganda and South Africa) expressed concern over the status of "telecentres" as pilot projects that never seem to mature. Telecentres and other IT-related projects were established as pilots without clear strategies on how to mature those pilots into full functioning and sustainable outfits. In raising this concern, the research has highlighted the need to include transition strategies as part of the policy on pilot projects. In technology policy parlance, the need for a transition strategy where technology or knowledge transfer is of essence is known as "close marking." We have noted that the failure to include "close marking" clauses in management or partnership agreements particularly where knowledge transfers are of essence is pervasive in the region. Shared experiences across project participants with respect to telecom reforms and strategic partnership agreements indicate that many of the countries have not included provisions for knowledge transfer in their respective "strategic partnership" agreements.

8. We also realized that the failure to stipulate technology-neutral conditions during negotiations for universal-service obligations was misguided. By adopting fixed line as the standard under the agreement, it has become clear after the fact, that progress in providing wider and affordable access to ICT has thereby been impeded. The story common across countries is that mobile and satellite communication technology is proving more useful

than fixed line technology in delivering affordable and ubiquitous access, yet most of the obligations were contracted on the basis of fixed line technology. One consequence of this technological non-neutrality is that roll out obligations have become characterized by "churn". Churn is the unfortunate phenomenon of disconnecting telephone lines shortly after they have been connected, due to consumers defaulting in their commitments to pay for services. The churn factor spills across to basic pay phone services where in certain environments, it leads to vandalism. The vandalism can be a backlash from a consuming public that sees the problem of pay phone affordability to be ironic because roll out of pay phones within the context of universal access was meant to address the very problems it has become. The lesson to be learned is that there may yet be a chance to right the errors during upcoming renegotiations or re-contracting when many of the universal obligation agreements expire or trigger escape clauses where obtainable.

9. Debates around the issue of access have raised questions also on the appropriateness of uncritically adopting existing measurement index of access. "Teledensity" defined as the number of telephone connections per 1000 people is a case in review. Many of the researchers are critically examining the relevance of teledensity as an index of the penetration and access to IT-related services in their various localities and the implication of this question for policy making.

10. The important question of how to ensure that regulatory agencies discharge their responsibilities in accordance of the wish of the people raised more interesting questions than answers. One concern is the need to recognize and incorporate the role of external factors such as foreign aid in formulating, prioritizing and directing policies. We can argue that this is another complicating factor in "mission setting" for agencies that were raised in item 4 above. As an example, we cite the Independent Communications Authority of South Africa that informs the public that "in regulating the industry ICASA aligns its actions, policies and regulations with the framework set by international and regional bodies to which it is affiliated. These include the Telecommunications Regulatory Association of Southern Africa (TRASA), the International Telecommunications Union (ITU), the International Institute of Communications (IIC) and Reseau Des Instances Africaines De Regulations De La Communications (RIARC)." Additional questions include why do many of the regulatory institutions charged with implementing legislative mandates lack the bite (i.e., credible enforcement mechanisms). The enforcement problems are varied. They range from the case of Morocco where the threat is incredible in being too draconian, to the case of Nigeria where the regulated entity either has captured the regulatory agency or carries more political clout than the regulator.

11. Debates around enforcement mechanisms have also implicated the structure and process of the agencies and hence the need to scrutinize the different constitutional checks and balances within the countries in order to interrogate the adequacy of "imported regulatory agency" models. Many of the models have been indiscriminately installed in many of the African countries that currently have them in place. For instance, how

can a model based on the clear separation of power between the legislature and the executive organ be applied in a country with one political party that commands strong party loyalty from both the executive and the legislature; where officials are not directly elected and hence unaccountable to the polity? In some instances, members of the legislature (MPs) are cabinet ministers.

12. The operational meaning of "independence" of a regulatory agency within the government is problematic. The question that has arisen is how can an independent agency be accountable, and to whom? Does independence mean impartial process or free from mission accountability to elected officials? Is this a goal worthy of aspiration, or an imported blueprint deserving of further scrutiny? This debate also questions the trend towards exclusive jurisdiction or single regulator, in contrast to overlapping jurisdictional structure that can produce adversarial relationship. An adversarial set up has the distinct advantage of being able to induce improved information flow to oversight authorities. This can be useful where otherwise the mechanism for obtaining information to assess performance of the agencies is weak, or where the likelihood for strategic manipulation of information is considered high. The latter risk exists where the oversight authority has to rely heavily on the agency to furnish the information required to judge that agency, or where expertise is lacking within the oversight committee. The debate on the structure of regulatory agency must of course be waged in the light of resources to operate multiple agencies.

13. So far, the trend in the legislative processes or policy formulations on ICT appears to be based on "blue prints". Nigeria is looking to the Rwanda model, whilst most SADC countries including Tanzania (through TRASA) look to South Africa that in turn has yet to prove its mettle within its unique political space. South Africa's political space can make the South African model questionable for adoption in other countries with dissimilar political space. Accordingly, the team from Mozambique has been cautioned to take cognizance of both their history, ethnic constitution, and the implication of these factors when considering the relevance for Mozambique of the South African model of ICT governance.

14. Research is continuing in the area of broadcast media with focus on the distribution of ownership across foreign and local investors, in the ownership structure across the print and broadcast media, in interlocking ownership and limitations in cross-ownership within the broadcast media, local content legislation, and on how to enforce public complaints on broadcasting.

15. Researchers are questioning the wisdom of continuing with privatization despite acceding to some of the international protocols on trade liberalization. This disquietude comes from the unresolved concerns over privatization of utilities in the face of obvious weaknesses of existing institutions that are supposed to mediate private and public interest. This concern is reinforced by the evident neglect or insufficient attention to the demand side of ICT policy, and the role of external environment in the policy making processes within the region. To give specific examples, we found that in many countries such as Nigeria, Kenya, and Ghana, incumbent national telephone network carriers usurp powers when they sense inaction on the part of the regulators.

Blocking voice over internet telephony has been cited as an instance. Flouting direct government orders, or agency rulings with respect to interconnection or other obligations (with respect to consumers in particular) are others. In Nigeria, the broadcasting regulator has delayed (for reasons we are still researching) the use of funds from spectrum licensing that are meant to be ploughed into developing infrastructure. These instances of power imbalance feed the lingering concern about the benefits of changing the ownership structure in the strategic sectors of the region. As made clear in the synthesis, the issues of ownership structure and hence property rights cannot be dismissed off handedly.

Project implementation and management

Research activities during the last one year include meetings with stakeholders in the ICT sector, attending seminars and workshops on privatization and regulation, interviews with legislators and regulatory agency officials, literature review, interaction among network team members to sharpen understanding of the research issues, and compilation of interim reports on the project. The project has so far iterated through four different versions of the work in progress, marking the different states from conceptualization, inputs from stakeholders, literature review, editorial and technical comments from the project coordinator and presentations before a peer review workshop.

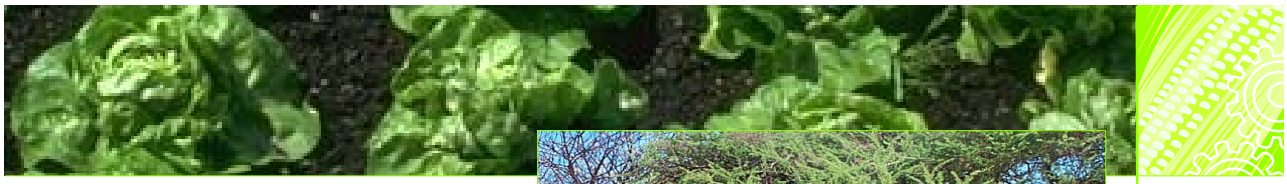
The research activities have included consultations with experts and stakeholders, interviews, documentation and analysis within an interdisciplinary framework. The cognate disciplines are organizational and cognitive psychology, information technology, law, economics, political science, and sociology. The interdisciplinary orientation of the research has presented challenges to the group who consequently had to invest a substantial chunk of time and other resources to bring the team to speed within a short interval.

Project outputs and dissemination

Work in Progress, revised work in progress and draft final reports are descriptive of the various stages of the research reports from the network. Stakeholders' workshops have taken place in various forms across several of the countries including in Nigeria, Ghana, Ethiopia, Rwanda, Uganda, and South Africa.

Capacity-building

By far the greatest benefit has derived from the training implicit in the project. Although by no means exhaustive, these training benefits derive from the iterations between the project coordinator and the researchers, as well as from the two methodological sessions at the WIP workshop (see WIP workshop programme attached). Other ways in which capacity has developed include the technical sessions during the workshops (both the inception and WIP) that provided an exclusive setting for country research teams to interact with resource persons, the proposal formulation activities during the project inception, and the peer review mechanisms that



are integral to the research activity.

Although ATPS is an interdisciplinary research network, experienced in managing network activities across the region, this project has by its uniqueness enriched the experience of the institution. Not only has it reinforced the experience of ATPS in managing a complex interdisciplinary research project, it is the first ATPS thematic project that spans 12 countries across the entire continent, beyond the sub-Sahara region, involving French, English, and Portuguese speaking researchers, all accessing the same literature, and talking to each other productively. With so many dimensionality (language, discipline, country) the improved administrative skills and institutional reinforcement that it brings cannot be over emphasized.

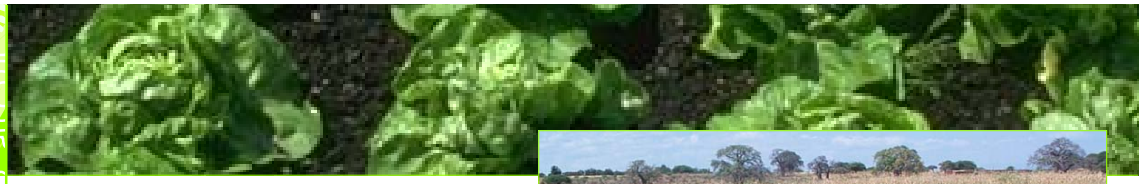
The same can be claimed for the researchers who in addition to having to forge group cohesion within their country cohorts, have had to integrate seamlessly into the network basic framework, as well as adhere to the timelines. Belonging in a network means that delays at one node ramify. Therefore, coping with the challenge of successful integration of country tasks into the group objective is a significant capacity building for all involved. The network includes five women in the area of IT and one from public policy and economics, spread across universities, governments, and public sector research agencies.

Last but not the least, are the resource persons from the IT sector, comprising entrepreneurs, directors of IT training institutes, ex bureaucrats from regulatory agencies, and academics. This group has enriched their understanding and experiences as well as expanded their working knowledge of the ICT policy environment within the region. In fact, most of them expressed privileged to have been availed of this unique opportunity to benefit from such an extensive network of researchers on key issues of ICT policy.

Impact

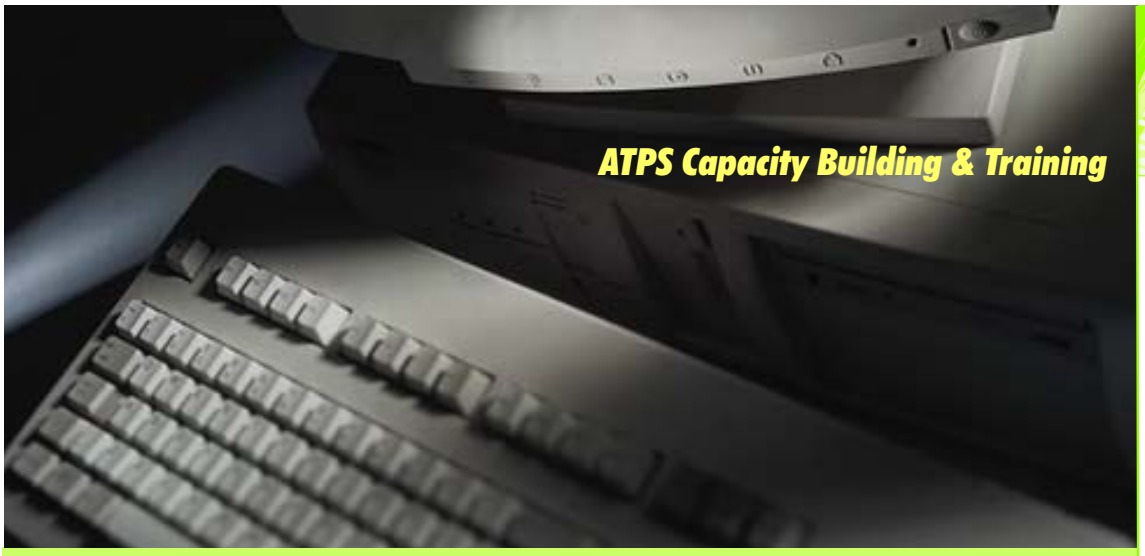
Knowledge created through the project is already being applied across the region even before the project is concluded. It has been used to stake positions in contemporary policy discourse on IT-related issues and other public policy issues such as regulation of power and transportation. As evident from the composition of the research team (see participants' list annexed), many of them are in key positions of influence on policy formulation and implementation. We are confident in the claim that the Mozambican team has particularly benefited extensively from the knowledge sharing that occurred during the work-in-progress workshop. The same can be said for most if not all the workshop participants, many of whose countries are still crafting an ICT governance framework. For instance, the Kenya team is already part of a caucus setting up a training program for policy analysis and implementation with the assistance of USAID. The Kenya team has said that they find this network project to be of immense benefit towards successfully accomplishing their new national assignment.

It is now generally accepted that the way in which ICT evolves depends on the nature of regulation. This is partly

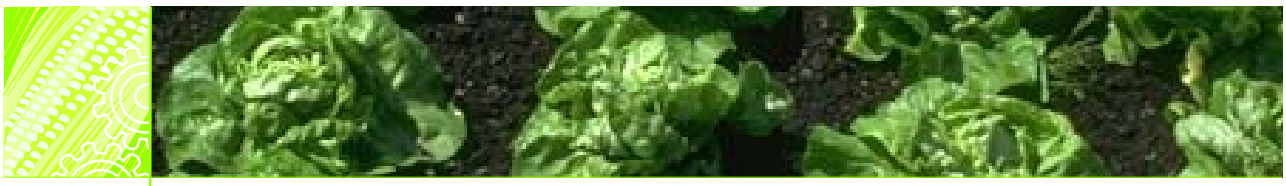


because one of the most fundamental issues in the design and implementation of ICT policy is how to ensure that the large amounts of required specific sunk capital are financed. This in turn raises question of how the property rights therein are to be defined, allocated, and protected. This latter question underpins the issue of ownership and therefore of privatization, and implicates the regulatory contract between the owners (investors) and the consumers (the polity). Certain members of this polity have exit options when they are dissatisfied with the services by an incumbent provider who may be a monopolist. There are those who are least able to opt out of inadequate services. These cohorts are often the poor and marginalized social groups. Therefore, they have the most to gain when regulatory compacts are enforced.

If the civil society, governments, and the private sector by this research can secure ICT policy implementation as intended, society will have benefited, but those who have the most to lose (the poor and marginalized) will have benefited the most. Knowledge gained from this project, through effective dissemination, can alter dramatically the pace at which Africa participates in the benefits to development that come from being a member of the information society. Knowledge gained from this project is already feeding into the legislative debate and agenda as well as into institutional building efforts through the participation of the network researchers in public discourse. In Ethiopia, the country leader for this project has recently been appointed to the ICT regulatory agency. In South Africa, in Tanzania and many of the other participating countries, network researchers have indicated that they are using knowledge gained from this project to advocate changes in the operation of contract laws relating to warranties and fitness-for-purpose with regard to the license agreement for software end-users.



ATPS Capacity Building & Training



Training Seminar/Workshop on Science and Technology Policy Research Methodology, and S&T Sensitization, Policy Analysis and Implementation (Harare, March 26-29)

Over the years, research proposals from the southern African sub-region of ATPS have remained uncompetitive compared to other regions of the continent. The ATPS Board, therefore, decided that special attention should be devoted to improving the research skills of potential ATPS researchers from this sub-region. ATPS in collaboration with the Institute of Development Studies of the University of Zimbabwe organized a one-day training workshop for this purpose.

The Training Seminar/Workshop on Science and Technology Policy Research Methodology, and Science and Technology Sensitization, Policy Analysis and Implementation brought together thirty-six (36) participants from Botswana, Lesotho, Swaziland, Uganda, Zambia and Zimbabwe. The objectives were:

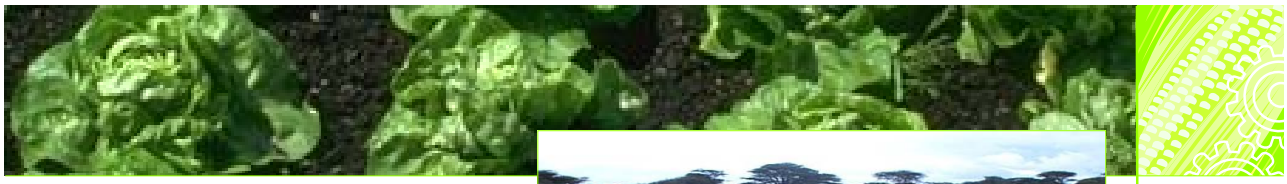
- to upgrade research skills of potential ATPS researchers
- to sensitize policy makers and researchers on the fundamentals of S&T policy, its integration with
- economic policy planning and introduce them to implementation concerns
- to improve their writing and presentational skills
- to bridge the communication gap between researchers and mid-Ievel policy makers

Mid-Ievel policy makers, who are also potential researchers, but currently occupy technocratic positions in various southern African governments, attended the workshop. The Network hoped, through this approach, to inform them of S&T policy and also impart specific skills required for understanding governance of S&T for Africa's development. By bringing the two groups together, ATPS encouraged dialogue that would break the communication gap between researchers and policy makers. Researchers have often been appointed to take up positions in government ministries and this training is important in their transition. The ATPS- Zimbabwe Chapter played an active role in initiating this collaboration.

Sensitization/ Training Workshop for Lesotho Members of Parliament, 19 June 2003

The ATPS-Lesotho Chapter organized a one-day seminar for Members of Parliament in Maseru. The President of the Senate, Chief Sempe Joseph Lejaha; the Speaker of the National Assembly, Ms Nthloi Motsamai; the Deputy Prime Minister/Minister of Education and Training, Hon Archibald Lesao Leholha; Minister of Finance and Development Planning, Hon Timothy Thahane; and the Leader of Opposition, Hon Kelebone Maope among other prominent personalities attended.

Using a series of case studies, the lawmakers were exposed to the fundamental issues in S&T, the policy process, implementation concerns and the role of legislators in this process. Foreign direct investment, technology transfer, poverty alleviation and specifically the question of World Trade Organization (WTO) and intellectual property rights (IPR), indigenous knowledge and its protection among others emerged as important issues for discussion. The discussions were informative and the Speaker of the House indicated that parliament would establish a committee to lobby for issues of S&T in Africa's development. ATPS promised to support the committee with research materials and additional training.



S&T Methodology and Policy Sensitization Workshop, Maseru, Lesotho, 20 June 2003

Besides the workshop for members of parliament, ATPS also organized another workshop, similar to that of Harare, for mid-level policy makers and researchers. The workshop consisted of two sessions: research methodology and S&T policy planning and implementation sessions. Methodological sessions covered the fundamentals of S&T policy research, concepts, the analytical tools and elements of a good proposal.

Policy planning and implementation sessions dealt with the methodology of the national systems of innovation, the usefulness and implications for sectoral and industrial policies. Case studies were again deployed to illustrate policy planning and implementation processes, highlighting the key elements of success in planning and implementing S&T projects

Participants were drawn from the ministries of Agriculture, Trade and Industry, Education, Communication and Science and Technology, the National University of Lesotho and local polytechnics.

ATPS is continually looking for ways to partner with national institutions to offer this kind of training and build partnerships at national levels.

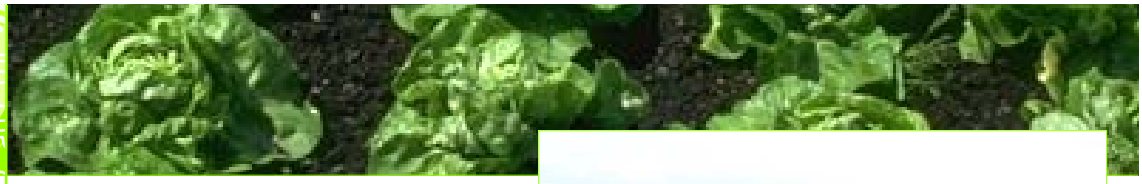
ATPS/IDEP Atelier de Formation sur la Méthodologie de Recherche Scientifique et Technologique et la Politique de la Planification, d'Analyse et de Mise en Application de la Science et de la Technologie Dakar, Sénégal, July 8-11.

ATPS approached the African Institute for Economic Development and Planning (IDEP), a UN organization, to collaborate in planning a one-week training program for French-speaking West African researchers and policy makers.

This workshop had five objectives:

- To extend ATPS' reach to French-speaking West Africa and prepare the ground for eventual expansion (which has now taken place);
- To equip policymakers and researchers with basic skills on how science and technology (S&T) policy can be integrated into economic policy planning and the implications for growth;
- To explore basic understanding of the systems of innovation and its use for policy planning;
- To improve research proposal writing and presentation skills; and
- To bridge the communication gap between researcher and policymakers.

ATPS and IDEP selected a combination of researchers and policy makers from Benin, Burkina Faso, Cameroon, Cote D'Ivoire, Mali and Senegal for the training. Three researchers and two policy makers were invited from each



country while resource people were drawn from ATPS Secretariat, ATPS-Nigeria and the United Nations University-Institute for New Technologies (UNU/INTECH). The selection criteria for the training also considered gender equity. IDEP's facilities were excellent, providing simultaneous translation and logistical support.

ATPS/RMRDC S&T Research Methodology and S&T Policy planning Analysis and Implementation Abuja, Nigeria, 30 September - 4 October 2003

The African Technology Policy Studies Network, in collaboration with the Raw Material Research and Development Council (RMRDC) of Nigeria, held a one-week training workshop for senior policy makers, legislators, directors of institutions, presidential advisers and senior military personnel. The audience was diversified to reflect the relevance of the training to the work of the various agencies. The program was designed to enable participants to understand the generic concern of how to integrate science and technology into public policy and the relevance of a knowledge economy and to move from the narrow confines of their discipline to relate with others in attaining higher socio-economic status for the entire populace.

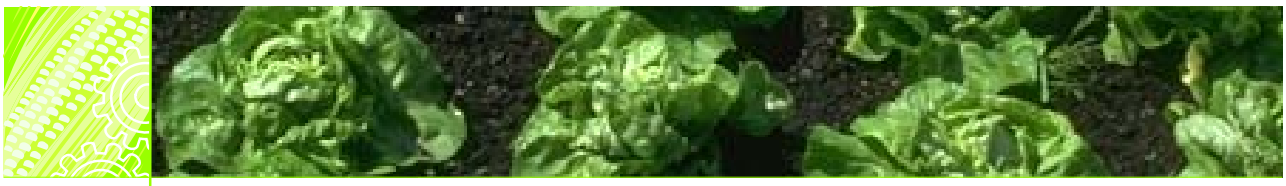
ATPS core agenda in this respect is to build regional/national S&T policy capabilities through targeted S&T policy training designed to integrate foreign capital and local learning, using case studies that are familiar to the audience and those that shed light on developing countries' problems from comparative experience. The policy makers were selected from ministries, parastatals and other agencies of the government

The training covered the following subjects:

- Science and technology- the fundamental issues;
- Technological capability and learning;
- Capabilities and learning in the emergent knowledge economy;
- Comparative case study of energy development in China and Kenya;
- Understanding innovation systems;
- Mechanisms for technology assessment;
- Technological lessons from the Nigerian liquefied natural gas project;
- Technological planning and forecasting;
- Case studies for industrial clusters; and
- Research methodology and proposal writing.

RMRDC was responsible for the expenses of the participants, logistics and part of the honorarium for the resource persons. ATPS was responsible for air tickets and part of the honorarium for the resource persons from UNU/INTECH, Pace University, New York, University of Ibadan, Nigeria and the ATPS Secretariat in Nairobi. Working with local institutions not only extends our reach, it gives ATPS national credibility, reduces our costs and ensures continuity. This course has already generated demand for higher level training in this area to be organized later in 2004.

Research Methodology Workshops



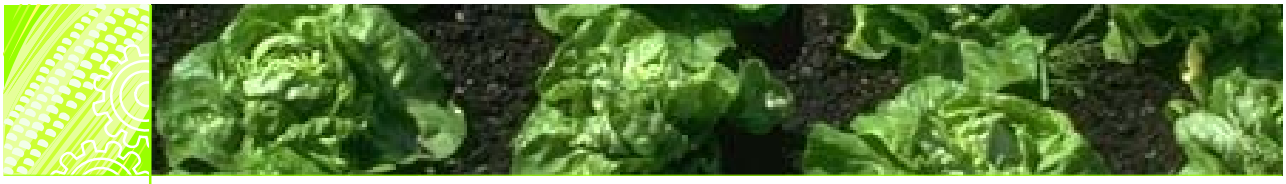
Tanzania Chapter

The ATPS Tanzania Chapter held a peer review and methodology workshop led by a research methodology specialist from the University of Dar es Salaam. This was followed by presentations and discussion of the research proposals that were finally sent to the secretariat. One ATPS Research Project's work in progress was also presented and discussed. The participants of the workshop were of two categories. Few accomplished researchers from the university who acted as resource persons and young and potential ATPS researchers from other S&T organizations in the country.

Lesotho National Chapter Peer-Review Workshop

Normal S & T policy research preparations went on as usual. LSC peer reviews took place in May 2003 and because of the parliamentarians' roundtable, were finalized in July 2003 where six proposals were selected. Of these, three proposals were identified by ATPS (Nairobi) for competitive presentations in the Annual ATPS Proposal Workshop. Identified Lesotho competitors were: Mrs. Sophie Majara (LCE), Mr. Teferi Kebede (ISAS, NUL) and Mr Thamae (DST). We await a final decision by the ATPS Board most anxiously.

ATPS Communication & Outreach



Scientific Revival day of Africa (June 30, 2003)

African Technology Policy Studies Network, Nairobi, Kenya

June 30th, the Scientific Revival Day of Africa, was declared by African leaders as a day to appreciate what science can do for the continent. To commemorate the 2003 event, African Technology Policy Studies Network (ATPS), led nine other international, governmental and non-governmental organizations in forming an organizing committee to determine how best to mark this day. Members of the organizing committee were:

- African Technology Policy Studies Network (ATPS)
- African Academy of Sciences (AAS)
- African Centre for Technology Studies (ACTS)
- African Union- InterAfrican Bureau for Animal Resources (AU-IBAR)
- International Centre for Insect Physiology and Ecology (ICIPE)
- International Plant Genetic Resources Institute (IPGRI)
- International Crops Research Institute for Semi-Arid Tropics (ICRISAT)
- Intermediate Technology Development Group (ITDG-EA)
- Jomo Kenyatta University of Agriculture and Technology (JKUAT)
- Ministry of Planning and National Development, Kenya

An Overview of the Workshop

Prof. Nick Wanjohi, Vice-chancellor JKUAT was elected the chairperson. The committee decided to have a three-day event (25 to 27 June 2003) with the theme Science and Wealth Creation to interpret the links between these two issues. This theme was sub-divided into the sub-themes, Science, Technology Policy and Industry and Science, Education and Industry.

Day 1 addressed the main theme: Science and Technology for Wealth Creation

Prof Kivutha Kibwana, Assistant Minister for Science and Education, Kenya, presided over the opening ceremony. At the official opening, he expressed surprise and delight at seeing many young people in the audience and thanked the young achievers club for exhibiting. He appealed to local people to get involved with S&T issues.

Dr Kevit Desai, Director of Engineering, Centurion Systems, Kenya gave the keynote address. He voiced concern that while students are graduating from national universities, polytechnics and other technical institutes they were not up to date with the latest developments in technology and the trends in the industry.

- Dr Mohamed Khalil Timamy, ATPS Senior Research Associate, took the audience through the experiences of various countries worldwide and came to the conclusion that Kenya, and Africa as a whole, depicted various characteristics:
- They have neither a technological agenda nor program of action to guide its development process
- The relevant institutions are passive players at best or inconsequential spectators at worst
- There are no robust guidelines and policies to define the expected trajectory of technological evolution Of the economies
- There is no domestic content specification to increase and deepen local participation

- There is no subcontracting strategy to help firms evolve or enhance domestic technological capabilities

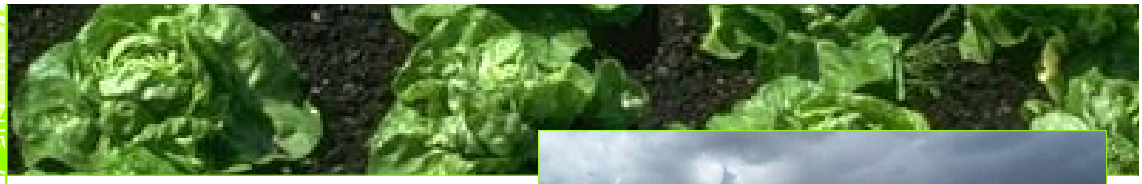
Day 2 addressed the theme: Science, Technology Policy and Industry

- Prof. Onesmo Ole Moiyoi, Director of Research and Partnership (ICIPE) addressed Science, Technology Policy and Industry, narrated the ICIPE research experience on Malaria and the tsetse fly.
- Mr Chris Kirubi, CEO International House Ltd, addressed Science, Technology and Industry and was concerned that the linkage between science, technology and industry is not particularly strong in Africa. He argued that Africa has abundant natural resources that can be processed to good products if proper research is done.
- Hon Prof Ruth Oniang'o, Member of Parliament, (Prof of Food Science and Nutrition, JKUAT) gave a lunch time presentation citing Kenya's development challenges as poverty, disease, ignorance and globalization.

Day 3 addressed the theme: Science, Education and Industry

This day consisted of two panels for discussions

- Prof Paul Vitta, Director, UNESCO, Nairobi, addressed the different eras of science and technology, identifying and elaborating on the prevailing practices.
- Dr Paul Wangai, the Director of Wellness Medicare Center, pointed out that there are no policies in place for harnessing and encouraging creativity and innovations displayed by students during events such as the science congress in Kenya.
- Mr Tejpal Bedi, Managing Director, Interconnect, addressed the need to forge strong relationships between industry and stakeholders in the field of education to facilitate the development of the right skills needed for industries.
- KNAS immediate former Chairperson, Prof Shem Wandiga's concern was on science and technology as the building block for constructing knowledge, societies and wealth. He said that the new paradigm for socio-economic progress is knowledge driven, adding that the globalization process supports trade in knowledge industry that have produced big margins of profit and growth.
- Mrs Anne Murage, Science Teacher, Alliance Girls High School, said that the major goal of education in Kenya is to provide the learners with the necessary skills and attitude for industrial development and current technological changes.
- Prof Larry Gumbe, Department of Agricultural Engineering, University of Nairobi, outlined the major problems that Kenya faces today: legal, agricultural production and productivity.
- Prof Judi Wakhungu, Executive Director, ACTS, addressed the lack of interest by girls in science and technology subjects, citing high attrition rates in most American universities. She suggested



mentoring as a possible solution to the problem.

The Exhibition and the Award Giving Ceremony

This exhibition was for various science and technology institutions to disseminate their inventions, innovations and publications aimed at depicting the theme of the event. The event ran throughout the three days of the workshop and the displays were generally of high quality while some organizations brought their products for sale. The following institutions participated:

- Kenya Industrial Research Institute (KIRDI)
- International Center for Insect Physiology and Ecology (ICIPE)
- Young Achievers, an internship group of the Centurion Systems Ltd
- Intermediate Technology Development Group (ITDG) collaborating with Sollatek
- African Biotechnology Stakeholder's Forum (ABSF) in collaboration with the Kenya Agricultural Research Institute (KARI)
- Jomo Kenyatta University of Agriculture and Technology (JKUAT)
- International Plant Genetic Research Institute (IPGRI) in collaboration with the National Museums of
- Kenya (NMK), KENRIK Project
- African Center for Technology Studies (ACTS)
- African Technology Policy Studies Network (ATPS)

Best Science Student Award

The highlight of the third day was, Hon Petkay Miriti, Assistant Minister for Trade and Industry, presiding over an award giving ceremony that was based on the mean grades in four science subjects namely, mathematics, physics, chemistry and biology. Faith Kaimuri Muthaura, Eric Kanyi Mbuthia and Sarah Njoki Ngumi won trophies and cash prices in mathematics, Physics and Chemistry, respectively. However, due to communications problems and time constraints, only three students could be reached.

As he officially closed the workshop, Hon. Miriti assured the participants that the government is fully committed to supporting innovation and creativity in different areas. He said that a sound intellectual property system remains a strong basis for the development and transformation of innovative domestic industry. He appealed for closer cooperation between the private sector, the public research institutes and universities to expedite research innovation and diffusion of technology for the benefit of Kenyans.

The Ethiopian Technology Policy Studies Association (ETPSA)

The Ethiopian Technology Policy Studies Association (ETPSA), in collaboration with Ethiopian Science and Technology Commission (ESTC), organized a half-day panel to discuss: Globalization and New Technologies for Ethiopia: Challenges and opportunities on 27 June 2003 at the Ghion Hotel, Addis Ababa to

commemorate the 2003 Scientific Revival Day of Africa.

The panel discussion was officially opened by His Excellency Mr Mulugeta Amha, Commissioner, ESTC, who made a pertinent keynote address highlighting the opportunities available and challenges in promoting new technologies in the context of the globalization process. Mr. Atef Gebriel, the representative of the African Union, in his opening remarks, highlighted the historical background and importance of the Scientific Revival Day of Africa.

The panel discussion was chaired by Mr. Gizachew Woldeyes, Head, popularization Department of ESTC. Of the four representative panelists, Mr. Tesfay Birru, General Manager of Ethiopian Telecommunication Corporation and former Vice President of Addis Ababa University, highlighted reforms, achievements, and challenges that his organization is facing. Mr. Afework Timteme, President of Ethiopian Information Technology Professional Association and a senior expert in the ICT division of United Nations Economic Commission for Africa (UNECA) underlined opportunities in the ICT sector. Dr. Haile Wolde-Michael, President of Beza (Private) College and former Minister and Member of Parliament, enlightened the audience on the concept and implications of globalization. Dr. Dejene Aredo, National Coordinator of ETPSA, defined 'globalization' and reviewed ICT policy issues, using extracts from the paper he prepared earlier and distributed among the invited panelists. Discussions from the floor and debate followed the panel discussion on controversial ICT policy issues. The debate was carried on to the cocktail party where informal discussion was held. The chapter members used this occasion to network among guests, distribute the call-for-proposals and recruit new members.

The occasion also offered the opportunity for the chapter to assess its strength and plan how to overcome possible challenges in promoting people-centered S&T policy formulation and implementation in Ethiopia. The media from both the private and public sectors covered the occasion.

Besides marking the Scientific Revival Day of Africa, the panel discussion enhanced the visibility of ATPS and facilitated policy communication with stakeholders. The occasion also increased the popularity of the newly registered chapter: the Ethiopian Technology Policy Association (ETPSA).

Scientific Revival Day of Africa Ghana Chapter

The ATPS-Ghana Chapter in conjunction with Council for Scientific and Industrial Research (CSIR) and the Ministry of Environment and Science observed the Scientific Revival Day of Africa in a rural village in the Ashanti Region of Ghana. This most innovative commemoration took place during a durbar of chiefs in a community that receives support from scientific institutions in resolving local problems.

On 30 June 2003, scientists and fellow stakeholders moved to Wabiri, 15 kms off the Konongo-Kumasi Road of the Ashanti Region to bring science to the doorstep of the ordinary people. The Honourable Minister of Environment and Science, Prof Kassim Kassanga, provided the needed leadership as he participated fully in the

celebration.
The Chairman of the University Council of the Kwame Nkrumah University of Science and Technology (KNUST), directors, heads of various scientific institutions, and a representative of the King of Ashanti.

In his speech, the minister noted the significance of honouring this important day because Africa has a notable scientific past, which the pyramids of Egypt remarkably portray. He also noted the importance for Africa to go back to the underlying principles of those civilizations to recapture what has been lost. An exhibition was held to portray some of the scientific developments in Ghana over the years. After inspecting the exhibition stands, the dignitaries, including the National Coordinator, planted trees along the main road of the village in commemoration of the day.

A durbar on a single day to mark scientific revival in the life of a nation cannot change people's lives overnight. Yet, it can begin the process of acculturating the principles by which today science and technology has become the critical pillars for socio-economic advancement and prosperity.

Meanwhile, the Chairman of the ATPS-Ghana Chapter Board discussed the importance of the day on the Breakfast Show featured on Ghana Television. The National Coordinator also published an article on the Day of Scientific Renaissance of Africa 30th June 2003 in The Ghanaian Times. In his article, he emphasized the need for building scientific capacity in African countries to meet the challenges of the present era.

ATPS hails this as an exemplary way of showing that people at the grassroots of society can be placed at the center of science and technology application and management.

Scientific Revival Day of Africa, Nigeria

In Nigeria, the ATPS-Nigeria Chapter in collaboration with the Raw Materials Research and Development Council (RMRDC) observed the day in Abuja. The Director- General of RMRDC, representatives from the Ministry of Science and Technology and other government ministries, the private sector, international agencies and the media attended the public lecture on Hot Issues in Contemporary Nigerian Science and Technology Policy. Besides identifying the "hot issues" in S&T, the panel also identified poor funding and the lack of private sector participation as being largely responsible for problems in S&T for development, particularly in the manufacturing sector. During the same event, the chapter also recognized four individuals for their outstanding performance and contribution to the development of S&T in Nigeria. They were awarded with a plaque and made Fellows of ATPS- Nigeria.

Scientific Revival Day of Africa: Tanzania Chapter

On 30th June 2003, The African technology Policy Studies Network, Tanzania Chapter (ATPS-Tanzania), in collaboration with the Tanzania Commission for Science and Technology (COSTECH) held a one-day workshop

and some science exhibition in observance of the African Scientific Renaissance Day. The central theme of the workshop was " Linkage Between Science and Technology and the Productive Sector". This theme was selected in recognition of the fact that one of the major Africa's Science and Technology problems is low level of putting into practice the knowledge generated through research. Under such circumstances generating more knowledge without solving this basic problem, means even more knowledge going unutilized.

Three major papers led the discussion, these are:

- The paper on the Status of science and technology in Tanzania, with particular reference to the university and other higher learning institutions research output.
- The paper on the Status of the Tanzania's Science and Technology Policy.
- Paper on the status of Biotechnology world wide and the position of Tanzania

The presentations of the papers were followed by a discussion session. It was evident that a lot of useful knowledge has been generated over the years, but very little has been put into practice. It was also realized that this is largely due to lack of appropriate policy directives. It was finally decided that further discussion and follow up on this issues be made.

Along with the above papers, the TASTA (Tanzania Award for the Science and Technology Achievements) awardees were given time to make a short presentation on their work. This was also followed by a general discussion. It was also revealed that lack of innovation policy is a major stumbling block to the success of the TASTA awardees.

The opening of the workshop was officiated by the former OAU Secretary General, Dr. Salim Ahmed Salim and attended by researchers, policy makers, and representatives from the private sector and other stakeholders in Tanzania's S&T system.

One of the unique features of this particular workshop was the participation of the science students at the

secondary and university level. The students were also given some time to speak about their experience as science students, their expectations and future out look. Together with some of the TASTA awardees, the students were also responsible for the science exhibitions that took place in parallel with the workshop. It was quite an experience- we had Tanzania's S&T system in a nutshell!

Scientific Revival Day in Africa: Uganda Chapter

The ATPS-Uganda Chapter, Uganda National Council for Science and Technology (UNCST) and the National Foundation for Research and Development (NFRD) organized the 2003 Scientific Revival Day of Africa at the Grand Imperial Hotel, Kampala, Uganda.

The function was attended by Honourable members of parliament, the Senior Presidential Advisor on Agriculture and Livestock, distinguished scientists and researchers from universities and the private sector and was covered by the media.

The theme was 'Science and Technology Innovation: Its Role in Development.' Prof. P.J.M. Ssebuwufu , the Chairman of Uganda National Council for Science and Technology and Vice Chancellor of Makerere University, invited the participants on behalf of the Joint ATPS-UNCST-NFRD Organizing Committee. Thirty-five people attended the function.

Speeches and a presentation by two students of Uganda Polytechnic Kyambogo (now under Kyambogo University) who are grantees of UNCST's innovation fund. They presented progress on the L'ogel Project marked the day. The National Coordinator ATPS-Uganda Chapter, Dr Obua, the Vice Chairman of UNCST, Dr Mangheni, the Executive Secretary of UNCST (Dr. Nyiira) and the Guest of Honour Hon Patrick Oboi Amuriat, Member of Parliament, Kumi and Chairman of the S&T Parliamentary Committee gave speeches. Mr. Julius Echuru, Scientific Secretary with UNCST was the master of ceremonies.

OUTREACH ACTIVITIES

Report of the ATPS Media Luncheon/Workshop held on 15th August, 2003, Nigeria chapter

Theme: Popularization of Science and Technology for Sustainable National Development

Venue: Nigerian Natural Medicine Development Agency (NNMDA), Victoria Island, Lagos.

Workshop Objectives: The main objective of the workshop was to expose journalists to the art and science of reporting and popularizing science and technology policy issues in Nigeria.

The following media houses were represented:

- People and Politics
- The Comet
- Daily Times
- The Punch
- New Age
- Radio Lagos/Eko FM
- Champion

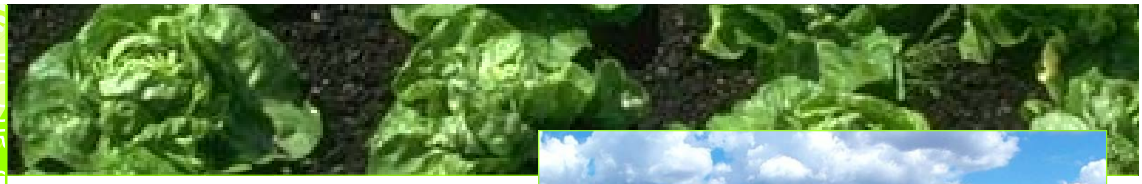
The workshop commenced at about 11.00 a.m. with the introduction of special guests and paper presenters. The chairperson Dr (Mrs) Timi Aggarey welcomed participants followed by a similar presentation by the ATPS Associate National Coordinator. The meeting later went into recess for the usual group photograph and tea break.

Three presentations were made by three of the resource persons as follows:

- "Reporting and Popularizing Science and Technology" by Dr. E.O. Soola, Senior Lecturer Department of Communication and Language Arts, University of Ibadan, Ibadan.
- "Reporting Science and Technology" Dr. Babatunde Folarin, Reader in the above Department.
- "Linkage between R & D and Commercialization" Prof. O.A. Bamiro. This was an extempore presentation.

It was agreed that the workshop objectives could be realised in several ways such as through investigative reporting, evaluation of existing and proposed S & T policies as well as, other policies that impinge on S & T development, and media review of S & T innovation etc. It was also agreed unanimously that ATPS should institute an annual prize award for the best media reports (written and electronic) on S & T policy issues.

Almost all participants agreed to join the network. Application forms have since been mailed to them for further necessary action. The organizers expected that at the end of the event, journalists would be better positioned to write and speak on S&T policy issues based on greater knowledge of the significance and peculiarities of the sector. Furthermore, it was expected that enthusiasm among journalists would have been created for the



purposes of networking, advocacy, lobbying and public awareness promotion on the workshop theme. Thirty participants excluding resource persons attended the event.

University Science and Technology Week: Cameroon Chapter

The ATPS-Cameroon Chapter proudly hosted the first ever University Science and Technology Week in Yaounde. This forum brought together vice chancellors, deans and directors from six state universities, researchers, heads of university units, heads of government research institutes, university administrative staff, members of government, chairmen and CEOs of manufacturing and industrial enterprises, NGOs and representatives of multinational corporations operating in Cameroon. The week was co-organized and hosted by the Ministry of Higher Education under the chairmanship of the Honourable Minister of Higher Education. During the week, six workshops with varying themes were held. Discussions revolved around why scientific and technological output of Cameroon state universities was somewhat modest despite the pockets of excellence that existed. A major recommendation of the week was to ensure that syllabus reforms that were carried out in the early 90s were implemented. It was resolved that following these reforms, centres of excellence in critical domains such as biotechnology and ICTs would be developed.

ATPS-Ghana Policy Roundtable Discussion

ATPS-Ghana had a one day policy roundtable discussion on "The National Science and Technology Policy Implementation, Challenges and the Future", on 2 December 2003. Thirty-five participants attended the roundtable that was opened by the Honorable Prof. Dominic Fobin, Minister for Environment, Science and Technology. They included researchers, lecturers, policy makers, stakeholders from various scientific and technological institutions including the relevant professional associations, Ministry of Environment and Science, the C.S.I.R. institutes, the universities and other relevant ministries, departments and agencies interested in improving science and technology policy formulation and management of technology application in Ghana.

The main objective of the roundtable was to take stock of Ghana's S&T application, development and management particularly with reference to the National Science and Technology Policy Document and to brainstorm on the options for accelerating the achievement of Ghana's S&T aspirations. Specifically, it aimed at:

- appraising the role of institutions in the S&T system with reference to the aims and objectives of the national S&T policy
- reviewing current efforts at S&T application and development in relation to the national development Agenda examine the options for the future

In his remarks, the minister noted that the roundtable was important to his ministry in making inputs in their efforts to renew and map the way forward for S&T development in the context of the implementation of Ghana's national development agenda.

It is no longer debatable that S&T is the engine of growth and that the current Ghanaian government recognizes this as reflected in the President's address to parliament in which he stated that "the need to transform our consumer-dominated economy to a producer-dominated one is an overriding objective, and the use of science and technology offers the most viable means of achieving this through the principle of mastering, adopting known technologies, as well as developing new ones".

He also expressed appreciation on the work of ATPS in supporting his ministry and the researchers in Ghana, hoping that the ATPS-Ghana Chapter will make significant contribution to the NEPAD S&T agenda. In the Second Session, the Director of Policy Planning, Monitoring and Evaluation (PPME) of the Ministry Environment and Science Dr. Rexford Osei gave a presentation on the theme of the roundtable to set the stage for discussions. A communiqué was issued at the discussion on:

What the ATPS Ghana Chapter should do to help move the process forward

- Human resource development
- Science and technology management, development of infrastructure
- Funding and leadership and commitment

Annexes

Publications List

ATPS is a multi-disciplinary network of researchers, policy makers and other end-users interested in the generation, promotion and strengthening of innovative technology/industrial policies in 17 Africa countries.

ATPS publishes the Working Paper Series, Research Paper Series, Special Paper Series, Technopolicy Briefs and Executive Summaries. The ATPS targets six constituencies as it's audience; The legislature and executive policy making organs of government; the organized private sector; mass media and civil society; technical and engineering institutions; and farmers and small scale producers.

Papers published under the Working Paper Series and Special Paper Series are produced through the ATPS small research grants process or from regional projects. Research Paper Series (RPS) must state at the back of the front cover that "this paper was externally reviewed", this is due to the strict external reviewing process required before publication. Researchers publishing under the Working Paper Series (WPS) are encouraged to produce final drafts of their reports in easy-to-read and understand form. The WPS does not meet the strict requirements set out for RPS. Special Paper Series (SPS) publications are commissioned as concept papers, think pieces, leading conference papers or keynote addresses. The Technopolicy Briefs Series provides critical knowledge and advice on fundamental policy issues in the realm of technology. These briefs are written with the busy policy maker in mind.

The ATPS objectives are capacity building and enhancement for technology policy formulation, implementation and research; generating a critical mass of knowledge on technology policy issues; fostering networking and collaborative research; dissemination of research results; and policy dissemination and advocacy.

For any comments and requests get in touch with us through The Executive Director, African Technology Policy Studies Network, 3rd Floor, The Chancery, Valley Road, P.O. Box 10081 00100 GPO, Nairobi, Kenya. Tel: 254-020-2714168/092/498. Email: info@atpsnet.org

Technopolicy Briefs

No.	Publication Title	Author(s)	Status
5.	Keeping Hunger at Bay: Genetic Engineering and Food Security in sub-Saharan Africa.	John Mugabe 2003	Available
6.	Science in Globalization World: Implications for Africa	Awele Maduemezia 2003	Available

ATPS Working Paper Series

No.	Publication Title	Author(s)	Status
36.	Extension Services and Enterprise Development: Study of Technology Extension Services to Small and Medium Size Manufacturing Firms in Nairobi, Kenya.	F.U. Ngesa J.M. Ombati M. Mutuku 2003	Available
37.	Women and Engineering in Nigeria: Towards Improved Policy Initiatives and Increased Female Participation	A.J. Badekale 2003	Available
38.	The Gender variable in Agricultural Technology: A case Study of Rural Farmers in Machakos District	Esther Njiro 2003	Available
40.	Socio-Economic Consequences of Technological Change on the Rural Non-Farm Igbo Women Entrepreneurs of South-Eastern Nigeria: Implications for Farm and Non-Farm Linkages.	Jonathan O. Alimba Justina U. Mgabada 2003	Available

ATPS Special Paper Series

No.	Publication Title	Author(s)	Status
13	Strengthening National Information and Communication Technology Policy in Africa: Governance, Equity and Institutional Issues	Melvin Ayogu 2003	Available
15.	International Trends in Modern Biotechnology: Entry by and Implications for African Countries	John Mugabe 2003	Available
16.	FDI Technology Transfer and Poverty Alleviation: Africa's Hopes and Dilemma	Moses Ikiara 2003	Available
17.	Global Governance of Technology and Africa's Global Exclusion	Banji Oyelaran-Oyeyinka 2003	At printers

Others

No.	Publication Title	Author(s)	Status
1.	ATPS Newsletter, Jan Dec 2002 (Special Edition)	ATPS 2003	Available
2.	ATPS Newsletter, Jan June 2003 (Issue No. 13)	ATPS 2003	Available
3.	ATPS Annual Report 2001	ATPS 2003	Out of Print

MAIL ORDER

Request the desired papers and we will mail them to you.

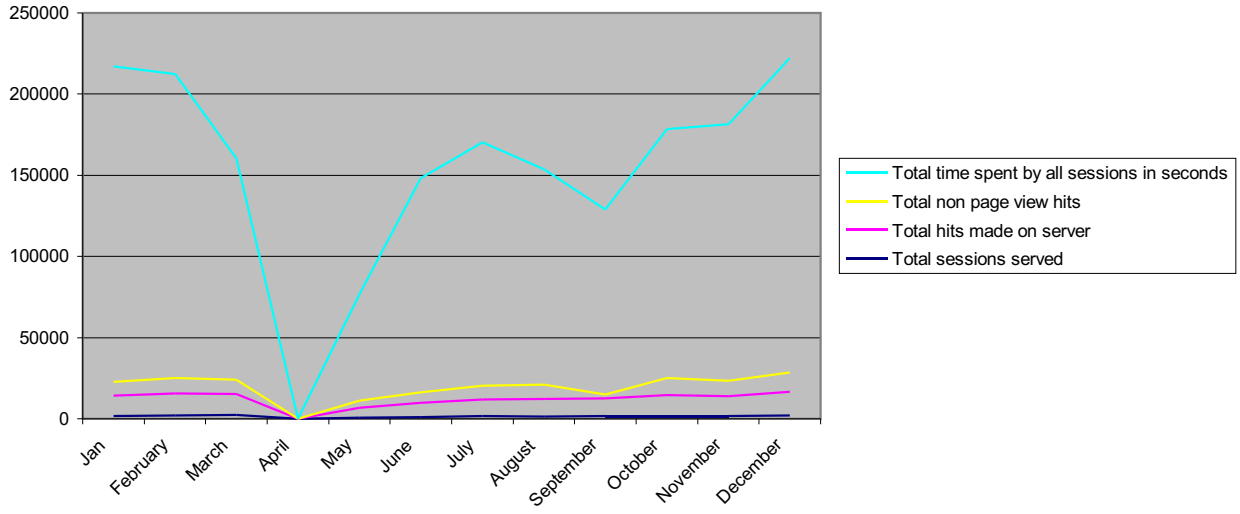
Name

Address

E-mail

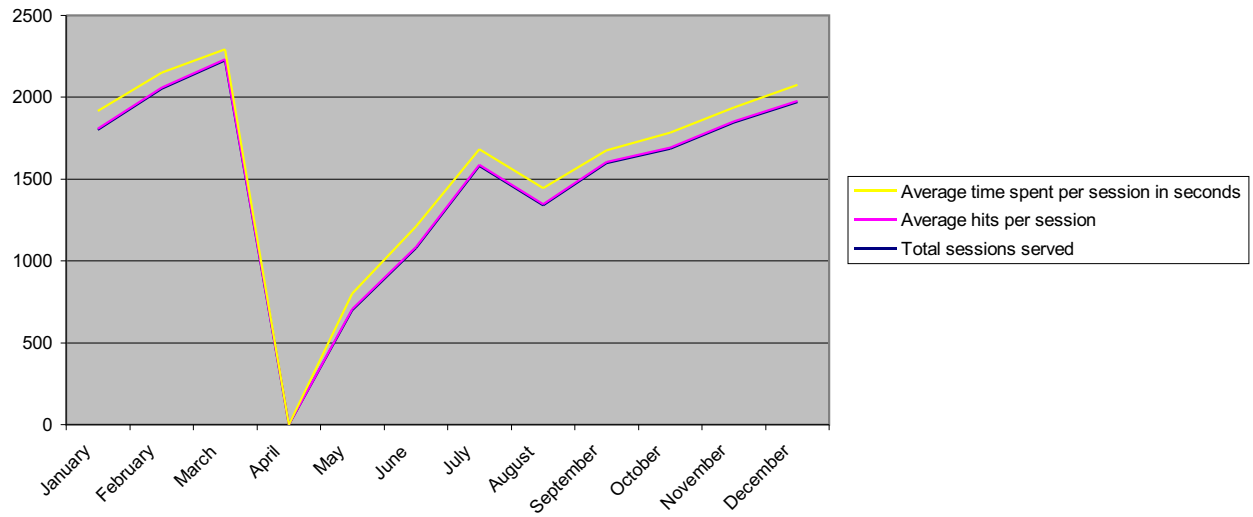
Website Report (June - December 2002)

ATPS Website: Server Activity (Jan - Nov 2003)



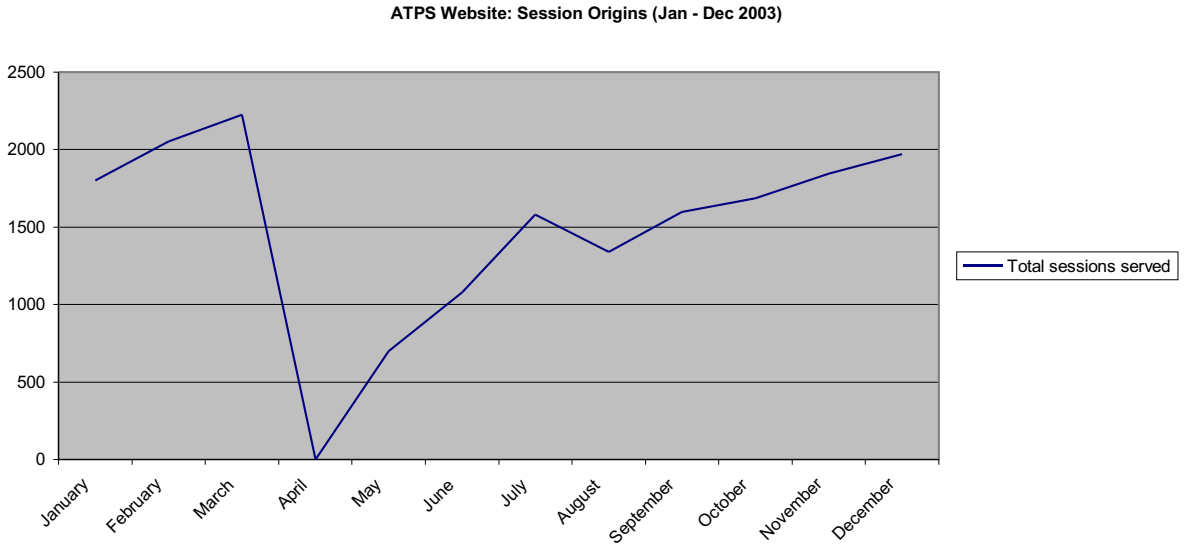
	Jan	February	March	April	May	June	July	August	September
Total sessions served	1802	2052	2225	0	698	1079	1580	1339	1598
Total hits made on server	12445	13500	13196	0	6054	8703	10458	10775	11062
Total non page view hits	8443	9627	8793	0	4473	6406	8363	8932	2202
Total time spent by all sessions in seconds	194358	187287	136362	0	65691	131929	150030	132491	114052

ATPS Website: Session Averages (Jan - Dec 2003)



	January	February	March	April	May	June	July	August	September
Total sessions served	1802	2052	2225	0	698	1079	1580	1339	1598
Average hits per session	6.91	6.58	5.93	0	8.67	8.07	6.62	8.05	6.92
Average time spent per session in seconds	107.87	91.45	61.59	0	94.11	122.84	95.2	99.17	71.73

Server Averages



April	May	June	July	August	September	October	November	December
0	698	1079	1580	1339	1598	1686	1846	1971

FINANCIAL REPORT

INDEPENDENT AUDITORS' REPORT ON THE FINANCIAL STATEMENTS OF AFRICAN TECHNOLOGY POLICY STUDIES NETWORK (ATPS)

We have audited the financial statements on pages ____ to ____ for the year ended 31 December 2003 and have obtained all the information and explanations, which, to the best of our knowledge and belief, were necessary for the purposes of our audit.

Respective responsibilities of the Directors and Auditors

The Directors are responsible for the preparation of the financial statements. Our responsibility is to express an opinion on those financial statements based on our audit.

Basis of opinion

We conducted our audit in accordance with International Standards on Auditing. Those standards require that we plan and perform the audit to obtain reasonable assurance as to whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by the Directors and evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

Opinion

In our opinion, the financial statements give a true and fair view of the state of affairs of the organization as at 31 December 2003 and its deficit and cash flows for the period then ended in accordance with International Financial Reporting Standards and the Kenyan Companies Act.

Deloitte & Touche

29 April 2004

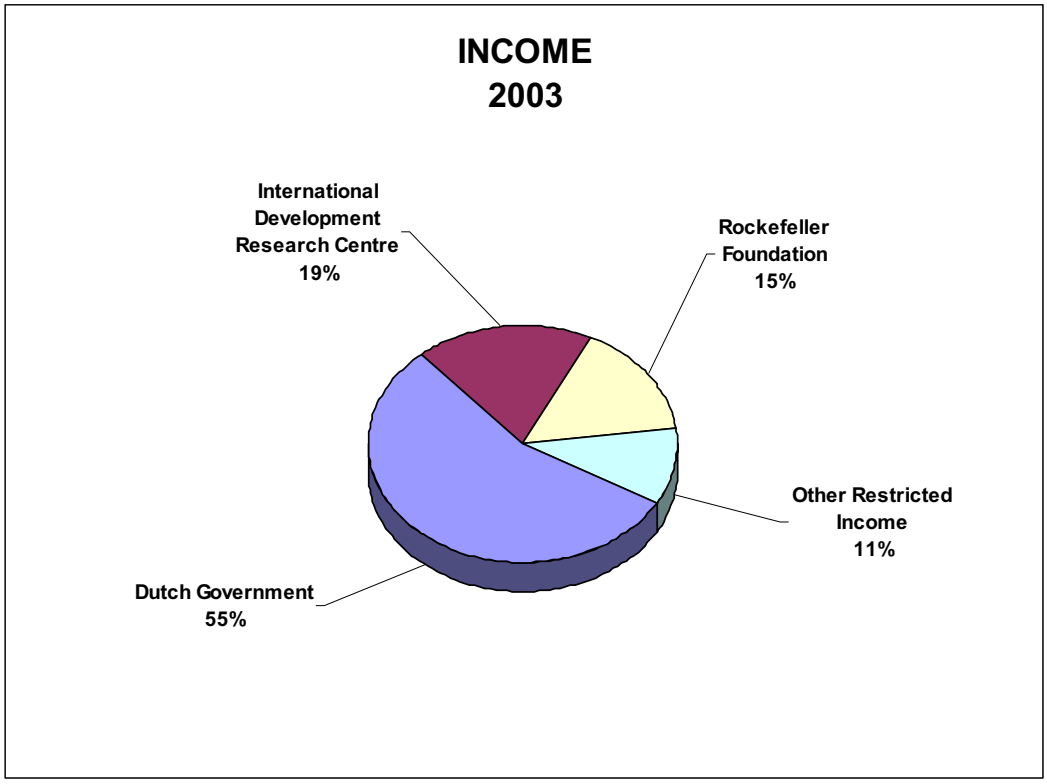
DIRECTORS APPROVAL OF THE FINANCIAL STATEMENTS

The financial statements were approved and signed on behalf of the ATPS Board 6 April 2004 by

……..	…….
DR. OSITA OGBU	PROF. NORAH OLEMBO
EXECUTIVE DIRECTOR	CHAIR, ATPS BOARD

AFRICAN TECHNOLOGY POLICY STUDIES NETWORK

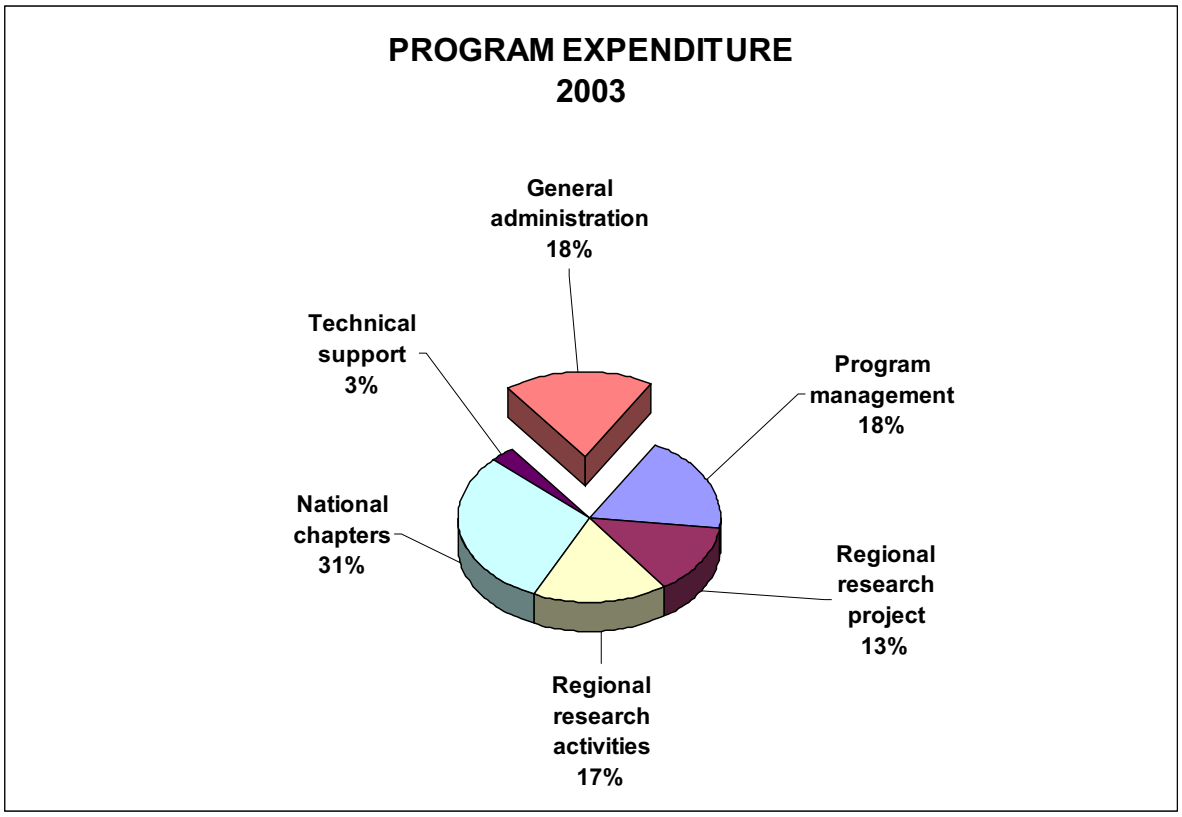
INCOME	2003	2002 (restated)
	US$	US$
Dutch Government	600,000	400,000
International Development Research Centre	202,317	431,303
Rockefeller Foundation	167,075	175,000
Other Restricted Income		
OPEC Fund	10,000	40,000
UNESCO	10,000	-
World Bank (Infodev)	9,479	-
Special collaborative projects	5,363	-
Ford Foundation	78,495	71,505
Carnegie Corporation	-	153,761
Nigerian Federal Ministry of Science and Technology	-	50,000
Coca-Cola EA	-	37,358
COMESA	-	49,423
Other	2,045	2,245
Total income	**1,084,774**	**1,410,595**



AFRICAN TECHNOLOGY POLICY STUDIES NETWORK

PROGRAM EXPENDITURE

	Program management US $	Regional research project US $	Regional research activities US $	National chapters US $	Technical support US $	Total program expenditure 2003 US $	Total program expenditure 2002 US $	General administration 2003 US $	General administration 2002 US $
Personnel costs	165,582	-	81	303	-	165,966	140,628	112,757	131,979
Conference and meetings	159	3,649	6,121	4,834	1,438	16,201	99,013	295	-
Contracted service	10,666	22,100	2,216	-	5,000	39,982	74,418	-	-
Communication	23,264	66	1,602	1,100	483	26,515	32,540	19,611	17,676
Occupancy and office	3,579	936	270	1,000	827	6,612	19,211	69,488	55,034
Subscriptions	-	-	-	-	-	-	659	126	127
Grants to organizations	-	-	-	85,641	-	85,641	104,845	-	-
Grant/awards to individuals	-	124,230	-	243,296	-	367,526	123,631	-	-
Travel, accommodation and subsistence	42,692	29,249	153,602	65,912	23,656	315,111	318,219	11,302	1,346
Stationery and supplies	2,714	953	6,030	897	1,482	12,076	12,441	3,461	3,992
Staff training	1,061	-	-	-	-	1,061	7,526	1,327	-
Insurance	1,256	445	2,072	1,637	442	5,852	2,520	785	770
Publications	83	1,186	37,902	383	21	39,575	39,926	288	1,871
Honoraria	-	-	14,346	2,422	11,000	27,768	16,857	86	-
Audit fees	-	-	-	-	-	-	-	6,700	6,700
Depreciation	-	-	-	-	-	-	7,632	19,488	7,138
Amortisation	-	-	-	-	-	-	-	1,553	495
Total Expenditure	251,056	182,814	224,242	407,425	44,349	1,109,886	1,000,066	247,267	227,128


PROGRAM EXPENDITURE
2003
General administration 18%
Technical support 3%
Program management 18%
National chapters 31%
Regional research project 13%
Regional research activities 17%

ATPS GRANTS ISSUED in 2003

No.	Grantee(s)	Title	Year Started
1.	F. M. Badejo and L. O. Sanni	Assessing the Status of food biotechnology in Swaziland and Nigeria	2004
2.	Gidgraph Nduati and Winifred Karugu	Technology and Marketing problems of small-scale dairy enterprises in Kenya	2004
3.	Violet Bumah and Alfred Ngwa	Biotechnology Systems on Innovation: A Study of Institutions and policies in Cameroon	2004
4.	Margaret Karembu, S. Wakhusana and J. Namaganda	Selecting appropriate value adding technologies for diversifying utilization of tissue-culture derived bananas in East Africa	2004
5.	Joseph Obua and Paul Mugambi	Effects of institutional and policy reforms in Uganda's forestry sector on the sawmilling technology and opportunities for improvement	2004
6.	Elliot Lefa Thamae, Muso Raliselo and TS'ehlo Moshe	The impact of biogas technology in Lesotho: Facts and challenges	2004
7.	Berhanu Denu	A Study on ICT for Rural development in Ethiopia	2004
8.	Tassew Belachew and Abdulrahman Ame	Has the new beginning and emerging information technology improved efficiency in the banking sector in Ethiopia	2004
9.	M. D. Dlamini and Musa Dube	Determination of the support required to promote, adopt and apply ICTs in Swaziland: implications for policy formulation	2004
10.	Augusto F. Nunes and Zauria Saifodine	E-government in Mozambique: A Study of Policy, procedures, regulations and norms for its successful implementation	2004
11.	Teferi Kebede and Ntsibane Ntlatlapa	Investigation of Lesotho's ICT readiness and formulation of ICT policy framework	2004
12.	Abreham Gebeyenu and Dejene Aredo	The Leather Industry of Ethiopia: An Investigation of Supply Constraints and firms Technological Capabilities	2004
13.	Donatilla Kaino	Foreign Director Investment (FDI), Technology Transfer and Poverty Reduction in Botswana	2004
14.	Nnenna J. Enwerre	The Technological Capabilities of the Baking Industry in Nigeria: Implications for Learning and Training	2004
15.	Nichodemus Rudaheranwa and Ashie Mukungu	Trade Liberalization and Production in Uganda: A Case of Manufacturing Sector	2004
16.	A. J. Kumuyi	The Technology Factor in Solid Waste Management in Nigeria	2004
17.	John W. Forje	Promoting Female Participation in Science and Technology for Development and Poverty Alleviation in Cameroon	2004
18.	E. O. Essien and K. Hassan	A study of Licensing and Foreign Technology Implications for Technology Transfer in Industries in Nigeria	2004
19.	Samwel Bwalya and Peter Sampa	Are there significant technology and productivity spill-overs from multi national corporations in sub-Saharan Africa? A cross-country study of Ghana, Tanzania, Zambia and Zimbabwe	2004
20.	Georges Shemdoe	Utilization of the patent system of R & D institutions in Tanzania	2004
21.	Charles Halimana	Technology Requirements of Metal Working Micro and Small Enterprises in Zimbabwe Technology Requirements of Metal Working Micro and Small Enterprises in Zimbabwe	2004
22.	Mumbi Machera	Social Dimensions of Information Technology (IT) in Kenya: With reference to Policy Implications on the social Structure IT) in Kenya: With reference to Policy Implications on the social Structure	2004
23.	Abu Kamara	A Study of the effect of computerization on the Performance of Government Institutions in Sierra Leone	2004

PROPOSALS LIST

List of proposals presented at the ATPS Annual Workshop and Conference during the concurrent sessions

GROUP A: AGRICULTURAL TECHNOLOGY POLICY

1. The policy of reducing the importation of rice: enhancing national capacity for rice self-sufficiency in Ghana, by Paul Kofi A. Dartey and D. Awunyo
2. The influence of modern technologies on indigenous knowledge in farming systems of Morogoro district, Tanzania, by Adolf F. Makauki and Josephat Itika
3. Assessing the status of food biotechnology in Swaziland and Nigeria, by F.M. Badejo and L.O. Sanni
4. Biotechnology systems of innovation: A study of institutions and policies in Cameroon, by Violet Bumah and Alfred Ngwa
5. Socio-economic effects of improved post-harvest technologies in maize production in Kaprochwa district of Uganda, by Paul Mwebaze and Edward Kato
6. Selecting appropriate value adding technologies for diversifying utilization of tissue-culture derived bananas in East Africa, by Margaret Karembu, S. Wakhusana and J. Namaganda
7. The impact of biogas technology in Lesotho: Facts and challenges, by Elliot Lefa Thamae, Muso Raliselo and TS'ehlo Moshe
8. Small-scale irrigation schemes in Swaziland and their role in poverty alleviation: Implications for policy formulation, by Absalom Manyatsi and Patrick Khumalo
9. Effects of institutional and policy reforms in Uganda's forestry sector on the sawmilling technology and opportunities for improvement, by Joseph Obua and Paul Mugambi
10. A study of the effectiveness of farm technologies delivery systems on small-scale farming in South-West, Nigeria, by Abel Babalola Ogunwale
11. Biotechnological innovations in Soil fertility management for women farmers: the key to improving small-holder agriculture in Ghana, by S. Agyenim Boateng, S. Boadi and J. Haleegoah
12. Towards a national strategy for enhancing the adoption of improved varieties of maize for food security in Ghana, by Christopher Kwame Ayim
13. Technology and marketing problems of small-scale dairy enterprises in Kenya, by Gidraph Nduati and Winifred Karugu

GROUP B: INFORMATION & COMMUNICATION TECHNOLOGY POLICY

1. The Information and Communication Technology (ICT) sector in Nigeria: A case study of the computer hardware industry sub-sector, by O.A. Bamiro, B.A, Durojaiye, and A. I. Onueme
2. A study of the effect of computerization on the performance of government institutions in Sierra Leone, by Abu Kamara
3. Social dimensions of information technology (IT) in Kenya: With reference to policy implications on the social structure, by Mumbi Machera
4. Investigation of Lesotho's ICT readiness and formulation of ICT policy framework, by Teferi Kebede and Ntsibane Ntlatlapa
5. What kind of technology is needed for effective teaching and learning in the primary schools of Lesotho, by Sophia Majara
6. A study of the effects of electronic Banking on the performance of selected commercial banks in Sierra Leone, by Sarah F. Bendu
7. Information and Communication Technologies (ICTs) in Cameroon: Changes and prospects for the future, by John Suh Che
8. The technological capabilities of the Baking industry in Nigeria: Implications for learning and training, by Nnenna J. Enwere
9. Has the new and emerging information technology improved efficiency in the banking sector in Ethiopia?, by Tassew Belachew and Abdurahman Ame
10. Determination of the support required to promote, adopt and apply ICTs in Swaziland: implications for policy formulation, by MD Dlamini and Musa A. Dube
11. Effects of telecenters on agricultural technology transfer in Uganda, by James Kakooza and Dave Khayangayanga
12. A study on ICT for Rural development in Ethiopia, by Berhanu Denu

GROUP C: TECHNOLOGY TRANSFER, TRADE & INDUSTRY, IPRS, GENDER AND SME TECHNOLOGY POLICY ISSUES

1. Assessment Of Technological Capabilities In The Industrial Small And Medium Scale Enterprises Sector In Zambia, by William Mbuta And William Musonda
2. Trade Liberalization And Production In Uganda: A Case Of Manufacturing Sector, by Nichodemus Rudaheranwa And Ashie Mukungu
3. Technology Accumulation And Development In Small And Medium Enterprises (Smes): A Case Study Of Agro-Allied Sub-Sector Of Nigeria's Economy, by D. A. Okongwu
4. Local Requirements For Effective Technology Transfer And Diffusion In Zambia: Options, Constraints And Prospects, by Lipalile Mufana And Mutombo Namuunda
5. The Leather Industry Of Ethiopia: An Investigation Of Supply Constraints And Firms Technological Capabilities, by Abreham Gebeyenu And Dejene Aredo
6. Are There Significant Technology And Productivity Spill-Overs From Multi-National Corporations In Sub-Saharan Africa? A Cross-Country Study Of Ghana, Kenya, Tanzania, Zambia And Zimbabwe, by Samwel Bwalya And Peter Sampa
7. The Technology Factor In Solid Waste Management In Nigeria, by A.J. Kumuyi
8. Utilization Of The Patent System by R&D Institutions In Tanzania, by Georges Shemdoe
9. Promoting Female Participation In Science And Technology For Development And Poverty Alleviation In Cameroon, by John W. Forje
10. Evaluation Of Technology And Policy Framework For The Promotion Of Small And Medium Scale Kenyan Leather And Leather Goods Manufacturing, by B.O. F. Odongo
11. A Study Of Licensing And Foreign Technology Implications For Technology Transfer In Industries In Nigeria, by E. O. Essien And K. Hassan
12. Foreign Direct Investment (FDI), Technology Transfer And Poverty Reduction In Botswana, by Donatilla Kaino
13. Technology Requirements Of Metal Working Micro- And Small Enterprises In Zimbabwe, by Charles Halimana

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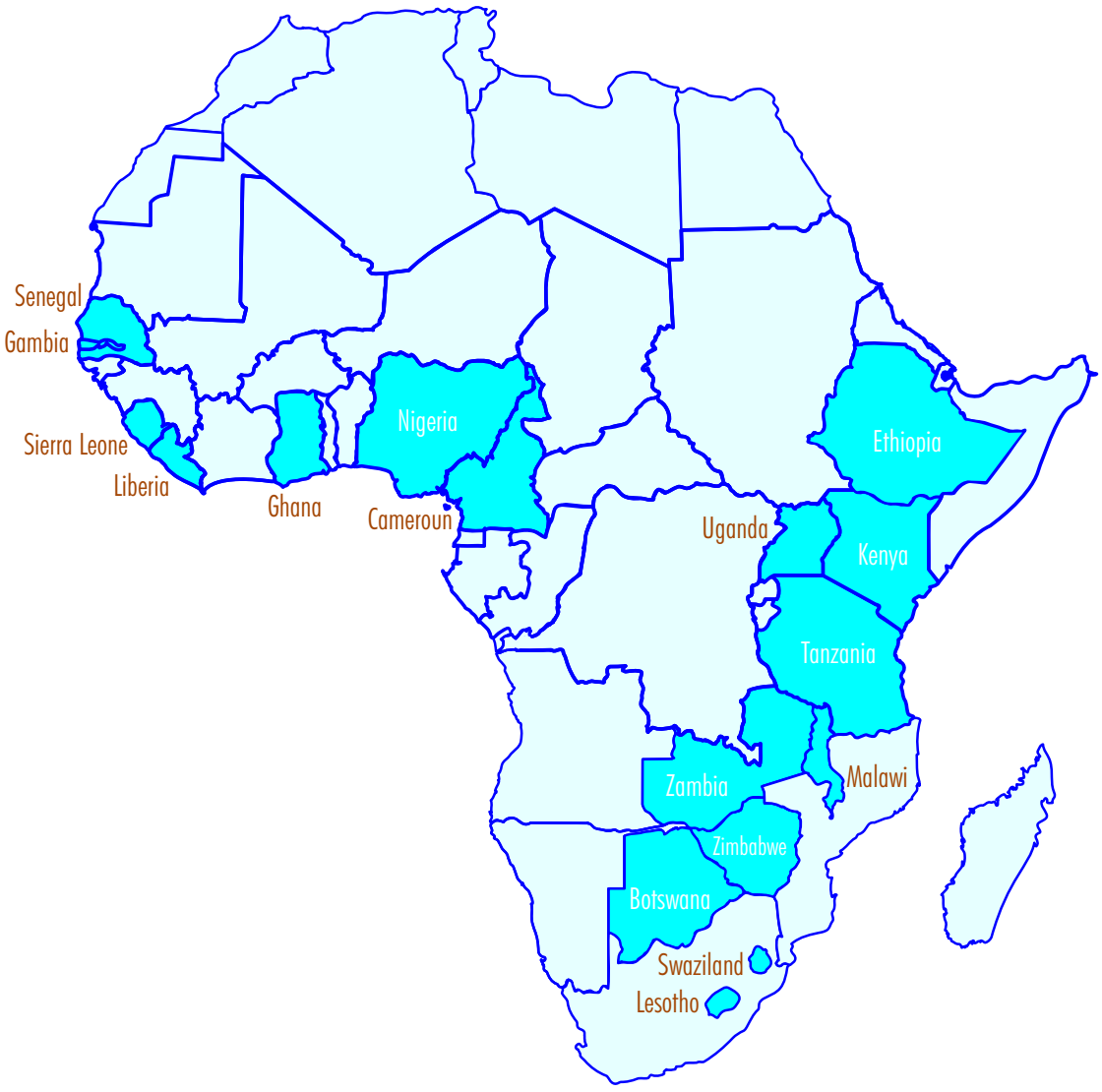

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