

# Monitoring and Evaluation System for Impact Assessment (MESIA)

Conceptual Framework and Guidelines

*Jacques Gaillard*





**Monitoring and Evaluation System  
for Impact Assessment (MESIA)**

Conceptual Framework and Guidelines

*Jacques Gaillard*

April, 2000

# CONTENTS

---

<b>Introduction</b>	<b>5</b>
<b>Conceptual Framework</b>	<b>7</b>
<b>Guidelines for National Impact Studies</b>	<b>19</b>
<b>Guidelines for the Study of Scientific Output of IFS Grantees</b>	<b>23</b>
<b>Guidelines for Interviews</b>	<b>25</b>
<b>References</b>	<b>30</b>
<b>Appendix</b>	<b>31</b>
The IFS Questionnaire	

## INTRODUCTION

---

The lack of a reliable system for monitoring and evaluating the impact of IFS work has been stressed in former evaluations and prospective studies about IFS activities (Gaillard, 1990; Castillo, Head and Matos, 1993; Research Council of Norway, 1998).

At the SGC meeting No.8 held in Stockholm on 8-9 May 1998, a tentative logical framework for the preparatory phase of an impact assessment system was worked out. The purpose of the impact assessment system was defined as follows: "The IFS and its donors are provided with information on the impact of the Foundation's work to guide investment and future programmes". A first draft inception report was then prepared and presented at the 8th SGC meeting and the 50th EC meeting held in Montpellier on 4-6 December 1998. Both committees welcomed the report and approved the tentative work programme. This report was then revised and updated to become the Conceptual framework of the now called Monitoring and Evaluation System for Impact Assessment (MESIA). It is presented here with three guidelines which were prepared and finalised during 1999: Guidelines for National Impact Studies (NIS), Guidelines for the Study of Scientific Output of IFS Grantees and Guidelines for Interviews. A Questionnaire was also prepared and tested during 1999. It is presented as the Appendix of this report.

The main objectives of MESIA are to assess how effectively IFS has been using the funds it receives to finance its activities (mainly research grants); to assess the achievements of the grantees and to assess the effect that the grants and other forms of support provided by IFS have had on the academic and institutional career of the grantees. A number of complementary approaches will be used to achieve this aim, including interviews and questionnaire surveys intended primarily for IFS grantees, national impact studies (NIS), bibliometric studies on scientific output of IFS grantees, and regional thematic impact studies. MESIA will rely heavily on the IFS database which is at the centre of an interdependent system in which not only the IFS staff, grantees, and scientific advisers are taking part, but also IFS Member Organizations. In order to be fully operational for MESIA, the database is being upgraded and updated. It is expected that the year 2000 will see the first MESIA results and reports published. But it will certainly take at least another year to ensure the organisation and the implementation of MESIA as a permanent system that involves most of IFS staff. Its permanency can only

be established if it is appropriated by the IFS staff as part of their everyday activities and of the institution's culture.

The aim of this report entitled Conceptual Framework and Guidelines is to inform the IFS constituency about MESIA and to propose a standardized set of guidelines in order to involve IFS staff and as many IFS Member Organizations as possible in its implementation.

During the course of preparing the different components of this Conceptual Framework and Guidelines, I benefited from discussing my ideas with IFS staff, Scientific Advisers, friends and colleagues. I would like to mention particularly Anna Tullberg whose recruitment as Project Assistant for MESIA from 1st June 1999 greatly improved its implementation; Jane Russell whose contribution particularly in finalising the Guidelines for the Study of Scientific Output of IFS Grantees was determinant; Terry Smutylo for commenting on an earlier draft of the Conceptual Framework and Roland Waast for critically revising several drafts of the questionnaire. Anna Tullberg, Judith Furberg and Brian Porter gave to successive manuscripts a particularly thorough reading. Brian Porter designed the document. To all of them I am greatly indebted. Finally, I would like to thank the French Institut de Recherche pour le Développement (IRD) for generously seconding me at IFS.

Stockholm, 28 April 2000

## CONCEPTUAL FRAMEWORK

---

### **Prerequisites and feasibility**

It is important to first clarify the limits of the exercise, or in other words, to define what can possibly be achieved and what is clearly beyond the reach of the system we want to implement.

As any impact or evaluation exercise, it has first to be related to the overall aims or objectives of the IFS mandate, that states:

*The IFS shall contribute to the strengthening of capacity in developing countries to conduct relevant and high quality research on the management, use and conservation of biological resources and their environment.*

*The activities shall include identifying, through competitive grants and a careful selection process, young promising scientists with a potential for becoming the future lead scientists and science leaders; supporting them in their early careers to enable them to become established and recognized, nationally and internationally; and continuing the support of these scientists, once their official association with IFS grantees is completed, wherever feasible and relevant.*

Assuming a number of conditions discussed below are fulfilled, MESIA can derive indicators to assess how IFS has been using the money it receives to fund its activities (mainly research grants), to assess the achievements of the grantees and to assess the effect that the grant and other forms of support provided by IFS have had on the academic and institutional career of the grantees. Going one step further, and assuming a number of additional conditions are fulfilled, it could also possibly assess the extent to which IFS has contributed to the formation of research groups and research networks. But it can hardly assess the extent to which IFS has contributed to the strengthening of scientific capacity in the developing world in general<sup>1</sup>.

The latter assessment would require a much more comprehensive approach involving a large number of stakeholders at different levels (country, regional, and global). Furthermore, IFS is never the only external organization assisting research in developing countries. While effects or impacts can certainly be mapped, the key question is whether (or the extent to which) observed effects can be attributed to IFS. To answer this question, it would ideally be necessary to identify and survey a control group. In relation to this question, we have to be reminded that IFS grantees are the outcome of a selection process. Thus, IFS grantees' careers are likely to

advance faster than that of “average” scientists taken from a representative group from developing countries. Given the heterogeneity of situations in the developing world it is also very doubtful if such a control group makes sense. The constitution of an appropriate control group at a global level is therefore problematic<sup>2</sup>. Furthermore, a number of additional questions remain to be answered. What sampling methodology should be used to construct such a control group?<sup>3</sup> What methods should be used to survey the control group? Who will do the work and who will pay for it?<sup>4</sup>

Another limit relates to the availability of personnel primarily within the IFS to set up, maintain, and use MESIA on a long-term basis. Other organi-

**Table 1**

*Impacts to be assessed  
 Typology, prerequisites and feasibility*

<b>Level of impact</b>	<b>Impacts to be assessed</b>	<b>Main prerequisites</b>	<b>Feasibility</b>
Micro Impacts	Achievements of the IFS grantees	Availability of an upgraded database	Fair to good
	Advancement in their research careers	Feed in the huge backlog of information not available in the database	Fair to good if additional staff can be available on a project basis
		Mobilize IFS staff to feed the database on a permanent basis with standardized procedures	Fair assuming the tasks involved are accepted as "normal" working routines by IFS staff
		Construct an appropriate control group	Doubtful
Meso Impacts	Strengthening of Institutions	Additional information needed that could be gathered through interviews and questionnaire surveys.	Fair to good assuming external support can be obtained and external scholars associated to the study
	Formation of research groups		
	Formation of research networks		
Macro Impacts	National impact studies	Make a careful selection of countries and work out a standardized evaluation framework (see enclosed)	Fair to good to the extent that MO and external scholars can be actively associated
	Regional thematic impact studies	Ensure the collaboration of e.g. Scientific Advisers and Secretaries, and a bibliometrician	Fair to good assuming collaborations are ensured
	IFS impact on strengthening scientific capacities in developing countries	Set up a comprehensive research programme involving a large number of stakeholders	Possible but beyond the reach of our present resources

zations may use a complete team ranging from five to twenty people for evaluating or measuring the impact of their activities. As far as the IFS Secretariat is concerned, the author of this report is seconded until 30 June 2001 by the French Institut de Recherche pour le Développement (IRD – formerly ORSTOM) to primarily take charge of international relations of IFS. It is estimated that he will spend approximately one third of his time on impact and evaluation activities at the IFS<sup>5</sup>. A full time IT manager has also been recruited for upgrading the IFS database. While his collaboration will be essential, the database being central to MESIA, he will not be directly involved either in feeding the information into the database nor in its retrieval and interpretation. MESIA, to be successfully implemented, can only be based on a pro-active involvement of nearly all IFS staff members but in particular scientific secretaries and assistants whose collaboration will be essential for preparing the information needed on grants, grantees and grantees' outputs from the files and incoming reports to be transferred into the database. The recruitment of Dr. Anna Tullberg, as a Project Assistant for MESIA on a two years basis starting from 1st June 1999, has greatly contributed to the implementation of MESIA. During a transition period, additional interim personnel will also be needed to feed in the huge backlog of information not available in the database<sup>6</sup>. Given the present overload and turnover of the IFS scientific secretaries and assistants, time and/or availability of personnel for the latter tasks will be the main limiting factor.

Given these limitations, we also need to carefully identify to which clients and in which order of priority MESIA should be addressed. Taking into account the main clients' requirements, expected outcomes may be different and results may have to be prepared and presented in different ways. One of the first clients is probably the IFS Secretariat itself, the system being an essential tool for monitoring its activities. Another important client is the donor group (and also external evaluations of IFS work) for which the evaluation aspects are likely to be predominant. The results obtained could also be very useful for preparing research papers and PR information materials and thereby increasing the visibility and the credibility of IFS. The system could also be used for facilitating or strengthening contacts and collaborations with Member Organizations as suggested earlier, and also collaborating organizations or programmes such as the Third World Academy of Sciences (TWAS) and the Consultative Group for International Agricultural Research (CGIAR).

To sum up, MESIA will never provide an easy-to-use formula. It is a long-term and time-demanding dynamic system for which our level of ambition will have to be matched to the priorities of clients and the available resources.

### **A System centered around a Database**

MESIA will use and enrich the IFS database which is at the heart of a very interdependent system in which not only the IFS staff, grantees, and scien-

tific advisers are taking part, but also the IFS Member Organizations (see Figure 1).

So far, most Member Organizations, particularly in developing countries, have not been very active in IFS activities. Involving them in MESIA is one way of activating them. The Member Organization's role will be particularly important in the establishment phase of the new database for tracking the grantees' present institutional addresses<sup>7</sup>. They could also be involved, directly or indirectly, in the preparation of national impact study reports<sup>8</sup>. These country studies could be conducted on a regular basis or whenever there is a specific need. Such studies could be carried out in countries in which IFS has agreed on specific policy rules to be reviewed after a trial period, e.g. South Africa<sup>9</sup> and China<sup>10</sup>.

The Scientific Advisers' role is central to the IFS activities for evaluating applications and reports. They are the main providers of output indicators on the scientific merits of the grantees and the quality of their work. But they should also possibly be more involved in the preparation of impact assessment of IFS activities in specific research areas. Whenever needed and possible, this should be done in close collaboration with the IFS Secretariat and a specialist or a Ph.D. student who could assist in conducting bibliometric analysis and/or interviews and questionnaire surveys<sup>11</sup>.

MESIA and the new IFS database will also be essential for any External Evaluation of IFS activities. The lack of a reliable system for monitoring and evaluating the impact of our work has been stressed in former evaluations of IFS activities (Gaillard, 1990; Castillo, Head and Matos, 1993; Research Council of Norway, 1998). MESIA may however not be completely operational by the time the next external evaluation takes place. Finally, additional studies will be needed on an *ad hoc* basis to complement MESIA and could also make use of it. Whenever possible, such studies should be carried out in collaboration with other organisations and co-funded by other organisations.

## Work programme

A table summarizing the main activities with a time frame is presented below.

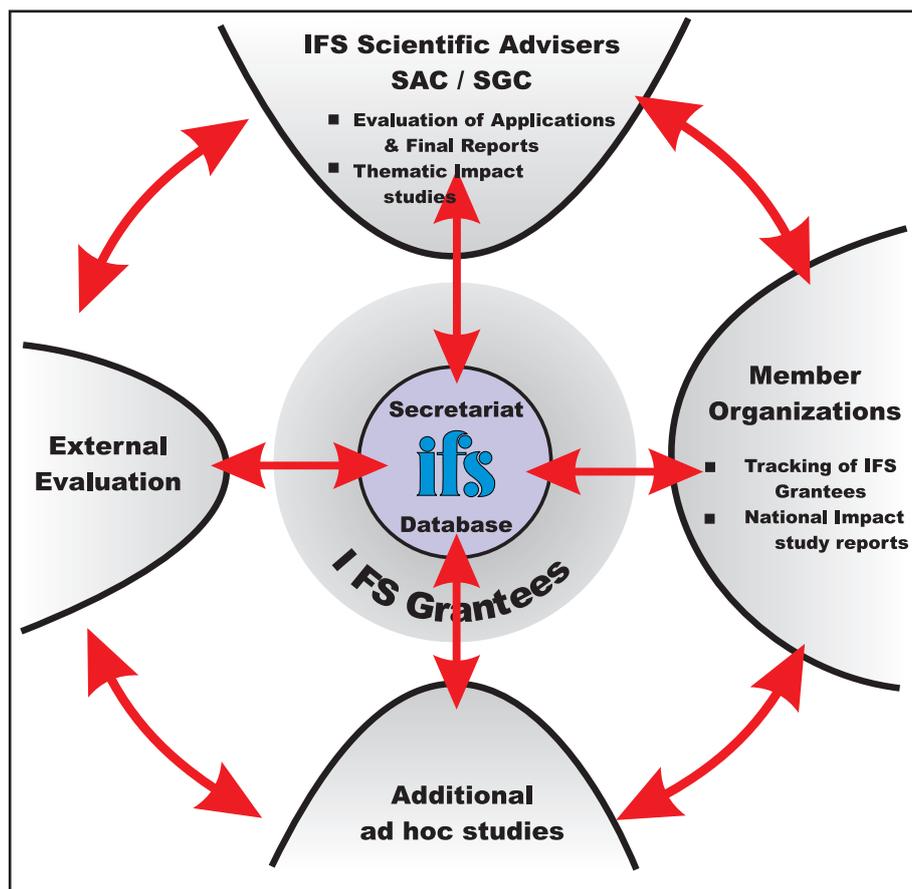
### *Upgrading the new database*

The upgrading of the IFS database has been a difficult ongoing process for more than two years. The transfer of the data from the old database to the new has taken longer than expected and although it is in use today, a number of routines and adjustments still need to be fixed in order to make it fully operational for MESIA's purposes; e.g. a number of input and output indicators still need to be added.

Indicators to be revised or added include:

#### *Input indicators:*

- How did the applicants first learn about IFS activities?<sup>12</sup>



**Figure 1**

*Participants and Clients*

*Flow of information and tasks to be performed*

- Degrees held: level, year and countries where obtained (a comparison scheme has been prepared)
- Seniority in research: number of years of research experience after obtaining the highest degree and in which countries
- Position held: here it is necessary to distinguish between academic and administrative positions (a scheme is also being prepared)
- Institution in which the research is carried out<sup>13</sup>

*Output indicators*

- Quality of new applications submitted
- Number and quality of renewal applications submitted
- Number and quality of reports submitted
- Number and quality of publications produced
- Number and quality of post-graduate students produced
- Innovations produced, results implemented and patents obtained<sup>14</sup>
- National/regional/international recognitions and Awards

For the three first output indicators listed above, it was felt necessary to modify and simplify the IFS evaluation sheets so as to standardize the evaluation procedure and facilitate the feeding of the information into the new database. The evaluation sheets listed below have been revised accordingly:

- Evaluation of IFS Grant Application (First Grant)
- Evaluation of IFS Renewal Grant Application
- Evaluation of IFS Final Report
- IFS - Project Completion Form

For the publications output a distinction is being made between seven types of publications and a separate window has been created in the database to record the corresponding information<sup>15</sup>:

- Journal article
- Conference proceedings
- Book chapter
- Book (as author or as editor)
- Abstract
- Report
- Other publication

The following information will also be recorded:

- Journal title
- Number of co-authors
- Language of publication

### *Tracking of IFS grantees*

All possible ways will be used for tracking the addresses of the IFS grantees and particularly old grantees no longer supported by IFS. IFS Member Organizations have been and will be contacted to collaborate in this task. Institutions where we have a concentration of IFS grantees have been and will also be contacted. Whenever a Scientific Adviser or a staff member is visiting a given country or institution, he or she should be asked to contribute to the tracking of IFS grantees. Several fields will be included in the IFS database to record the following addresses: Address when the applicant applies for the first time, Intermediate addresses and Present Address

### *Backlog of information to be entered into the database*

The IFS database contains information on IFS Applicants since 1993 only. Information available on IFS grantees is also very uneven and incomplete. No real estimate has been made of the time required for entering the backlog of information into the database (1974-1993). A first rough estimate is approximately one year full time. Additional interim personnel will be needed to complete this task.

## **Surveys of IFS grantees: interviews and questionnaires**

### *Questionnaire survey*

Some items of information concerning the grantees' achievements and careers, their research environment, collaborations, research funding, participations in research groups and networks are not available in the grantees' files and should be obtained directly from the grantees. A more systematic way of gathering this information is by means of a questionnaire. Such a questionnaire has been prepared in English and in French (see Appendix).

Whereas, as discussed above, it seems doubtful that a control group can be constructed, in order to compare the IFS grantees population with a population of scientists representative of the developing countries as a whole, it would be very important and informative to be able to make a comparison

between IFS grantees and beneficiaries of other like-minded granting organizations or programmes. This comparative approach has been proposed in the research project on "Science in Africa" for which one of the conditions for the funding given by DG XII is to make a survey of the STD/INCO-DEV programme beneficiaries in Africa. The questionnaire for the main parts is common for two different organizations. Including the beneficiaries of the STD/INCO-DEV programme also gives an opportunity to cover a somewhat larger spectrum of scientific disciplines (with a certain degree of overlap):

- IFS: biological and environmental sciences
- INCO-DEV: agricultural, environmental and medical sciences

The questionnaire has been sent to African scientists during March 2000. The questionnaire will also be used in a selected number of countries in Asia and Latin America within the framework of the country case studies.

### *Selected profiles of IFS grantees*

With the assistance of the Scientific Secretaries, Scientific Advisers, Member Organizations, and senior grantees, it is proposed to make a list of a selected number of grantees whose research achievements have been particularly noteworthy, who contributed to the formation of particularly outstanding research networks and to the creation of research institutions and/or who have reached national policy and science leadership positions. Recipients of IFS awards could be included in such a list. After careful selection and after checking the selected grantees' willingness to participate we could expect some 50 interesting case studies.

A special questionnaire or a guideline for interviews possibly to be used through electronic mail may also be worked out and tested. The expected outcome may also be useful in IFS PR materials. As an illustration, short profiles of successful projects could be prepared on an *ad hoc* basis and distributed to a well-targeted group of carefully selected scientific journalists and/or journals.

## **Thematic regional (or international) impact studies**

### *Animal Production in Latin America*

This work, which is the result of a constructive and successful collaboration (see note 10), has already been done and a paper has been published in *Interciencia* (Galina *et al.*, 2000). It could serve as a model to be improved for further thematic impact studies.

### *Aquatic Resources in Asia*

Dr. Richard Fuchs, Scientific Secretary for Aquatic Resources prepared a review paper on IFS supported Aquatic Resources projects in Asia for the AFP-FAO/RAP workshop on Foreign-Assisted Fishery Projects in Asia held in Bangkok in November 1998. This paper could be extended to include a bibliometric analysis and a qualitative assessment of the grantees scientific production.

### *Natural Product Chemistry*

Planning for other studies is being undertaken. A project could be drafted to be submitted for funding to OPCW to review the state of development of (Natural Product) Chemistry research in the developing world and the extent to which IFS and other organisations have impacted this development. Senior grantees and/or Scientific Advisers will be contacted to contribute and participate. Similar projects could be proposed in other research areas subject to the availability of funding and qualified resources.

### **Professional linkages, networks participation and formation**

Lists of networks and research groups which have been directly or indirectly supported by IFS or initiated by IFS grantees are being gathered using past and present Scientific Secretaries as the main information source. Whenever we can get external scholars to participate, the main characteristics, efficiency and sustainability of these networks will be studied. The relative role of IFS in establishing these networks will also be evaluated.

In addition, the questionnaire addressed to the IFS grantees includes questions to assess professional linkages and networks participation of IFS grantees in general.

### **National Impact Studies**

#### *Framework for National Impact Studies (NIS)*

A standardized framework for National Impact Studies has been prepared (see next chapter). Studies have been initiated in Tanzania, Cameroon and Mexico. A fourth one is being launched in Malaysia. Discussions are also ongoing with Thailand to possibly launch an additional NIS in Asia.

Tanzania. The opportunity of a visit to Tanzania in February 1999<sup>16</sup> has been used to test the framework for NIS and initiate the first NIS. 21 out of the 51 grantees in Tanzania have been met and interviewed by Jacques Gaillard in Dar es Salaam, Morogoro, Zanzibar, Mpwapa and Arusha. Information on their respective institutions and on the overall Tanzanian S&T activities and policy has been gathered. A report presenting the findings is being prepared.

Cameroon. Cameroon occupies a special position in Africa (bilingual country, third supplier of applications for new grants in Africa after Nigeria and Kenya, best approval rates in Sub-Saharan Africa over the last 5 years). Yet, IFS grantees in Cameroon are facing a number of practical problems, as do many others in SSA. For these reasons, Cameroon is therefore a good candidate for an in depth country case study for MESIA. A first visit of 12 days has been made to Cameroon by Jacques Gaillard in November 1999 during which 28 grantees were interviewed in Yaoundé, Bamui, Bamenda, Dschang, Njombe, Buea, Limbe and Douala. A report is being prepared.

**Table 2**

*Tentative work programme (1999-2001)*

<b>Activities</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>
Upgrading the database	Revision and addition of input and output indicators	Revision and addition of input and output indicators	Database fully operational
Tracking of IFS grantees	Ongoing process	Ongoing process	Ongoing process
Backlog of information to be entered in the database		Starting	Completed
Questionnaire survey	To be drafted and tested	Sent March  Status Report December	Final Report
National Impact Studies	Tanzania visit February  Cameroon visit November  Plan for additional studies in Asia	Visit Mexico April  Visit Malaysia and Thailand August  Report Tanzania November  Report Cameroon December	Report Mexico March  Report Malaysia September
Thematic Impact Studies	Animal Production in Latin America Final Report June  Plan for additional studies	Completion depending on additional support	Completion depending on additional support
Selected profiles of IFS grantees		Continuous process (5-10 per year)	Continuous process (5-10 per year)
Networks participation and formation		To be initiated assuming external support (funding and scholars) is secured.	

Mexico. An agreement has been made with the Member Organization in Mexico (CONACyT) to carry out a study on the impact of IFS activities in Mexico during 2000. A local consultant, Jane Russell, has been recruited to coordinate the study in Mexico, conduct some 30 interviews and carry out the study on scientific output of IFS grantees. Dr Russell made a visit to the IFS Secretariat in Stockholm in January 2000 during which the methodology and the workplan were discussed and finalised. CONACyT sent the questionnaire to the IFS grantees in Mexico in February. Jacques Gaillard went to Mexico in March 2000 during which he visited CONACyT, worked with Dr Russell and conducted some 20 interviews of IFS grantees in Mexico city, Cuernavaca and Merida. The cost of the study is shared between CONACyT and IFS.

Malaysia. One of the two Member Organizations in Malaysia, the Malaysian Scientific Association (MSA), has agreed to coordinate the NIS in Malaysia. MSA sent the questionnaire to the IFS grantees in Malaysia in April 2000. A visit to Malaysia is being planned to take place in August or November 2000.

Thailand. Although the Member Organization in Thailand let us know that it is not in a position to coordinate the NIS in Thailand, discussions have been initiated with former IFS Thai grantees to try to involve them in the study. The possibility to recruit a local consultant for the study of scientific output of IFS grantees is also being investigated. A visit to Thailand could take place in August or November 2000.

---

## Notes

- 1 It may, however, be feasible in the case of relatively small countries (certainly not in China, India, or Brazil).
- 2 Reference groups might however be used at a country level. This is the case in Mexico where we can use the population of Mexican scientists belonging to the National System of Researchers (SNI) as a reference group. Interestingly, only about half of the IFS grantees population belong to the SNI.
- 3 A "representative" elite group of developing country scientists could, for example, be constructed using their appearance in the Science Citation Index as selection criterium.
- 4 To my knowledge very few scholars have worked on questions related to the profession or career of scientists from developing countries. Thomas Schott (Penn. University, U.S) and Wesley Shrum (Louisiana State University, U.S.) are two exceptions. Both of them are still active and in contact with me. Wesley Shrum is at present supervising the Ph.D. thesis work of Patricia Campion on communication patterns and network formations with LDC scientists. Some of her work could be relevant in this context. Interestingly also, Shrum received some support from the Dutch Ministry for Development Cooperation for field studies he made in Ghana, Kenya and Kerala (India). Rawoo (Rawoo, Publication No.11) has published the main results of this study. The research project on Science in Africa that I am launching with colleagues from IRD (formerly ORSTOM) and African scientists could also be linked in a constructive way with the present impact assessment

system.

- 5 The remaining one third of his time will be used for the research project on Science in Africa.
- 6 This refers not only to the information for the period not in the database (1974-1982) but also to the additional information needed once the database has been upgraded.
- 7 A number of indications suggest that mobility may have increased during the 90's and the grantees (particularly those who no longer receive support from IFS) do not always inform IFS when they move. During recent visits to Zimbabwe and Tanzania, I found that a number of grantees had changed address without informing IFS.
- 8 Two such impact assessments of the IFS programme at a country level have been carried out with the assistance of Member Organizations: in Nigeria in 1991 and in the Philippines in 1995. Whereas they provide interesting information, the approach could be standardised so as to allow international comparisons. To improve that end, a framework with inbuilt appropriate and objective indicators has been worked out for national impact studies (see next chapter).
- 9 The SGC No.5 (Nov. 1996) recommended that the IFS programme be opened up to all young scientists in South Africa meeting the Foundation's formal criteria. Preference will be given to applicants from the Historically Disadvantaged Institutions and/or to proposals focused on issues affecting the disadvantaged community... This arrangement is now being reviewed.
- 10 The question of dramatically increasing number of applications from China, first mainly in Crop Science, but rapidly also in other areas, became an issue in the early 90's. The SGC at its November 1994 meeting decided to "recommend to the Board to apply special criteria to accept applications from China for processing, viz. eligible candidates must be below 30 years of age and with a Ph.D. (later to be changed to Ph.D. and MSc), criteria to be applied immediately, and for a determined period, e.g. of three years. At the 7th SGC meeting in November 1997 the issue was discussed again and "the Committee recognizes that the age limit set for China has had no impact on the number of approved grants, although the number of applications received has fallen by 35%. However, it recommends that the current criteria for applicants from China be maintained for a further two years" (i.e. 1998 and 1999). The arrangement is now being reviewed.
- 11 The report prepared and presented by Prof. Carlos Galina at the IFS General Assembly in Rio (The impact of the IFS Funding on Latin American Research in Animal Production and Health) is a very good example of a successful collaboration involving one Scientific Adviser, the IFS Secretariat and a specialist in bibliometrics. This work was also instrumental in updating the institutional addresses of many of the older grantees in Latin America in Animal Production (Galina *et al.*, 2000).
- 12 One or several questions will be included in the application form which is being revised to be eventually used as an electronic form.
- 13 This information is already in the database but needs to be seriously "cleaned". A list of official names of institutions by country is being prepared. It would also be worthwhile to be able to better qualify these institutions (size, main mandate ... etc.) and to rank them according to their research outputs. This needs to be given some more thought.
- 14 This is a non-existent field in the new database. A number of output indicators need to be constructed to better characterize grantees' contributions. This needs to be given much more thought.
- 15 For more information see the next chapter: Framework for IFS National Impact Studies (NIS); and the Appendix: Guidelines for the study of scientific output of IFS grantees.
- 16 To participate in the Conference of Rectors, Vice Chancellors and Presidents of African Universities (COREVIP), Arusha, Tanzania, February 1-4, 1999.



## GUIDELINES FOR NATIONAL IMPACT STUDIES (NIS)

---

A standardized framework for the National Impact Studies (NIS) has been designed and is presented below. It should be followed as closely as possible in national studies in order to allow international comparisons; however it may need to be adapted to specific situations or distinctive features in a given country.

### **Overview of national Science & Technology activities**

The main objective of this overview is to better understand how grantees fit into the overall national S&T system. The following information should be gathered:

- Overall national S&T policy or policies
- Research budget (national and foreign cost-sharing activities)
- Major donor projects and programmes
- Human resources, including highest academic degree, age, and gender
- Major research institutions, including academic institutions
- Major structural constraints

### **Grantees: profile, relative importance, and overall distribution**

Most of the information in this section should be provided by the IFS Secretariat.

- Where data is available (at present since 1992), the number of applications by year, by Research Area, and by institution
- Success rate (number of applications rejected at prescreening, number of applications approved as compared to number of applications submitted), possibly according to a number of indicators (highest degree obtained, country of highest academic degree, research area, institution)
- Total number of grantees by Research Area, with a breakdown by the number of grants and an indication as to whether IFS support is active or terminated
- Geographical distribution of grantees (by region whenever applicable and by institution)
- Distribution of grantees by higher education and research institutions
- Duration of IFS research projects
- Whenever the IFS support is terminated a typology for the reasons for closing a file will be done according to the following categories: 1. Not/Never Started; 2. Completed with report; 3. Renewal not approved; 4. Project ter-

minated (in a “positive way” – other grant, career position...); 5. Closed without report; 6. Grantee Deceased; and 7. Project transferred onto other grantee

- Whenever possible, the quality of the final report will be ranked as follows: 1. Unsatisfactory; 2. Mediocre; 3. Satisfactory; 4. Good; 5. Excellent
- Preferred mode of grant administration (total or partial transfer of research grant). How has it evolved over the last 25 years?
- Extent to which IFS grantees benefited from travel grants and participated at IFS sponsored workshops and seminars
- Extent to which IFS services are being used and comparative advantage of using them. Should we do less, should we do more, and why?

### **Spatial/institutional/professional mobility of grantees**

The main question is: where are grantees today and what is their current employment affiliation? A study tracking grantees by institution is necessary to check the information available at IFS against the reality of today. This is particularly important for the older grantees who may have moved to a new position/institution/country without informing IFS.

The result of this study will be of utmost importance for any subsequent survey and to draw spatial mobility maps. It would also be very important for answering questions such as:

- Is the grantee still active in the national S&T community today and to what extent?
- What is the extent to which the grantee contributes to internal, regional, or international scientific migration?
- Should this migration be regarded as brain-drain (i.e. exodus) or as circulation?
- Has the migrating grantee returned or is he or she likely to return to his or her country?
- Has IFS support and enhanced exposure to international contacts and networks contributed at the same time to the migration of scientists?
- Does the migration pattern for grantees differ from that of a control group<sup>1</sup> representative of the national S&T community?

### **Academic promotion of grantees**

An academic promotion itinerary for grantees will be constructed. The following information will be gathered:

Academic degree(s) at the time of the first IFS grant  
Academic degree(s) obtained while receiving IFS support  
Academic degree(s) after the IFS support ended until today

Whenever possible, it would be interesting to know whether and to what extent the grantee’s academic promotion itinerary differs from that of a control group representative of the national scientific community. Has IFS support had any impact on the grantee’s academic promotion?

### **Institutional promotion of grantees**

Same approach as above but for institutional promotion.

What has been the overall impact of IFS support on the professional status of the grantees?

### **IFS support vs. overall funding support**

The funding history of the grantee's research will be retrospectively constructed by listing the different funding sources (national and foreign) with the following information: year, amount, name of funding institution, and title of project.

The main questions to be answered are:

- Did the IFS support come at the beginning of the grantee's career?
- To what extent is IFS support the unique source of funding at the beginning of the grantee's career?
- To what extent has IFS support been instrumental in attracting additional funding?
- Is there a progression of the funding level and of funding sources (national and foreign) during the grantee's career?
- What research opportunities for supporting young scientists are available today as compared to 25 years ago?
- How critical has IFS support been, i. e. what would have happened if IFS support had not been available? What has happened for scientists who have not received IFS support?

To answer the last question, one could use a sample of unsuccessful applicants and focus the attention on grantees whose renewal applications were not approved.

### **Scientific output of grantees**

The scientific output of the grantee can be measured using internal IFS indicators (number and quality of renewal applications and reports) as well as bibliometric indicators derived from the grantee's publication list. The main objective is to determine the extent to which IFS support has impacted the nature and the volume of the scientific output of IFS grantees. For detailed information see Conceptual Framework and Guidelines for the Study of Scientific Output of IFS Grantees below.

Most of the information in this section could be provided by the Secretariat when the grantees' publication outputs have been entered in the database. In the meantime, collaboration with Member Organizations and recruitment of consultants on an *ad hoc* basis will be essential for collecting, inputting and analysing the publication lists of IFS grantees in a given country. In addition, scientific awards (including IFS Awards) and recognition will be listed.

### **Contribution to development and society as a whole**

Have research activities and publications derived from IFS supported projects directly or indirectly benefited any of the following?

- Grantee's own scientific disciplines and other scientific disciplines
- Small and large farmers

- Rural inhabitants
- City dwellers
- General public
- Local or state agencies
- Local industries
- Other countries in the region
- Foreign or international industries
- Others

Whenever relevant, the list of patents obtained from IFS-supported research could be used. Selected profiles of particularly successful grantees could also be used as case studies to illustrate the contribution of their achievements to development and society as a whole.

### **Contribution of IFS support to institutional capacity building**

The following contributions could be considered:

- Sharing of research facilities: multiplier effect of IFS purchased equipments and supplies
- Formation or strengthening of research groups
- Contribution to teaching students
- Contribution to training staff
- Direction of thesis work
- Contacts/collaborations outside the institution initiated through IFS support

### **Grantees' perceptions of IFS support as a programme model**

How do the grantees perceive IFS support? What changes are needed? Satisfaction with the following components could be assessed:

- Selection process
- Grant administration
- Purchase of research equipment, supplies, etc
- Maintenance of research equipment
- Contacts with IFS staff
- Scientific counselling
- Participation at conferences
- Participation in networking activities
- Monitoring of IFS research projects
- Assistance in the publication of research results
- Overall publication policy
- Follow-up activities

---

### **Notes**

- 1 The construction of a control group, whenever feasible, needs to be discussed on an *ad hoc* basis for each country (see Conceptual Framework).

# GUIDELINES FOR THE STUDY OF SCIENTIFIC OUTPUT OF IFS GRANTEES

---

## **Objective**

The aim of this study is to determine the impact of IFS support on the trends in the nature and volume of the scientific output of IFS grantees.

## **Target Group**

All past and present IFS grantees working in a given country.

## **Methodology**

A study would be carried out in five main stages:

- Stage 1: Gathering of publication lists
- Stage 2: Database design and implementation
- Stage 3: Analysis, coding and input of data into the database
- Stage 4: Analysis of results
- Stage 5: Preparation of report

### *Stage 1: Gathering of publication lists*

All grantees will be contacted by email, telephone, fax or letter to request their complete publication list, preferably in electronic format. Grantees will be asked to indicate which publications resulted from research carried out while they received IFS support.

### *Stage 2: Database design and implementation*

A database has been designed for the recording and analysis of the relevant aspects of the scientific output of IFS grantees taking into consideration production before, during, and after IFS support. It is available from the IFS Secretariat.

### *Stage 3: Analysis, coding and input of data into the database*

As mentioned in the conceptual framework, outputs should be classified according to seven publication types:

- Journal article
- Full paper in conference proceedings
- Book chapter

- Book (as author or editor)
- Abstract
- Report
- Other research publications

The following information should also be recorded:

- Journal title
- Journal-Country of publication
- Number of co-authors
- Language of publication
- Grantee as sole/first/last or co-author
- Grant number
- Research institute of grantee
- Research area of grantee
- National or foreign highest degree of grantee
- Past or present grantee
- Number of IFS grants awarded
- Year of first IFS grant
- Year IFS support terminated

In order to be able to do this, detailed checking with specialised catalogues and regional experts will be carried out and appropriate coding developed.

#### *Stage 4: Analysis of results*

Analysis of results will be carried out to determine possible changing patterns in publishing trends before, during and after IFS support and the effect of IFS funding on the following parameters:

- Total volume of publication output (= total production)
- International vs national publication (=national or international visibility)
- Publication in refereed and non-refereed journals (=scientific “quality” of output)
- Distribution of output between different publication channels (journal publication vs proceedings/books)
- Distribution of output between different publication formats (full papers vs abstracts)
- Presence in electronic media
- Distribution of output between e.g. English, Spanish and French (=national or international visibility)
- Co-authorship patterns (= levels of collaboration)

In addition, and whenever applicable, the relationship between the following variables will be analysed:

- Productivity
- Research area
- Research institution
- “Elite” scientists (mainly international publication)
- “Non-elite” scientists (mainly publication in local national journals)
- Publication in applied science journals
- Publication in basic science journals
- Membership of a national research scheme

## GUIDELINES FOR INTERVIEWS

---

### **Preamble and target group**

Interviews constitute a very important part of the National Impact Study. Whereas the questionnaire will be sent to all past and present grantees in a given country, approximately 1/3 of the total number of grantees should be sampled for interviews .

### **Construction of the sample**

When selecting the grantees to be interviewed, particular care should be taken to ensure a satisfactory balance between the following characteristics as compared to the grantees' total population:

- IFS research areas
- Number of grants obtained from IFS
- Year of obtaining the first grant
- Past and present grantees (supported and no longer supported by IFS)
- Universities and research institutions
- Capital city and Provinces
- Gender
- Member and non member of a national programme

To counter possible falling-off, the sample should include 10% more grantees than necessary.

### **Preparation of interviews**

The grantees to be interviewed should be contacted at least one month in advance to check their availability and to agree on an appropriate time. When contact is made with the grantees, one should make it clear that information provided during the interview will be considered confidential and will be used in aggregate form together with that from other grantees unless otherwise agreed<sup>1</sup> The grantees selected for interviews should also be asked to send their updated CV and list of publications. Reading their CV and list of publications before the interview will help planning and reorienting the interview whenever needed and checking the memory of the interviewee. We all have a selective memory of our life story! To have read the CV will also certainly shorten the total duration of the interview. An interview may last between

one and one and a half hours but it is advisable to schedule two hours for each interview.

### **Conditions and main objectives**

Whenever possible, the main part of the interview should take place in the grantees' institution<sup>2</sup> and no other person should be present. The presence of a co-worker or an immediate supervisor may bias some of the answers and would no doubt affect the willingness of the interviewee to answer some of the questions as well as the necessary relation of mutual trust between the interviewer and the interviewee. The interviewer should use the first 5–10 minutes to present herself or himself, stress the importance of the interview in the overall framework of the MESIA and remind the interviewee that the information gathered will be treated confidentially. This first introduction is very important to legitimate the presence of the interviewer and create a relation of mutual trust between the interviewer and the interviewee.

The interview should be semi-structured, semi-directive and even “free” or “open” at some points: while the interview grid is fixed, the order and the way the questions are introduced are left at the discretion of the interviewer. It is also up to the interviewer to revive the discussion whenever necessary and to check at the end of the interview that all points have been covered. Sometimes, the interviewee may be addressing issues which may not be (or may not seem to be) directly relevant to the interview grid. If time permits, he or she should not be interrupted since the grantee may be presenting important information or exploratory analysis pertinent to our survey. This also very often allows revitalising the interview in a more open way and results in more sincere or even unexpected answers. Conversely, it is important to be reminded that closed questions very often bias and limit the answer. One should also avoid “acquiescence set” questions to which one tends to answer yes and be positive<sup>3</sup>. In general, the attitude of the interviewer during the interview should be one of listening, of understanding and of non-evaluation.

One of the main objectives of the interview is to corroborate/ invalidate/ moderate and illustrate the results obtained with the questionnaire. Thus, many of the questions asked in the questionnaire will also be part of the interview grid. Another important goal is to get some more qualitative information that is difficult or impossible to obtain with a questionnaire survey. Finally it is an opportunity to cover issues which have been insufficiently addressed or not addressed at all in the questionnaire. The latter issues could include issues specific to a given country, e.g. the existence of a national grant programme rewarding the most active scientists.

### **Interview grid**

Below are the main topics to be tackled during the interview. As mentioned earlier, the interviewer is free to use whatever order he or she prefers. Whenever the interviewee is not spontaneously tackling one or several of the

topics, he or she should be invited by the interviewer to do so. The topic should be introduced in a general manner by the interviewer who should then leave the interviewee to interpret and develop it in his or her own reference framework. One of the main objectives is to re-construct the “life story” of the interviewed researcher and to understand the relative role played by the IFS support in the development of his or her research career.

- Why did you become a scientist? Did you have other opportunities? Relative importance of figure heads (parent, teacher, etc) / obtention of a fellowship for post-graduate studies at a critical time / social status / job security / career prospects / intellectual stimulation / others?
- How did you learn about IFS? By accident or while actively looking for funding sources / Immediate supervisor / Colleague / IFS Member Organization / IFS staff member / during postgraduate studies abroad / Web / others?
- At which time in your research career did you obtain the 1st IFS grant? During postgraduate studies / immediately after obtaining your PhD degree / after a post-doc / later in your career?
- Was it a particularly critical time in your career / life? Why? Has IFS been instrumental in putting you in contact with a researcher / a research group that inspired you at the beginning of your research career? Whenever appropriate are you still in contact / collaborating with him / her / it?
- Was the 1st IFS grant the first research grant you ever obtained? If not, what were the other sources of funds obtained before the IFS grant? / At the time you applied for the 1st grant, was IFS the only potential funding source you knew about? / If not what were the other funding sources? / Whenever there were different sources why did you decide to apply to IFS?
- Whenever appropriate: why did you get only one or two grants when you could have applied/obtained more than one or two (three today and four at the beginning of IFS)?
- Do you find IFS reporting requirements very demanding? Whenever appropriate: why did you fail to submit a progress report / final report? Other forms of support were available from other sources?
- IFS grant comparative advantages (IFS/National grant programme/IDRC/World Bank/ European Union ...etc)? Whenever appropriate, if you look back at your research career, how would you rank the different research grant schemes from which you received support (very satisfied, rather satisfied, rather unsatisfied, and very unsatisfied)? Why?
- Has the impact of the IFS support (grant and other supports) been critical / essential / determinant / enabling / moderate / limited / marginal / negative on the advancement of you research work and research career? Why?
- What have been the main impacts of the IFS grant(s)? Improvement of immediate working environment / scientific contacts / participation in seminars and conferences / opportunity to publish / advancement in academic career / advancement in institutional career / training new generation of scientists / advancement of their respective research field / formation of research groups / formation of research networks
- Did the fact of being an IFS grantee provide you with a “status” or a “recognition” (in your institution / at the national level?) that in its turn improved your promotion opportunities / your ability to get additional funding / or to get other awards / recognitions ?
- What are the main qualities / advantages of IFS support as compared to other research grant schemes?

- What are the main weaknesses / disadvantages of the IFS support as compared to other research grant schemes?
- What needs to be changed? Balance between research grants and supporting services (purchase of equipments / access to scientific literature / scientific advice and contacts / participation at seminars and workshops / networking activities)? Support to individuals vs. support to institutions?
- What has been the main outputs of your IFS supported projects: scientific and technical outputs (publications and patents) / training outputs / practical applications?
- In the event that the IFS supported project has led to a practical application, try to document it. In which context has it been implemented? Who are the main clients / beneficiaries?
- What are the main constraints in your research work today? In what way do they differ from 5, 10, 15, 20 years ago (whenever appropriate)?
- Is it easier to get funding for research in your country today as compared to 5, 10, 15, 20, 25 years ago? What are the main differences: national vs. foreign/international sources ...etc?
- Are research activities adequately encouraged in your country? By whom and how?
- Do you feel affected by the recent ongoing globalization / privatization of research and higher education activities? In what way and to what extent has it changed your research career and way of life: short term goals vs. long term goals / public vs. private / social relevance vs. scientific quality / academic work vs. consultancy / professional values / terms of employment?
- Do you have extra jobs to supplement your income? If applicable, amount of time spent on extra jobs and additional incomes provided?
- What is your future career goal? National scientific career / administration / politics?

### **Transcription and reporting of the interview**

Whenever possible, the interview should be taped. Whenever the need is felt a transcription of the interview could be made. The final report for each interview should not only make use of the information recorded during the interview but also of other written information gathered and of the grantee's Curriculum Vitae. The CV is often very useful to structure the report. The interview should start to give the name of the interviewee/interviewer, date and place of the interview. The place where the interview was carried out and the overall atmosphere during the interview should also be reported at the beginning of the report.

### **Post-interview follow-up**

Whenever appropriate, it may also be important to be able to contact the interviewee (by tel. or e-mail) to clarify a point or to get more information on another which would not have been satisfactorily covered during the interview.

---

## Notes

- 1 In some cases information may be used as IFS PR material to write articles in IFS Newsletters or to write successful profiles of IFS grantees. This should only be done with the approval of the grantees.
- 2 A limited number of IFS grantees selected to be interviewed may have left their country (or may be temporarily outside their country) at the time of the interview. In the latter case an attempt should be made to conduct the interview through e-mail.
- 3 This is particularly important in the present case when the interviewer is an IFS Staff member. Logically, the grantees tend to be indebted to IFS and to please the interviewer representing the granting institution with “politically correct” answers such as: “IFS support came at a very critical time at the beginning of my research carrier” or “Without IFS I would not be such an established and recognized scientist today” even if it is not the case. Reading the CV of the grantees (in which grants and awards are very often listed) before the interview often brings to light a more moderate picture.

## References

- Castillo G.T., I.L. Head and N. Matos. 1993. "External Evaluation of the International Foundation for Science". Stockholm: IFS, 110 pages.
- Gaillard J. 1990. "The Future Role of the International Foundation for Science (IFS) in a rapidly changing world". Stockholm: IFS, 92 pages.
- Gaillard J. 1991. *Scientists in the Third World*. Lexington: The University Press of Kentucky, 190 pages.
- Gaillard J., V.V. Krishna and R. Waast (eds.). 1997. *Scientific Communities in the Developing World*, New Dehli: SAGE India, 398 pages.
- Galina C. S., J. Riveroll, P. Cardenas, M. Aguilar and J M Russell. 2000. "The Impact of the International Foundation for Science (IFS) Funding on Latin American Research in Animal Health and Production". *Interciencia* 25 (1) pp 30-36.
- Research Council of Norway. 1998. "Building Research Capacity in Africa. A Review of NORAD's Assistance to regional Research Organisations".
- Samonte V.PB., H.P. Samonte, E.O. Ona and G.G. Cangao. 1995. "Professional Status Contributions and Perceptions of Philippine IFS Research Grantees". Manila: National Research Council of the Philippines, 165 pages.
- Shrum W.M. 1996. "Research Capacity for Sustainable Development. Report of a field study in Ghana, Kenya and Kerala (India)". The Hague: Rawoo (Publication No.11), 50 pages.

## APPENDIX

---

### **The IFS Questionnaire**

This is the IFS Questionnaire as sent to grantees in Africa in March, 2000.



# Questionnaire for IFS Grantees in Africa

N° .....  
(leave blank)

This questionnaire is intended for all IFS grantees. Even those grant recipients no longer receiving support from the Foundation for their research work are invited to participate in this survey. To answer, use the space provided, tick the box , or circle the relevant number (1, 2, 3 ...).

## I Civil status, education and mobility

1. Family name: _____ Middle name: _____ First name: _____ (underline the name under which you publish)	2. Name and address of your home institution: _____ _____ _____
3. E-mail address: _____	
4. Citizenship: _____	5. Sex: <input type="checkbox"/> male <input type="checkbox"/> female
6. Year of birth: 19 ____	7. Civil status: <input type="checkbox"/> single <input type="checkbox"/> married <input type="checkbox"/> widowed
8. How many children do you have?	9. If you are married, what is your spouse's principal occupation?

### 10. Academic degrees obtained

Degrees	Area of specialisation	Year degree awarded	Educational establishment	Fellowship/study grant obtained from
BSc/Licence				
MSc/Maîtrise/Ingénieur				
PhD/thèse de 3ème cycle/Docteur Ingénieur				
Post-Doc/Doctorat d'Etat				

### 11. List your academic visits abroad (stay of at least 2 months) since you were awarded your highest degree

Year	Institution	Country	Duration (x months)

### 12. How many years have you spent outside your country for higher education and training, including postdoctoral studies and academic visits abroad? \_\_\_\_\_ years

### 13. How many years in total have you spent abroad? \_\_\_\_\_ years

**II Career**

14. List all the positions you have held since the beginning of your career

Position	Employing institution	Country	Starting date	% of re-search time

15. In your present position give the approximate amount of time devoted to the different activities listed below and indicate in the second column what, according to you, it should ideally be.

Activities	Present %	Ideal %
Teaching		
Research		
Administration		
Extension		
Consultancy		
Other (specify)		

16. Do you consider that the salary you receive as a scientist is adequate to support you and, if applicable, your family?       Adequate       Inadequate

17. How many times higher than the minimum salary in your country is your salary as a scientist/teacher ?  
\_\_\_\_\_ times more

18. In which institutional framework do you work today?

- Public University       Private University
- Public Institute       Private Institute
- Non Governmental Organization (NGO)
- Others (specify) \_\_\_\_\_

19. Given the institutional framework in which you work, would you consider the following elements as relative advantages or disadvantages ?

	Advantage	Disadvantage
Salary scale	<input type="checkbox"/>	<input type="checkbox"/>
Career development	<input type="checkbox"/>	<input type="checkbox"/>
Job security	<input type="checkbox"/>	<input type="checkbox"/>
Social benefits	<input type="checkbox"/>	<input type="checkbox"/>
Retirement	<input type="checkbox"/>	<input type="checkbox"/>
Others (specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

20. If you have extra jobs to supplement your income and, if applicable, your family, indicate how many additional hours you spend working per week. \_\_\_\_\_hours
21. If you have extra jobs, how many times more income do they provide you with in comparison to your basic salary as a scientist ? \_\_\_\_\_ times more
22. Specify the nature of your extra jobs
- |  |  |
|--|--|
| <input type="checkbox"/> Teaching                                    | <input type="checkbox"/> Farming   |
| <input type="checkbox"/> Own consultancy or medical private practice | <input type="checkbox"/> Somebody else's consultancy or medical private practice |
| <input type="checkbox"/> Own private business                        | <input type="checkbox"/> Somebody else's business                                |
| <input type="checkbox"/> Other (specify) _____                       |  |
23. Compare your total family income with your salary as a scientist/teacher or and, if applicable, indicate how many times more it corresponds to: \_\_\_\_\_ times more
24. Have you been offered employment abroad?       Yes       No
- If yes, in which country (ies)? \_\_\_\_\_
- Did you accept the offer(s)?       Yes       No

### III Research Choice and perception of research

25. Since the beginning of your research career, have you substantially changed your scientific orientation/research subjects?      Yes       No
26. What is your main field of science at present, e.g., agronomy, zoology, parasitology, etc.?  
\_\_\_\_\_
27. To carry out your research activities, do you usually work alone or with other scientists?  
 Alone       With other scientists
28. Whenever you work with other scientists do you usually work in monodisciplinary or multidisciplinary research teams ?     monodisciplinary     multidisciplinary
29. How often do you communicate with the following people regarding your research? (1 = never, 2 = rarely, 3 = annually, 4 = monthly, 5 = more often.)
- |   |   |   |   |   |  |
|---|---|---|---|---|--|
| 1 | 2 | 3 | 4 | 5 | Scientists in your department                      |
| 1 | 2 | 3 | 4 | 5 | Scientists from other institutions in your country |
| 1 | 2 | 3 | 4 | 5 | Scientists in other African countries              |
| 1 | 2 | 3 | 4 | 5 | Scientists in Europe                               |
| 1 | 2 | 3 | 4 | 5 | Scientists in USA or Canada                        |
| 1 | 2 | 3 | 4 | 5 | Scientists in Asia or Latin America                |
| 1 | 2 | 3 | 4 | 5 | Funding agencies                                   |
| 1 | 2 | 3 | 4 | 5 | Non Governmental Organizations (NGOs)              |
| 1 | 2 | 3 | 4 | 5 | Private clients                                    |
| 1 | 2 | 3 | 4 | 5 | Consultancy groups                                 |
| 1 | 2 | 3 | 4 | 5 | Extension staff                                    |
| 1 | 2 | 3 | 4 | 5 | Others (specify) _____                             |

30. Indicate whether you agree with the following assertions by circling a number from 1 = "disagree completely" to 5 = "agree completely".

- 1 2 3 4 5 Science is public knowledge
- 1 2 3 4 5 Scientific knowledge is universal
- 1 2 3 4 5 Science contributes to development
- 1 2 3 4 5 Science should firstly produce knowledge
- 1 2 3 4 5 Science should mainly lead to useful innovations
- 1 2 3 4 5 Researchers are free to choose their own research topics
- 1 2 3 4 5 Research topics are set by sponsors
- 1 2 3 4 5 Research topics are set by employers
- 1 2 3 4 5 Research problems are set by clients
- 1 2 3 4 5 Researchers should produce goods for a competitive market
- 1 2 3 4 5 Researchers should have entrepreneurial and managerial skills

**IV Access to scientific literature and attendance of conferences**

31. Do you have easy access to the Internet ?     Yes         No
32. Do you have access to bibliographic databases?     Yes         No  
If yes, which one(s)? \_\_\_\_\_
33. How many scientific conferences have you attended since the beginning of your research career?

Conferences	With national support	With IFS support	With foreign support**	Without support
Within your country				
In Africa*				
In Europe				
In USA or Canada				
In Latin America & Caribbean				
In Asia				

\*Except your own country

\*\*Except IFS

34. How many scientific conferences have you attended outside your country during the last five years?  
\_\_\_\_\_ conferences

**V Main Factors holding back your research work and evaluation**

35. What are, according to you, the three main factors holding back your research work in order of importance?

- 1. \_\_\_\_\_
- 2. \_\_\_\_\_
- 3. \_\_\_\_\_

36. Certain recurring difficulties have been listed below. Indicate by circling the relevant number (1, 2, 3, 4) whether they are 1 = insignificant, 2 = tolerable, 3 = serious, or 4 = obstructive, according to you, in your research work.

1 2 3 4	Access to equipment	Lack of technician(s)	1 2 3 4
1 2 3 4	Purchasing equipment	Field work difficulties	1 2 3 4
1 2 3 4	Equipment repairs	Access to vehicle	1 2 3 4
1 2 3 4	Access to supplies	Access to scientific documentation	1 2 3 4
1 2 3 4	Lack of time	Data processing	1 2 3 4
1 2 3 4	Others (specify) _____		



## 6

**VII Relative importance of IFS support and future research goal**

44. Would you have pursued your research if IFS funding had not been made available?

- Yes, other support would have been available                       Yes, but on a reduced scale  
 Yes, but in a substantially different form                                       No  
 Yes, even without other support     Other (specify) \_\_\_\_\_

45. Since becoming an IFS grantee, has it become easier for you to obtain:

- |   | Yes                      | No                       |
|---|--------------------------|--------------------------|
| 1. Additional funding from your institution               | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Additional funding from a national funding institution | <input type="checkbox"/> | <input type="checkbox"/> |
| 3. Additional funding from an international institution   | <input type="checkbox"/> | <input type="checkbox"/> |

If yes to 3, give name \_\_\_\_\_

46. After receiving support from IFS, did it become easier for you to obtain scientific and technical assistance from your institution?

- Yes                       No

47. Has the IFS support provided opportunities to collaborate with new partners ?

- Yes                       No

48. Whenever applicable, did you continue to collaborate with them once the support was terminated ?

- Yes                       No                       Not applicable

49. How would you assess the IFS mode of work and support to your research work ? (1 = unacceptable, 2 = poor, 3 = satisfactory , 4 = good and 5 = excellent)

- 1 2 3 4 5 Selection process  
 1 2 3 4 5 Grant administration (including transfer of funds)  
 1 2 3 4 5 Monitoring and follow-up of projects  
 1 2 3 4 5 Contacts with IFS staff  
 1 2 3 4 5 Purchase of research equipment  
 1 2 3 4 5 Maintenance of research equipment  
 1 2 3 4 5 Access to literature  
 1 2 3 4 5 Research training  
 1 2 3 4 5 Scientific counselling  
 1 2 3 4 5 IFS organized workshops  
 1 2 3 4 5 Networking activities  
 1 2 3 4 5 Assistance in the publication of your research results  
 1 2 3 4 5 Follow up activities once the supported project is terminated  
 1 2 3 4 5 Other (specify) \_\_\_\_\_

50. What is your future career goal?

- National scientific career                       Career in administration                       Career in politics                       Private business  
 Own consultancy or medical practice                       Career within national development programs                       Career within foreign or international organisations                       Other (specify) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Thank you for your co-operation. Please return the completed questionnaire together with a complete list of publications (articles, books, papers in proceedings, reports, etc...) in the original language of publication, including names of co-authors, full titles of articles, books, papers, scientific journals, volume(s), first and last pages, date of publication, etc..., and **mark with an asterisk in the margin the ones which are directly derived from IFS support.**