

Report
of the 2002

**Scientific Revival Day
of Africa**



Nairobi Safari Club, Nairobi,
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ABOUT THE AFRICAN TECHNOLOGY POLICY STUDIES NETWORK

The African Technology Policy Studies Network (ATPS) is a multi-disciplinary network of researchers, policymakers, actors in the private sector and other end users interested in generating, promoting and strengthening innovative science and technology policies in Africa. With a regional secretariat in Nairobi, the network operates through national chapters in 17 countries, with an expansion plan to cover the entire sub-Saharan Africa.

One of the objectives of the network is to disseminate research results to policy makers, legislators, the organized private sector, civil society, mass media and farmers' groups through publications, dialogue and advocacy. Among its range of publications are the Working Paper Series (WPS), Research Paper Series (RPS), Special Paper Series (SPS) and the Technopolicy Briefs.

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List of Abbreviations

| | |
|----------|---|
| AAS | African Academy of Sciences |
| ABSF | African Biotechnology Stakeholders Forum |
| ACTS | African Centre for Technology Studies |
| ATPS | African Technology Policy Studies Networks |
| AU | African Union |
| FDI | Foreign Direct Investment |
| GDP | Gross Domestic Product |
| ICIPE | International Centre of Insect Physiology & Ecology |
| ICRISAT | International Crops Research Institute for the Semi-Arid Tropics |
| JKUAT | Jomo Kenyatta University of Agriculture and Technology |
| KIPI | Kenya Industrial Property Institute |
| NCST | National Council for Science and Technology |
| NEPAD | New Partnerships for African Development |
| NICs | Newly Industrialized Countries |
| OAU/IBAR | Organization of African Unity/Inter-African Bureau for Animal Resources |
| R&D | Research and Development |
| S&T | Science and Technology |
| STRC | Science, Technology & Research Commission |

Message from the Executive Director

Widening economic gaps between nations is linked more and more to corresponding gaps in science and technology (S&T). Africa's development problems have been more glaring since the 1970s. Living standards have declined, and populations have increased beyond the managing capacities of most countries. Famine, drought, political instability, debt crisis have become rampant. The gap in technical knowledge, and in S&T keeps widening. The more the gap widens, the further Africa continues to fall behind advances in S&T and marginalization is sure to happen.

The African Technology Policy Studies Network (ATPS) took the initiative to lead...

African governments continue to make the right pronouncements and declarations but very few steps have been taken to actualize these statements of intent. The Organization of African Unity (OAU), on 30 June 1987, during the 46th Ministerial Conference of the Organization of African Unity in Addis Ababa, Ethiopia, declared 30 June a special day to commemorate S&T in Africa. It is a day that is supposed to be dedicated to issues of S&T, and for African countries to think about the role of this important subject in development.

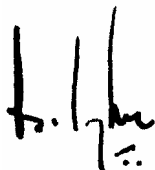
However, this day continues to escape the notice of the scientific community and policy makers. The African Technology Policy Studies Network (ATPS) took the initiative to lead other organizations to mark the 15th anniversary of the science day. The scientific community in Kenya, attended a round table discussion and press conference at the Nairobi Safari Club on 28 June 2001 to deliberate and compare notes on how S&T can be

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re-deployed towards improving Africa's development. Topics discussed during the round table include:

- The New Institutional Arrangements Required for Science and Technology Development in Africa and What New Partnership for African Development (NEPAD) Thinks
- The Role of the University in Africa's Science and Technology Development
- Incentives Required to Promote Scientific and Technological Development in Africa
- African Science and Technology Day: Has Africa Surrendered in the Field of Science and Technology?

The following pages record the speeches and discussions during the event that was officially opened by Hon. Gideon Ndambuki, the Minister for Science and Technology, Kenya, and graced by researchers, policy makers, journalists and representatives of local, regional and international non-governmental organizations. The event was also widely captured by the print and electronic media. ATPS plans to remain active in future commemoration of this important event that will play a significant role in reviving S&T in Africa.



Dr. Osita Ogbu

The Executive Director ATPS

1 **Science and Technology for Development**

Hon. Gideon Ndambuki

Minister for Science and Technology, Republic of Kenya



Hon. Gideon Ndambuki

Science and technology are the most important determining factors in poverty reduction and sustained economic growth. They also determine a country's security and global influence. National economic competitiveness and participation in international trade are largely based on how well a country harnesses, develops and applies science and technology. It is in this regard that Kenya and most African countries have formulated science and technology policies and established either councils or commissions on science and technology. Kenya has the Science and Technology Act and the National Council for Science and Technology (NCST). Despite these efforts, there is limited scientific and technological development in Kenya. The status of science and technology in Kenya is relatively poor compared, for example, to the newly industrialized countries (NICs).

As we mark the Scientific Revival Day of Africa, we need to reflect on why Kenya and most African countries are not scientific and technologically developed; and why their populations are faced with food insecurity, environmental degradation, diseases, such as malaria and HIV/AIDS and poor telecommunications infrastructure at a time when other regions of the world are successfully developing and applying science and technology to improve the quality of human life. Even more important, we should use this day to search for ways and means of improving the status of scientific and technological development.

There are a number of concrete steps or actions that Kenya is making to strengthen its basis for scientific and technological development. Let me outline a few of these.

First, the government through my ministry and its National Council for Science and Technology (NCST) is reviewing and revising the Science and Technology Act. This legislation was put in place in the early 1980s when the world was very different. When it was enacted, new technologies, such as biotechnology, microelectronics and information and communication technologies were still in their developmental stages. Today, these technologies are on the global market and are having pervasive impacts on economies and geopolitical systems. In the 1980s most economies were managed through restrictive monetary policies and trade restrictions. Today, national economies have been liberalized and are being rapidly integrated into the global system. This process of globalization is driven by new technologies. It is rapid, complex and full of uncertainty. It is those countries that invest in science and technology that are able to integrate themselves better in the global system and to effectively respond to the challenges posed by globalization. New science and technology policies are required to enable the country to participate in and manage globalization. The new Science and Technology Bill is expected to address these new issues.

Primary and secondary education is being reformed to give adequate focus on mathematics and biology

Second, the government is putting increasing emphasis on improving content and quality of science in public educational institutions, including polytechnics and universities. Primary and secondary education is being reformed to give an adequate focus on mathematics and biology while there is increasing emphasis on strengthening science and technical training courses in national polytechnics. Some of our universities have started offering courses on biotechnology. These efforts will be sustained if and when the government and its development partners raise adequate financial resources. I wish to call upon regional research organization, such as ATPS to support our efforts to better integrate science and technology courses in our educational and training programmes.

Third, the government through the Ministry of Trade and Industry has strengthened intellectual property protection and the Kenya Industrial Property Institute (KIPI). These measures are aimed at attracting foreign investment that is a major source of

new technologies and to provide incentives to local scientists and innovators.

As we mark this day, we need to identify ways and means of building on these efforts to improve the status of science and technology in Kenya. Important activities that my ministry will focus on include the following:

- **Increasing financial resources for research and development (R&D) focusing on new technologies—**
The ministry will work with our development partners to develop better ways of funding R&D and increasing budgetary allocations to scientific and technical institutions.
- **Strengthening partnerships with private industry—**
The ministry will continue to promote collaboration between public research bodies and private industry. This is crucial in order to ensure that results of R&D are commercialized. Such collaboration will also stimulate industry to invest in local scientific research.
- In collaboration with international, regional and national scientific bodies, programmes to popularize science and technology will be launched. In this regard, I wish to ask the mass media to assist us by giving more attention and space to issues of science and technology in their coverage.

In conclusion, there is a lot more that will have to be done to improve our scientific and technological status. Events, such as this one are very important to mobilize public support for science and technology initiatives. I wish to thank ATPS for taking the initiative to remind us of the importance of this day and for organizing the round table.

With these few remarks, I wish to declare this round table officially opened.

Thank you.

2

Can Africa Develop Without Science and Technology?

Dr Osita Ogbu

Executive Director, ATPS

The 30th of June is Africa's science and technology day—the day when Africa and its people rededicate their efforts to scientific and technological development. This day was chosen at the 46th Ministerial Conference of the Organization of African Unity (OAU) on 30 June 1987. It was passed that this day was to be commemorated every year on 30 June. This is yet another day in the calendar of African policy makers, scientists, researchers and industrialists. In fact, it is a day that all of Africa should mark, not for what we have achieved in the field of science and technology but for what we have not achieved: the missed cues; the missed inventions; the lack of supporting environments for science and technology to thrive and our general lack of interest in science and technology. We are truly in the age of science with many breakthroughs and this day is likely to pass without any one making a note of it. Africans have surrendered to the rest of the world in science and technology. Globalization is driven by science and technology. For example, the Internet is facilitating rapid opening up and integration of national economies. It is the engine of economic liberalization and associated developments in international trade.



Dr Osita Ogbu

As consumers of science and technology we are fascinated by gadgets, the latest equipment, the speed of these equipment tools as “toys” for accomplishing our daily chores. As fascinated as we may be about the tools and gadgets, we never stop to marvel and to understand the science behind the tools. Why are we so keen on the latest gadgets but not keen in improving our science and engineering schools? Why do we appreciate someone else's

innovation and do very little to support our own innovators? Only 0.1% of patents registered in the United States patent and trademarks office originate from sub-Saharan Africa.

We have never paused to ask why we score very high on the barometer of consumerism and low on the barometer of production. Even as we enjoy the benefits, we never pause to understand the threats these technologies pose to our way of life, our culture and our relationships. Every new technology creates its own vacuum; its own set of issues. Are we simply going to be “by-standers” and consume what the enthusiastic technology-merchants dish out to us? Or are we going to invest in research, build capacities that would enable us to “own” the technology, maximize the benefits while minimizing the problems and direct this technology to Africa’s real problems? Examples from the newly industrialized countries (NICs) and from other emerging nations, such as Brazil, China and India where sustained economic growth have been achieved, indicate a strong determination to build indigenous science and technology capacities. It is evident from their R&D expenditures and the number of researchers per million inhabitants. The NICs spend US\$66 per inhabitant while China spends \$17, India \$11 and Africa \$6. Sub-Saharan Africa has 113 researchers per million population compared to China’s 454, India’s 151 and NICs’ 595. We should have these figures in mind as we chart visions and dreams of industrialization by 2010, 2020 etc.

There is a certain unwitting acceptance of technological determinism among Africans, certainly among many African policy makers. Their tendency is to treat technology as manna from heaven. That technology does not have a social context. And, that the impacts or effects of technology are determined by the technology itself. Yet we know that the direction of development and impacts of any given technology are shaped by social and economic forces embedded in well-crafted science and technology policies.

Where Did Africa Go Wrong?

Science and technology are permanent lexicon in the African development discourse among our policy makers. No speech will be read and no plan would be promulgated without mention of

the importance of science and technology in Africa's development. From the Lagos Plan of Action of 1980, the Kilimanjaro Declaration of 1987, the Khartoum Declaration of 1988, the Addis Ababa Declaration of 1998 and many others, it is clear that African political leaders, at least on paper, understand the importance of science and technology in the socio-economic development of the continent. The Lagos Plan of Action mandates that by 1990, every African country should be spending at least 1% of its gross domestic product (GDP) on science and technology. No African country has met this target twelve years after the due date. The Addis Ababa Declaration captures and reaffirms the essence of

Every meeting, every workshop and every conference charts "the way forward" and yet we are getting farther and farther away from the "promised land"

all the other declarations thus: "aware of the considerable impact of the progress made in the field of science and technology and aware of the challenges facing our continent, we are determined to promote the development of science and technology and to share our experiences in this areas so as to meet these challenges." In our determination, what progressive steps have we taken to realize this loft declaration? A few institutions have been set up but none of these institutions will exist without donor financing in spite of their status as inter-

governmental institutions. No meeting of researchers, and for that matter, no meeting of those charged with science and technology policy making can take place in Africa without donor financing. How determined are we then to exploit science and technology for Africa's development? Every meeting, every workshop and every conference charts "the way forward" and yet we are getting farther and farther away from the "promised land."

But where is the action? African governments have all created national science councils with lofty objectives but given them very little resources with which to champion their mandates. African science and technology ministries are the least funded of all ministries and their mandates less clear. The notion of an institution to coordinate science and technology research and institutions is not taken seriously. It is often a symbol of what could be, a statement of intent. No wonder the media leads in

charging that the Ministry of Science and Technology is a junior ministry whose minister has a lower standing than his counterpart in say, the planning ministry. But how can this be? The ministry that is charged with the responsibility of generating new knowledge and in charting the science and technology development of a country be junior? Perceptions become reality and these impressions have persisted. The media must help us in reversing this impression. It must assume its role in accurately informing the public of the role of science and technology in improving societal welfare. It must help in building a strong popular constituency for science and technology; in demystifying science and technology and in putting pressure on governments to respect their commitments to promote science and technology for development. The media must not be associated with the simplistic, erroneous and dangerous notion that science and technology institutions are junior to their counterparts. On the contrary, they must be promoted as critical for change and development.

The media must not be associated with the simplistic, erroneous and dangerous notion that science and technology institutions are junior to their counterparts

We have research institutes and laboratories that have not only become skeletons of their past but some are now mere consulting outfits. If there is no donor money, even salaries of the researchers will not be paid. Yes, the structural adjustment program did not help matters. But science and technology research and application have never seriously been a top priority item for African national governments. If it were, no one would convince them to do away with that which is of strategic national importance. Foreign governments and foreign companies make welcome noises about technology transfer? But who would ever freely give away his competitive advantage? What policies have we put in place to make sure that foreign direct investment (FDI) makes technological linkages to our local firms that would eventually propel autonomous technical change? Why are we always asking for money instead of knowledge from donors? With knowledge you create your own wealth, with aid you become dependent on foreigners.

What of the Brain Drain?

Africa's brain drain phenomenon has both pull and push factors that have contributed significantly to the poor state of science and technology in the region. Given the poor political and economic conditions of most African states, many top scientists voted with their feet. Those who were trained abroad, sometimes at great expense to Africa, refused to return. Some developed countries also put in place policies to attract highly specialized Africans thereby depleting the meager stock. It is no longer useful to spend enormous amounts of energy lamenting this drain but to look for ways in which to benefit from the stock of knowledge which these Africans now possess. Permanent reverse brain drain is not likely to happen any time soon. Africa in partnership with those countries and institutions that benefit from Africa's scientists must put in place policies and mechanisms for exploiting, albeit in temporary periods, the skills and capabilities of these Africans in supporting indigenous African science and technology capacities. The suggested details of this mechanism will be the subject of another article. But suffice it to say that this mechanism will involve a combination of change in attitude among our policy makers. They must provide a suitable domestic environment that not only encourages Africans abroad to freely give of themselves and share their knowledge during these short stays and exchanges; summer programs and sabbaticals but to establish strong national linkages that may eventually force them to return finally. This program can be financed through a strong partnership between Africa and the developed world.

Those who were trained abroad, sometimes at great expense to Africa, refused to return

Does the New Partnership for Africa's Development (NEPAD) Present Any Opportunity?

Africa has another opportunity through the NEPAD process to acquire, indigenize and sustain its science and technological capabilities. In fact, the entire NEPAD initiative should be knowledge-driven. The emphasis should be on science-led sustainable development that is rooted in African scholarship and

global knowledge. The NEPAD initiative must champion and popularize science and technology as the real forces for socio-economic growth. The billions of dollars that the developed partners are likely to give in support of this initiative should not only be conditional on good governance, as important as this is, but on a clear program of science and technology-led development. It must be used to rebuild our science and engineering schools and infrastructure and to support knowledge networks and institutions in Africa that generate and broker science and technology knowledge. African problems: food insecurity; diseases; ignorance; supply constraints, lend themselves to science and technological solutions. Why not an innovation fund that encourages the work of scientists and engineers to be translated into goods and services. Why not an African science and technology university where African scholars both at home and abroad with their counterparts elsewhere who have expertise on African problems can collaborate and forge strong links with the private sector in search of science-based solutions to Africa's real problems. Africa is endowed with abundant natural resources but its need science and technology to unleash the potential: to sustainably utilize these resources to generate wealth and fight poverty. African policy makers should create the environment for innovation to thrive. Now is the time to go beyond rhetoric and declarations.

Thank you.

3

Statement from OAU/IBAR

Dr Solomon Haile Mariam

Deputy Director, OAU/IBAR

It gives me great pleasure to address you on behalf of the Director of the OAU/Inter-African Bureau for Animal Resources of the Organization of African Unity (OAU/IBAR) on this very special occasion of the African science and technology day.

I wish to take this opportunity to remind all gathered here that the OAU Charter fully acknowledges that science and technology are the engines for change if Africa is to attain sustainable development.

In appreciation of the role played by science and technology in development, the OAU established its Science, Technology and Research Commission (STRC) with an executive secretariat in Lagos, Nigeria in 1964. Since then there have been many consultative meetings to chart the way forward for our continent. The last such meeting was organized by the OAU/STRC Secretariat in March 2002. The March 2002 consultative was organized to discuss the policies and future direction of science and technology for sustainable development in our continent.

Senior scientists from several African countries including academic and research institutions attended this workshop and drafted development and implementation strategies to be undertaken over the next 10 years.

In their final communiqué, the African scientists reached a consensus on the following major issues/areas of concern:

- The number and quality of students graduating in science-based disciplines in African universities was inadequate to adequately respond to the socio-economic needs of Africa.

... the OAU Charter fully acknowledges that science and technology are the engines for change if Africa is to attain sustainable development

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- Africa needs a new generation of graduates equipped with scientific, technological and entrepreneurial skills that would enable them to easily adapt to the private sector manpower requirements.
- The interdependence between industry, academic research institutions and policy makers needs to be urgently harmonized.
- The resources allocated for scientific and technological activities must be increased.
- Africa should consider the urgent need to rapidly build capacity in the new emerging technologies including biotechnology and information technology.
- Participants also unanimously agreed that critical and overriding problem in Africa was, and still remains, the poor and uncoordinated management of vital technological related resources, enterprises, rural and development institutions.

May I take this opportunity to inform you that the African Union (AU), which replaces the OAU after 39 years, will be officially launched on 9 July 2002, at the Assembly of Heads of States in Durban, South Africa.

The Constitutive Act of the African Union places great emphasis on the role of science and technology in accelerating the noble objective of improving the livelihoods of the African people.

I wish to thank the Executive Director of ATPS, Dr. Osita Ogbu, for taking this initiative to organize the Scientific Revival Day of Africa, which is indeed recognized as a very important day by the OAU.

OAU/IBAR wishes to thank you all and looks forward to working in close collaboration with you in future.

Thank you.

4

The Role of the University in Africa's Science and Technology Development

Prof Ratemo W. Michieka

Vice-Chancellor - JKUAT

Hon. Gideon M. Ndambuki, Minister for Science and Technology, Organization of African Unity (OAU) representatives, ladies and gentlemen.

It is a great honour for me to address this conference marking the Scientific Revival Day of Africa, an important event in the calendar of the OAU.

Ladies and gentlemen, about three decades ago, top in the agenda of OAU was the liberation of African countries from colonialism and the establishment of new states. However, after accomplishing this monumental task, the organization has come of age to embrace various development agendas for the benefit of the continent, which is why it recognizes science and technology (S&T) as the most effective weapon in the fight against poverty in Africa.

In developing countries indeed, the application of S&T has brought about increased life expectancy, reduced infant mortality, improved health, sound nutrition, better hygiene, among others.

Ladies and gentlemen, we must consider how S&T can improve people's lives by ensuring its benefits do not bypass the poor. The World Bank, for instance, urges us to invest adequately in S&T in general and particularly in agricultural science. In this regard, S&T should change farming into a more viable and profitable business.

The importance of S&T can also be underscored in terms of manpower training. With proper skills in S&T people become quality conscious, observe time, become flexible in their working places and are easily retrained.



Prof Ratemo W. Michieka

The 'hi-tech sector' holds a promise for poverty eradication. For example, engineers and scientists can meet the challenges posed by the shrinking per capita arable land, scarce irrigation water resources, and expanding biotic and abiotic stresses by simply mobilizing frontier science and technology in the areas of "biotechnology, information, space and renewable energy technology and blending them with traditional technologies and ecological prudence."

On the other hand, unemployed graduates armed with skills from the 'hi-tech sector' can utilize their expertise by assembling resources and setting up local hi-tech shops capable of maximizing the utility of untapped resources.

Graduates of our universities can develop and create new economic and social networks. They can improve access to basic services, education and health interventions, global markets, and earning opportunities.

The challenge we have is to make our findings easily accessible and affordable to the poor people and small business communities in the struggle to reduce and eradicate poverty.

Finally, we must be cautious. The structure of S&T in a developing country does not have to resemble a developed world S&T model. As Africans we ought to refrain from employing technology that is not compatible to our country's technology; such efforts are directed elsewhere and do not eradicate poverty.

Thank you.

5 What Incentives are Required to Promote Scientific and Technological Development in Africa

Prof Judi Wakhungu

Executive Director, ACTS

The first incentive that African scientists and engineers need is to be valued and respected for contributions they make in societies.

Research and development must be accorded higher priority in terms of funding. Hardly any research is being conducted in our universities. There are isolated research laboratories here and there – but that is the exception and not the rule. How can we ensure that we have world-class scientists and engineers when their own professionals are not carrying out research?



Prof Judi Wakhungu

Funds, therefore, need to be directed to research at all levels – this, as a first step, is a very important incentive.

The lack of funding and opportunity to further one's career has obviously contributed to the brain-drain. The industrialized countries are the beneficiaries of our best scientists and engineers. Incentives ought to be provided for these scientists and engineers to partner with local scientists and engineers and conduct research designed to solve local problems. Let us facilitate this intellectual exchange between scientists at home and abroad.

There seems to be a paradigm shift, globally, that African scientists and engineers ought to capitalize on and governments ought to facilitate this. You see, there seems to be a feeling among scientists and engineers, not the usual detractors, that 'the business as usual science' is not responding adequately to the challenges of the times. Furthermore, if anything – in Africa today, science may be creating more problems than it is solving. Because of this there has been a call for a new social contract with science. A more holistic science, if you wish, that fosters linkages with

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political, social, economic, traditional, chemical, biological and geological systems. If this is the direction in which research is going, then we must capitalize on it now because this is a level playing field.

Thank you.

6

What Kinds of New Institutional Arrangements are Required for Science and Technology Development in Africa and NEPAD

Dr John Mugabe

Executive Secretary, S&T Commission, South Africa

There are two questions to be answered: what kinds of institutions are required in both science and technology; and what is being proposed as the new science and technology programme by NEPAD. Africa tends to forget the rule oriented institutions of S&T, which deal with rules, norms, and values. It is important that Africa pays more attention to these institutions.



Dr John Mugabe

The proposed S&T programme by NEPAD stretches beyond government realms. There are five clusters of activities in NEPAD. The first cluster deals with:

- Mobilizing political support for science and technology
- Conducting a series of conferences for civil society and youth
- Holding a conference on the role of women in science and technology

The second cluster of activities is to conduct a needs assessment for Africa owing to new challenges and diseases, which are yet to be understood. An example is the common environmental needs.

The third cluster deals with technology assembling and forecasting. In this cluster there will be an effort to look into existing technologies and to understand them for what they are.

The fourth cluster of activities will seek to develop an action plan for the region on science and technology by establishing regional centres of excellence.

The fifth and last cluster of activities will be to meet common problems in S&T and R&D, this will be initially funded by the governments of South Africa and Canada.

7

OPEN FLOOR DISCUSSION

After the speeches, the floor was open to discussion on the various topics that were presented. Below are some ideas and comments from the participants.

Dr Hans Herren
Director General
ICRIP

“Researchers have been trying for decades to bring the private sector to transform research to reality but to no avail. Sustainable development is needed to understand ecology which is a small piece of the world we live in. There is also a great demand in the private sector for scientists to transform scientific research into reality but the private sector in Africa is not interested. All in all, we need science that will add value to new products and a private sector that will make money by applying good science.”

Dr Said Silim
Regional Representative
ICRISAT

“Scientists need to invest in order to reap where they have sown and training institutions need to be dynamic. Departments within educational institutions need to be dynamic in terms of looking out to find what is new so that they could teach relevant materials. We cannot afford to do things the way we did them 20 years ago. There is need to be dynamic and change the structures to suit the current developments.”

“The cost of education also needs to be looked into. For example, 20,000 people are trained outside the country each year. The reason for this is that the cost of training out there is the same as here and yet the facilities are better out there.”

“A few years back, Kenya was assembling vehicles, but the cost was far much more than bringing the same car from France. Therefore, there is a need to look into how to make this [assembling] much cheaper, efficient and competitive. This would reward efficiency and innovation.”

“Age should also not be a hindrance to one’s upward movement in science institutions and universities. If one is young and has made intellectual contributions much more than the ones that he found there, then there should be no reason for holding him/her back. For example, at the university, age should not be a consideration in awarding professorship to intellectuals.”

Mr Felix Machi Njoku
PANA Correspondent
PANAPRESS

“I do not think that we should blame journalists for not communicating when there is no communication infrastructure within most scientific organizations.”

Question: “Should Africa re-invent the wheel?”

Answer:
Dr Osita Ogbu
Executive Director
ATPS

“The issue here is not whether to re-invent the wheel; for example in car manufacturing, America and Europe was at the forefront, Japan came much later, they [Japanese] had a choice of saying, no, there is no need to do it because it has already been done, but we have seen better cars, more efficient cars and even the

popularization of cars with more affordable prices. When you say 're-invent' then it is like saying that Africa has surrendered, in short, we take it the way it is and consume it. But no, we can produce things, borrow and indigenize them from what has already been done. Science must be redirected, production and sciences have a social content. As Dr Herren said, biotechnology is a useful tool but we have to understand it. The answer to your question is not re-inventing the wheel, but that the wheel exists in a different context. But, we must invest in the engineering infrastructure in science to produce things appropriate to our own needs.”

“Information Dissemination: There are two players, the scientists and the journalists. In my case, I struggled to write the paper presented today by making it as simple as possible. We scientists are ready to take the step. Journalists on the other hand always seem to run for the sensational. Recently, ATPS held a luncheon for media editors, yet the coverage for this function that was theirs was very minimal. This is not a small matter because the media reflects society and conveys information. The media and scientists have to form a partnership. Later this year (October) SciDev.Net in collaboration with other organizations including ATPS will hold a science writers’ workshop in Kampala. This is yet another step in bringing journalists into the science fold.”

Dr Hans Herren
Director General
ICIFE

“Science journalism need to be promoted through education and training. If people can read science in a way that they enjoy, this would be good because we scientists cannot write very well. Journalists can take this complicated information and present it to the people in a more understandable way.”

Prof G.B.A. Okello
Executive Director
AAS

“I wish to make a few comments on the issues presented in the programme.

- a. Can Africa without science be helped? The answer is NO. Worldwide, scientists and the media are to blame for the ivory tower that exists between them. The media looks out for sensational news that can sell while scientists who owe it to the public to inform them of what they are doing or working on do not bother to communicate.
- b. Awards in Sciences: Africa has few science prizes. The African Academy of Sciences (AAS) has had one in agricultural sciences since 1991. Contributions to scientific awards are not forthcoming because most affluent Africans would rather keep their money in banks. Everyone, including scientists, needs to be rewarded for their efforts.
- c. Role of Universities: Little is being done to strengthen basic sciences in Africa, which are essential in research. Towards this AAS is considering strengthening some centres, for example, two mathematics centres in Nigeria and Ghana. There is need to put up two more centres in Africa focusing on mathematics.
- d. Support Research: Remuneration for scientists is part of the support for research. In 1994, AAS set up a sister centre in Malawi but it never took off due to lack of funds, this centre was to serve as a foundation for research within Africa.”

Mr Otula Owuor
Editor, Science & Development News, BiotekAfrica

“There have been tremendous improvements in the coverage of scientific information. Attitudes have also changed towards journalists by the scientists. There has also been the introduction of communication channels in scientific organizations as opposed to when journalists were forced to go inside the laboratories to get information.”

“Young journalists are also making efforts towards this area but scientists on the other hand need to get their act together because the media will always be interested in products and services. In the past all sciences including mathematics and medicine were lumped together. The ‘serious’ journals that were unreadable to the layman have since changed in their presentations and even include editorials with much simpler presentations.”

“Training is also a positive move as it helps up and coming journalists create a niche for themselves. Last year for one month, the African Biotechnology Stakeholders Forum (ABSF) invited young journalists to experiment with science writing. One of the participants is now a writer for SciDev.Net, a free-access, Internet-based network devoted to reporting and discussing aspects of modern science and technology that are relevant to sustainable development. African media do not recognize science writers in their midst.”

Prof R. W. Michieka
Vice Chancellor
JKUAT

“Newspapers are a good medium that should be encouraged. Journalists also need to report break-throughs in Africa. Africa is not doing so badly in this area inspite of the perception created by the media. Universities are doing well and they do have inventions that are not heralded.”

“The government also needs to allocate between 3%-4% of their GDP to science and technology.”

Mr Alex Gacuhi
National Co-ordinator
ATPS Kenya Chapter

“There are three parallel lines: research, industry and planning systems. Unfortunately these three parallel systems never meet. There seems to be no cohesion between these three. Researchers when offered incentives by research institutions to conduct research pick on topics that appeal to them without finding out from the government’s Ministry of Planning what areas need to be researched on. Once the findings are published they gather dust on shelves because the ministry will not take them up and encourage the industries by offering incentives to implement the findings.”

Question: “What is NEPAD doing to make sure that these systems work together?”

Answer:
Dr John Mugabe
Executive Secretary, African Commission on S&T
Pretoria, South Africa

“Within NEPAD, one of the clusters of activities outlined is that there is clear recognition that we tend to do science for science’s sake. Very often we do not understand the problems that science is meant to address and the commission[African Commission on S&T] is going to be investing some resources in needs assessment. NEPAD will focus on key sectors like agriculture and environment in order to understand what are Africa’s common needs, not individual countries. There is going to be an effort to try and influence investment in science and technology and the private sector will also be involved. There will be a round table conference that will be organized for the private sector to get them to focus on Africa’s problems with emphasis on biotechnology and genomics. Last year, of the 13, 000 different drugs and vaccines on the international market, none of those focused explicitly on tropical diseases. There is need to re-orientate the international industry towards Africa’s problems.”

Prof Joseph Massaquoi
Senior Programme Specialist
UNESCO, Nairobi Office

“We need to create a reading culture on scientific achievements and then the newspapers will pick it up from there. Science writers need to look for issues/topics that will whet the appetites of the readers and leave them asking for more.”

Dr Hans Herren
Director General
ICRPE

“Science is universal, its application may be different but we in Africa cannot isolate ourselves from the rest of the world. We need to add and invest new ideas of what is already there.”

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Participant List

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1. A.R. Gacuhi
National Coordinator, ATPS Kenya Chapter
P.O. Box 30568
Nairobi
Tel: 254-2-216947/0154-22602
Fax: 254-2-215349
Email: agacuhi@yahoo.com
 2. Bruce Scott
International Livestock Research Institute (ILRI)
P.O. Box 30709
Nairobi
Tel: 254-2-630743/352344
Fax: 254-2- 631499
Email: ilri-kenya@cgiar.org
 3. Catherine Ngamau
Program Assistant
BIC
P.O. Box 66069
Nairobi
Tel: 254-2-444558
 4. Elijah Agevi
Regional Director
Intermediate Technology Dev. Group (ITDG)
P.O. Box 39493
Nairobi
Tel: 254-2-713540/715299/93
Fax: 254-2-710083
 5. Felix Machi Njoku
PANA Correspondent
PANAPRESS
Nairobi

6. Francis B. Mwaura
Botany Department
University of Nairobi
P.O. Box 30197
Nairobi.
Tel: 254-2-338544/19/76/70
Fax: 254-2-216030/212604
7. Francis Nangayo
Principal Researcher
ABSF
P.O. Box 66069
Nairobi
Tel: 254-2-444558
8. Francis Nthuku
Program Co-ordinator
Biotechnology Trust Africa
P.O. Box 1285
Nairobi
9. G. B. A. Okello
African Academy of Sciences
P.O. Box 24916
Nairobi
Tel: 254-2-884620/884401-05
Fax: 254-2-884406
10. Gathura Gatonye
Nation Correspondent
Nation Media Group
Nation Centre, Kimathi Street
Nairobi
11. George Sikoyo
Research Associate
ACTS
P.O. Box 45917
Nairobi
Tel: 254-2-524700
12. H.M. Bwisa
J.K.U.A.T.
P.O. Box 62000
Nairobi
Tel: 254-0151-52711 – Thika

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Fax: 254-0151-52164
Email: users@jkuat.ac.ke

13. Hans Herren
Director General
ICIPE
P.O. Box 30772 GPO
Nairobi
Tel: 254-2-861680-5
Fax: 254-2-860110/803360
14. Harrison Maganga
Outreach Officer
ACTS
P.O. Box 45917
Nairobi
Tel: 254-2-524700
15. Hon. Gideon Ndambuki
Minister of Science & Technology
P.O. Box 30040
Nairobi
Tel: 254-2-334411
16. John Mugabe
Executive Secretary
African Commission on Science and Technology
NRF, Meiring Naude Road, Brummeria
PO Box 2600, Pretoria 0001, South Africa
Tel. 012-481 4019 (or cellphone 0725227018)
Fax: 012-349-1179
17. Joseph Massaquoi
UNESCO
P.O. Box 30592 00100 GPO
Nairobi
Tel: 254-2-621234
Fax: 254-2-215991/622750
Email: Nairobi@unesco.org
18. Judi Wakhungu
Director of ACTS
P.O. Box 45917
Nairobi
Tel: 254-2-524700

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19. Kenneth Aduda
Principal Research Officer
Kenya Industrial Research & Dev. Institute (KIRDI)
P.O. Box 30650 GPO
Nairobi
Tel: 254-2-535966/84/90/504866-7
Fax: 254-2-540166

20. Magayu K. Magayu
Lecturer, Department of Journalism
University of Nairobi
P.O. Box 30197
Nairobi
Tel: 254-2-334244
Fax: 254-2

21. Mohammed Khalil
Lecturer, University of Nairobi
P.O. Box 30197
Nairobi

22. Moses Ikiara
Researcher
KIPPRA
P.O. Box 56445
Nairobi
Tel: 254-2-719933-4
Fax: 254-2-719951

23. Osita Ogbu
Executive Director
African Technology Policy Studies Network (ATPS)
3rd Floor, The Chancery,
P.O. Box 10081, 00100 GPO
Nairobi
Tel: 254-2-254-2-723800/714498
Fax: 254-2-254-2-714028
Email: oogbu@atpsnet.org

24. Osita Okonkwo
Director of Operations
Shelter Afrique
P.O. Box
Nairobi
Tel: 722305-09

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25. Otula Owuor
Editor, Science & Development News, BiotekAfrica
Nairobi
Tel: 254-2-577935/561635
Mobile: 254-722-843101
Fax: 254-2-448762
26. Ratemo W. Michieka
Vice Chancellor
JKUAT
P.O. Box 62000
Nairobi
Tel: 254-0151-52711 – Thika
Fax: 254-0151-52164
Email: users@jkuat.ac.ke
27. Said Silim
Regional Representative
ICRISAT
P.O. Box 30677
Nairobi
Tel: 254-2-524000
Fax: 254-2-524001
28. Solomon Haile Mariam
Dep. Director OAU-IBAR
P.O. Box 30786 GPO
Nairobi
Tel: 254-2-338544/19/76/70
Fax: 254-2-216030/212604
Email: ou-ibar@africaonline.co.ke

For more information on ATPS contact:

The Executive Director
The African Technology Policy Studies Network
3rd Floor, The Chancery, Valley Road
P.O. Box 10081 00100 General Post Office
Nairobi, Kenya

Tel: +254-2-2714092/168/498

Fax: +254-2-2714028

Email: info@atpsnet.org

Website: <http://www.atpsnet.org>