

WIPO/IP/MSU/97/5

ORIGINAL: English

DATE: August 1997



KINGDOM OF LESOTHO



WORLD INTELLECTUAL
PROPERTY ORGANIZATION

WIPO AFRICAN REGIONAL SEMINAR FOR INVENTORS AND RESEARCHERS

organized by
the World Intellectual Property Organization (WIPO)

in cooperation with
the Government of the Kingdom of Lesotho

Maseru, August 26 to 28, 1997

**CHALLENGES TO AN AFRICAN INVENTOR: EXPERIENCE OF A WINNER
OF THE 1995 WIPO/OAU BEST AFRICAN INVENTOR AWARD**

Lecture presented by Dr. O. Ovadje, Inventor, Nigeria

CONTENTS

	<i>Paragraphs</i>
INTRODUCTION	1 to 2
ENVIRONMENTAL INDIFFERENCE TO RESEARCH, TECHNOLOGY AND INVENTIONS IN AFRICA	3 to 6
FRAME OF REFERENCE OF THE AFRICAN INVENTOR	7
TOOLS FOR BASIC AND APPLIED RESEARCH	8
POOR COMMUNICATION AND LOW LEVEL OF COMPUTER LITERACY	9
LOW MANUFACTURING CAPABILITIES	10
PROBLEM OF CREDIBILITY	11 to 13
ATTITUDE OF FOREIGN COLLABORATORS	14
PATENT AND PROPERTY RIGHTS	15
FUNDING	15 to 18
CONCLUSION	19

INTRODUCTION

1. Inventions and innovations are driven by the will to solve problems and to explain cause and effects of scientific applications. They are driven by the presumption to offer solutions to seemingly intractable social and technical problems. However, the creative will and motivation for innovations must be backed up by an enabling environment conducive for scientific research and inventions. In Africa, the creative urge is relatively low because of the numerous socio-economic distractions that are characteristic of the triple heritage of the African society.

2. The Industrial and Commercial Revolutions of the seventeenth century were a major stimulus to the growth of science, technology and scientific inventions of the advanced world. Advancement in pure research designed to discover the very nature of living matter and its complex chemical, physiological and mental mechanisms, together with practical research to solve problems created a conducive atmosphere of inventiveness. This led to a spiral rise of innovations, their adoption and promotion and the eventual establishment of what is now the civilization of the developed world.

ENVIRONMENTAL INDIFFERENCE TO RESEARCH, TECHNOLOGY AND INVENTIONS IN AFRICA

3. The challenges facing an African inventor/innovator are many. The continent is not in a hurry to encourage and make her own designs in order to “pump-prime” her own industrial revolution. Thus, Africa, the cradle of civilization, has not benefited from the resultant impetus and spur that accompanied the industrial revolution that preceded growth in developed regions of the world, that is the established civilizations. Absence of drive and encouragement weigh the African inventor down in his effort to create new ideas and forms.

4. The African environment is generally indifferent to the research and technology which often precede scientific inventions. It frowns at those aspects of life which do not bring immediate material gains. Contemporaries tease you and some openly condemn your “zeal” while some doubt your mental state. Our value consensus borders more on material gains than sacrifice.

5. Scientific discoveries and technological inventions demand sacrifice and often deviate from the general and more popular societal inclinations. For example, as an anesthetist in training, I was supposed to acquire the knowledge of the laws and applications of hypnotic gases to render my patients unconscious and pain free during surgical operations in order to pass my examinations. The problems of blood transfusion were not considered my primary concern. The Emergency Autologous Transfusion device therefore attracted criticism from colleagues who did not understand why I should dabble into the realm of the hematologist. Even the positive results of research works and innovations do not readily attract commendation. The society becomes hostile and obstructive. Personally clashes, the unfortunate gaffe, intellectual elitism, negative social values, corruption, perversity and bureaucratic red tapism are some of the problems the innovator must contend with and surpass before achieving his objectives.

6. The EATSET was designed after observing the problems involved in the management of patients with ruptured ectopic pregnancy who bleed massively into the peritoneal cavity.

Unlike in Europe where early diagnosis through ultrasonography prevents such pregnancies from advancing before detection and treatment, limitations in medical service and the absence of appropriate diagnostic tools in many parts of Africa account for the misdiagnosis of such cases which present late as acute and grave emergencies. The EATSET is designed to replace the crude gauze filtration technique of blood salvage. It comprises a low cost technology relevant to the needs of developing countries.

FRAME OF REFERENCE OF THE AFRICAN INVENTOR

7. One of the challenges before the African scientist trying to solve problems is his highly restricted frame of reference and poor tools of communicating with the outside world. Scientific publications and reference material are inadequate and if present may not be current. The African innovator is therefore required to source for information outside his immediate working environment and sometimes from libraries far away in Europe and America. Our thanks go to the libraries of the British Council and the United States Information Service through which many African workers can access old and new information. Even then, one had to cover distances returning at least three to four hours of motoring to obtain references on works done in the area of autologous blood transfusion. Difficulty in acquiring reference material to back up a scientific work could be very frustrating. This is however a pre-requisite to creating innovations in order not to re-invent the wheel. The African inventor is naturally compelled to program his invention along western lines since the tools of mechanics have been established. He should however integrate his western frame of reference with his indigenous concepts bearing in mind his customary environment.

TOOLS FOR BASIC AND APPLIED RESEARCH

8. The absence of tools for basic research is one major source of discouragement in trying to invent something. Lack of reagents and faulty equipment are common features of our public laboratories which could introduce delays in one's work. For example, it is taking well over four months to source for Benzidine reagent for the estimation of free plasma hemoglobin in my country, and it must be sourced from outside Nigeria.

POOR COMMUNICATION AND LOW LEVEL OF COMPUTER LITERACY

9. In creating designs, the level of computer literacy and the ease of communication within and outside the country are vital tools in the hand of the prospective innovator. Computer literacy is however very new in the educational curriculum of many African nations. They are necessary in order to cope with the volume of literary and secretariat work that must be done. Lack of computers with fax modem and recently the E-mail services which are necessary tools for communication with the outside world but are not readily available in many parts of Africa can slow down the speed of work especially when information is being sought after. For example, it took me over four months just to acquire a document on the Helsinki Declaration on human experimentation, and another five months to obtain EP1-info software from WHO Headquarters in Geneva. Indeed the researcher and innovator in Africa must acquire the organizational memory and experiences necessary to function effectively within the societal,

economic and political constraints of Africa in the absence of good communication and computer literacy.

LOW MANUFACTURING CAPABILITIES

10. Low level of manufacturing and technocracy is a major limitation in promoting designs and concepts in Africa. Centers for creating designs and micro modifications are highly limited. Not many of those existing can provide the expertise required in the design and development of new products. The absence of high grade manufacturing and little effort in precision mechanics make it difficult for us to convert theoretical designs into functional physical forms. The solution to this is to seek for foreign collaboration or at best source for component parts from Europe, America and Japan. The EATSET took me to centers of medical technology such as the Emergency Care Research Institute in Philadelphia, USA. I visited companies in Switzerland and Italy, attended the IFAS MEDICA exhibition in Zurich, Switzerland and the COMPAMED MEDICA in Düsseldorf, Germany, to source for component parts that can fit into the design of the device.

PROBLEM OF CREDIBILITY

11. The African innovator is faced with the problem of credibility because of his perceived limitations. He must therefore prove and justify his work at every level. His claim is often viewed with suspicion. Much of his efforts to develop appropriate technology and the much trickier and less successful business of transferring technology to assist local initiatives is also viewed with suspicion. Some of the canons of appropriate technology do not seem to appeal to our foreign collaborators when it comes to the actual acceptance of what seemed a likely eminently appropriate and viable proposition. The direct link existing between a desirable piece of equipment and an ability to manufacture and maintain it is not easily acceptable to such foreign partners. The tendency unfortunately is for appropriation.

12. However, since African nations do not presently have the capabilities to support and nourish innovations to fruition, innovators must ensure that worthy works originating in Africa are accepted world wide. The case of the EATSET makes it clearer.

13. The equipment was first vetted and recommended to the World Health Organization by a foreign Consultant, Professor Watson Williams in 1990. The developmental stage was completed in Europe working with European manufacturers to ensure that international and ethical standards were met. The equipment was thereafter subjected to an alpha trial in a European hospital under a European Professor of medicine whose passmark allowed the equipment to progress to the next and final stage of clinical trials.

ATTITUDE OF FOREIGN COLLABORATORS

14. The attitude of foreign collaborators is therefore a key factor in prosecuting any innovative work successfully. They could pose serious hardship when their interest exceeds rendering the specific service required from them. In developing the EATSET to meet international requirements, it was necessary to appoint an international consultant who was to identify companies that could provide the component parts for the device. One of the strategies employed by the consultant who is a free lance professional was to assume a middleman position and prevent the innovator from direct access to the companies. Although the European consultant approved and recommended the EATSET project in 1990, it was not able to take off until 1994 due to long lines of communications between us, our collaborators and the executors of the project. Even after the successful trials in Geneva in March 1996, the European collaborators are yet to allow us take full possession of the project because of a desire to conduct a parallel study in Geneva. Since the UNDP refused to sponsor their component of the study, they have held on to our funds. In this way many innovators are put at a disadvantage while their works end up in the hands of foreigners. The EATSET has remained fortunate till now because of the backup from WHO and the level of support from the UNDP. Attempts made by foreign collaborators to take credit for the work so far has failed.

PATENT AND PROPERTY RIGHTS

15. This is an area where the African worker is at a serious disadvantage. He is often not aware of the pitfalls in the delicate subject of patent and property rights. He lacks the financial resources to process an application. An application at the European Patent Office must be made through authorized European attorneys. Indeed the general arrangement and cost of processing such application is well beyond the reach of the average scientist and inventor in Africa. Permit me to mention here that the policies of the World Trade Organization and the IPR seem to favor western industrialized societies. In order to encourage African inventors therefore, WTO and IPR conventions and policies should be conceived and developed with due consideration for the African inventor bearing in mind his peculiar limitations.

FUNDING

16. In Africa, sponsorship of research and innovations lie largely in the hands of government. This has on its own been a major obstacle to the promotion of inventions and innovations. Lack of private sector participation in funding innovations arising from reluctance to invest in the face of uncertain profitability is one issue that must be addressed by governments in their policy formulations regarding R & D findings and inventions.

17. Donor agencies therefore play an important role in the success story of many African inventions since matters of science and technology are not necessarily high in the scale of preferences and priorities of many African governments. The EATSET was developed by the Nigerian Government through multilateral cooperation and sponsorship from the UNDP. Although such cooperation should be encouraged, these agencies often become discouraged when faced with lack of monetary commitment from host countries in the form of counterpart funding or private sector participation.

18. The absence of definite relationship between and among institutions, government agencies and scientists is also a major source of confusion in the prosecution of scientific and technological innovations resulting in what John Powell, the first Director of Kumasi Technological Consultation Centre, referred to as “‘appropriate’ products and technologies developed but not transferred—a host of rusting artifacts that would never leave the university campus.” Observers of this limitation have attributed the attitude of the private sector to political uncertainties and unstable policies in many African countries which lack continuity in policy formulation.

CONCLUSION

19. It is my belief that Africa has many brilliant innovators, it is the responsibility of African governments to encourage innovators in all the ways necessary to bring a very useful innovation to its logical conclusion and to ensure that benefits from such innovations are enjoyed by the target population. I agree with the call for intermediate, simpler, cheaper and freer technologies for Africa in place of the super technologies of the rich. I agree no less with Ian Smillie in his “No condition is permanent,” that ours should be called self-help technology, democratic or the people’s technology.

[End of document]