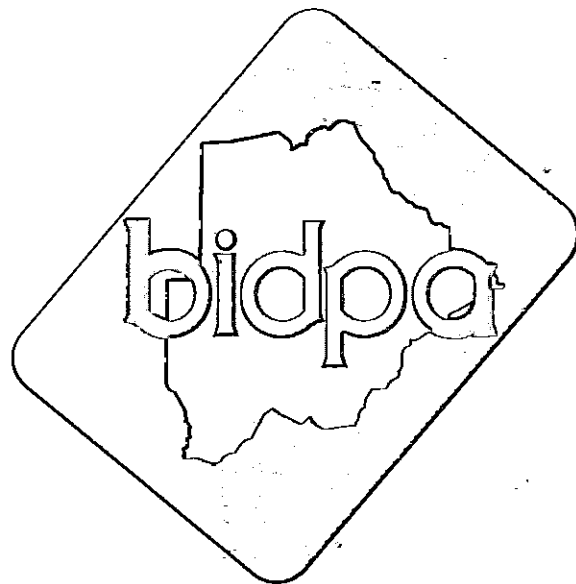

W O R K I N G P A P E R



*B O T S W A N A I N S T I T U T E
F O R D E V E L O P M E N T
P O L I C Y A N A L Y S I S*

Data Requirements and Methodologies for Multi-Country Research :

a paper presented at the Workshop on Developing an African Research Agenda for
Accelerating Development in Sub-Saharan Africa held in Harare, Zimbabwe,
March 23 - 26, 1997

by Jan Isaksen
Executive Director

BIDPA Working Paper No. 8
March 1997

*H FLOOR, TSHOMARELO HOUSE, BROADHURST MALL
PRIVATE BAG BR 29, GABORONE, BOTSWANA
TEL: 371750 - FAX: 371748*

304.4 Box BIDPA

6054

BIDPA



Data Requirements and Methodologies for
Isaksen, Jan; Botswana Institute for
Book
330.4 BOX BIDPA

Abstract

This paper, presenting data and methodology for cooperation at national, regional and continental levels in research, discusses the need to consider possible constraints facing individual research institutions when making a move towards cooperation. Some constraints are identified, including finance, institutional dependence, institutional interests, the extent of emphasis on capacity building, data availability and work load. The case of Botswana (economic transition) and that of BIDPA (programme) are used to illustrate main points in the discussion. The paper concludes that there is need for international cooperation to build on national priority research; that there is advantage in setting up national interlinked programmes for research; and that while the time is ripe for cooperation, the key to building multi-country research depends on the efficiency of usage for information technology.

Keywords

Research
Regional cooperation
Economic performance
Botswana

Data Requirements and Methodologies for Multi-Country Research :

a paper presented at the Workshop on Developing an African Research Agenda for
Accelerating Development in Sub-Saharan Africa held in Harare, Zimbabwe,
March 23 - 26, 1997

by Jan Isaksen
Executive Director

BIDPA Working Paper No. 8
March 1997

**Data Requirements and Methodologies for
Multi-country Research.**

Jan Isaksen, Executive Director

Botswana Institute for Development Policy Analysis (BIDPA)

Paper for the

*Workshop on Developing an African Research Agenda for Accelerating
Development in Sub-Saharan Africa.*

Harare, March 23 - 26, 1997

1. Introduction

1. Other speakers at this workshop have considered themes for national, regional and continental research efforts. My task is to focus on data and methodologies. At the very outset, I would like to propose that we adopt a general principle for coordination and cooperation: The participating institutions should be reasonably sure that they will derive a greater benefit from cooperation than what it costs in terms of communication and adaptation of their own projects and programmes to an international one. We should take on board the experiences from other areas of international cooperation where it has been shown, time after time, that if schemes are not based on national interests, cooperation may be costly and/ or of short duration.

2. In any research organisation there are in the short and medium term, a number of constraints on the projects which it is possible to undertake. The short term constraints tend to be more strongly felt if the institute operates close to policy makers who normally want quick answers to the important questions of *today*, NOW, or worse "yesterday". Although research entrepreneurs often think of funding as the major constraint, many others are as important: the degree of independence of the institution, the research staff at the institution and their current interests, the amount of attention paid to capacity building, the availability of data, the current workload, the *fit* between the type or size of any proposed project and the institutions' present direction and future research policy, etc. In setting out a multi-country research agenda, it is important that we have these constraints in mind.

3. My own institution "suffers" from most if not all of these constraints. Therefore, we would not like to be given another constraint, namely that our research projects must be compatible with one or another international research programme. The national research institutions should have as their first priority to be relevant to their own countries. Internationally linked research programmes and projects will have to start off from national needs. International links will only survive if they complement and support such needs, and if national needs include international links.

4. In line with the above, I shall choose what may be called an egoistic approach to my task. I will use, as a case study, a programme on "Structural Change in the Botswana Economy" that we are presently trying to develop at BIDPA. (See short overview in Annex 1)

5. BIDPA belongs to the new generation of Policy Research Institutes (PRI's) established in many African countries in recent years, often with the encouragement and funding of ACBF. Although BIDPA's Trust Deed dates back to March 1995 and the Institute has been on the books of ACBF since 1993, the start of activities took place only in the last half of 1995. So far, we have gone through the motions of being a young institution trying to make a mark. Although our Trust Deed gives room for research and consultancies for a wide range of clients, including regional and private sector ones, the work so far has been quite closely linked to various Government institutions and issues.

6. Some examples of our activities so far are a major conference in early January 1996 on the relevance for Southern African countries of Eastern Asian experiences, a project on poverty which has been under preparation for over a year and which we are presently

finalising, involvement in the development of Botswana's new industrial policy and in the Presidential Task Group to create a long term National Vision for the country. We have also been closely involved in the preparation of the National Development Plan 8 (NDP 8).

7. Future tasks will presumably include: involvement in the preparation of a macro planning and forecasting model for Botswana, further studies on Poverty Alleviation, analysis of present and future economic effects of AIDS and further development of privatisation policies. We also aim at playing a greater role in trade policy issues, starting with involvement in Botswana's next Trade Policy Review for the WTO. A major new area which we want to develop is covered under the Structural Change project mentioned above. We also intend to build further capacity in the fields of library and information, aiming at a highly computerised information system, "a library without walls".

8. Financially, BIDPA is set up with a capitalisation which is aimed at being adequate to bring us to the point where incomes from contract research and consultancy ensures a break even. This will be difficult, not least because of the overheads involved in e.g. our library service and capacity building.

9. One difficulty with which BIDPA has been struggling is perhaps particular to Botswana. The market for academic personnel is so tight that at the senior and intermediate levels it has been nearly impossible to recruit Batswana. A major reason for this is the rapid growth of the economy and the civil service. There are certainly citizens with academic background and experience which make them qualified to fill the senior positions at BIDPA but these all hold very important and well paid positions in the civil service and elsewhere in the economy. The market is much easier at the entry level and our strategy has turned to recruitment of expatriates at senior level and citizens at the entry level.

10. Although the ideas and suggestions I put forward in this paper may be valid for a wider range of research organisations, my main concern will be with Policy Research Institutes (PRI's) of much the same kind as BIDPA, relatively small and geared to consultancy and contract research, largely in the area of economics and with a fairly strong connection to Government.

11. Below, I will therefore be concentrating on action oriented or policy research/analysis, i.e. research or consultancy work focused on a problem or policy and aimed at solutions. Academic research is different in character, more occupied with method and advances in theory, less with immediate practical results. However, the longer I have been occupied in policy research, the clearer it has become to me that academic research plays a very important role as a source of renewal and invigoration of policy research through advances in methods and through development of fundamental insights.

12. "Methodologies" can be defined in various ways. I shall talk about methodology in a broad, "nuts and bolts sense", comprising the initiation of research projects, hardware, software and human ware requirements (incl. capacity building) as well as the "use" and dissemination of research. Somewhat similarly, I will define "data" widely, not only as numerical data related to economic variables but as information about a wide range of economic and social phenomena.

13. First, in section 2, I shall briefly comment on Botswana's economic situation and the transition which is necessary to maintain rapid growth and reduce unemployment. This is the objective which the BIDPA research and action programme is directed towards. Section 3 describes the BIDPA programme and section 4 deals with data and methodologies at the general, national, regional and continental level. The 5th section, most importantly, deals with the role which information technology could play.

2. Botswana's economic Transition

14. The next 10 years will be of crucial importance for the development of Botswana's economy. During that period, the foundation will have to be laid for the country's successful transition from a mineral led economy with severe unemployment and poverty problems to an industrially based economy with an internationally competitive edge and low unemployment.

15. Botswana is presently a relatively well managed economy with a structure characterised as a "mature mineral economy" [Auty 1996]. In such economies the mine construction phase as well as a phase of rapid *increase* in mineral production has ended and mineral exports and revenues have started to "flatten out".

16. The problems of these economies in achieving a structural change which will transform them into rapidly growing economies with an emphasis on manufacturing and services has recently been studied by several economists (see e.g. [Auty 1995], [Auty 1996] and [Sachs and Warner, 1995], [Kyvik 1996] and to some extent also [World Bank 1993]). A normal pattern for these economies is that the strength of the mineral sector, in various ways, has crowded out other sectors so that when mineral growth subsides, a zero or negative growth pattern is likely. The article by Sachs and Warner referred to above even talks about a "mineral curse", pointing out that countries without large mineral resources by and large do better, in terms of economic growth, than mineral economies.

17. Arguably, Botswana has escaped the policy failures which make up the basis for a "mineral curse". There are no strong "Dutch Disease" symptoms [Harvey and Lewis 1990] and [Harvey 1992] although in strictly theoretical terms it may be argued [Mogosi 1996] that the "disease" has not been totally absent. This and other factors as e.g. the existence of ample foreign exchange reserves and consistent Government budget surpluses over the last 20 years indicate that the foundation for Botswana to master the necessary structural changes should be good relative to most African mineral economies.

18. The marked differences between Botswana and other African mineral based countries might imply that policy recipes for structural change may have to be different from those generally recommended for other African economies. The more relevant policy lessons for Botswana may be found in the rapidly growing East Asian economies like Malaysia and Indonesia.

3. The BIDPA programme

19. The research and action programme for structural change which we are developing aims at delivering policy analysis and action which will contribute to a successful economic transition. The draft programme is intended to serve as a basis for exploration of various stakeholders' interests and later be developed into a programme of researchable or "doable" projects for which BIDPA will seek funding.

20. The programme as formulated would link to other major BIDPA research programmes: The "*Incomes, Welfare and Poverty*" programme comprises e.g. the study on Poverty and Poverty Alleviation as well as a planned study of the economic effects of Aids. The programme for "*Macro economic forecasting, Projections and Planning*" comprises work on various long term and medium projection models for the economy and work done in support of the NDP 8 process.

21. Although the determination of the exact nature of the correct policy interventions for structural change is an intractable question, it is possible to say something fairly clear about what the policy interventions ought to achieve. They should aim at giving the economy certain basic features which will, in turn, determine the success of Botswana's attempt to diversify its economy on a sustainable basis:

- Increase the competitiveness of Botswana's present and future products in the global and regional market places.
- Develop a capacity to save and invest sufficiently to support high growth rates in manufacturing, tourism and other tradable services. The need for technology transfer, the need for market access abroad and the likelihood that domestic savings will not be sufficient suggest that direct foreign investment will have to play a major role.
- Develop adequate human resources, in terms of knowledge, experience and entrepreneurial acumen.

22. Having reviewed a broad range of studies and policy related documents focusing on the future development and industrialisation of Botswana, right from the early seventies, it is abundantly clear that a majority of policies and measures presently considered are *still* the same as 20 years ago and *still* at the proposals stage. A particular challenge for this programme is to seek ways of bridging the gap between analysis and action.

23. The programme is planned as a multi year effort (2-3 years) under the overall direction of a senior researcher at BIDPA. In most sub-projects the core staff would be drawn from BIDPA's ranks using consultants for specialist tasks. BIDPA would be open for cooperation with other organisations within academia, the private sector, governments at home and abroad. In particular, BIDPA would seek cooperating partners or clients within Government and private sector organisations in Botswana, in order to secure funding for parts of the programme or for individual projects and in order to receive inputs that will ensure that the research results will be considered relevant to the intended users.

4. Data and methodologies for multi-country research

a. General

24. There are interesting parallels between the present development and institutionalisation of policy research in Africa and developments in policy research in East Asia right at the beginning of these economies' long period of rapid economic growth. In an account of the role of research in East Asian policy reform, called "Authority and Academic Scribblers" [Ostry, S., 1991] the editor sums up some important lessons about successful policy research.

"Some types of research are more useful than others in successful policy formulation. The characteristics of useful economic research are not difficult to define:

- A reasonable database is needed, but data gathering must be cost effective rather than exhaustive; the database must be in the public domain to ensure that it is widely used and hence constantly checked.
- Research needs a sound theoretical base rather than an ideological bent.
- Technical tools must be rigorously used to test alternative policy possibilities.
- An independent institutional base is required for effective research inputs.
- An open debate must ultimately emerge to subject research to domestic and international peer review."

25. As can be seen, data and methods are centrally placed in the experience of the East Asian policy research. It is my hope that when a similar book is written about African policy research in a few decades, data and methods will take an equally central position.

b. National

26. Somewhat paradoxically, I find that national level research has the best potential for international cooperation and collaboration. The reasons are plainly that (a) most research projects at PRI's deal with domestic policy issues, that (b) most problems of data availability arise at the *national* level and that (c) researchers have a tendency to forget the usefulness of external links when doing research on domestic issues.

Data

27. National data capacity for policy analysis may be improved without international cooperation, but "an international commitment" has a tendency to keep up the momentum of any process much better than a "mere" national agreement. There are five particular areas where I believe that the potential for making progress is good:

28. *First*, we should realise that the unavailability of good data has its roots at the *national* level. The key problems are long delays in producing adequate statistics, lags in

adopting international definitions and standard recommendations and (within the statistical establishments) a nearly singular focus on statistical data gathering at the expense of analysis. These shortcomings are often due to a low priority in allocation of funds and the low status of statisticians and of statistical work. Whatever one might say about the policy directions touted in the World Bank [1989], study on "Sub-Saharan Africa, from Crisis to Sustainable Growth", the report has an appendix on "Strengthening information systems and basic statistics in Sub-Saharan Africa" which puts the finger on the institutional and resource problems of information production in the region. My impression is that not much has happened since then. It is possible to review the situation 8 years later, and see what the African states and the international community (including the World Bank) have done with the recommendations and whether or not this positive initiative should be revived.

29. PRI's could help support the statistical establishments of the various countries in their bid for greater resources and heightening of the status of statisticians and statistical work. It is my impression that the various Statistical Bureaux get far too little support from their users in the resource battle, which eventually comes back on the users themselves.

30. One way of showing the importance of good statistics and to improve the status of statistical work would be to undertake more policy relevant analysis in the Bureaux themselves (in Norway the Research Department of the Central Bureau of Statistics is an institution with a very high professional reputation and the favourite job opportunity for the "creme of the crop" of university economists). PRI's, in my opinion, ought to work closely with national statistical establishments in e.g. joint research projects and publishing. We have had very enthusiastic response to such ideas in Botswana, but have not yet got off the ground because of shortage of staff that may engage in analytical activities.

31. *Second*, I believe PRI's can have a very healthy effect through creating a stronger *demand* for timely and internationally comparable statistics. I believe that a multi-country research programme could have positive effects on the production of national statistics. Informed and interested users at PRI's would lead to "peer competition" between statistical bureaux. To say that data are not used because they are bad is not always right. Often the causal relationship goes the other way: Data are bad because they are not used!

32. An example: Various data sets analysed as part of BIDPA's poverty analysis indicated considerable spatial differentials in poverty. We found, however, that our main data source, the Household Income and Expenditure Survey (HIES) did not lend itself to much further analysis of this phenomenon because the objective of the HIES, reflected in its sampling, was to derive overall national indicators of incomes, poverty etc. and only partly to focus on spatial differentials. We have indicated to the CSO ways in which the two objectives may be combined without dramatic increases in costs. The next HIES will hopefully change its sampling techniques and be able to deliver data permitting a higher degree of spatial disaggregation.

33. The demand for data depends to a large extent on the methodologies used. In many countries good econometricians are wasted or their skills degenerate because of the lack of hard data. A vicious circle develops, declining capacity in quantitative methods leading to declining demand for hard data, declining data supply leading to even less use of quantitative methods and so on. I believe it will be an important task for PRI's to break this downward

spiral by promoting quantitative research methods. Right through our programme for research ion structural transition we will emphasise quantitative methods.

34. *Third*, certain research projects may have data requirements which authorities and other data suppliers find difficult to satisfy because of a suspicion that research results will, in one way or another, not be compatible with their self interest. Would a "data rights" movement on a regional basis be appropriate or helpful? Such a movement would be an international group of African PRI's and other data users who report to a selected coordinator about data problems of this character and perhaps prepare an annual report describing infringements of a "data code". Although problems of this kind are nearly unheard of in Botswana, it is possible that research in sensitive areas like Government efficiency and a focus on given institutions and interest groups may bring up problems where perhaps "good" examples from other countries may come in handy.

35. *Fourth*, there is a clear need for comparative studies and comparative data sets. National research projects often include, or may be enhanced through international comparisons. In this area there is considerable scope for cooperation. Areas of the BIDPA programme where such data would be especially important are the ones on the "Competitive edge", "Credit for small and medium scale enterprises", "Botswana's External Markets" and "Privatisation".

36. *Fifth*, research institutions may also render mutual assistance by lending or borrowing data. Data purists may shudder at the mere thought but construction of "synthetic" Social Accounts Matrixes (SAMs) have been done with basic macro data from the country, inter industry/ sector data from other countries, using a RAS₁ technique. Also, various coefficients and elasticities may be swapped between countries. All this of course requires standardisation of concepts and methods.

Methodology

37. *First*, among PRI's there is often a tendency to concentrate more on results than on methods. Exchanges and cooperation about methods are clearly advantages that can be drawn from collaboration between similar institutions in the policy research area. More emphasis will have to be put on reporting of methodological aspects of various policy studies.

38. *Second*, under my broad definition of "methodology" will also come the initiation and financing of projects. Initiation at Universities is usually quite personalised, and research may be geared to particular methods and academic debates. In PRI's like BIDPA, it is very important that projects taken up are seen as useful in the eyes of policy makers and implementors. The standing of the PRI and, indeed, future financing depend on this. However, if perceived immediate usefulness is the only criterion applied to the choice of projects, it will tend to strengthen the tendency for policy research to be the handmaiden of decision makers. Policy research might well degenerate to an endless series of short assignments, speech writing etc. with little critical potential. The real potential of PRI's in

¹Technique for producing synthetic input/output tables from National Accounts data. Named after Robert A. Stone.

both capacity building and critical analysis, I believe, can best be unlocked through using a considerable part of the institutions' capacity on *Research Programmes* which are sizeable both in terms of time used and financing. Programmes will have to consist of discernible projects with clear ends, but these will have to be linked to reap the synergy benefit. The Structural change programme at BIDPA attempts to be such a programme.

39. PRI's need to have a "constituency" backing their research. Normally Government will be an important backer when it comes to financing but it is very important to hear out the various sections of society. The first group we invited to discuss BIDPA's structural adjustment programme consisted mainly of private sector representatives. We may have to arrange several seminars around the programme to ensure that it is seen as useful "out there" and that it is doable from a research point of view. In this process we will also involve our counterparts from the university and government.

40. I believe PRI's can help each other in building consensus for policy research programmes, particularly by keeping the institutions in the network aware of their approaches and their progress. Experience from "elsewhere" is usually given considerable weight and may be useful in convincing governments and other stakeholders that the *programme* concept is useful and actually tend to "stretch" the research funds rather being a big blank cheque to eccentric researchers. A strong combination for an ARAADA would be research programmes at the member institutions, each of them answering to national needs but with active linkages between them to capture synergy effects.

41. *Third*, regional funding channels have recently increased in importance, at least in the Southern African region. Under these circumstances there is also a funding advantage in doing multi-country research. Whereas a national project may not be accepted for funding, two national projects would, particularly if there is a learning process or a comparative process built in between them. In the BIDPA programme there are a number of headings with a clear regional relevance. A few examples are the themes focusing on "External markets" and "trade issues", "tourism", "the construction sector" and research on the entrepreneurial "class".

42. *Fourth*, compared to what is the case in say, Europe and US, African research personnel only barely exploits the advantages of *exchange* to speed up the capacity building process. Among African academic institutions there are probably more visiting fellows from Europe and the US than from Africa. The pool of African researchers could no doubt be used better and have a better chance to develop specialities if we had a well organised personnel exchange pool. This could, as a start, take the form of a mere information base but might be developed into a research personnel clearing house. Here is an area where an organisation like BIDPA, with its lack of citizen research capacity would be particularly interested. I can see opportunities for harnessing "embodied" experience from other countries in most of the themes highlighted in our programme.

43. *Fifth*, there is scope for progress through more cooperation in the area of dissemination. I believe most, if not all, PRI's have a point in their terms of reference which deals with their role in *public education*. However, in research projects the duty to generate public knowledge through debate about the subject matter is often forgotten about, firstly because the researcher(s), at the end of any project is / are keen to go ahead on the next

project and secondly because the planning and funding process for most projects hardly ever take the public education aspect very seriously, for example by making time and resources available for popularising.

44. What may international cooperation do? Firstly PRI's may learn from each other and increase the level of innovation in presenting results to sections of the public. Secondly, dissemination across national borders is important. There is ample scope to learn from neighbouring countries, following examples of good policies and avoiding the pitfalls. Nationally and internationally, the aim should be to increase the average citizen's familiarity with basic economic issues so that economic policy becomes more transparent and not, as is often the case, the prerogative of a small isolated group.

c. Regional

45. Botswana is a tiny country with a tiny market and therefore obviously dependent on the Southern African Region. It is necessary that part of BIDPA's research focuses regional cooperation and economic integration. All those themes in our programme which deal with trade and external issues are obviously dependent on regional information.

46. For anybody who has tried to do research involving questions around groupings of countries in Africa (perhaps also elsewhere) it will be clear that the lack of centralised data bases and the diversity in statistical concepts and timeliness of statistical production are key difficulties. Take as an example SADC which employs considerable resources on research and consultancies. In the majority of cases, a group of travelling consultants has to physically visit all countries to pull together data and information. SADC headquarters has limited capacity to run data bases. The data collected for each such study is frequently either not known about by potential researchers or forgotten about after the study report is finalised.

47. Instead of suggesting a new regional statistical establishment, I would like to suggest that e.g. SADC routinely demands from all study teams that data used is properly documented by the team and that a copy of the base is deposited with SADC and also held by the research team. A register giving addresses of research team members and a brief description of data collected could be circulated to interested research organisations and constitute both a data base and a networking potential.

d. Continental

48. Continentally based research will tend to focus on trade, integration and cooperation issues. Although ECA collects information from the countries of the continent, these data are not easily retrievable and the coverage is narrow. For a researcher who wants results, The World Bank, IMF and to some extent OECD now have better country data because they have the resources to put into collection and proper storage / retrieval facilities.

49. Whereas it is unlikely that ECA will be able to compete with the IFI's on African country data in the near future, it is hazardous for the continent to rely on these organisations in the long run. Remembering the saying that data are bad because they are not used, the best way of supporting the development of a continental database is for PRI's to become active

users of whatever data there is and perhaps for ECA to attempt making its data bases more accessible for researchers across the continent. There is also the opportunity to create links between the IFI's and ECA in data *collection* if these do not already exist.

50. Research which is continental in scope may require data for the "rest of the world". Whereas the Fund / Bank sources are useful for some purposes, there is now rapidly growing up, linked to the internet, a plethora of databases, commercial and non-commercial, in Europe and the US. Keeping pace with the rapid development and being able to utilise such sources to the benefit of the continent and individual African countries is a major challenge that the PRI's in Africa should take seriously.

51. Furnishing information, sharing experiences with and utilising the markets of *other continents* is a mammoth task that clearly lends itself to cooperation between African institutions. On other continents, research institutes which focus on Africa have long been in operation. The knowledge basis is skewed. One should, as a first step try to work towards some specialisation of the existing PRI's in terms of their focus on continents and regions outside Africa. Later, perhaps fully specialised institutions would emerge. There is a Scandinavian Institute of African Studies, why should there not be an African Institute of Scandinavian Studies?

5. The role of information Technology

Current status and development

52. All aspects of multi-country research, whether it deals with the substance of themes, projects and programmes or with initiation, financing, methods and data, depend heavily on communication and information. Researchers need to get in touch to discuss ideas, they need to inform each other about emerging issues and projects and to exchange data, comment on study drafts etc. etc. The success of a common research agenda depends wholly on reliable flows of information and there is presently no better way of achieving this than by using the *Internet*. Unfortunately, Africa lags behind in the use of this mode of communication and more generally in the use of information technology. The key to developing multi-country research lies in our speed and efficiency in absorbing and utilising information technology.

53. The use of information technology has already been touted as an additional reason why developing countries will have an even more difficult time in catching up. A typical quote comes from the World Bank Website [World Bank 1995],

"Africa needs to seize this opportunity, quickly. If African countries cannot take advantage of the information revolution and surf the great wave of technological change, they may be crushed by it. In that case they are likely to be even more marginalised and economically stagnant in the future than they are today."

54. Luckily there are also features of present development trends, like the declining prices of hardware, software and telecommunications and the world wide character of the Internet

which are likely to give the developing countries a chance to catch up and actually gain a competitive edge.

55. At the present time however, the use of information technology in Africa as a whole appears "way back". At the recent visit of the info tech "icon" Bill Gates to South Africa for example we were informed that Microsoft sales to South Africa amounted to some USD 64 million last year and the rest of Africa a puny USD 12 million as against the background of Microsoft world-wide sales of over USD 8 billion.

56. The Internet is growing very fast. Nobody really knows but one source estimates the number of Internet host computers at 200,000 at the beginning of 1990 and 2,000,000 by July 1996. On the user side, the total number of users (e-mail only and interactive) were estimated at 27.5 million in October 1994 and 40 million a year later.

57. Any statement about the use of internet is likely to become rapidly dated. The little research I have been able to make indicates that a number of African countries are rapidly achieving full internet connectivity. Two and a half years ago the only sub-Saharan country with a direct Internet connection was South Africa. Since then, at least twenty other countries must have joined "the club". Several countries have also apparently found that the initial bandwidth of 9600 baud lines have been too slow and have upgraded to 64 kilobaud. My prediction is that with only a few exceptions, over the next year or two, full internet services will be available in all African Countries.

58. Considering the countries which have been at the forefront in terms of access and use of the net in Africa, there does not appear to be a clear connection between national income levels, the state of infrastructure and the use of the net. For example, the only three African Central Banks whose web site I have found are the South African Reserve Bank, Bank of Uganda and the Central Bank of Angola. Botswana, which has the "richest" bank and one of the higher GDP's in the region as well as well working telecommunications infrastructure were not among the early starters.

59. I believe most of us know to what extent European and US researchers use the internet at various stages of research. There is hardly a research institute in Europe where the majority of staff does not have access to the net, (at least e-mail) and who has not got their own web-site (home-page). My own surfing has revealed a dearth of netsites for African research organisations. I believe perhaps that BIDPA is the only PRI which does have a site on the web at present.

60. Numerous organisations appear to stand ready to support training, software and hardware provision in Africa. Perhaps most important, in an attempt to provide a framework to accelerate developments, the African Information Society Initiative (AISII) was adopted by African Ministers of Planning at UN ECA in Addis Ababa May 1996. Also of similar importance would be the African Telecomms Green Paper (ITU) adopted in May 1996 in Abidjan. ITU also has a number of information highway development projects and plans to spend USD 10 million on improving telecommunications in Africa. The "Information

Society and Development" conference in Johannesburg in 1996 focused on the need to globalise the net.

61. The World Bank has a number of pockets (e.g. Info Dev) that may be used to augment the supply of internet services and has for example provided support for internet connections in Zambia and Mozambique. The Bank has also planned to link up with other agencies to develop regional information training programs in Africa. Other initiatives are:

- ♦ the pioneering Capacity Building for Electronic communication in Africa (CABECA) supported by IDRC. A major new initiative by IDRC is ACACIA for developing IT capabilities in Africa, building on cooperation with ITU and UNESCO in the African Networking Initiative (ANI)
- ♦ Pan African Development Information System (PADIS) which started as a UN initiative. (We have however had difficulties finding how to use the system)
- ♦ The Leland Initiative administered by USAID in cooperation with the Department of State and other government agencies.
- ♦ UNCTAD's Trade Point initiative is developing trade promotion facilities in Africa
- ♦ UN also aims at increasing interconnectivity through the Sec. Gen's "System Wide Special Initiative on Africa" and through several initiatives by specialised agencies such as UNESCO, UNEP and FAO.
- ♦ The French research agency ORSTOM has established network connectivity through the RIO network.
- ♦ RINAF in Pisa supports African network nodes
- ♦ Numerous bilateral donors, among them Netherlands run various supportive activities.

62. Advocacy and policy organisations have sprung up. Africa Internet Forum for example, through its policy Working Group aims at supporting reforms that countries should pursue in order to facilitate private sector investment in internet connectivity as well as policy reform in the telecommunications sector.

What can be done ?

63. What would be important components of an action plan to more actively use the net for policy research purposes? Building experience and capacity in use of the net as well as other aspects of information technology would not only benefit research. I believe PRI's ought to be technology leaders and maximise the demonstration effect on the government organisations with which many of us work closely.

64. *Firstly*, we ought to use whatever clout we have in making the telecommunication system amenable to internet service delivery. In most countries, I believe the main institutions (Government or Parastatal) dealing with telecommunication services function as the national internet "backbone". Various barriers including ignorance, lack of interest or

ability as well as a misguided belief that the internet would make them loose business has set back a number of countries internet development.

65. The cases of internet introduction in Namibia and Botswana are interesting to compare. Both countries had equally good telecomms infrastructure and fairly monolithic telecomms organisations. When we started the Namibia Internet Development Foundation in 1994, it was a joint effort by the University, NGO's, embassies and the private sector. It was possible to lease a line to the nearest connection point in South Africa and I believe the system was up and running in the second half of 1995. In Botswana, Telecomms blocked all attempts to do the same, by a combination of promises that we would soon be connected and the legal monopoly on all telecomms services. When the monopoly finally was broken, internet suppliers from the private sector opened up in the course of half a year, (including Telecomms itself). In sum, attitudes and regulations had set Botswana back for a period of nearly two years compared to Namibia.

66. A *second* barrier to the use of internet could be lack of hardware, software and "humanware" in our organisations. It is unlikely, though, that the physical and human availability will be much of a hindrance. The computers are already there and not very much (a modem) is needed for the institutions to get hooked on. As outlined above there are numerous organisations supporting the introduction of the net through various means.

67. Given that the major barriers of telecommunications infrastructure and institutional shortages in hard- soft and humanware are reasonably overcome, how would a small group of policy oriented research centres in Africa make the best use of the net for multi country research purposes? I believe that in taking initiatives that can support the idea of multi country research, PRI's would have two advantages. (a) our ring of institutions would have similar overall objectives and needs. A clear focus will help in being able to use the net, which contains so much information that it is necessary to have a strategy not to dissipate energies in net surfing (b) Much of the efforts to connect Africa to the net has so far been country focused. The time is auspicious for a more concerted regional effort, but I believe in a stepwise approach to ensure familiarity with the use of the net. A "big leap" without that introduction could well turn out to be a false start. Stepwise development does not have to mean loss of speed in implementation. I expect, as in nearly all internet matters, developments will go faster than even the most optimistic projection.

68. The easiest and most practical first step would be to exchange *email* addresses right now and start sending each other email on new projects ideas and cooperation measures. Many of us have long enjoyed the (free) services of Mohammad Sadli which connects us to people and events which are important in the international debate on Africa but which few of us would be connected to without the fairly regular mails from Jakarta.

69. A somewhat more sophisticated arrangement would be to start a *listserv* which needs a bit more hardware and software. Such a server, from which messages and discussion could be downloaded e.g. on a daily basis could be used as a discussion platform for researchers in all PRI's within the circle. Also, along the same lines, it would be possible to start *newsgroups* or *discussion forums*. This does not require management or outlays other than providing or buying server space on e.g.. the server of your Internet Service Provider (ISP) and perhaps a bit of "chairmanship" to keep the discussion on the net focused and

"throwing out" uninvited guests. BIDPA is at present considering whether to start its own server and could well host such services in the beginning. The cost of necessary hard and software would be insignificant in relation to the effect it could have in linking up institutions and researchers.

70. A quite efficient way of informing the "rest of the world" about what is going on in your particular organisation is to put together a *web site*. As most institutions will soon have web connections, this could be implemented, say, over the next year. A web site is relatively cheap and easy to set up once the web connection is there. (See Box about how the BIDPA web site was set up). The more difficult aspect of web sites is to establish an appropriate administrative system for keeping the site up to date. This can be made easier by posting on to the site, reports which I believe all of the ACBF related institutions prepare on a quarterly basis. Also, it will be possible to set up a central ARAADA web-site. Again, when we have taken our decision, it may well be set up on the BIDPA server.

The BIDPA home page

At BIDPA, our librarian first took a course in Web site construction. The course was delivered on the world wide web (at a cost of USD 20). She then downloaded the appropriate software ("Hot Metal") from the net, used some time in learning how to handle the software and proceeded to compose the home page. We searched the net for the cheapest way to set up the home page and found a server in Canada which offered USD 99 a year for the roughly 5Mb we need at the present stage. The home page, which was composed on the BIDPA library computer was then sent "ftp" to the selected server and is regularly updated in the same way. The whole process took less than two months from beginning to end and total use of time did not amount to more than a couple of working weeks.

71. Rudimentary *bibliographical data bases* could also be set up by at web sites, for example simply by posting library accession lists on the pages.

72. An idea which would involve more commitment and cost, but considerably less so than for on-line data bases would be what I would call a "*meta database*". This data base, perhaps in the form of a searchable web page, would primarily serve as a centre for detailed description of data available from the institutions in the network but it might also give hints about other data bases that are available on the net.

73. CESSDA (Council of European Social Science Data Archives) data bases exist the world over but with a concentration in Europe. The system gives access mainly to *data bases for social science research* and comprises survey data which has been collected for special purposes in addition to the "normal" Bureau of Statistics series on trade, national accounts, prices incomes etc. In Africa, I have come across only one data base of this kind, the South African Data Archive (SADA) in South Africa. To build up and maintain functioning data bases of this format for any country, or a group of them, would be a major task and may be a later step in development of data exchange. If set up as a cooperative project between a number of regional institutions, it may attract regional funding.

74. It is of course also possible, for institutions with a direct connection to the net, to open their own data bases for remote users. For example, *computerised library systems* which may be available in many of the PRI's would lend themselves to networked use.

75. PRI's are likely to have close connections with Ministries of Finance and Planning, Central Banks and Statistical Bureaux. They may therefore serve as a "lead in" to data in

these areas for other countries on the continent. In some cases it may be practical for these institutions and PRI's to have common data bases. BIDPA, for example, has started a library cooperation scheme with the Ministry of Finance and Development Planning, the Central Statistical Office and the Bank of Botswana. Essentially the idea is to use the same library system and classification schedules so that by hooking up the individual library catalogues, the three physically distinct libraries appear as one collection to the user. Save for some technical problems in the hook up, the Bank of Botswana link is complete. In cross border connection of this nature it will of course not be possible to furnish other countries with the actual volumes at short notice but it will certainly give more chance of tracing the existence of relevant literature. This will particularly be the case for so called "grey" reports which are not easily traceable through other more frequently used literature data bases on the net.

76. I have mentioned some fairly "down to earth" practical ideas for what may be achieved using the net to further exchange of data and ideas. These are ideas where a start can be made soon. Of course, by stretching the imagination further and assuming that the technological progress keeps its present pace, it is possible to go much further than this but I feel there is little point in making any other plan for the future than that of following technological developments and making the maximum use of it. I have seen my job as suggesting something practical rather than indulging in futuristic visions.

6. Conclusions

77. In conclusion, I would like to stress the following points.

- The fields of data and methodology, widely defined, are both important and practical areas for exploiting synergies from multi country research in African PRIs.
- The time is right for a move to greater cooperation.
- International cooperation will have to build on national priority research needs.
- There are advantages, at the institute level, as well as national and international levels in setting up national interlinked *programmes* of research.
- The key to developing multi-country research depends on our speed and efficiency in absorbing and utilising information technology.

References

- Auty R.**,1995, Achieving sustainable Mineral-Driven Development. Unpublished Draft.
- Auty R.**, 1996, Sustainable Development in a Mature Mineral-Driven Economy: Botswana in the 1990s. Unpublished Draft.
- Harvey, C. and Lewis, S.R.**, 1990, Policy choice and development performance in Botswana (St. Martin's Press, New York)
- Harvey, C.** 1992, Botswana: Is the Economic Miracle over? (*Journal-of-African-Economies*; 1(3), November 1992, pages 335-68)
- Kyvik, H.**, 1996, Trade and Growth with Static and Dynamic Economies of Scale, Unpublished Draft.
- Ostry, S.**, 1991, Authority and academic Scribblers, The role of Research in East Asian Policy Reform. (ICS Press, San Fransisco, California)
- Sachs, J.D and Warner, A.M.**, 1995, Natural Resources and Economic Growth. Unpublished Draft.
- World Bank**, 1989, Sub Saharan Africa, From Crisis to Sustainable Growth, A Long-Term Perspective Study.
- World Bank**, 1993, The East Asian Miracle, Economic Growth and Public Policy. (Oxford University Press, Washington)
- World Bank**, 1995, Increasing Internet connectivity in Sub-Saharan Africa: Issues, Options and World Bank Group Role. Draft of 29 March 1995.

