

Towards Research which accelerates Development: the Viewpoint of Africa

by

François MUHASHY HABİYAREMYE*

SUMMARY. — This viewpoint is based on research evaluation reports in Africa, as well as on exchanges with scientists concerned with such research. It goes through some of the conditions that need to be met so that research becomes a real driving force for development on the continent.

Relevance and innovation are confirmed to be very important criteria among those being used in evaluation. We suggest to increase the weighting of these factors and to assess it according to the degree to which the research results concretely contribute to the creation of sustainable conditions for a decent living.

International support could in particular contribute to breaking the isolation of researchers through their better integration into networks, and to promoting mutual training between both scientists in the North and the South, who do their best to solve problems in Africa.

1. Introduction

Our viewpoint in the frame of the evaluation of research for development is mainly based on the situation which prevails in Africa. Miserable livelihood, in particular in D.R. Congo, is obviously associated with excessive human drudgery, especially affecting women and children. The progress that had been made several decades earlier faded. Research must improve this state.

This is the ambition of research institutions and academic centres, such as the Kisangani university, whose emblem symbolises its position at the battlefield for development; but achievements remain scarce and limited.

The present dissertation contributes to the diagnosis of the current state and includes suggestions useful for the promotion of research that can accelerate development.

2. Methods

This contribution is based on our former experience as a member of the working group on the Price of the Belgian Cooperation for development (2008) and as an evaluator of researches subjected previously to this competition (2004-2007) organized by the Royal Museum For Central Africa at Tervuren (<http://www.devcoprize.africamuseum.be>).

Moreover, we consulted many people in charge for the scientific institutions of Sub-Saharan Africa: 'Université de Kinshasa' (UNIKIN), 'Université de Kisangani' (UNIKIS), 'Université de Lubumbashi' (UNILU), 'Laboratoire d'Ecologie Appliquée' (LEA) at National University of Benin). Among international level sources that were consulted to support the viewpoint of Africa let us mention the 'Conseil Africain et Malgache pour l'Enseignement

* Member of the Royal Academy for Overseas Sciences; Institut royal des Sciences naturelles de Belgique (IRScNB).

Supérieur' (CAMES) (<http://www.cames.bf.refer.org>), the Consultative Group on International Agricultural Research (CGIAR), the Royal Academy of Overseas Sciences (RAOS) (2005), the Southern African Development Community/International Assessment of Agriculture Knowledge, Science and Technology for Development (IAASTD) (2008) and the United Nations Development Programme (UNDP) (2006).

The structure of the present contribution follows readily the guidelines proposed by the Symposium's organizers. Questions and respective answers which constitute the body of this article are presented below.

3. A Point of View based on the African Situation

3.1. HOW DO WE DEFINE DEVELOPMENT RESEARCH?

We define it as research that accelerates development. This means it contributes to alleviating poverty; strives for a fair and equitable standard of living; boosts the advancement in terms of human development; arms local community and civil society in order to face global change and to respond to globalization.

The details allowing to understand the definition above refer to the Index of Human Development (HDI) established for each of the 177 member states of the United Nations (UNDP 2008). This report indicates that none of the African populations have itself up to the level of high human development. Moreover 22 Sub-Saharan countries had the lowest HDI, and they are the exclusive components of the less developed group. Their low standard of living reflects great poverty. These considerations lead us to propose the following criteria to assess research that is relevant to development:

3.1.1. It contributes to alleviating Poverty

This is not evaluated only on the basis of the increase of the average income per capita.

In fact, the Gross Domestic Product (GDP) is too generalizing of an indicator, so that it is unable to shed light on the poverty of the most important part of population of several developing countries where inequalities prevail among citizens. A complementary comment is provided in the next heading.

3.1.2. It strives for a Fair and Equitable High Standard of Living

In other words, it brings balance to the standards of living across the different segments of society (Equity). Arguments to clarify this idea are also drawn from the UNDP report mentioned above. The Gini (GC) coefficient, one of the tools measuring inequalities (ESSAMA-NSSAH & LAMBERT 2009, RAVALLION & SHAOHUA 2003, HAUGHTON & KHANDKER 2009) was used. The considered values range theoretically from a minimum of 0 when all individuals are equal, to 100 meaning a maximum of differences. Several Sub-Saharan Africa countries having high GDP indicators (GDPI) are also among the most undermined by the highest inequalities worldwide. This observation is underpinned by data concerning Botswana, Swaziland and Republic of South Africa. Their GDPI and GC were respectively 0,804, 60,5; 0,647, 50,4; 0,786, 57,8.

Unfortunately countries having very low GDPI are not spared by such inequalities, as illustrated by the situations of Sierra Leone (0,348, 62,9), the Central African Republic (0,418, 61,3) and Niger (0,343, 50,5). Thus the inequalities are confirmed as an obstacle that it is necessary to overcome in order to promote development and this is a collective process.

3.1.3. *It boosts the Advancement in Terms of Human Development*

That is understood easily using figure 1, on which the same index of human development is attributed to Angola and Tanzania, despite their enormous difference in Gross domestic product (respectively 600 and 2200 \$ US) (<http://hdr.undp.org/en/media/etatdudevhumain.pdf>).

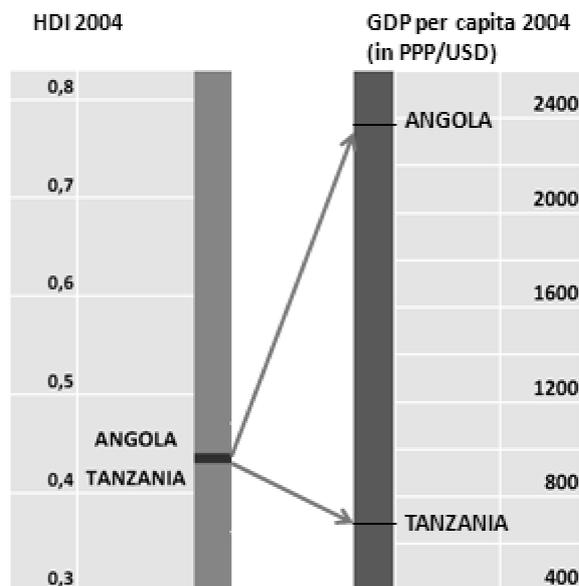


Fig 1. — Comparison of the DHI and PPP of Angola and Tanzania (UNP 2006).

It is clear that the yearly produced goods in a country are not the only parameter to be considered. There are several other key criteria of human development. Some of them, not promoted during the three decades of war in Angola similarly to the current situation in D. R. Congo are mentioned here after:

- Education;
- Health / longevity (life expectancy), related to better sanitation;
- Decrease in gender discrimination;
- More and better jobs and improvement of other parameters regarding the quality of life (transport and access to culture).

They should not be neglected in the approach of development research.

1.1.4. *It arms the Local Community and Civil Society to face Global Changes and to respond to Globalization*

In conclusion, research for development is that which contributes to transformations pulling a community or a society up to a decent standard of living, which creates capacities to maintain this state, to continuously improve it especially by endogenous means, thus supporting sustainability.

3.2. WHAT IS GOOD DEVELOPMENT RESEARCH?

The main criteria of good research for development are mentioned hereafter:

3.2.1. *Relevance for Development*

This implies the adequacy with communities needs at local and regional levels, as mentioned below:

3.2.1.1. Great Challenges at the Global Level

Given that the major part of the world's population (at least 1/3rd) lives in less advanced countries, their contribution is obviously necessary to face problems arising globally, for instance the process of mitigations of climate changes and promotion of clean and sustainable sources of energy.

3.2.1.2. Specific Needs

The more problems affecting a community are targeted and solved by research, the more it has relevance for development. For instance, a monitoring of volcanoes activity in the Central African Graben is valuable at local and regional levels in this area. On the contrary, it would be useless to promote such investigation in Ivory Cost.

Research focused on the struggle against tropical (orphan) diseases, on sustainable management of natural resources, are also among other initiatives with relevance for development.

3.2.2. *Synergy involving Local Researchers*

It makes it possible for the benefits from the investigations to be amplified and immediately shared by the community (research effectiveness).

3.2.3. *Innovation*

This refers to the way strategies are improved and implemented in order to meet recognized needs. In all cases the process implies tools of optimal quality, with reduced costs and minimal environmental damage. The New Rice for Africa (NERICA) for which the World Food Prize was awarded to Dr Monty Jones in 2004 is a good example of innovative achievements (<http://www.warda.cgiar.org>).

3.3. HOW CAN WE RECOGNIZE A GOOD RESEARCHER POTENTIALLY CONTRIBUTING TO DEVELOPMENT?

The general skills of such scientist are the following:

- He is capable of identifying the needs for development. An interesting example was provided by EDON *et al.* (2008) about the domestication and valorization of the wild *Adansonia digitata*. To ensure the involvement of the beneficiaries into the project of cultivating the baobab tree, the collection of capsules was first carried out by giving priority to the varieties preferred by these stakeholders. Afterwards, the rest of the research, including seeds treatment, kept focusing on those seeds resulting from the chosen varieties; which built the success of the project.
- He points out research's best strategies and develops synergies accordingly.
- He produces results and makes them widely accessible, via the accepted standards of science (*e.g.* publications), of multidisciplinary interest and of high quality.
- He runs projects cost-effectively.
- He strives to insert the result of the finished project(s) into policy support.
- He works in transparency and in team.
- He demonstrates an intrinsic desire to do development research.

3.3.1. *Who are the Researchers who deserve to be supported?*

- Young researchers:
 - Whose projects are compatible with the criteria mentioned above (point 3.3).
- Senior researchers:
 - If they are good researchers (see point 3.3.) and work as mentors for young scientists, so that their result can be amplified and sustained.

3.4. WHAT SHOULD WE DO SO THAT COUNTRIES IN THE SOUTH THEMSELVES PRODUCE THE BEST POSSIBLE RESEARCH USED FOR THEIR DEVELOPMENT?

3.4.1. *What can Researchers in the South and their Institutions do?*

3.4.1.1. Researchers

They have to work synergistically within networks, enhancing complementarity.
They must be able to attract funds.

3.4.1.2. Research Institutions in the South

Their role consists in fulfilling the following tasks:

— Supporting and strengthening networks. In general the co-operation between researchers or their teams remains very low whatever the considered level (national, regional and international). This weakness was deplored in the evaluation of the state of networking in the Southern African Development Community (IAASTD 2008, RAOS 2005). Nevertheless an exception from West Africa (Benin) is worth mentioning (fig. 2). It shows optimal collaboration developed by the LEA. However other sectors of research are less prosperous in the Republic of Benin, which remains consequently not developed.

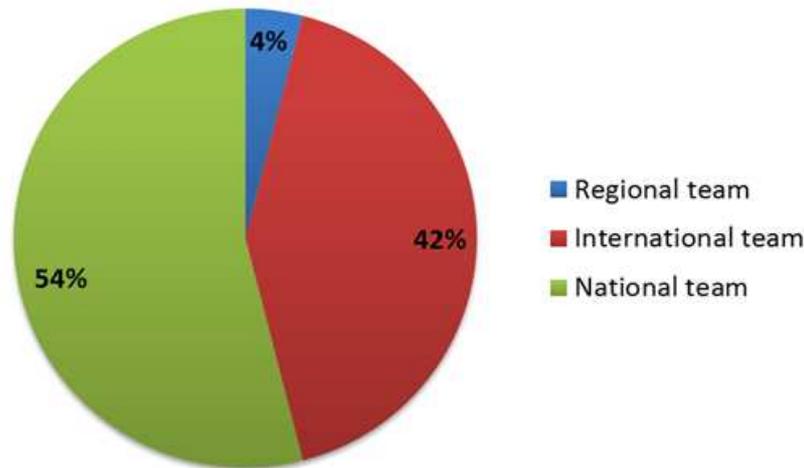


Fig. 2. — Spatial context of research activities in the ‘Laboratoire d’Ecologie Appliquée’ at the National University of Benin (Report 2009).

- Planning and prioritizing of needs, with consultation of Research and Technology users in the identification of problems and planning decisions.
- Searching and providing funds to labs. Sources may be both governments and private enterprises.
- Letting laboratories obtain an administrative and financial autonomy, ensuring celerity in the management of the programmes. Unfortunately, that is far from being guaranteed, even for very crucial investigations. For example, observations and report issued in March 2009 by local volcanologists about the risk of eruption of the Nyiragongo volcano depended strongly upon occasional funding from the Governor of the North Kivu Province. The scientists concerned would like to get a real administrative and financial autonomy, which can enable them to monitor the volcanoes still active, which is crucial to prevent catastrophes in the area. Let us remind the enormous damages of the Nyiragongo eruption in 2002. Its lava destroyed the centre of the Goma city and killed hundreds of people; tens of thousands individuals were left homeless and about 400,000 were evacuated. Nowadays, livelihoods of more or less 800,000 people are constantly under threat.
- Improvement of research evaluation. The basic criteria of the assessment are: relevance for development; originality; scientific value; presentation.

We suggest to increase the weighting of these factors and to assess it according to the degree to which the results of a given research concretely contributes to instituting sustainable conditions for a decent life. It is necessary to appreciate the answers to questions related to the importance of each criterion of assessment.

It would be useful to do it similarly with the systems of evaluation existing at international level, such as:

- The Third World Academy of Sciences (TWAS), founded in 1983 by a distinguished group of scientists from the South under the leadership of the Nobel laureate Abdus Salam from Pakistan. Based in Trieste (Italy), it promotes scientific excellence for sustainable development in the South (<http://twas.ictp.it/>).
- The ‘Conseil Africain et Malgache pour l’Enseignement Supérieur’ (CAMES). Since 1978, it functions as a common framework of management of the careers of the teachers and researchers in the seventeen Member States.

3.4.2. *What can Researchers in the North and their Institutions do?*

- Acquire knowledge of the concerned countries and awareness of evolutions in order to adapt the actions consequently.
- Trust in their partners from southern countries.
- Consideration of critical issues of importance both to the North and to the South, prior to preparation of research projects.
- Promotion of both individual and mass learning, more possibility to reach critical mass of research. This can improve work environment, which limits brain drain.
- Telementoring. The telementoring is a manner of doing research and/or to teach people through remote systems. Individuals or scientific communities are enabled to access to information resources and to obtain assistance that may not be available otherwise to these beneficiaries. This is essential to face the globalization and the briefness of information life. Telementoring requires new technologies of information (videoconference, internet and so on), which implies efforts to close the numerical gap between research institution in the North and those of the South. In this respect, the Centre de Documentation de l’Enseignement Supérieur, Universitaire et de Recherche à Kinshasa (CEDESURK) corresponds well with the needs of the D.R. Congo, but such programmes are still very rare and insufficient. Despite the fact that the accessibility to these system is limited practically to the academic population living in Kinshasa, due to the unavailability of adequate facilities elsewhere in the country, the CEDESURK has demonstrated its efficiency especially in remote training (KASAJIMA & POCHE 2008). Such initiatives should be amplified so that they can benefit to thousands more of Congolese students and researchers. Indeed, they wish to be helped to develop interesting scientific questions, clarify and redefine their projects with regards to relevance for development, recognize and access to pertinent information sources (books, periodicals or other online data) and valorize them effectively.
- Returning to the southern research institutions a set of ancient publications regarding their country and which may be tremendous for the conception of new projects. This recommendation has begun to be implemented by the Royal Museum for Central Africa (MRAC), The Royal Academy for Overseas Sciences, The Royal Belgian Institute of Natural Sciences (RBINS), The National Botanical Garden of Belgium (NBGB) in the frame of an inter-library project launched by the ‘Commission Universitaire pour le Développement’ (CUD) on the occasion of the celebration of the 50 years of the independence of the D.R. Congo. Thanks to this initiative, five tons of books from the above institutions were donated to the universities of Kinshasa and Lubumbashi and to the CEDESURK. The books and their content were officially presented to the recipients in Kinshasa and Lubumbashi in October 2010. Our contribution to this event consisted in two communications. One was dedicated to the use of the archives of the former national parks of Belgian Congo (<http://www.apncb.be>) for the study and the monitoring of biodiversity

and the other to how scientific publications of the Belgian Institutions are an essential support to research for development in R.D. Congo.

- Acting as facilitators. Researchers based in developing countries should be helped to seize opportunities that they often lose when they do not have access to the information, about for instance the Price of Cooperation for Development.
- Strengthening networking. Attenuation of the weakness of inter-laboratories networks will allow researchers to be better informed of calls for projects submissions in the frame of international cooperation and it will increase the number of answers from Africa. The 'Education Link' (EDULINK) is one of those interesting programmes and it constitutes a typical example, as it involves several European countries and those of the African, Caribbean and Pacific area (ACP). The programme is rooted in the commitments of Johannesburg World Summit on Sustainable Development and its purposes include the reinforcement of capacities of Higher Education Institutions (HEIs) by providing support at the levels of Research and Technology, Intra-academic mobility and so on (<http://www.acp-edulink.eu>).

Although research departments located in Sub-Saharan countries are geographically and statutorily eligible, they often find themselves cut off, so that they fail to adhere to EDULINK because it requires joint submission by partners from at least four different regions. This situation can be changed thanks to support in strengthening networking, which is likely to enable more candidates to meet the criterion of access to the research funds.

- Promotion of joint learning. The advantage of the Joint learning is in particular to make it possible for the researchers to benefit reciprocally from knowledge and capacities of the colleagues. In addition to this complementarity, this training supports the sharing of the equipment, the rationalization of research cost and it allows to be inserted into international networks.

The efficiency of joint learning can be illustrated by the quality and diversity of the results (more than 30 lab apparatuses) of the doctoral research accomplished by Masuhuko Wenceslas at the 'UCL' (1996). They were made possible by a former synergy began at Bukavu D.R. Congo (<http://cat.inist.fr/?aModele=afficheN&cpsidt=9918161>; <http://cat.inist.fr/?aModele=afficheN&cpsidt=9918162>).

Unfortunately, except rare successes, the technology transfer remains defective. The majority of the reports on capacity building indicate the number of trained people and/or organized seminars. A feedback on the result obtained in the long term often misses.

4. Conclusion

All the factors underlined in this communication are essential for investigations which accelerate development.

The research must be better evaluated in order to appreciate how programmes deliver effective tools to battle poverty and to boost globally sustainable conditions of equitable and decent livelihood. Thereby, it is expected that researchers and their institutions implement strategies adapted to these development targets. Thus, relevance and innovation are confirmed as very important criteria among those which are used as reference to research evaluation. It is recommended to increase their weight in the assessments.

International support can in particular consist in better supporting the opening-up of the researcher, thanks to his increased integration in networks, in promoting a mutual training

involving the scientists of the North and those of the South, who are committed to solve problems that are specific to Africa.

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