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Technology Shaping and Technology Policy

From Workshop Highlights

By Ann Kingiri and Andrew Adwera

Role of society in shaping technological development is key to sound technology policies. This was the message emerging from a workshop “**Understanding technology shaping, policy and research in development**” that was held in Nairobi, ACTS offices from 22 – 23 November 2011. The workshop was organised by the African Centre for Technology Studies (ACTS) and The Open University, UK. It was a culmination of a

collaboration that has embarked on creating capacity in this area through training of trainers from different sector ranging from agriculture, health and livestock. This programme will soon be rolled out to corporate sector in other sectors including energy and ICT. The workshop was attended by professionals from agricultural and livestock research institutes, government departments, universities and nongovernmental organisations.

Workshop Highlights

Presentations provided the foundation for intensive and animated discussions.

The welcome note by Dr. Ann Kingiri, Director of Research, ACTS, highlighted the importance of the training and thanked the participants for showing interest. She hoped that the course would enhance understanding of the interrelationship between technological activities the participants are engaged in, and related societal and policy implications. She noted that the participants would be called upon to facilitate in future programmes as trainers. She requested them to be interactive in order to gain maximally from the course which would normally take a period of six months.

The objective of the course were delivered by Andrew Adwera who highlighted; how technology shaping affects the society and also the roles played by different actors in technology shaping and research within local setting. He also explained that the course would enhance knowledge and understanding on concepts and definitions on technological innovation and design, research, technological shaping policy and its adoption and transfer.

The opening address by the Executive Secretary, National Council for Science and Technology (NCST), Prof Shaukat Abdulrazak was delivered by Mrs. Margaret Maimba, Principal Secretary, and NCST. He highlighted key points that include the STI milestones made by the government through NCST. The advices NCST made on

matters of STI through consultation with various stakeholders, which include research institutions, National professionals and scientific societies, Various Government Ministries and departments with STI and functions, International Organizations and National entities with interest in matters of Science and technology in the country.

Margaret also described the policy development in a practical sense which generated a heated debate over how things are done and how they ought to be done. This is captured further on in the recurring issues. A glimpse of Vision 2030 as a government roadmap towards innovation was also discussed. The participants were informed that Kenya has made milestones towards achieving the MDGs and Vision 2030 and the draft STI policy and strategy attest to this.

Dynamics of shaping technology organizations and institutions was presented by Dr. Maurice Bolo and Dr. Ann Kingiri who captured the following topics; technology Innovation, shaping & making policy where key definitions and concepts were discussed. It was discussed that organizations and institutions are instrumental in influencing policy. Amongst other reasons given, institutional involvement in innovation is so important as it channels resources to innovation activities. It is also important to understand that, different institutional arrangements may be required for managing different innovations or resources. Policy in technological development and innovation was discussed at length highlighting the role of the government and the different public

as well as non state actors including the civil society. It was concluded that many actors are involved in the process of production of knowledge relevant to innovation and therefore understanding individual's role is as vital.

A former beneficiary of this training, Dennis Okumu facilitated the sessions that looked at research methods and case studies. He categorized the methods into 3; empirical research where literature study, interviews, questionnaires and case study were discussed in detailed. In the second category, people are used as sources of information. The use of interviews and focus group discussions were discussed. The third category was the quantitative methods where cost benefit analysis (CBA) was discussed. Criticism was though directed to the former as it requires all factors to be expressed in monetary terms-problems of how value external costs e.g. climate change (environmental impact, emissions). He concluded that policy does not automatically result from research unless evidence is attached based on appropriate and sound research techniques and procedures.

Public engagement in STI policy making and implementation was done by Dr. Maurice Bolo, who began his presentation by defining who the public is and how important its engagement in policy implementation is. He put in plain words that technology has been the driver of societal change, and that its pace has increased manifold in the recent times. He said the recognition of the role of society in science and technology gave momentum to inclusion of public views in science

and technology policy but with challenges. He blamed the lack of public involvement on ignorance, mistrust and “extra –scientific concerns” including values, ethics and processes. The solution he gave was to build trust in science and have the scientists be the central notion. Dr. Bolo quoted (DG-JC and Research, 2000, pp.2) that “public input into policy debates are not merely ‘opinions’, but may be relevant knowledge, values or questions that the scientists have neglected. There are needs to be a long-term process of mutual learning between the public and science...” He concluded his presentation by providing techniques which the public can use to participate in policy implementation.

Recurring issues

All the presentations highlighted how technology shapes society

and vice versa, and how these ultimately influence policy making. The changing contexts however shape the trajectories irrespective of technology. Emerging issues related to the presentations and which kept recurring during the discussions include:

- Not all stakeholders within the technology and policy interphase are aware of the societal role in the process.
- The process of formulating policies that have societal implications in Kenya is not well understood. It is not clear where the problem lies; the legislature, certain members of the cabinet, the judiciary or departments within respective Ministries.
- It was noted that policies take too long to be legalized and once this is done, the process of implementation is cumbersome and sometimes politicized.

- The policy makers must provide guidance through every step in technology policy development.
- Policy formulation process must take a holistic approach recognizing the relevance of all sources of knowledge. Thus, mechanisms need to be established by which policy formulation involves contributions made through scientific facts as well as non scientific facts.
- ACTS as a policy research institute is in a position to bridge the knowledge gap related to evidence based policy making.

Case studies exercise

The participants were divided into two groups where two case studies were presented to them for discussion.

Case study 1: Eco-toilets in Nairobi Slums

“Eco-toilets innovations serving the poor; waterless, odourless and productive”.

- In what ways did Kenyan society shape the innovation of the eco-toilet?
- How did the project manager, David Kuria, overcome Kenyans reluctance to pay for using the toilet?
- What innovative marketing initiatives have been tried to achieve wide adoption in the slums of Nairobi?

Case study 2: GM CROPS IN EU: regulatory conflicts and policy change

Generate similarities and differences in terms of how EU/Kenyan society has shaped GMO debates.

- *How Kenyan/EU society has shaped the GMO debates.*
- How the EU & Kenyan government systems try to deal with different emerging issues on the GMO debates.
- In view of the training on technology shaping and policy research training; how do you think the issues of GMOs should be addressed?

Presentations from the groups

Case study 1

Eco-toilets in Nairobi Slums

About eco-toilets in Kenya

- Innovated by David Kuria in Kenya
- A user friendly for to promote sanitation and health
- A public private initiative
- Incorporates an ecological dimension with bio digester for generating methane gas
- A low cost facility with a sustainability model
- Integrates other businesses
- Key challenges: capital costs , availability of land and acceptability

How Kenyan society shaped innovation of EcoToilet

- Poor sanitation status and subsequent health impact
- Poor cultural of the general population
- Limited availability and access to public sanitation facilities
- Presence of extensive informal communities
- Community acceptance to the innovative idea

Approach used to convince Kenyans to pay for Eco Toilet

- Started by marketing it to rich Kenyans
- Made it affordable to the average Kenya
- Introducing a concept of community ownership
- Family events near the facility to promote it
- Making it very clean and convenient

Innovative marketing initiatives

- Holding family events near the facility to promote it
- Made it an attracting business model for venture capitalists
- Making it acceptable to both the rich and the poor
- Developing an affordable monthly prepaid card for using the service

Case study 2

GM CROPS IN EU: regulatory conflicts and policy change

Similarities & differences between EU and Kenya

How the EU & Kenyan government systems try to deal with different emerging issues on the GMO debates

- Put in place regulations
- Set up expert groups
- Institutions creating awareness/advocacy and capacity training
- EU-further research on identification of risks and risk assessment
- EU-generated data on risk assessment
- EU-amending the regulations depending on the new information –amendments mainly consumer driven
- Media-training of journalists on GMO reporting

In view of the training on technology shaping and policy research training; how do you think the issues of GMOs should be addressed?

- Decisions must be science-based –no politics
- All stakeholders to be involved from the onset (have buy-in-effect) – discourage reactive research
- Take in consumer concerns
- Labeling/free choice of food (GM or Non-GM)
- More time needed for research --mandatory risk assessment

Workshop evaluation and closing

The participants consider the course to be very useful in relation to their work.

- It gives a different way of looking at policies process vis a vis innovation.
- It has enhanced an understanding of linkages between research, innovation and policies as well as role of politics.
- Technology research practitioners should be interested in policy research. They should also understand their role in influencing policy.
- This course has transformed my thinking.

Recommendations from participants

General messages to organizers

- The course is very relevant to various disciplines and different stakeholders.

	Similarities	Differences
1.	Public opposition -Pressure groups-debates on and off	In Kenya opposition was at the research level (expert group) while in EU it was at the market level—after commercialization
2	Divergent views among expert groups	In Kenya opposition came mainly from the pressure/lobby groups/CSOs
3	Food shortage driving the debate	In Kenya regulations were driven by food security concerns. In EU institution of regulations was driven by threats by industrial actors to relocate to US
4	Overlap between GMO regulations and other relevant laws	Public developed mistrust of experts after the BSE control saga. In Kenya, we are yet to experience such doubts.
	Kenya-No approved GMO in the country	Expert led process where disputes were solved by science/expert-based regulation. In Kenya, politically influenced
5	Multiple actors performing complimentary roles	In EU, consumer orgs are more stronger compared to Kenya
	NGO's actors influenced the process	

- The course should diversify to other sectors.
- Feedback/comments from the participants to be shared with a wider audience through different avenues like website, annual reports.
- Trainees to facilitate in future courses.
- Involve media in future.
- Organize forum with universities, government and other stakeholders on particular topics commensurate with relevance.
- Persons involved in influencing policy decisions to be invited to participate.

- Organize in-house training.
- Extend the number of days for full understanding of the course and full coverage of topics
- There should be gender balance in facilitating

Message to policy makers

- While science might be useful to address policy issues, it is still not clear about mechanism through which such knowledge feeds into decision making. It is good to think of avenues for interaction between scientists and decision makers and the wider stakeholder

- They should appreciate interdisciplinary approach so that they can generate relevant policy issues from the research output coming from various research organizations
- Capacity building for policy makers
- Patent of innovations/technologies to motivate innovators and retain technology. In this regard, patenting guidelines and regulations are needed and if there, they must be enforced.
- Promote participation of diverse stakeholders in policy making.

- Ensure that all stakeholders – beneficiaries of technology, experts etc are involved in policy formulation process
- Advocacy of training on technology innovation and technology policy to be cascaded to mid level institutions.
- Expand training to the Ministry of Trade and Industry.
- Establish mechanisms by which policy formulation involves contributions made through scientific facts.
- Continuous research on policies affecting innovations and technology
- Form policies that will favor local innovation in respect to funding.
- The policy makers should have full understanding of technology innovation
- The policy makers must be involved from the inception through every step in technology policy development
- Better integration of the institutions

Conclusion

This Briefing Paper has highlighted that issues of technology and society shaping are complex, paramount to policy research and practice; and policy formulation process but not well understood by technology and policy shapers. This being the case, capacity building efforts to bridge the knowledge gap must be part of forward-looking planning. These efforts could be designed and implemented to build relevant stakeholders' capacity who would in turn serve as trainers (or agents of change) in their respective institutions. A shift is needed from technological approach to policy formulation towards a holistic approach which must embrace public engagement guided by evidence based policy research.

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