INTERNATIONAL DEVELOPMENT RESEARCH CENTRE

INFORMATION SCIENCES AND SYSTEMS DIVISION

IMPACT OF INFORMATION ON DEVELOPMENT - PHASE 2

IMPACT CASE STUDY WITHIN CABECA

CONSULTANCY REPORT

Centre File 93-0605

by

Michel J. Menou

CIDEGI

June 1994

1. TERMS OF REFERENCE AND OBJECTIVES

The terms of reference of the mission were:

- to assist the Officer-in-charge and staff of the Pan African Development Information System (PADIS) of the Economic Commission for Africa of the United Nations (UN.ECA) in the development of an information impact case study in the framework of the project Capacity Building in Electronic Communication in Africa (CABECA)";

- to assist the Officer-in-charge in the detailed design of the impact assessment methodology to be used in the case study; - to undertake such other related activities which may arise in consultation with the Officer-in-charge and IDRC.

The mission concentrated on reviewing the current status and plans of CABECA and exploring:

a)   CABECA's requirements for an impact assessment and the target audiences of the latter;

b)   the constituencies involved in CABECA and ways to sample them for the impact assessment study;

c)   the resources required for the case study;

d)   the methods which may be used for the conduct of the case study.

At this stage, the detailed design of an impact study within CABECA is dependant on the selection jointly by IDRC and PADIS of a number of options. The suggestions below are meant as a basis for the further discussions between the Officer-in-charge of PADIS and IDRC which will allow to determine the scope, plan and requirements of the case study. Based on their results, and subject to the availability of the required background data, the design of the program for the impact studies could later be undertaken.

As previously agreed with IDRC and the Officer-in-charge of PADIS, a visit to SISA, University of Addis Ababa was also organized during the stay in Addis Ababa in order to present a colloquium to the faculty and students on the Impact project.

2. IMPLEMENTATION OF THE MISSION (See Appendix 1 for details)

UN.ECA confirmed at the last minute that Friday May 20 will be a public holiday, what prevented to have meetings with the Officer-in-charge and staff on that day.

We would like to reiterate to Mrs. Nancy Hafkin and her staff, especially Mr. Lishan Adam, our sincere thanks for their kind hospitality, assistance and most effective cooperation.

3. FINDINGS

3.1 KEY ISSUES IN THE DESIGN OF AN IMPACT ASSESSEMENT OF CABECA

3.1.1 Impact areas

From an impact assessement perspective, the CABECA project can be considered as presenting 4 discrete, yet interrelated, levels of operation:

(1)   establishment of an electronic communication infrastructure at the regional and national levels (physical facilities);

(2)   operation of the electronic communication network;

(3)   utilization of the electronic communication network by the end users;

(4)   application of electronic communications in the end users' business and contribution thereof to the solution of the problems faced by the end users.

The 3 first levels can further be considered as successive layers of means geared to an end which is depicted at the 4th level.

Various constituencies are likely to derive benefits from CABECA at each of the above mentioned levels. The expected and/or accrued benefits at each level might be restrictively articulated on the basis of the specific objectives, inputs and activities corresponding to each level.

The objectives of CABECA proper are restricted to levels 1 to 3. However their ultimate rationale lies within level 4. A first question is thus whether the impact assessment should be geared to the stated objectives (levels 1-3), that is the impact of CABECA, concentrate on the end results of the electronic communications (level 4), that is the impact of electronic comunications, or accomodate all 4 levels. The latter option seems more appropriate.

Should it be selected, an additional decision would need to be made as to the extent of coverage of the respective levels. Levels 2 and 3 may possibly be combined. All four levels may be subjected to more or less detailed impact assessments. The choice is dependant on the contemplated strategic use of the results vis a vis the selected target audiences.

In addition, the main constituencies connected to the project can themselves be found in 4 discrete settings: the Regional node, the national nodes, the local access points (serving a plurality of end users) and the end users.

The four levels and settings form a matrix against which the various parameters of the impact studies will have to be checked for consistency and representativeness. Each cell in this matrix

should itself accomodate the relevant cost/input-benefit/output
matrix, as suggested in the report of the Impact project phase 1
(cf. p. 100-103 in particular).

The impact study may be structured into a multilevel
approach whereby:

 - a few key data elements about the users environment and
 major potential benefits will be collected for all users as
 part of the overall monitoring process (users registration
 and ongoing monitoring through node traffic management,
 training, backstopping and users' meetings);

 - more detailed data will be collected for a sample of users
 groups in selected countries; if the level of detail of the
 considered data required to meet the strategic objectives of
 the impact study and/or the collection methods, e.g.
 anecdotes, so permit, this level can also be accomodated
 into the built-in monitoring of CABECA; alternatively
 relatively light surveys may be considered;

 - detailed impact studies will be conducted for a few key
 users' groups in a few countries through in-depth surveys.

An expansion of the study may be considered from the last
level, by which key users' groups would be studied in all
countries, all users' goups would be studied in a few countries,
or all users' groups would be studied in all countries. It does
not seem realistic, on financial and prcatical grounds to retain
any of these three options.

The appropriate balance between the 3 first levels and their
respective scope may be adjusted on the basis of both the
strategic objectives and the available resources. Each level may
theoretically be selected for action or not, and its scope set to
minimal basic data up to comprehensive coverage.

3.1.2 Geographic coverage

The initial project document contemplated 4 sub-regions in
which up to 6 countries could be involved. As a result of the
project's activities during its first year, the definition of the
regions has been slightly modified. It now consists of the
following regions, with the mentioned countries, according to
document n 3 (cf. Appendix 2) already, or likely to become,
involved (countries marked with an asterisk are those were
CABECA's activities are already underway or agreed upon):

- Horn of Africa:

    Ethiopia*, Eritrea*, Djibouti, Sudan; - Eastern/Central
    Africa: Malawi*, Kenya*, Tanzania*, Uganda*, Burundi, Chad,
    Congo, Gabon, Madagascar, Mauritius, Seychelles, Zaire;

- Southern Africa:

    Angola*, Botswana*, Lesotho*, Mozambique*, Namibia*;

- Western Africa:

    Burkina Faso*, Senegal*, Morocco*, Ghana, Mali, Niger, Nigeria, Sierra Leone.

Other countries are likely to get involved as the project proceeds.

A relatively comprehensive and detailed impact study in each country seems out of reach. One may undertake an in depth study in only one country, but one would thus lose both the regional dimension pecular to the project and, more importantly, the support of cross-national comparisons in the interpretation of the results.

The best option seems to lie in an impact study being carried out in a number of specially selected countries from all 4 sub-regions, conducted up to the maximum level of detail that available resources permit. Alternatively, if resources limitations so impose, one may restrict the study carried out in most countries to the key aspects and undertake in parallel a comprehensive study in a few countries (one or four). In the mean-time feedback on a limited number of impact aspects may tentatively be sought in all countries in conjunction with the overall monitoring process contemplated in CABECA.

The choice of the countries is to be based on the duration of the project's operation on the one hand, and the representation of key background characteristics, on the other hand, within the countries.

Considering that the project is close to completing its first year of operation, it is only in the countries already involved or those which will soon be, that users are likely to endeavour a long enough interaction with the facilities and practice of electronic communications for a significant feedback to be obtained for the impact studies.

The key background characteristics have been tentatively listed. They include:

    a)   Language (English, French, Other european languages, African languages): it is assumed that English speaking network operators and users have an advantage since both network technology and use are mainly English language based;

    b)   Culture, e.g. importance of oral tradition, hierarchisation of society, openness of inter-group interaction;

    c)   Stage of network technology, e.g. no access, Fido- or UUCP-based access, and Internet access at project's inception;

    d)   Telecommunications networks, e.g. dial-up or public packet switching network;

.   e)   Main type of facilities available to end-users, e.g.
        stand-alone machines versus institutional LANs;

    f) · Institutional structure of the users' constituencies
        (distribution between public, private and not-for-
        profit sectors);

    g)   Sector and subject distribution of the users'
        constituencies;

    h)   Stucture of activites, i.e. distribution of the users'
        constituencies among the two main groups of activities:
        scientific research and development projects, plus
        possibly two additional ones, administration and
        citizens' concerns;

    i)   Geographic distribution of users' constituencies, e.g.
        ratio of capital city versus provincial locations of
        the users' constituencies.

The countries selected should either present close
similarities on most of these characteristics or, conversely,
represent all together all possible types of mix of these
characteristics.

At this stage, considering the above, the following ten
countries may tentively be earmarked for impact studies:

    - Horn of Africa: Ethiopia
    - Eastern/central Africa: Cameroon, Tanzania, Uganda
    - Southern Africa: Botswana, Swaziland, Zambia, Zimbabwe
    - Western Africa: Senegal, Burkina Faso

It may be appropriate to add one English speaking country in
Western Africa, eg. Ghana or Nigeria. Morocco may also be worth
considering in view of the fact that this is the only country
were on-line access to remote databases has been available for
quite a long time, a feature not likely to be found in any of the
other countries during the project, except possibly through the
participation in Healthnet, ORSTOM's RIO or existence of an
AUPELF's SYFED access point.

A most natural candidate for a single-case in-depth study
would be Ethiopia. Senegal could possibly be a second one, but
the particulars of the situation in this country would need to be
ascertained.

The above tentative sampling would need to be cross-checked
on the basis of a more detailed review of the background
characteristics and the resulting picture of the sample. The
documentation available at the time of the mission did not allow
for specifying the situation with regard to most factors,
especially c) to e). Due attention has to be paid in the meantime
to the practical conditions for implementing the impact studies
in the selected countries. In this respect, the presence of
academic programs in information science, especially of CASIS
members, is worth attention as a possible asset.

3.1.3 Users' mix

The fact that CABECA is supporting open access networks introduces a further difficulty.

In each country, the number of end users may vary from a few to above one hundred. Document n 2 mentions that there were already over 150 regular users in Ethiopia, Zambia and Zimbabwe at the project's inception. The CABECA project document refers to an average number of end users in each country above 200, what would call for including about 20 in the detailed impact study.

The structure of these users constituencies may noticeably vary, even if only a few basic characteristics are considered. There are further no captive audiences. Users may make use of the facilities for a trial and then drop. New users may come at any time. Use of the various services may itself be irregular. Network functions available may also differ among countries. Some will only have Electronic mail, others will also have bulletin boards and some may have a more or less extended access to Internet services.

It does not seem feasible to include in a relatively detailed impact study all users in any country, even in the one which would be eventually selected for a single in-depth study. Considering the variations among the many different factors, it is neither advisable to have samples in the different countries which would be very pecular with regard to their main characteristics (e.g. institutional type, sector/subject, purpose of use) since their impact perceptions/achievements may be critically dependant on the respective environments. Thus the impact noticed with one, or a few, constituency(ies) may present similarities or differences with others as a result of the environmental factors rather than electronic communications themselves. Neither could it be projected in other cases.

If one agrees that the samples should be as homogeneous as possible across the countries, then comes the question of how to select them. It may be possible to take a snapshot from the network monitoring files available in the operational nodes. Considering the structure of the population so identified, according to a list of criteria to be defined (e.g. from the main parameters of the IUEs), one may then select a number of target populations, which are likely to be represented among the entire users' groups in each country. The target groups should probably be further selected on the basis of their role in development and the significance of the expected impact of electronic communications on their professional and social performances.

One would thus have some 6 to 10 groups with which to implement the impact studies. This may not prevent in exceptional cases to also include in one or a few countries a particular group whose members are specially active and/or critical in the considered case(s), but they will serve as an additional base.
The number of persons to be included in the sample in each country for each group could probably not easily be determined according to sound statistical practices, such as their

proportion in the total users' community. One may rather decide
to select a few typical representatives of each group among the
low, medium and highly active users, for instance two or three
for each category. It is however desirable that the total samples
in each country (all groups together) are reasonably
representative, in statistical terms, of the total users'
population.

For relatively comprehensive impact studies, it would not be
possible to have large samples. At this stage, one may roughly
estimate that each person in the sample will require about one
week of full-time work by the impact investigators (including
survey of stakeholders and reporting).

Given the disparities among the countries in the range of
services available and actually used, the impact studies may have
to be further broken down by type of service (Email, BBS, etc.).
A synthetic picture of the benefits will only be recomposed after
the data collection, analysis and interpretation has been
completed at the single service level.

Ideally, a comparison sample for each group should be
surveyed, consisting of people who are not using electronic
communication. This could provide most useful data about the cost
and benefit of "traditional" communication to compare with those
of the users. However, such a procedure may require resources
above what can be mobilized. One may rely upon the initial
interview of the users to provide quite similar data. The latter
will nevertheless be biased, since they will be collected from
specially motivated people at a time they have already been
involved, even superficialy, with electronic communications.

3.1.4 Stakeholders

The end users will be the main population to observe and
interview regarding the impact of electronic communications.
However, the sustainability of the services are not exclusively
dependant on their perception and/or achievement of benefits. It
is also dependant on the perception of appropriate benefits by
other groups of stakeholders which have a critical say in the
continuing provision of the service. For instance, in the case of
academic research workers, their heads of departments, the
academic authorities in control of finance, research, computer
facilities, national research council staff, ministry of
education staff, officers of the public telecommunications
services, and possibly graduate or doctoral students.

For each component group in the samples, the related groups
of stakeholders have to be identified, the most critical ones
selected and reliable candidates for interviews identified. It is
likely that for each person in the samples 4 to 6 people will
have to be interviewed. The feedback to be obtained from them
covers, at the beginning of the cycle, their perception of the
initial situation (without electronic communicatiopns) with
regard to the possible matrix of cost and benefits, and their
perception of the anticipated benefits, and, at the end of the
cycle, their perception of the accrued benefits.

Even though the survey and interviews of the representatives of these groups will not have to be as comprehensive as with the end users themselves, the related workload is not negligible.

3.1.5 Target audiences for the impact assessment

From our discussions with Mrs. Hafkin, it appears that, at this stage, the main target group is the policy-makers who should be presented with convincing evidence of the impact of electronic communication, with a view for them to ensure the continuation and expansion of the services.

As can be seen in the above sections, this audience may indeed include a variety of people whose particular agendas, awareness and criteria for recognizing benefits and taking action may differ widely, both within the immediate institutional environment of the actual users' groups and at higher levels.
Once sufficient results have been obtained with the initial steps of sampling the end users, it will be appropriate to define with more precision who are these policy-makers.

The end users themselves and the potential users, that is opinion leaders and policy- or decision-makers within the same constituencies are certainly another category of target audience. The related data may be obtained from the main part of the impact study, with the exception of a few complements to be determined at a later stage.

In our opinion, key players in the public telecommunications services and possibly institutional computer centres are also to be considered as a critical target audience. They command to a lage extent the continuing availability and improvement of material facilities as well as their cost-effective access.

Even though the debate of the Global Information Infrastructure may imply a reasonable degree of supportiveness among the persons in charge of international programs and donor agencies, this is a category of target audience which needs to be included. However, the contemplated impact study will not be in a position, except perhaps for those institutions based in Africa, to cover this segment. IDRC, considering the long term and broad interest in the issue, may wish to consider a parallel ad-hoc study.

3.1.6 Potential benefits

At this stage, the main outcome expected from the CABECA project with regard to endeavoured communications (level 4) is stated as being "a reduction of the isolation of the end users". The latter may be observed through the increase in scope and effectiveness of horizontal linkages within and among countries, intersectoral linkages and vertical (Africa-Rest of the World) linkages. The outcomes related to levels 1 to 3 are quite clearly stated in the project document and the corresponding benefits can easily be translated from it. A more detailed tentative list of the presently identified limitations related to level 4 can be

found in Appendix 3; potential benefits can be translated from it quite easily.

We also feel that the impact study should pay special attention to the intangible benefits occuring in the human resources base at the institutional and national levels. This refers not only to the existence of a body of motivated, skilled and effective users of electronic communications, in addition to the node and access points operators, but also to the formation of an electronic communication culture in the institutions. The actual users may in the future change jobs or move to other countries. Thus the importance of a remanent impact in the form of a collective - institutional - memory about the use and advantages of electronic communication.

The issues related to sustainability are also an obvious concern in the identification of benefits. This relate to the conditions for continuing availability of the facilities, their effective operation and the assimilation at the individual and institutional levels of the skills required. However, sutainability may primarily be dependant on the existence and recognition by all stakeholders of the benefits accrued at the level of the end-products.

3.2 IMPLEMENTATION ISSUES

3.2.1 Relationship with monitoring

CABECA's project document has a provision for on-going monitoring through the national nodes, trainers, and national users groups.

It had been foreseen to define from the inception what data to collect and analyze (at the first meeting held in conjunction with INET'93). Except for the data which is gathered through the network management systems in the case of Hornet, we did not have the opportunity in our discussions to consider this issue in any detail. Although we might be wrong, we are on the impression that

the identification of the required data, the definition of the monitoring procedures and the required analyses are still largely to be determined. We apologize for any inaccuracy and would appreciate if this point could be clarified in the forthcoming discussions.

The registration of users and subsequent interaction between them and the national nodes operators may indeed provide a convenient mechanism for gathering some of the required baseline data (see below 3.2.2). It will be essential to also interview users who will be dropping and find out whether the lack of benefits is among the reasons for their withdrawal.

3.2.2 Data and their collection

The impact study calls for two sets of data to be collected:

(1) At the inception, there is a need for data about the

initial situation and the expected impact of electronic communication. This includes for the first item the description of:

a) the Information Use Environments for the constituencies represented in the samples;

b) the telecommunications and computer facilities available, their use and the related costs and benefits;

c) the major problems experienced by the end users for the solution of which they believe electronic communication would make a decisive difference (this relates to "end product", e.g. having a chance to be invited to international meetings, and not to generic functions, such as keeping in touch with colleagues);

d) the information resources related to the above mentioned problems, which are known to the users and accessible, and eventually used;

e) the information life cycle associated with the above mentioned problems;

f) the communication and/or telecommunications facilities used in connection with the above mentioned problems and their cost-benefit. Worst and best case anecdotes could also be collected about this item.

(2)   This includes, for the second item, the identification by the users, through a semi-directive interview, of the expected personal, group (e.g. co-workers or students), institutional and general benefits in the various possible categories (e.g. political, economic, social, cultural, technological, etc.).

Upon completion, the current situation, and/or the changes in the the initial situation should be described, along the lines above, on the one hand, and the perceived impact explained by the users, with possibly supporting material evidence, on the other hand.

The comparison between the two sets of data is expected to provide the main basis for identifying the impact.

It is only after the initial survey has been completed and problem areas identified that objective means of impact assessment could possibly be looked for. One may assume that short-term benefits such as speed, extension and cost of communications could be tracked down. However most potential benefits, in the present stage of knowledge of the subject, seem to be hardly amenable to objective assesments. Thus, the perception of benefits, both expected and accrued, by the end users, may well be the main basis for impact assessments in this phase of the Impact project. Even when benefits could be objectively assessed, impact studies should also consider the

perceptions therof by all groups of stakeholders, since the
material existance of a benefit which would not be recognized as
such may have no effect on the future decisions, and conversely.

In between the two surveys, the ongoing monitoring of
activities may offer an opportunity to keep track of a limited
number of factors whose importance will have been evidenced in
the first survey. End users may also be requested to record
anecdotes which show noteworthy benefits, or failures. The
meetings of the national users groups, if properly monitored,
could provide an unique opportunity for such anecdotes to be
presented and compared with other people's experience, as well as
some critical aspects of the endeavour to be discussed.

Part of the data contemplated above could be collected by
means of questionnaires, provided a trained investigator is
available for providing the required orientation to the end users
at the time of filling them. The network operation monitoring
systems may also provide some of the baseline data. But most of
the data would need to be collected through site observations and
semi-directive interviews. Focus groups may also be organized as
part of the national users meetings.

The fact that many users are actually paying for the service
is of course one solid basis for assessing the impact. It however
does not provide any clue to the tangible, and even less to the
intangible, benefits accrued in most areas of potential benefits,
e.g. extension of inter-personal networks, increased knowledge of
electronic communication facilities and redistribution of the
latter within the organizations, etc. The fees paid also have no
relationship with the value of the benefits obtained. Special
investigations are thus unavoidable.

3.2.3 Schedule of the impact study

Basically the impact study would involve the following
steps:

1	Program definition between IDRC and PADIS
2	Design of the study
3	Identification of the investigators
4	Sampling
5	Development of the survey instruments
6	Start up seminar
7	Test of the survey instruments
8	Revision of the survey instruments
9	Initial surveys
10	On-going monitoring of impact factors
11	On-going backstopping of investigators through Email
12	Mid-way seminar of the investigators
13	Final surveys
14	Comparison of the results of the initial and final surveys
15	Intepretation
16	Production of interim national reports
17	Compilation of the national reports into an interim

          overall report
18   Wrap up seminar of the investigators
19   Revision of the interim reports (what may include
     additional data collection/verification)
20   Production of the final report
21   Editing of the results for presentation to the target
     audiences (at institutional, national and regional
     levels)
22   Presentation of results to the target audiences
23   Analysis of feedback

Steps 1 through 8 should be completed by Spring 1995. Step 9
should be completed by the end of the summer 1995. Step 12 could
take place early in 1996. Steps 13 through 19 should preferebly
be scheduled after the completion of the CABECA project, e.g.
during the second half of 1996; this would allow for taking due
account of post-project realities, e.g. continuation of
electronic communications through self-supported nodes. The
remaining steps would take place in 1997. A more precise schedule
could not be outlined before steps 1-4 have been completed.

3.2.4 Resources

     The staff of the regional node, national nodes and local
access points, as well as the regional trainers are far too busy
with the installation and current operation of the network for
being able to carry out the investigations required by the impact
study, beyond the data collection which may be embodied in the
traffic monitoring systems and routine transactions with the end
users. They may not have either the required background and
skills. While they should be associated with the impact study as
closely as possible, they will not be in a position tocarry out
the related activities.

     In each of the selected country, an investigator, or
possibly a team, according to the size of the samples, should
thus be identified. He/she should be fairly familiar with the
information and communication cycle and possibly with electronic
networks. He/she should be experienced in user and social surveys
in general. He/she should be a resident in the country and
available for the the conduct of the surveys, the seminars, the
preparation of the reports and occasional observations and
complement of surveys. The duration of the investigators
involvement could only be determined after completion of steps
1-4. It may roughly be estimated at this stage between 3 and 5
months for detailed impact studies.

     Participation of the faculty, and possibly graduate
students, of the information science programs in the region,
especially those associated with CASIS, is highly advisable. It
may be difficult for them to take full responsibility of a
detailed study, considering the other constraints of their
regular courses and individual assignments. If the impact studies
are, as it is likely split in several components on the basis of
segments in the sample, topics to be investigated and depthness
of the investigation, it would become easier for the schools to

participate. The description of selected Information Use
Environments and other aspects of the scene, the collection of
anecdotes could also be turned into course assignments or
individual papers. In this respect, it would be most fortunate if
the Department of Library and Information Services of the
University of Botswana, which is already involved in Healthnet,
could also be involved in the operation of the national node in
Botswana, as well as in its impact study.

The impact studies will also require some support facilities
in terms of electronic communications (steady interaction among
the national investigators and with the regional coordinator), in
country travel, and supplies.
Ideally the investigators should gather for 3 seminars, as
indicated in the above tentative schedule. The seminars could be
held at the regional coordinating centre for 3 days.

Backstopping from an external consultant with a strong
background in impact studies is also advisable throughout the
study, and especially for the design stages. The total workload
may roughly be estimated at this stage as 1 to 2 months full time
equivalent for the entire exercise. Subject to the specification
of the expertise among the selected investigators, there might
also be a need for an external resource person to provide
training in interview techniques, especialy focus groups, on the
occasion of the first seminar.

Most of the above contemplated activities are not covered in
the provisions of the CABECA project. The resources allocated to
this project are geared to the installation and operation of the
electronic communications facilities. The hardly can go beyond.
It is therefore necessary to allocate additional resources
specially dedicated to the implementation of the impact study.

4. RECOMMENDATIONS

A number of suggestions are presented under 3 for the design
of the study. The recommendations below only cover the actions to
be taken in the short-term.

   (1)   IDRC and PADIS should discuss the suitable alternative
         for the design of the impact study on the basis of the
         present report.

   (2)   The PADIS CABECA team should consolidate the available
         data related to background conditions of the countries
         and the stucture of the existing users community with a
         view to define the main characteristics of the possible
         samples (countries and users groups).

   (3)   The PADIS CABECA team should strive to refine the
         definition of the stakeholders groups, target audiences
         for the results of the impact study and the major types
         of benefits contemplated at all levels and setting (cf.

3.1.1).

(4) The PADIS CABECA team, with possibly a consultant's assistance, should design the impact study, on the basis of the results of the above items and submit a project proposal to IDRC.

(5) The above steps, plus the assessment and possible acceptance by IDRC of the project proposal, should be completed not later than Spring 1995, with a view for the impact study to start being implemented by the middle of the CABECA project.

(6) Among the options, we feel that the best would be a mixed approach, encompassing all levels and settings, and covering:

     a) a superficial analysis of key impact factors in all countries with active nodes in Spring 1995;

     b) an in depth study of at least 2, preferably 4 countries;

     c) possibly a series intermediate studies in at least 1 additional country per sub-region, concentrating on selected impact aspects.

IDRC may wish to liaise with other agencies involved in providing support to electronic communications in the region (e.g. Healthnet, ORSTOM) with a view to coordinate the respective evaluations and possible impact studies which they may be undertaking.

***

APPENDIX 1 - SCHEDULE OF THE MISSION - CABECA

May 17	07:00-23:00	Travel Paris-Francfort-Addis Ababa
May 18	09:30-10:30	Meeting with Mrs. N. Hafkin and Mr. Lishan Adam - Orientation on the Impact project and methodology
	10:30-12:30	Presentation of the operation of the Ethiopian node of CABECA by Mr. Lishan Adam
	12:30-14:00	Lunch meeting with Mr. Saddik Solbi - Discussion of PADIS databases' development and access
	14:00-18:00	Meeting with Mrs. N. Hafkin and Mr. Lishan Adam -review of issues for the impact assessment of CABECA
May 19	08:30-12:00	Meeting with Mrs. N. Hafkin and Mr. Lishan Adam - Review of issues for the impact assessment of CABECA (Continued)
	12:00-13:30	Lunch meeting with Mrs. N. Hafkin
	14:00-16:15	Visit to SISA - Talk with Mr. Getachew Birru, Director - Colloquium on Impact; attending ca. 4 faculty and 20 students - Drinks offered by SISA and informal talks with faculty and students; short visit of SISA's computer laboratory - Talk with Prof. A. Neelameghan
	16:30-18:30	Meeting with Mrs. N. Hafkin and Mr. Lishan Adam - Wrap up discussion of the impact assessment of CABECA
	18:30-20:30	Dinner with Mr. Lishan Adam - Open discussion about CABECA
May 20	09:00-11:00	Meeting with Mr. Getachew Birru, Director of SISA, at his request - Discusssion of various educational issues, including prospects for a possible involvment of SISA in impact studies
	15:00-19:30	Meeting with Ms. Elisabeth Dijoux, French Associate Professional at ECA's Population Division, at her request, further to Mrs. Hafkin recommendation - Informal discussion of information networks and alternatives for population information systems in Africa
	..:..-..:..	Remaining time: reading of background material and report preparation

May 21	08:30-20:00	Travel Addis Ababa-Johannesburg-Gaborone Reading of background material en route
June 4	09:00-13:00 14:00-19:00	Report preparation id
June 5	08:00-11:00	id
June 6	21:30-24:00	Meeting with D. Balson to review the mission's findings
June 8	09:00-12:00	Phone discussion with D. Balson; finalization of the report

***

APPENDIX 2 - BACKGROUND MATERIAL

1.   IDRC. Capacity Building in Electronic Communication for Development in Africa. Project document 92-0616. 1993

2.   CABECA Flyer. PADIS, nd.

3.   Note on CABECA's status. PADIS, May 1994, 2p. (internal document).

4.   PADIS and Electronic communication in Africa. PADIS, nd. 4p. (internal document).

5.   Gilbert, J., ed. Economic constraints to the effective use of telecommunications in education science, culture and the criculation of information. Draft (Confidential; Should not be quoted). Geneva: ITU & UNESCO; January 1994; 87 p.

***

APPENDIX 3 - TENTATIVE LIST OF LIMITING FACTORS AFFECTING THE APPLICATION OF ELECTRONIC COMMUNICATIONS (LEVEL 4)

This list is primarily derived from the background material

POLITICAL

> Lack of awareness. Security concerns. Monopoly for Public data networks and telecommunications operators. Democracy. freedom of initiative. Lack of adapted information, information technology and telecommunications policies.

TECHNICAL

> No PDNs. Low regional inter-connectivity. Number of telephones. Number of lines. Low bandwith. Poor switches. Network heterogeneity. Network incompatibility. Waiting list for telecommunications facilities. Power cuts. Poor network monitoring. Climatic erosion. Ineffective traditional means of communication (e.g. mail).

ECONOMIC - Supply side

> Cost of equipment. Cost of private services. Cost of public services. Lack of maintenance budgets. Small market. High custom duties. High sales taxes. Inadequate tariffs.

ECONOMIC - Demand side

> Inadequate budgets. Inadequate allotment of resources. Lack of maintenance budgets. Lack of hard currencies.

HUMAN RESOURCES - Supply side

> Lack of network specialists. Lack of Information Technology specialists. Lack of trainers. Work force productivity. Marketing. Management. Development. Quality. Training. Support

HUMAN RESOURCES - Demand side

> Lack of network awareness. Lack of computer literacy. Work force productivity. Lack of training.

CULTURAL

> Lack of an information seeking culture. Lack of a problem solving culture. Language heterogeneity. Low sharing of resources. High competition within below-critical-mass groups.

INFORMATION RESOURCES

Awareness. Indigenous infrastructures not ready for network access. Heterogeneity of resources.

ADMINISTRATIVE

Import control (licenses). Tight and cumbersome bureaucratic procedures. Limited availability of hard currencies. Customs. Poor quality of tenders. External pressures. Intra-institutional rigidity. Inter-institutional rigidity.

MANAGEMENT

Inaccurate Information Technology plans. Misuse of resources. Overcharging. Seeking rentability from high charges levied on a small users' base rather than lower charges on a broad and expanding users' base.

***