



# ATPS NEWS

African Technology Policy Studies Network

Issue No. 10 July–December 2001

## Autonomy at last

The African Technology Policy Studies Network (ATPS) is independent at last!

### Rebirth

ATPS became autonomous on 1 October 2001 marking the birth of a new institution with complete control of its programs and its operation. The independence was marked with the relocation to new offices located at the 3<sup>rd</sup> Floor of the Chancery Building, Valley Road. Coca-Cola Eastern Africa Ltd. generously donated all the furniture, fixtures, partitions, among others, providing ATPS with ready-made offices.

According to the Executive Director, Dr. Osita Ogbu, ATPS is lucky that the birth co-incides with the call from various agencies, such as the United Nations Development Program (UNDP), through the "UNDP Human Development Report, 2001" and African political leaders, through the objectives of the African Union and the New African Initiative on the need for innovative and effective technology policies. He adds that such policies are necessary if Africa is to be part of the revolution in biotechnology and information communication technologies that are expected to alleviate poverty and internalize gains from globalization.

### Host-Country agreement

With the physical relocation, ATPS has initiated and established firm links with the Government of Kenya through the Ministry of Science and Technology. The ministry has initiated and received



*Receiving transfer documents: Dr. Ogbu—ED ATPS, Dr. CJ Freeman—IDRC-ESARO, Dr. Robert Robertson—IDRC- Ottawa*

the approval of the Cabinet for ATPS to enter a host-country agreement with the government; the process is ongoing. Once this agreement is formalized, ATPS will be accorded full international recognition and privileges that are enjoyed by most international organizations based in Kenya. This status will give additional impetus and flexibility to the operations of ATPS and also reduce costs of doing business.

### Challenges

"With freedom come challenges. Future success of ATPS will depend on effective leadership. The institution will benefit from the timely appointment of Dr. Osita Ogbu to the post of the Executive Director. Dr. Ogbu is not only familiar with the network, but is uniquely qualified to hold the portfolio," says Prof. Olembo.

The ambition of the network is to have a place on the map of

Africa as a center of excellence and reference on issues of science and technology policy in sub-Saharan Africa. To achieve this the new ATPS must make a visible difference in policy advice through targeted intervention using research and dissemination programs. "How we do it; how often we do it; with whom we do it; and the results of our interventions is subject to scrutiny," explains the Executive Director.

### ATPS is expanding

The ATPS Board has approved a program of gradual expansion of ATPS chapters into several other African countries. Expansion into Southern African countries of Namibia, Mozambique and South Africa; French-speaking West African countries of Mali, Senegal, Burkina Faso and Cote d'Ivoire; and Cameroon in central Africa have been approved. The expansion, however, will be

# Autonomy at last

implemented in phases depending on the availability of resources and the readiness of the countries to constitute a national chapter for the network.

ATPS is also using its regional research programs to reach other countries in Africa that are currently not members of the network. These countries are expected to enrich the programs and also serve to test the viability of establishing national chapters, once the current programs come to an end.

The aim is to move beyond "talk" and begin to assert influence at seven levels of impact: policy-makers, legislators, the mass media, the organized private sector, polytechnics and schools of engineering, farmers and small-scale producers and donors.

## The National Chapters

The ATPS Board, the management and the national chapters are structuring their activities to achieve results. The network is expanding and strengthening the national chapters to be viable and visible in all sub-regions of sub-Saharan Africa to create an institution that is truly African. The board now expects the national chapters, led by the very able national coordinators, to organize themselves and make sure that the network makes an impact on science and technology policy issues in Africa. The chapters will achieve this goal by being more creative in the way they intervene in science and technology policy issues, locally, to remain current and relevant. "We have now completed the strategic planning process and we expect the national chapters to adhere to their respective plans. The network has already spent money, through reviews and several workshops to ensure that the plans succeed," explains the ATPS Chair, Prof. Norah Olembo.

The network intends to face the challenges that lie ahead by reinforcing the unique institution, with a unique mandate. With globalization, biotechnology and information communication technologies as pressing issues in the continent, ATPS finds itself relevant and capable of helping to articulate and disseminate policy advice to member countries. "We shall work hard, exercise patience as efforts are being made to raise funds and invite donors to be part and parcel of this process," promises the ATPS Chair □



*The ATPS Secretariat staff: Agnes, Carol, Lily, Osita, Sheila and Kariuki*

## In THIS issue

Autonomy at last • News from the National Chapters • An Interview with ATPS award-winning researcher • ATPS 1st Annual Conference and Workshop • ATPS working with ACTS and other stakeholders • What researchers say about ATPS

## APPOINTMENTS

### Dr. Ly Cheikh, National Coordinator—Senegal Chapter

The ATPS Board has appointed Dr. Ly Cheikh to the post of the National Coordinator for the Senegal Chapter. Dr. Cheikh is the Head of Department at the Inter-States school of sciences and veterinary medicine at the University of Cheikh Anta Diop in Dakar. He has vast amount of experience as a researcher and lecturer. He holds a Doctorate degree in sciences and veterinary medicine from the Inter-states School of Sciences and veterinary medicine at the University of Anta Diop of Dakar; MSc. in Agricultural Economics from Michigan State University and a Diploma for University Professor from African and Malagasy Council for University (CAMES) □



### Dr. Sylvester Ndeso Atanga, National Co-ordinator Cameroon

Dr. Sylvester Ndeso-Atanga is the National Coordinator for the Cameroon Chapter. Dr. Ndeso-Atanga who has been an Assistant Lecturer in epidemiology and nursing sciences at the University of Buea, Faculty of Health of Health Sciences, Department of Nursing has enormous experience in epidemiology having worked as a research fellow, Chief of ▶

# Appointments

Epidemiology, among other tasks. He holds a Ph.D. from London School of Hygiene and Tropical Medicine, M.P.H. (Masters in Public Health) from Yale University, School of Medicine, B.A. (Hons) Degree in Health, Medicine and Society from the City College of the City University of New York and a Diploma in Nursing from the Jewish Hospital and Medical Centre of Brooklyn □

## **John Kariuki Kagonde**, *Finance and Administration Manager*



Mr. Kagonde is the Finance and Administration Manager, ATPS. He is a graduate of San Diego University, CA, USA where he majored in Business Administration. He is also a Certified Public Accountant (CPAK) and has a strong background in auditing with over 20 years experience in accounting. Mr. Kagonde has held senior management positions in various auditing firms, banking institutions, and international organizations including IDRC, Catholic Relief Services/Sudan, Diamond Bank Trust Group, among others. He is a member of ICPAK and AMKIM, and is currently pursuing an MBA Course in Strategic Management □

## **Lily Aduke**, *Communications and Outreach Officer*

Lily Aduke joined ATPS as the Communications and Outreach Officer on 15 October 2001. She holds a Bsc Degree in Agriculture, and a Postgraduate Diploma in Mass Communications. Ms. Aduke has a strong background and over 10 years experience, in scientific communications and information management, gained from employment and consultancies with various national and international organizations including ICIPE, WWF, OAU-IBAR, among others. She is currently pursuing an M.A. Course in Communications Studies □



## **Carol Thuku**, *Executive Secretary*

Carol Thuku was formally appointed as the ATPS Executive Secretary from 1 October 2001. She holds a Diploma in Secretarial Studies and is currently pursuing a Diploma in French language at the Alliance Francaise, Nairobi □



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# NEWS *from the National Chapters*

## ETHIOPIA NATIONAL CHAPTER

### Registration of the Ethiopian Chapter

The National Coordinator for the ATPS National Chapter, Ethiopia, Dr. Dejene Aredo, the National Coordinator and members of the chapter held extensive discussions with the Commissioner of the Ethiopian Science and Technology Commission regarding the mission and registration of the chapter. Among the issues that the Commissioner raised was collaboration between the two institutions. Senior officers of the Commission have shown interest in the activities of the Chapter.

The ATPS National Chapter in Ethiopia has initiated registration of the network as a professional association and later as a non-governmental organization because it is an easier and faster option.



*Members of the Ethiopian National Chapter during a workshop at Imperial Hotel, Addis Ababa*



*Workshop participants: Kenya National Chapter*

## KENYA NATIONAL CHAPTER

The ATPS Kenya National Chapter held a workshop on 29 July 2001 to help strengthen research in agroprocessing at micro-scale level. Researchers and policy makers attended the workshop.

## UGANDA NATIONAL CHAPTER

### Capacity Building

In July 2001, ATPS Uganda Chapter, National Foundation for Research Development (NFRD) and Busia Women Progressive Action) BUWOPA conducted a one-week training seminar and workshop in Busia, Uganda. This workshop offered over 200 women training in growing mushrooms using simple technologies, and managing and handling income-generating activities.

## LESOTHO NATIONAL CHAPTER

### ATPS Lesotho Chapter News

The Lesotho Chapter is planning to publish a bi-annual newsletter that will report on the chapter's activities. The chapter hopes that the newsletter will be circulated to government ministries and departments,

the National University of Lesotho, the Lerotoli Polytechnic, among other institutions. The first issue will be out in March 2001.

## GHANA NATIONAL CHAPTER

### National Workshop on Budgetary Allocation for Science and Technology in Ghana



*The ATPS ED visits the Ghana National Chapter*

The ATPS Ghana National Chapter held a workshop on Budgetary Allocation for Science and Technology in Ghana on 8 Nov 2001. To decentralize operations of the chapter, the National Coordinator, Dr. Abeeku Brew-Hammond, solicited the assistance of Dr. George Botchie, a member of the chapter, to organize the meeting. The following papers were presented:

- "The Importance of Science and Technology in National Development Planning in Ghana" by Prof. Gyan Baffour, the Acting Director for National Development Planning
- "Frameworks for Budgetary Process" by Mr. Cann, the Chief Director of Ministry of Economic Planning and Regional Cooperation
- "Budget as an Instrument for Managing Science and technology Policy in Ghana" by Dr. Gogo, Director of the Science and Technology Policy Research Institute (STEPRI)



*Dr. Ogbu and members of the Zambia National Chapter*

## ZAMBIA NATIONAL CHAPTER

### Policy Roundtable Discussion at the Zambia National Chapter

- ATPS Zambia hosted its first public discussion on 12 September 2001. The speaker, Dr. Wilson M.N. Mwenya, the Executive Secretary of the National Science and Technology Center (NSTC) discussed the "Role of Technology in Wealth Creation in Zambia. Present at the meeting were various professionals including journalists, industrialists, politicians, government officials, among others.
- ATPS Zambia launched the first chapter newsletter on October 2001. Through the newsletter, the chapter is aiming at highlighting its activities. The document will also carry feature articles on science and technology policy.

## NIGERIA NATIONAL CHAPTER

### Policy Impacts and Submissions

Prof. Banji Oyeyinka, former ATPS National Coordinator, was nominated to the Science and Technology sub-Committee of the National Vision 2010 Committee that was established by the Federal Government of Nigeria to prepare and develop blue print for the country □

# ATPS working with ACTS and other stakeholders

The 1<sup>st</sup> Roundtable on Africa: Science and Technology in the Age of Globalization urged governments to move into implementing activities that would enable them to achieve the goals of the New Africa Initiative (NAI), a declaratory and programmatic document adopted by heads of state and governments at the Organization of African Unity (OAU) summit held in July 2001 in Lusaka, Zambia.



*"We shall work together," says Dr. Osita Ogbu and Dr. John Mugabe ED-ACTS*

eight leading policy-makers and scientists, including permanent secretaries and directors of science and technology policy bodies, from 11 African countries attended and participated at the roundtable. Three international experts in science and technology policy from Canada and the United Kingdom also attended. The experts made presentations on organization of science and technology in the OECD countries, global trends in genomics and opportunities for the African countries, and ethical considerations associated with advances in biotechnology and genomics.

### Recommendations

Specific recommendations of the meeting include, establishing a regional mechanism to develop regional science and technology programs and strategies aimed at closing the digital and biotechnology/genomic gaps with the rest of the world; conducting a study that would assist African countries in establishing regional centers of excellence in new technologies; and launching a regional technology foresight, within the framework of NAI, to assist policy makers and the public create and acquire a common vision. Other recommendations made include identifying opportunities and threats that new technologies offer and are likely to pose; undertaking an assessment of the status of scientific and technological development in Africa. Developing and implementing a strategy and action plan to mobilize the diaspora of the enormous

The roundtable held in Nairobi, Kenya on 7-8 August 2001 was the first of its kind, jointly organized by the African Centre for Technology Studies (ACTS) and the African Technology Policy Studies Network (ATPS). Thirty-

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# ATPS holds its 1st Annual Research Conference

The African Technology Policy Studies Network (ATPS) held its first Annual conference and Workshop, since it became autonomous, beginning from 29 October to 1 November 2001.

Mr. Adams Karauri, the Assistant Minister for Education, Science and Technology, officially opened the meeting on behalf of Mr. Gideon Ndambuki, the Minister for Science and Technology, who was unable to attend.

In his opening remarks the Assistant Minister named Information Communications Technologies (ICTs) as the engine of development and economic growth. He said that ICTs have the potential of unlocking opportunities in business, education, agriculture, industry, science, among others. He also added that these technologies could lead to economic rewards, such as distance education in "virtual" classrooms that would eliminate the need for physical libraries that are expensive to maintain. Other advantages include the provision of medical care from a distance; opportunities to leapfrog older technologies that require heavy capital thus propelling developing countries directly into the information age; and facilitating gover-

nance by making available large pools of quantity information to policy makers and medium enterprises through e-commerce.

Reiterating the fact that ICTs are key to progress, Mr. Karauri noted that in 1993, only three countries in Africa had access to the Internet. He urged governments to play a major role in stimulating ICT-led economic growth to raise productivity, create jobs, reduce wastage and increase incomes.

The Minister challenged ATPS researchers and policy makers to address key consumer concerns and priorities and also champion the views of the consumers. "We expect you to propose concrete advice to the government on the necessary institutional and legislative framework for democratizing access to information technology for bridging the rural-urban divide and tackling unemployment," he said. ATPS has initiated the Regional project on Strengthening National ICT Policy in Africa as a response to this challenge.

The theme of the conference that preceded the workshop was "ICTs for Development in Africa." The theme was explored by examining the blue print and requirements for an effective

national ICT policy in Africa; the status and implications of ICTs for poverty alleviation; how to entrench e-learning culture among workers in Africa, among other topics. Specialists

from Africa, Europe and North America shared experiences during the conference and later served as experts at the peer review workshop.

During the workshop, researchers had the opportunity of interacting amongst themselves and with key policy makers in Africa. Using the peer review method, the workshop ensured quality control in the research process. Over 180 experts, researchers and policy makers from 18 countries including Cameroon, Canada, Ethiopia, the Gambia, Ghana, Kenya, Lesotho, the Netherlands, Nigeria, Sierra Leone, South Africa, Swaziland, Tanzania, Uganda, USA and Zambia participated. Thirty-six research proposals, that had passed extensive scrutiny and short-listing at the national level, were presented. The ATPS Board awarded small grants to 16 successful applicants.

The ATPS Annual General Meeting, on 1 November, was one of the components of the conference. Prof. Norah Olembo, the ATPS Chair, reviewed the activities of the network in the past year. She lauded the increase in the frequency and output of the network's publications, arguing that this was an indication of the growing strength of ATPS. Prof. Olembo also noted that the organization had made strides to improve its financial base. She



*The ATPS Board Members during the Annual Research Conference*



*ATPS Board Chair, Prof. Norah Olembo*

# Research Conference and Workshop

commended Dr. Ogbu for leaving a high profile job with the International Development Research Centre (IDRC) to take up the leadership of ATPS. The Chair also commended the quality of research proposals from the members of the network, urging the researchers to “think policy” for this is the mandate of ATPS.

The national coordinators’ meeting that was convened on 2 November, under the chairmanship of Dr. Osita Ogbu discussed various administrative issues and suggestions on how to improve governance of the national chapters. The meeting agreed that national chapters would begin to take greater responsibility in running their affairs, including

looking for alternative sources of funding to supplement what comes from the secretariat. Dr. Ogbu urged the national coordinators to step up efforts in promoting their chapters to make their presence felt in their countries. He also asked them to look for ways and means of working closely with policy makers, particularly those involved in technology policy development.

There were two options for field visits scheduled for the afternoon of 1 November: Visit to Genetic Technologies Limited, a biotechnology laboratory and a field trip to a banana plantation in Maragua; and a visit to the Nairobi National Park. The people who visited the park, located in the outskirts of Nairobi City, learnt

about the flora and fauna of Kenya. Those who visited the laboratory and the farm were taken through the process production of the banana tissue culture and the growing of disease free bananas from the tissue culture technology.

Overall objectives, including reviewing new proposals for possible funding, appointment of the ATPS Board, running a policy-methodology seminar for ATPS researchers and introducing the ATPS Regional Project on Strengthening National ICT Policy in Africa were achieved during this meeting.

However, the key outcome of the meeting was a need for in-depth research on ICTs.



*Conference participants Dr. Sam Wangwe, Dr. Lynn Mytelka*



*Opening remarks during the 1st Annual Conference and Workshop*



*Board meeting during the Annual Research Conference and Workshop*



*ATPS Board members and National coordinators*

scientific and technical talents of Africans abroad and using them for scientific and technological development was also considered.

The next step for the roundtable will be to facilitate the implementation of the recommendations, enlarge the participation of many African countries in future roundtables, and promote continuous dialogue on ways and means of promoting scientific and technological development in Africa.

## Electing Officials

The participants named Dr. Rob Adam, Director-General, Department of Culture, Arts, Science and Technology of South Africa; Dr. Zerubabel Nyiira, Executive Secretary, Uganda National Council for Science and Technology; and Dr. David Mbah, Technical Advisor, Ministry of Scientific and Technical Research, Cameroon to convey the recommendations of the roundtable to the African Union (AU). They were also required to establish specific ways of ensuring the participation of permanent secretaries and directors of science and technology from all African countries in future discussions and processes.

ACTS will provide the interim secretariat for the African science and technology process and Dr. John Mugabe, the Executive Director of ACTS, will be the Interim Secretary to pursue the implementations of the recommendations □



*Dr. Ogbu and Dr. Mugabe exchanging the Memorandum of Understanding*

## Brief Biodata

Margaret Gathoni Karembu (Ph.D)



Margaret G Karembu is a lecturer in the Faculty of Environmental Studies at the Kenyatta University. She is currently coordinating services at the Kenya Biotechnology Information Center (KBIC), an initiative of the Global Knowledge Center of ISAAA and the African Biotechnology Stakeholders Forum (ABSF). She is an active member of the African Policy Studies Network (ATPS) and ABSF with a wealth of

experience in training and research in technology diffusion, projects' monitoring and evaluation, and environmental communication education. She has authored several papers in refereed journals and is co-author of the book *"Understanding Environmental Communication"* (with Wambui Kiai) Year 2000 □

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An Interview with ATPS award-winning researcher, *Dr. Margaret Karembu*

## Small Scale Farmers Adaptive Responses to Banana Biotechnology in Kenya: Implications for Policy. By Dr. Margaret Karembu, Kenyatta University

### Q1. What is the significance of this award?

The Global Development Network (GDN) Medal Award is an initiative of the World Bank and the Government of Japan. A distinguished international committee, whose members include Nancy Birdsall of the Carnegie Endowment for International Peace and Amartya Sen of Cambridge University, award the medals. The awards recognize projects that make outstanding contributions to research and development. The project that was selected from over 500 entries in 94 countries was awarded first place medal and \$10,000 under the Science and Technology for Development, one of the five categories of the GDN. I attended the conference in Tokyo, Japan in December 10-14, 2000 where the awards were presented. The Rockefeller Foundation and the African Technology Policy Studies Network (ATPS) funded the overall Banana project.

Information about the GDN prize can be found at <http://www.gdnet.org/awardsra.htm>

### Q2. How has this award affected your career?

It has opened new opportunities to interact and share this experience with researchers and stakeholders of high international repute thus giving me an international exposure. Because of this award, I was invited to Costa Rica in March 2001 and to the School



of Oriental and African Studies (SOAS), University of London to present my work. I have formed very vital links and networks.

### Q3. What was the thrust of the research?

The purpose of the diffusion study was to investigate factors that could influence the adoption of newly introduced tissue culture technology (a form of biotechnology) among farmers and determine policy implications for rapid technology diffusion within the predominantly small-scale agriculture systems in Kenya. I conducted the research in collaboration and within a bigger project that was facilitated by the International Service for the Acquisition of Agri-biotech Applications (ISAAA). The Kenya Agricultural Research Institute (KARI) implemented the research titled, "Biotechnology to Benefit Small-scale Banana Producers in Kenya." When the project was conceived, Kenya had experienced a pronounced decline in banana production from the wide use and distribution of infected planting material. Neighbour-to-neighbour propagation of banana suckers led to a synergistic increase in the spread of diseases and pests ultimately contributing to low average yields of less than 10 tons per hectare compared to potential yields of up to 60 tons per hectare. Tissue culture technology was appropriate in responding to the identified need of making improved and clean planting material accessible to small-scale banana farmers. Since the technology had not been applied in Kenya, incorporation of the technology diffusion study was essential. The rationale for this component of the project was that biotechnology is costly and, therefore, timely feedback mechanism to identify and respond to constraints to adoption was cost-effective and necessary. This contrasts to the common but expensive post-mortem approach to projects where lots of resources are wasted on failed projects. It is also in line with previous experiences with new agricultural technologies indicating that it is not enough for a technology to be scientifically and economically appropriate (high yields, disease resistance, early maturing etc) but should also be feasible and demonstrate a comparative advantage to the end-users (farmers).

The specific objectives were to:

- Determine the most preferred banana varieties among farmers
- Describe acceptability of the tc bananas among farmers and consumers
- Identify farmer perceptions of the production and management constraints of tissue culture derived bananas.
- Examine factors related to the technology that could limit diffusion
- Suggest for policy intervention, the optimal conditions under which agri-biotech products' management occurs among resource poor farmers.

### Q4. Where was the research conducted?

The research was conducted in Central, Eastern and Nyanza provinces, the major banana-growing regions in the country. I worked closely with scientists and private enterprises that were involved in the propagation of the tc bananas and setting of the various on-farm and on-station demonstrations. The collaboration was by design and was aimed at ensuring unbiased representation of farmers' interests and needs in the selection and sourcing of parent stock bananas and reporting on the appropriateness of the technology in farmers' fields to the scientists. In total, 500 farmers were interviewed. The main collaborators were: The Kenya Agricultural Research Institute (KARI), the project host; the International Service for the Acquisition of Agribiotech Applications (ISAAA), the project facilitator; Institute of Tropical and Sub-tropical Crops (ITSC) of South Africa, and two private companies DuRoi Laboratories (SA) and Genetic Technologies Limited (GTL) – Kenya and African Technology Policy Studies Network (ATPS) that conducted the technology diffusion study.

### Q5. I am certain that de-mystifying the science to individuals not in your field can be a challenge, for example, how do you explain such concepts as tissue culture or biotechnology? How did you communicate the thrust/ substance/ significance of your research to farmers?

Certainly YES! Communicating the concept of biotechnology is not only difficult to farmers but to a wide range of stakeholders from academia to the layman. For our purpose, we used participatory approaches where together we organized village meetings and displayed the tissue culture plantlets to farmers jointly with the scientists working on the bigger project. This forum was very important because it gave farmers hands-on experience to see and touch the

materials before introducing them to their farms. They were also able to probe further about the technology, and the scientists ably responded. Fortunately, the project was answering a real need from banana farmers and any intervention at that time received overwhelming acceptance. The acceptance, however, was not taken for granted since anti-biotechnology lobby groups were already penetrating the media with propaganda and highly sensational information on biotechnology. The project team thus organized regular meetings with the farmers to provide balanced information about the technology. The African Biotechnology Stakeholders Forum (ABSF), a recently formed organization, has also taken up the challenge of educating the public, from the grassroots, and providing balanced information on biotechnology. Confidence has thus been built between farmers and the scientists and the concept of biotechnology demystified. A lot, however, still needs to be done on educating the wider public, including consumers, about biotechnology.

**Q6. What is your impression of the farmers' receptivity to this new strain of banana?**

Actually, this is not a new strain of banana but an improved form of the local varieties through laboratory methods. Precisely, the basis of the technology lies on the ability of many plant species to regenerate a whole plant from a shoot tip. It entails using tiny shoot-tips as the starter propagation material, and use of growth hormones or regulators to enhance various processes of growth such as shoot initiation, multiple shoots' formation and rooting induction at the final stage. These induce vigour, commonly referred to as "hormonal kick," that brings the parent material to a juvenile stage, causing remarkable physiological changes that influence the agronomic characteristics of the emerging plant. It has been

"ATPS sharpened my research methodology and evaluation skills giving me confidence to supervise graduate students and venture into new areas of research. ATPS opened new opportunities and gave me international exposure. I have been invited as a key speaker to Costa Rica; and at the School of Oriental and African Studies, University of London to present my work. Through ATPS work, I have formed vital links with relevant professionals and networks."

**Dr. Margaret Karembu,**  
*Kenyatta University*

noted that these physiological adaptations dilute down in subsequent generations and are not heritable genetic changes. Tissue culture, therefore, does not involve genetic modification.

**Q 7. What about intellectual property rights/ patents in relation to this innovation. Is this patented? How do you retain ownership?**

There are no intellectual property rights matters involved because tissue culture does not involve genetic modification. The tissue culture process for bananas is fully commercialized in other

regions of the world, such as South Africa, Costa Rica etc. and has been in wide use especially in banana exporting countries.

**Q 8. What are the implications of this sort of work for other crops and agriculture in general?**

There are many ways that tissue culture can benefit the agricultural sector. The most obvious is provision of large quantities of clean planting material especially for vegetatively propagated crops such as sweet potato, cassava etc. which are staple crops. Secondly is the possibility of transforming subsistence farming into cash-based endeavor due to the

uniformity of growth and maturity of tissue cultured crops making marketing predictable. Thirdly, is the *in-vitro*-conservation of germplasm that would contribute to biodiversity conservation. Fourthly, tissue culture forms the basis of other forms of advanced biotechnology like genetic engineering. The most important lesson from this work is the need for partnerships and involvement of technology beneficiaries throughout the whole process of technology deployment. The work has also been able to identify the institutional issues in biotechnology deployment, which has led to the development of a model that other related projects could use.

**Q9. Are you aware of similar research being conducted elsewhere?**

YES, tissue culture is widely adopted globally. The controversies are more in genetically engineered or the so called transgenic crops where relatively fewer studies have been done in Africa because there are very few genetically modified products that have been taken up in the continent. The first genetically modified crop in Kenya is the sweet potato, which has not yet been commercialized since it is still at the on-station field evaluation for food and environmental safety.

**Q10. What are your views on genetically modified crops. There are many that say that there are too few independent (non-industry) studies of the health effects of GM foods to have confidence in their safety. Others state that agriculture as it is practiced today damages the environment and that genetically engineered crops will ease the negative impact. What is your view on this issue?**

My view about genetic engineering is that it is not the panacea to the food and environmental problems facing the world today. It is, however, one among the promising tools that has demonstrated great promise in addressing some of the main problems facing agriculture development today. The productivity level of agricultural crops in Africa is considerably below global averages, and continues to decline. There are opportunities to change this situation using genetic engineering. What is required is a well-anchored and credible biosafety structure and biopolicy (IPR, Patenting systems) that ensures responsible use of biotechnology to assure safety of people and the environment as well as equity in benefit sharing of genetic resources, gender-responsive and consumer confidence.

**Q11. Is genetic engineering fundamentally new or have people always manipulated food and food crops?**

Genetic engineering has been taking place from the time farming evolved and by indigenous farming communities even before the era of civilization though the process has been gradual and without much precision. Advancements in science and technology over the last ten years has developed methods that man can use to genetically manipulate the DNA to great precision

of the traits desired and with drastic reduction of time frame to develop new products. Since this level is relatively new, a lot of studies are being conducted to establish impacts like any other new technology.

**Q12. Could GM crops reduce world hunger? At what cost?**

The fact that crops can be developed that can withstand adverse agronomic conditions (drought, salinity) etc gives hope that actually GM could reduce world hunger. Another positive with GM is that production per unit area of land can be dramatically increased thus reducing encroachment on marginal lands. This would in essence enhance biodiversity. However, it should be emphasized that more studies need to continuously be done to ascertain safety of people and the environment. At the same time socio-economic, ethical and policies related to welfare benefits and trade issues need further redress. Certainly, GM should be integrated with other methods of improving agricultural productivity. The costs are high, especially for developing countries, but forging public-private partnerships could help poor countries to benefit from the technology.

**Q13. What aspects of ATPS do you like most? How do you think ATPS can strengthen its relevance?**

The area of technology policy is still gray and this is a very good strength for ATPS. More projects should focus on policy issues for need-based technologies. ATPS should therefore form strong links with National Research Institutes and the private life-science industries to undertake research that has direct impacts on the beneficiaries. Two important areas are Biotechnology and Information Technologies. These two hold the key to unravel the poverty cycle in Africa.

**Q14. How can ATPS support or contribute to the development and commercialization of significant innovations from its researchers?**

Forging links with stakeholders, enhancing electronic networking, adopting an aggressive marketing strategy for research results, and participation in related fora, regionally and internationally □

## What researchers say about ATPS

"ATPS is a center of professional development.....Through ATPS I have become a budding science and technology researcher and integrated my engineering background with social sciences. ATPS network afforded me an opportunity to interact with experienced researchers. ATPS research grants provided a basis for my PHD in public policy"

**Dr. Adalgot Komba**, *University of Dar es Salaam*

"ATPS enhanced my understanding of Tanzania innovation system and more the subject of science and technology in Africa. This exposure facilitated my involvement in the international review of science and technology indicators recently launched by UNESCO. The National Coordinators leadership course has shaped me to be an expert in strategic planning at my work place."

**Mrs. Bitrina Diyammett**, *Tanzania Commission for Science & Technology*

"ATPS sharpened my research methodology and evaluation skills giving me confidence to supervise graduate students and venture into new areas of research. ATPS opened new opportunities and gave me international exposure. I have been invited as a key speaker to Costa Rica; and at the School of Oriental and African Studies, University of London to present my work. Through ATPS work, I have formed vital links with relevant professionals and networks."

**Dr. Margaret Karembu**, *Kenyatta University*

"ATPS improved my research and project development capabilities. ATPS activities widened my circle of academic contacts in Science and technology policy. ATPS gave me the confidence to contribute towards knowledge generation and diffusion in the areas of science and technology/energy policy at international level."

**Dr. Abeeku Brew-Hammond**, *Kwame Nkrumah University of Science and Technology*

The ATPS welcomes short articles on topical issues related to science and technology policy in Africa as well as suggestions for improving the newsletter. The national coordinators are encouraged to inform the Secretariat about planned meetings, workshops and conferences. The Secretariat reserves the right to edit the articles. Please write to:

**The Editor**, ATPS Secretariat, PO Box 10081-00100, Nairobi, Kenya • Email: laduke@atpsnet.org

"ATPS facilitates user need-oriented research, dissemination and training as well as encourages close interaction between technology policy researchers, decision makers and research end users."