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Bulletin

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Editorial



EURO and the Africa Project

Four years ago EURO decided to invest part of its treasure to the so called "Africa Project". The reasons for this decision are under the eyes of everybody.

- In Africa there are hundreds of colleagues teaching, practicing and using OR (most of them have studied in Europe), but until very recently there was no organization representing them (with the noticeable exception of the South African OR society, member of EURO).
- The African continent, despite being at the bottom of the human development index, is also the most challenging place for several economic, social and scientific achievements expected in the future and OR has a role to play in this process.

Our intuition has been correct. Our modest investment resulted into outcomes far beyond what we expected. Five societies have been created in the last years (Algeria, Morocco, Tunisia, East Africa and West and Central Africa) and three conferences took place (in Ouagadougou, January 2003, Nairobi, September 2004, Niamey, January 2004), one more being scheduled for early 2005 in Dar Es Salaam.

An African OR website is now available and several other initiatives are considered. What is more important: our colleagues and the young students in Africa are aware of their possibilities and are strengthening their relations.

EURO, in collaboration with IFORS (whose support has been constant and precious along these years), will not stop here. We are aware that we created expectations which have to be supported. A number of new initiatives are currently studied including the establishment of a permanent African OR fund, the support to training networks on OR for development and the promotion of research projects on the same subject.

Our achievements in the past and our challenges for the future will not have been possible without the contribution of incredibly many colleagues and young students who defying any expectation committed themselves in the project. To all these people EURO is highly indebted.

Paris, 15/3/2004
 Alexis Tsoukiàs
 President Elect of EURO
 In charge of the Africa Project

Developing OR in Developing Countries: the role of IFORS

Graham K Rand
Lancaster University
IFORS Vice-President, 1998-2000

Introducing IFORS

The International Federation of Operational Research Societies (IFORS) currently consists of 48 national member societies, and a few “kindred” societies. The national societies are grouped in four regional groupings, the largest of which, in terms of member societies, is EURO. The largest in terms of individual members is NORAM (Canada, INFORMS). There is also APORS (Australia, China, Hong Kong, India, Japan, Korea, Malaysia, New Zealand, The Philippines, Singapore) and ALIO (Argentina, Brazil, Chile, Mexico).

The main feature of IFORS’ activities is international conferences that are held every three years. The locations and dates are given in Table 1.

Table 1: Locations of IFORS’ Triennial Conferences

1957	Oxford	1975	Tokyo	1993	Lisbon
1960	Aix-en-Provence	1978	Toronto	1996	Vancouver
1963	Oslo	1981	Hamburg	1999	Beijing
1966	Boston	1984	Washington	2002	Edinburgh
1969	Venice	1987	Buenos Aires	2005	Honolulu
1972	Dublin	1990	Athens		

IFORS publishes two main journals: *International Transactions in Operational Research* and *International Abstracts in Operations Research*. There is also the *Direct Connection to Developing Countries Newsletter* available to any who request it.

IFORS and Developing Countries: member societies

Developing Countries, however they may be defined, form a subset of the IFORS national members, particularly in the APORS and ALIO regions. It is also clear that many Developing Countries have no OR Society. This is particularly the case in Africa, where there are only two societies affiliated to IFORS (Egypt and South Africa). One of IFORS’ and EURO’s current initiatives is to develop OR in Africa.

IFORS and the encouragement of OR for development

A significant turning point in putting OR for development on the IFORS’ agenda was the IFORS Conference held in Japan in 1975. The theme of the Conference was “OR

in the Service of Developing Economies". A key paper, by Morse and Brown, discussed the role that IFORS could play in developing OR in the developing countries. Then, at the 1984 IFORS triennial conference in Washington it was agreed that regional conferences for teachers of OR for developing countries should be held. The first of five such workshops was held in Ahmedabad in 1986. It was organised by Nitin Patel (India), Geoff Walsham and Michael Luck (UK). Its aims were to increase the use of OR as a practical tool for decision makers in Asia by influencing the teaching of OR, so that students can see OR as having practical value and develop the skills to apply OR effectively. 25 participants attended it. Subsequently such workshops were held in Bombay (1987), Kuala Lumpur (1988), Singapore (1989) and Jakarta (1990), and in total were attended by about 100 full-time participants, excluding resource persons and part-time attendees. At the third ICORD conference (see below) instead of a planned teachers' workshop, Peter Bell (IFORS President) and Christoph Haehling von Lanzenauer conducted an interactive session on "Teaching OR/MS", with an emphasis on the case approach to teaching the subject.

International Conferences for Development (ICORD)

In December 1992, a gathering of over 60 operational researchers, concerned about OR in less developed countries, met for ICORD '92, the first ever International Conference on OR for Development. The participants were from 15 countries, the great majority from the Third World. Located at the Indian Institute of Management (IIM) and chaired by Arabinda Tripathy (India) and Jonathan Rosenhead (UK), it was the result of discussions between operational researchers in Brazil, India and Great Britain.

The Conference benefited from a large number of stimulating papers, many of them reproduced in the published proceedings. Jonathan Rosenhead reported that there was concern with how OR could best be advanced in developing countries. Provoked by a discussion paper written by a recent Vice-President of IFORS, Professor Roberto Galvao (Brazil), a series of plenary sessions were held, which resulted in a statement which has come to be known as the Ahmedabad Declaration. The Declaration called for a whole range of actions from IFORS to support and strengthen OR in developing countries.

Jonathan Rosenhead summarised the main propositions of the Declaration as follows:

1. Methods for ill-structured problems, such as 'soft' problem structuring methods, should be further developed, disseminated, and included in postgraduate courses which train students from developing countries;
2. OR departments in developed countries should run courses which provide an understanding of development issues and their relevance for OR practice;
3. More strong academic centres of OR are needed in the Third World; twinning of institutions in the developed and less developed worlds, including funded collaborative research, should be expanded;
4. IFORS should ensure that successor conferences to ICORD '92 should be held at regular intervals;

5. IFORS should use its international standing to raise funds to use as seed money for collaborative research projects (as above) and for supporting the development of OR in developing countries;
6. IFORS should explore innovative ways of making books and journals available at reduced price to operational researchers in developing countries;
7. IFORS should be responsive to the views of those involved with OR for development; the strengthening of the OR for Development Newsletter is vital to maintain contact between ICORD conferences.

What has been achieved?

Rosenhead asks this question, and recognises that there are two ways to address it. One is to ask how far have the aspirations of ICORD '92 been realised. Another is to ask what commitment IFORS has shown towards making them happen. This is appropriate, as many of the proposals in the Declaration cannot be brought about by IFORS alone. Proposals 1 to 3 do not directly involve IFORS: the impetus to achieve something here clearly lies with academic OR departments throughout the developed and less developed world. However, Rosenhead argues that there could have been some initiative shown by IFORS, and in so far as there has been none, that is an indication of lack of interest.

Of those proposals of the Declaration where IFORS was specifically identified as the key agency, the greatest success has been achieved in the staging of successor conferences to ICORD '92. These were held in Rio de Janeiro (ICORD '96), Manila (ICORD '97) and in South Africa (ICORD 2001).

Current initiatives of the Developing Countries Committee

The Ahmedabad Declaration argued that decisions that are made regarding developing countries should take account the views of those involved in OR for development and developmental issues in the developing world. The mechanism for this is IFORS' Developing Countries Committee, previously chaired by Nitin Patel (India) and Roberto Galvao (Brazil), before Elise del Rosario took over in 1995. In addition to the initiatives mentioned earlier (ICORD conferences, the *Newsletter*, creation of an African network, help given to fledgling societies), the matters currently under discussion include:

- Readings in Operational Research
Under the leadership of Jonathan Rosenhead the objective is to provide a collection of readings relevant to the study of operational research in the context of developing countries. The committee wishes to ensure that this is provided at as low a cost as sensible.
- IFORS Prize for OR in Development

At each IFORS' triennial conference a prize is awarded for the best paper describing an application of OR in a developing country. A key factor in the recent success of this prize has been the energetic chairmanship of Goutam Dutta (India).

Table 2: The winners of the OR for Development Prize

<u>Year</u>	<u>Chairman of Jury</u>	<u>Prize-winner(s)</u>	<u>Paper</u>
1987	Bob Kavanagh (Australia)	Nicolas Majluf (Chile)	The national assessment of education in Chile ¹²
1990	Roberto Galvao (Brazil)	No prize awarded	
1993	Jonathan Rosenhead (UK)	Goutam Dutta, Gopal P. Shina, P.N. Roy and Niloy Mitter (India)	A linear programming model for distribution of electrical energy in a steel plant
1996	Jonathan Rosenhead (UK)	X-S Zhang and J-C Cui (China)	A project evaluation system in the state economic information system of China
1999	Goutam Dutta (India)	Xikang Chen, Xiaoming Pan and Cuihong Yang (China)	On the study of China grain output prediction
2002	Goutam Dutta (India)	Rafael Epstein, Lysette Henriquez, Jaime Catalan, Gabriel Weintraub and Cristian Martinez (Chile)	A combinational auction improves school meals in Chile

- **Education Materials**

Under the leadership of Vicki Sauter (USA), the Education Resources Committee of IFORS is addressing the challenge of providing access to OR/MS educational materials world-wide. The impetus of the effort is the need for examples and ideas by faculty in Developing Countries. Often these faculty are "lone practitioners" or small groups of people with scant resources. They may particularly require access to materials, not only to what is usable on the Web (such as that indexed on most sites), but also what materials might be available through snail mail for free or for a small fee. This activity is in support of, or an alternative to, the teachers' workshops.

In addition to these initiatives, impetus has been given to the possibility of developing a CEO Program to increase their awareness of OR, and the use of OR in a nation-building program, concentrating on use of OR in the government sector. A pilot

program has been started in the Philippines under the Operations Research Society of the Philippines Committee on OR for Public Service (ORSP Corps), led by E. del Rosario. It is a volunteer group that works with government agencies in streamlining operations, decision-making and taking part in studies that have great impact on promoting national development.

OR in Africa

The ICORD conference, held in the Kruger National Park in 2001, resulted in an explosion of activity in the rest of Africa. Three conferences have been held with the support of EURO and IFORS: in West Africa in January 2003 (Burkina Faso) and 2004 (Niger) and in Eastern Africa, in Kenya, in September 2003.

What was called the First African Conference on Operational Research (ACOR 1) or 1^{ère} Conférence Africaine de Recherche Opérationnelle (CARO 1) took place in Ouagadougou, capital of Burkina Faso in West Africa. About 50 researchers and postgraduate students representing 20 countries (mainly from West, Central and North Africa) participated. In addition to the financial support of EURO and IFORS, support also came from the Belgian Government, the University of Ouagadougou, the Operational Research Society, Palgrave and Blackwell, who offered electronic subscriptions to JORS, International Abstracts in OR (IAOR) and International Transactions in OR (ITOR) to African institutions represented at the conference.

The chair of the scientific committee was Prof. Jacques Teghem from University of Mons, who also represented the Belgian Government Cooperation in Burkina Faso. Alexis Tsoukias represented EURO. David Smith (Editor-in-Chief of IAOR, University of Exeter) and I represented IFORS. Local press, radio and television covered the conference.

The conference consisted of a mixture of tutorials and scientific contributions: delivered in both French and English. These covered theoretical aspects of OR, with methodology and a few applications. Disappointingly, there was almost no reference to issues of development.

However, a number of important discussions were held in order to promote the development of operational research in Africa. It was agreed to create a West African Operational Research Society. Professors Blaise Somé (University of Ouagadougou) and Pauline Fotso (University of Yaounde 1, Cameroon) were appointed to coordinate setting up the society. For pragmatic reasons, it is based on an existing network linking departments of Applied Mathematics. The second conference was held in January 2004, in Niamey, Niger, and the Society, ROCARO, is in the process of creating its constitution and applying for membership of IFORS.

In Eastern Africa, ORDA-1 was held in September 2003. It was organized by the fledgling society, ORSEA (Operations Research Society of Eastern Africa) in

collaboration with the Faculty of Commerce and Management of the University of Dar es Salaam (Tanzania), the Faculty of Commerce of the University of Nairobi (Kenya) and the Makerere University Business School (Uganda).

The programme reflected the main theme of the conference: 'Applications of Operations Research (OR)/Management Science (MS) in Development and the Potentials for Africa'. This was a marked contrast to the earlier West Africa conference, where the content was more technical, because the participants were mainly faculty from mathematics departments. A total of 25 papers were presented touching on various social-economic issues.

80 delegates, including 32 students from Kenya, attended the conference. Of the others Kenya accounted for 30, Tanzania for 7 and Uganda for 2. There were also 5 from South Africa, one from West Africa, two from Europe and one from the United States.

So things are happening in Africa! More information is available on the web: <http://www.euro-online.org/africanOR/>. The work of Eric Soubeiga in maintaining this site is appreciated. Furthermore, several recent editions of *Direct Connection to Developing Countries*, the Newsletter of the Developing Countries Committee of IFORS have been devoted to African OR. Thanks are due to Hans Ittmann for his editorship of this useful medium.

Epilogue

Those involved in initiatives to encourage the greater use of OR in developing countries know that it is a long path paved with frustration. By its very nature, funding is a problem. Continued efforts are being made to attract funding. Is the expenditure of all this effort worthwhile? Some words written in the 80s, soon after the famine in Ethiopia was brought into our living rooms by harrowing television reports, in an introduction to an issue of the *Journal of the Operational Research Society* are just as relevant today. For many, this not only makes the effort worthwhile, but literally vital.

"An obvious question to ask... is whether it should be a priority to promote the use of OR in the developing countries. After all, much time and effort is expended by OR societies to promote OR in the developed world, and quite rightly. But if OR is about looking at, and analysing, problems, or messes, then the major problems of the world can be found in the developing countries. low incomes lead to malnutrition, and the whole vicious circle (malnutrition and lack of water, poor health, infant mortality, population growth, rural poverty, urban migration, unemployment, low income) starts again. If you are looking for problems you will find them here."

This article is a summary and updating of an earlier paper. A copy of this, with the references, is obtainable from g.rand@lancaster.ac.uk Views expressed in this article should not necessarily be regarded as those of IFORS. The author writes from a personal perspective.