

Strengthening science and technological capacity in Africa: Engaging women and youth

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Abstract

Economic growth depends on the country's capacity to develop and apply new technologies and innovations. This therefore becomes the ultimate yardstick for measuring the success of nations on how effective their activities improve the lives of the people. Africa continent faces a number of problems ranging from unemployment, hunger, health and politically related issues. Unemployment in Africa is one of the main causes of poverty and the youth and women who have are the majority are the most affected. This segment of the population in the society has been excluded from participating in the countries development due to unemployment, inaccessibility to information and involvement in governance including low level of education. Such factors make youth prone to violence, peer pressure and mob psychology among others since they are marginalised. This can be effectively achieved by "thinking outside the box"

This state of affairs has increased food insecurity, political violence, marital instability as well as conflict brought about by competition for limited resources. Kenya in the recent past has witnessed deadly conflicts between pastoralist and peasant farmers in Tana River district and in north eastern province between pastoralist communities themselves due to limited water resource and pasture leading to the death of more than 100 people in less than a week. Statistics indicate that the highest number of those who participated directly in the post election violence in Kenya was the youth and at the same time the majority of those who were killed were also the youth.

In addition traditional culture has marginalised women and often constrained them from making choices in their livelihoods. There is need for socio-economic empowerment of youth and women through sustainable programs such as agribusiness through value added product development. Moi University have been involved in a number of activities aimed at addressing some of the challenges affecting the youth and women through a combination approach of exploitation and exploration. Exploitation refers to

utilization of available resources to the advantage of the institution while exploration refers to the identification of resources which could be utilised in the activities of the institution.

Universities have a leading role to play in research, generating and disseminating knowledge to support growth. Research increases the body of theoretical knowledge as well as its applications to solve problems in human society. The traditional university restricted itself mainly to a circle of professors and students from upper strata of society and lives in relative isolation, hence the proverbial “ivory towers”. This approach made universities to lose touch with society.

The problems facing society are in themselves a resource for universities to do further research to come up with solutions, It is therefore important to emphasize that creativity, exploitation and exploration does not take place in a vacuum but are triggered by the existing problems affecting humanity.

The Universities must enrich their curriculum to incorporate strong entrepreneurship concept in order to produce “job creators” and not “job seekers “. Our pilot degree program has given women an opportunity to express their talents in their technical sector. At the moment we have two women pilots.

This paper highlight the role Moi University plays in turning the challenges facing youth and women into opportunities for sustainable development through Science and Technology.

Key words: Moi University, S & T, women, youth

Résumé

La croissance économique dépend de la capacité d'un pays à développer et à appliquer de nouvelles technologies et innovations. Ceci devient donc l'ultime étalon pour mesurer le succès des nations sur l'efficacité de leurs activités qui contribuent à améliorer les vies de la population. Le continent africain est confronté à un certain nombre de problèmes allant du chômage, de la faim, de la santé et des questions d'ordre politique. Le chômage en Afrique est l'une des principales causes de la pauvreté, et les jeunes et les femmes qui constituent la majorité sont les plus touchés. Cette partie de la population dans la société a été exclue de la participation au développement dans les pays en raison du chômage, de l'inaccessibilité à l'information et de la participation à la gouvernance, y compris le faible niveau d'éducation. Ces facteurs font que les

jeunes sont enclins à la violence, à la pression des pairs, et à la psychologie des foules par rapport à d'autres, comme ils sont marginalisés. Cela peut être effectivement réalisé par une action qui «sort des sentiers battus».

Cet état de fait a augmenté l'insécurité alimentaire, la violence politique, l'instabilité conjugale ainsi que les conflits provoqués par la concurrence pour les ressources limitées. Dans le passé récent, le Kenya a été le témoin des conflits meurtriers entre éleveurs et paysans du district de Tana River et dans la province située au Nord-Est du pays, entre les communautés pastorales elles-mêmes, en raison de leur ressource en eau et des pâturages limités, entraînant la mort de plus de 100 personnes en moins d'une semaine. Les statistiques indiquent que le plus grand nombre de ceux qui ont participé directement à la violence post-électorale au Kenya a été la jeunesse, et dans le même temps, la majorité de ceux qui ont été tués étaient aussi des jeunes.

En plus, dans la culture traditionnelle, les femmes sont plus marginalisées, et souvent contraintes de faire des choix dans leurs moyens de subsistance. Il est nécessaire de penser à l'autonomisation socio-économique des jeunes et des femmes à travers des programmes durables tels que l'agro-industrie, grâce au développement de produits à la valeur ajoutée. L'université Moi a été impliquée dans un certain nombre d'activités visant à résoudre certains problèmes qui touchent les jeunes et les femmes à travers une approche combinée de l'exploitation et de l'exploration. L'exploitation se réfère à l'utilisation des ressources disponibles au profit de l'institution, alors que l'exploration se réfère à l'identification des ressources qui pourraient être utilisées dans les activités de l'institution.

Les universités ont un rôle prépondérant à jouer dans la recherche, produisant et diffusant des connaissances pour soutenir la croissance. La recherche augmente le corps de connaissances théoriques ainsi que ses applications pour résoudre des problèmes dans la société humaine. L'université traditionnelle est elle-même principalement limitée à un cercle de professeurs et d'étudiants de classes supérieures de la société et de vie dans un isolement relatif, d'où les fameux «tours d'ivoire». Cette approche fait que les universités perdent le contact avec la société.

Les problèmes de la société sont en eux-mêmes une ressource pour les universités à faire d'autres recherches pour trouver des solutions. Il est donc important de souligner que la créativité, l'exploitation et l'exploration ne se déroulent pas dans le vide mais sont déclenchées par les problèmes actuels qui touchent l'humanité.

Les universités doivent enrichir leur cursus en intégrant le concept d'entreprenariat fort afin de produire des «créateurs d'emplois» et non des «demandeurs d'emploi». Notre programme d'études pilote a donné aux femmes l'occasion d'exprimer leurs talents dans leur secteur technique. À l'heure actuelle, nous avons deux femmes pilotes.

Cet article souligne le rôle que l'université Moi joue pour transformer les défis auxquels sont confrontés les jeunes et les femmes en opportunités de développement durable par le biais de la science et de la technologie.

Mots clés: Université Moi, S & T, Femmes, Jeunes

Background

Economic growth depends on the country's capacity to develop and apply new technologies and innovations. This therefore becomes the ultimate yardstick for measuring the success of nations on how effective their activities improve the lives of the people. The Continent of Africa continues to face a number of problems ranging from unemployment, hunger, health and politically related issues. Unemployment in Africa is one of the main causes of poverty and the youth and women who have are the majority are the most affected. This segment of the population in the society has been excluded or not given equal opportunities to participate on development related issues due to unemployment, inaccessibility to information and involvement in governance including low level of education. Such factors make youth prone to violence, peer pressure and mob psychology among others since they are marginalised. There is need to design innovative programmes for engaging youth and women. This requires "thinking outside the box" in other words, to think differently and think beyond the obvious.

Youth involvement in violence. Unemployment and increased food insecurity has contributed in the increase in political violence, marital instability as well as conflict brought about by competition for limited resources. Kenya in the recent past has witnessed deadly conflicts between pastoralist and

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peasant farmers in Tana River district and in the north eastern province between pastoralist communities themselves due to limited water resource and pasture leading to the death of more than 100 people in less than a week. Statistics indicate that the highest number of those who participated directly in the post election violence which occurred in 2007/2008 in Kenya was the youth and at the same time the majority of those who were killed were also the youth.

Moi University is increasingly becoming a modern entrepreneurial University embracing innovative teaching and research strategies, while focusing on the product development, community service and corporate social responsibility (Moi University strategic plan-2009/10-2014/15).

In order to be actively engaged on the affairs of youth and women empowerment Moi has embarked on reevaluating the resources the Institution has competences and more importantly the University's dynamic capabilities, which give it the ability to integrate, build and reconfigure internal and external competences in conformity to the changing environment (Teece *et al.*, 1997). Moi has been involved in a number of activities aimed at addressing some of the challenges affecting the youth and women through a combination of approaches of exploitation and exploration. Exploitation refers to refinement and efficient utilisation of available resources to the advantage of the institution while exploration refers to the identification of resources through discovery, innovation, experimentation which could be utilised in the activities of the institution.

The problems facing society are in themselves a resource for universities to do further research to come up with solutions. It is therefore important to emphasise that creativity, exploitation and exploration does not take place in a vacuum but are triggered by the existing problems affecting humanity.

Revival of Rivatex East Africa Ltd. Moi as a University recognised that the situation needed a quick fix by finding ways and means to empower the youths by creating employment opportunities. The University recognised that basic research has less certain outcomes, longer time horizons than product development (March 1991). The author was encouraged as the Chief Executive of the university to revive Rivatex East Africa Textile factory that had collapsed more than ten years ago both for teaching and product development with the support

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of our academic staff who were textile engineers. This was done after scrutiny of the prepared business plan that allowed the University to uncover opportunities, identify strategies to employ and create an action plan for achieving success. The factory is now up and running; producing high quality fabrics for local and international market and has employed more than 1500 people directly and indirectly. The facility handles the entire process of textile production right from raw cotton to fabrics and in addition is engaged in tailoring and design. The factory also periodically organise fashion show which has enhanced sales and employment opportunities for women.

In addition the facility has attracted some funding from the Kenya Government to support machines modernisation scheme as well as from other international organisations which the University has had long collaborations with. In this regard it is important to state that the major challenge entrepreneurs have is to raise adequate capital for modernisation and expansion. Based on experiences Moi has gone through, we advice that even if you don't need capital now, you should start forming relationships and collaborations with potential financiers immediately. It is much easier to raise funds from a source you have known for several years and who have seen you grow than one which you just met.

Tamidye invention. It is important to emphasise that one opportunity normally give rise to new challenges that must be addressed and this would also likely create new opportunities. Our textile factory faced acute shortage of dyes which were being imported from South Africa and India during post election violence in early 2008. This gave us the impetus to do research to reduce or completely eliminate dependence on dye imports. Early this year (2012) assisted by two co- researchers the author made a breakthrough by producing dye extracted from a plant known as *Tageta Minuta* -Mexican Marigold (Mibey *et al.*, 2012). The plant is an obnoxious weed in the tropical region and this has now changed to a profitable crop.

With the support of the National Council of Science and Technology of Kenya Moi has put up a small hub mill facility to produce the dye. It is hoped that sooner than later we shall get more of such support from other development partners to fully roll out the product in large commercial scale.

Maize/animal feed facility. In our quest to eradicate poverty and hunger, the University has established maize and animal feed facility within its premises which produce quality products for the local market. This has created employment opportunities for women and youth. In addition it has lowered tremendously food prices in the students cafeteria based in main campus since the university does not incur transport cost as would be the case if flour has to be sourced from Eldoret town which is about 40 km from main campus.

Aerospace Sciences Programme. Our pilot degree programme has given women an opportunity to exercise their talents in various technical sectors including aviation which is dominated by men. To be able to bring up the School of Aerospace from infancy we needed to start off with people who would be able to do multitask and when we got the opportunity to engage women pilot we did not look back considering that Science has proved that women have greater ability to carry out multitask than men (Zaidi, 2010). At the moment we have two women pilots who are training our students and doing other quality related logistics duties.

Conclusion

Traditional culture has marginalised women and often constrained them from making choices in their livelihoods. There is need for socio-economic empowerment of youth and women through sustainable programmes such as agribusiness which support value added product development. Universities have a key role to play in research, generating and disseminating knowledge to support growth. Research increases the body of theoretical knowledge as well as its applications to solve problems in human society. The traditional university restricted itself mainly to a circle of professors and students from upper strata of society and lives in relative isolation, hence the proverbial “ivory towers”. This approach made universities to lose touch with society. The higher education sector must be seen through activities to make drastic change by enriching curricula to incorporate strong entrepreneurship concept through science and technology in order to produce “job creators” and not “job seekers “. Institutions are facing the trap of having too many undeveloped new ideas and too little to show in terms of competence.

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