

ISNAR

Medium-Term Plan 1988 – 1992

ISNAR

International Service on National Agricultural Research

The International Service for National Agricultural Research (ISNAR) began operating at its headquarters in The Hague, Netherlands on September 1, 1980. It was established by the Consultative Group on International Agricultural Research (CGIAR), on the basis of recommendations from an international task force, for the purpose of assisting governments of developing countries to strengthen their agricultural research. It is a non-profit autonomous agency, international in character, and non-political in management, staffing, and operations.

Of the 13 centers in the CGIAR network, ISNAR is the only one that focuses primarily on national agricultural research issues. It provides advice to governments, upon request, on research policy, organization, and management issues, thus complementing the activities of other assistance agencies.

ISNAR has active advisory service, research, and training programs.

ISNAR is supported by a number of the members of CGIAR, an informal group of approximately 43 donors, including countries, development banks, international organizations, and foundations.

Citation:

International Service for National Agricultural Research. ISNAR Medium-Term Plan 1988-1992. September 1987. The Hague, Netherlands.

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September 1987

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ISNAR MEDIUM-TERM PLAN (1988-1992)

I. THE ISNAR PROGRAM: AN OVERVIEW

This document presents the ISNAR action plan for the period 1988-1992. The plan is based on ISNAR's recently completed statement of strategy. It gives operational content to that strategy, gives practical meaning to strategic concepts, and adds resource and time dimensions.

The plan also links the products of ISNAR programs and activities with both institutional goals and available resources. (See Table 1.)

This linking process consists of seven steps:

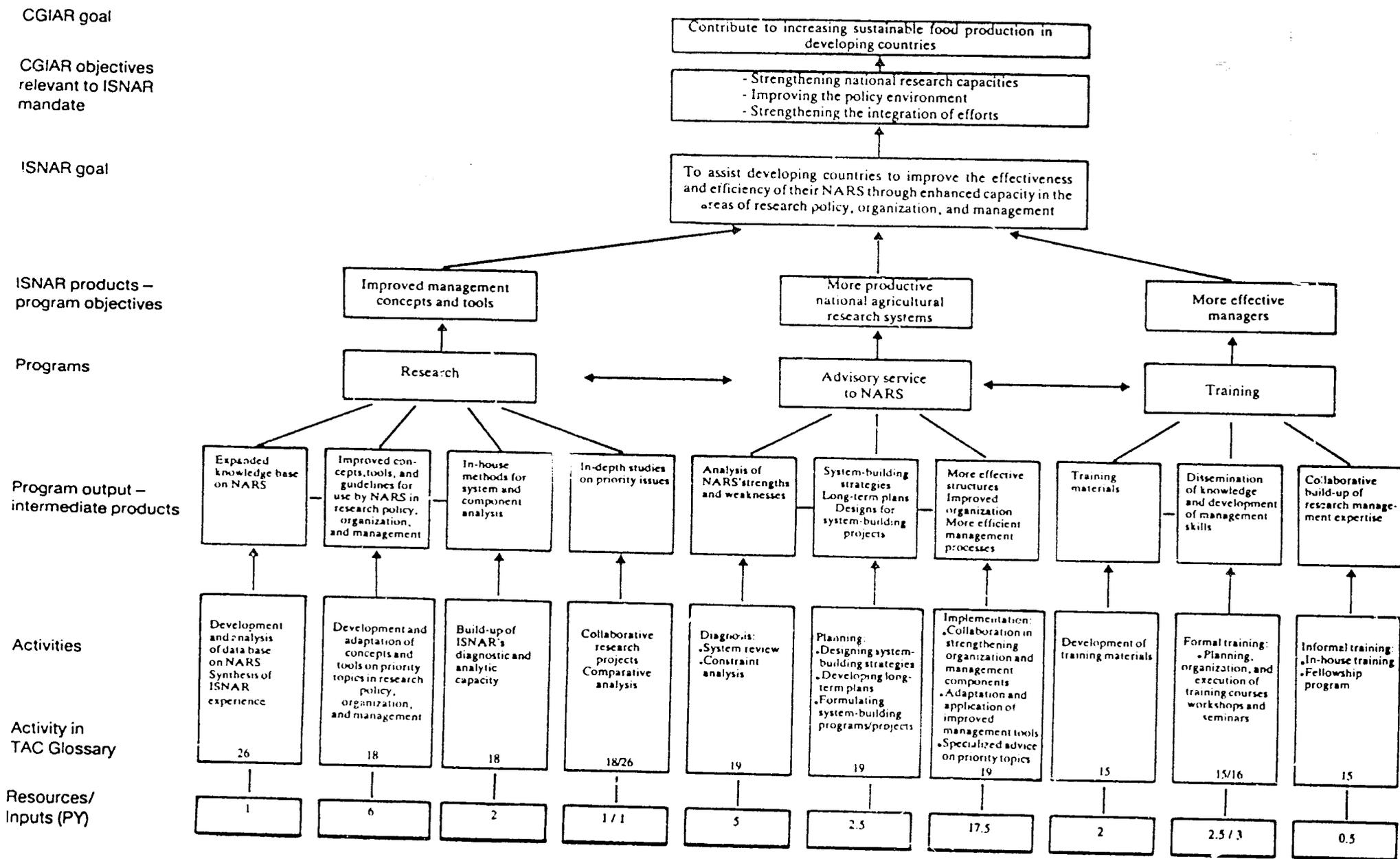
- (1) Linking the ISNAR Goal with the objectives of the CGIAR SYSTEM.
- (2) Translating the long-term goal into three operational objectives.
- (3) Defining three programs in pursuit of these objectives.
- (4) Determining types of activities to be conducted under each of these programs to reach the objectives.
- (5) Defining the products or outputs of these activities.
- (6) Determining the standard costs of these products or outputs.
- (7) Allocating resources to these products/activities.

This document has two purposes: (1) to present the ISNAR plan for the five-year period 1988-1992; and (2) to present the ISNAR plan and budget for 1988, the first year of this quinquennium.

It seeks to provide answers to several questions.

- (1) What decisions has ISNAR made about its programs?
- (2) What effects will these decisions have on the structure and priorities of the organization?
- (3) What will implementation of these decisions cost?
- (4) How does ISNAR propose to move from its current program to a considerably expanded program in 1992?

Table 1. The ISNAR program: goal, program objectives, activities and program outputs



IA. THE CHALLENGE: ISNAR'S ROLE IN THE CGIAR SYSTEM

The rationale for the creation of ISNAR had three parts. (a) Agricultural growth is the basis for rural socioeconomic change. (b) Such growth can only occur if research organizations develop new materials and techniques. (c) Research organizations cannot perform this development task if they are inadequately planned and managed.

More than fifteen years of donor experience had convinced the CGIAR that further progress in many national agricultural research systems (NARS) depended largely on improved planning, organization, and management. The task force which recommended the creation of ISNAR even went so far as to say that management weakness was "at the root of the (agricultural research) problem in most countries".

IB. THE ISNAR MANDATE

Specifically, therefore, ISNAR's mandate declares that the organization will concentrate its efforts "largely on planning, organizational, and management issues".

Such a mandate clearly sets ISNAR apart from other agricultural research and development institutions in the international community. Past concerns in agricultural research have been mainly for the development of new technologies and for the growth of professional staffs. Much still remains to be done in both areas. But relatively few institutions have been willing to take on long-term commitments "at the level of overall research planning, organization, and management". ISNAR exists to fill this gap.

IC. THE ISNAR GOAL

The ISNAR goal is "to assist developing countries to improve the effectiveness and efficiency of their agricultural research systems through enhanced capacity in the areas of research policy, organization, and management."

In pursuit of this goal, ISNAR programs are designed to achieve three objectives.

- (1) More productive research systems: to support NARS in their system-building efforts in order to enhance the systems' productivity and strengthen their contribution to agricultural development.
- (2) More efficient management tools: to develop improved concepts, tools, and analytical procedures which NARS can use to improve policymaking and management.
- (3) More effective managers: to support NARS leaders in the development of their management capabilities.

ID. THE ISNAR PROGRAM

ISNAR's three programs - ADVISORY SERVICE TO NARS, RESEARCH, and TRAINING - are in turn targetted at these program objectives.

These three programs are interdependent and mutually supporting. The outputs of one depend on the inputs of others. For example, a research project may provide data needed for the preparation of training materials, as well as providing insights needed to develop management recommendations for NARS leaders. Or an advisory service activity may provide feedback on priorities to both research and training activities.

IE. THE FOCUS OF ISNAR'S PROGRAM: 12 CRITICAL FACTORS

On the basis of its experience, ISNAR has identified twelve critical factors which determine the effectiveness of a NARS. These twelve can be grouped under three heads: the policy environment, structure and organization, and management processes. ISNAR works with NARS leaders to achieve the three objectives, noted earlier, in each of these twelve areas.

CRITICAL FACTORS IN BUILDING EFFECTIVE NARS

The Policy Context of Agricultural Research

- * Interactions between national development policy and agricultural research
- * Formulation of agricultural research policy: priority setting, resource allocation, and long-term planning

Structure and Organization of Agricultural Research

- * Structure and organization of research systems
- * Linkages between NARS and policymakers
- * Linkages between NARS, the technology transfer system, and users of agricultural technology
- * Linkages between NARS and external sources of knowledge

Management of Agricultural Research

- * Program formulation and program budgeting
- * Monitoring and evaluation
- * Information management
- * Development and management of human resources
- * Development and management of physical resources
- * Acquisition and management of financial resources

IF. CONSIDERATIONS IN BUILDING ISNAR'S FIVE-YEAR PLAN

As ISNAR has moved to develop a five-year plan, it has had to take four important considerations into account.

- (a) Most important, the needs of and requests from NARS. ISNAR is a service organization. Its planning has therefore been guided by an estimate of what the policy and management challenges facing NARS are likely to be in the years ahead. ISNAR continues to receive an increasing number of requests from NARS for advisory service in specific management areas, for assistance in the development of planning approaches and management tools, and for management training in particular subjects.
- (b) Balance between programs. ISNAR's three programs are complementary in their contribution to NARS and are in a logical balance to each other. Final demand for advisory service creates demand for training activities and for the products of the research program. For the program to be sustainable, the balance among advisory service to NARS, the development of new products, and their dissemination through training must be maintained. ISNAR has determined that its minimum program, and any planned activities bringing it up to optimum size, would give the approximate breakdown among programs as follows: Advisory Service (50%), Research (20%), Training (20%), Program Support (5%), and General Management (5%).

Support and management costs have been kept at a low level largely because of the non-hierarchical structure of the ISNAR organization and its decentralized approach to program management.

- (c) Balance within programs. Just as there are interdependencies between programs, so there are interdependencies within them. In its planning, ISNAR has therefore had to pay considerable attention to sequences and prerequisites. For example, within the Advisory Service Program, a system review may lead almost inevitably to ISNAR involvement in planning and implementation. Or, within the Training Program, the development of specifically tailored materials is often an essential input to the staging of a workshop. ISNAR must therefore include in its planning an estimate of its capacity to work with NARS at many different stages of the management development process.
- (d) Balance between regions. ISNAR has taken care to strike a reasonable balance in the allocation of its resources between Africa and other geographic regions. The following table presents the planned geographic spread of ISNAR advisory service, research, and training activities. Most research activities are comparative and cross-regional in nature.

TABLE 2. Geographic Focus of the ISNAR Program

	Africa	Asia	LatAmerica	WANA*	Global
Advisory Service	50%	20%	20%	10%	
Research	20%	10%	10%	10%	50%
Training	30%	15%	15%	10%	30%

II. PROGRAM OBJECTIVES: 1988-1992

This chapter presents substantive details of the three ISNAR programs for the medium-term plan period. Estimates of resources required for each program have been based on analyses of ISNAR experience to date.

The programs presented and the resources estimated are based on an optimum scenario. This scenario is one of two which ISNAR has prepared for the period 1988-1992. The other is a minimum one, which provides for a nucleus or critical mass of personnel. ISNAR requires 34 person-years of senior staff time if it is to carry out a basic sustainable program. The optimum scenario provides for 49 person-years of senior staff time. With this level of resources, ISNAR will be able to develop the type of program which makes it a legitimate research-based service.

Both scenarios are described in detail throughout this report, as are plans for reaching the optimum level.

IIA. ADVISORY SERVICE TO NARS

The advisory service program constitutes ISNAR's central thrust. Its objective is to assist NARS in the strengthening of their policymaking and management capabilities. ISNAR staff in this program work directly with NARS leaders to identify appropriate management strategies and to develop new management procedures. By 1992, ISNAR expects to be working intensively with approximately 28 NARS in its advisory service program.

The question of which NARS to select for intensive cooperation is an important internal management issue. The first prerequisite, of course, is the presence of a clear and specific request from a NARS for an activity within ISNAR's mandate. But requests continue to run beyond ISNAR's capacity to respond. Criteria which ISNAR then uses to determine the intensity and duration of its commitment include the relevance to its mandate of the job to be done, equity in the choice of countries, probable impact, the commitment of the NARS to strengthening its policymaking and management, the existence of possible "demonstration effects" for other NARS, geographic spread, and efficiency in the use of resources. These criteria are discussed at more length in the ISNAR strategy publication.

ACTIVITIES WITHIN ADVISORY SERVICE. The advisory service program carries out three types of activities: diagnosis, planning, and implementation.

- (a) Diagnosis. Reviews of NARS to identify constraints to effective policymaking and management.
- (b) Planning. Development of strategies and plans to overcome these constraints.

- (c) **Implementation.** Assistance in the implementation of these plans, including in some cases the posting of ISNAR staff in advisory positions within NARS.

In the cases of some NARS, ISNAR may cooperate on only one of these activities. But in most cases, ISNAR recommends that all three activities be carried out and that all three be seen as part of a single package. The sequence is as above: first a review, then development of a plan, then implementation.

The fact that ISNAR usually prefers to cooperate on the basis of such a package is evidence that it regards its commitment to every NARS with which it works as potentially intensive and long-term.

ISNAR has estimated the resources required - in manpower terms - for each of these three activities. Such estimates are rough, but they do provide an essential basis on which to plan. The balance between the three activities is likely to be considerably different in 1992 than it was in 1982. While the emphasis in ISNAR's early years was on reviews to identify constraints (Activity No. 1), the emphasis by 1992 is expected to be much more on the development of plans (Activity No. 2) and particularly on the implementation of those plans (Activity No. 3). This shift reflects two developments: first, the changing nature of NARS' requests to ISNAR, and second, the evolving capacity of ISNAR to respond to those requests.

The following paragraphs describe each of the three activities of the advisory service program in more detail.

- (a) Reviews of NARS to identify constraints to effective policymaking and management. In the case of most NARS, such a review will be of the entire agricultural research system (e.g., ministries, councils, institutes, parastatals, universities, and non-governmental organizations). But in some cases, the review may be more focused on a particular organization or on performance of a particular management function. The products of either type of review are: (a) the identification of important constraints to effective management; and (b) the identification of possible solutions.

ISNAR intends to carry out about four reviews per year. These reviews will be undertaken both in countries with which ISNAR has not worked before, and in countries with which ISNAR has been cooperating but where changed circumstances indicate a need for further analysis. Two of the four reviews per year are likely to be in Africa.

ISNAR estimates that twelve person-months of senior staff time (1.25 person-years) are required to carry out a full review. This level of resource commitment does not vary much, even though NARS are obviously of different sizes and different levels of complexity. In cases of smaller and/or less complex systems, the skills required of

ISNAR staff may be more "generalist" - while in cases of larger and/or more complex systems, those skills may be more "specialist". In the latter, considerable work can be done by national teams using specialized inputs from ISNAR.

At 1.25 person years each, the four reviews planned per year will therefore require 5 person-years. This amount represents roughly 30% of the headquarters-based resources allocated to the advisory service program.

- (b) Development of strategies and plans to overcome these constraints. This activity is a logical follow-up from a review. The objective is to put the conclusions of the review into operation. Products may range from a long-term plan providing for organizational change to a series of short-term projects addressing specific management problems. Such plans/projects are always developed jointly by NARS leaders and by ISNAR. Often, they form the basis for NARS collaboration with external donors.

In each of the next five years, ISNAR intends to cooperate with NARS in four planning/project preparation exercises.

ISNAR estimates that six person-months of senior staff time (0.65 person-years) are required to participate in the development of a long-term plan or special project. Four such commitments per year will therefore require approximately 2.5 person-years. This amount represents roughly 15% of the headquarters resources allocated to the advisory service program.

Because ISNAR works closely with NARS leaders on the development of plans/projects, it is able to have a significant impact in spite of this relatively low level of resource commitment. The initiative for planning comes from NARS leaders themselves, and much of the detailed preparation work is done by NARS staff. As a result, ISNAR's role is more that of an advisor and/or catalyst than that of a doer.

- (c) Assistance in the implementation of plans, including in some cases the posting of ISNAR staff in advisory positions within NARS. Once again, the initiative for this activity lies with NARS. ISNAR assists by working with NARS leaders to identify appropriate management strategies, to adapt management procedures which have been successful in other NARS, and to cooperate in the institutionalization of such procedures. It may also act as an intermediary in developing relationships between NARS and specialized management and training institutions in other countries.

ISNAR intends to cooperate with NARS on the implementation of management improvement plans in approximately 20 countries per year. Each such commitment is estimated to require on the average 5 person-months of senior staff time. The resulting 10.5 person-years represent roughly 55% of the headquarters resources allocated to the advisory service program.

The composition of this group of approximately 20 NARS that ISNAR will work with, will not be static throughout the planning period.

Changes will occur as collaboration with some NARS decreases or terminates and collaboration with others commences or resumes. The factors bringing about such turnover are discussed on page 11.

While it is difficult to estimate the length of any ISNAR involvement, we need to stress that institution-building is a long-term process. Periods of intensive collaboration and resource commitment may alternate with periods of less intensive ISNAR involvement.

In addition, in some cases, a decision will be made to post a senior staff member to an advisory position within a NARS. ISNAR and the NARS will make such a decision when implementation of plans seems to require the continuous presence of a research management specialist. In this case, the ISNAR staff member will provide continuity in ISNAR's relationship with the NARS, even though he/she will still require input from headquarters staff in particular management areas.

By the end of the medium-term plan period (1992), ISNAR intends to have seven outposted research management specialists. There are four now: three in Africa (Burkina Faso, Madagascar, Rwanda), and one in Asia (Indonesia). Seven persons represent just over one quarter of staff involved in the advisory service program.

RESOURCES FOR ADVISORY SERVICE (see Table 4)

- (a) Balance Among Activities Within The Program. The following table shows the proposed balance between review, planning, and implementation activities at both minimum and optimum staffing levels. (PY = person-years).

TABLE 3. Balance of Activities within Advisory Service Program

	<u>Minimum</u>		<u>Optimum</u>	
	<u>PY</u>	<u>%</u>	<u>PY</u>	<u>%</u>
Review	4	26%	5	20%
Planning	2	13%	2.5	10%
Implementation	8	53%	10.5	42%
Outposted Staff	<u>1</u>	<u>7%</u>	<u>7</u>	<u>28%</u>
	<u>15</u>	<u>100%</u>	<u>25</u>	<u>100%</u>

- (b) Resident Research Management Specialists. These outposted staff participate in all three of the ISNAR program areas within the NARS in which they work. They also promote collaborative action at the regional level (through networks on specific planning, organization, and management subjects). But they do not take on line management responsibilities, as their primary function is to assist in the build-up of management capacity among NARS personnel.

Outposted personnel are full ISNAR staff members and therefore fulfill all ISNAR requirements in terms of qualifications and performance. They represent an extension of ISNAR's core program into a NARS and into a region. They receive technical backstopping from ISNAR headquarters staff, particularly regarding the application of improved management tools (e.g., specialist advice in specific management areas).

Table 4.

Advisory Service to NARS: Activities and Resource Requirements

Collaboration in System- Building	TYPE OF ACTIVITY												RESOURCES						
	<u>Diagnosis</u>			<u>Planning</u>			<u>Implementation</u>			SUB-TOTAL			Management Specialists Placed in NARS		Total ISNAR Involvement				
	System-Review Constraint Analysis			Design of SB-Strategies Long-Term Plan Project Prep.			System-Building Efforts: Development of SB-Components												
	NARS	Unit Cost	Cost	NARS	Unit Cost	Cost	NARS	Unit Cost	Cost	NARS	Cost	Cost	NARS	PY	NARS	Total Staff Time PY	%	Average intensity of ISNAR invo. PY/NARS	
no.	PM	PM	no.	PM	PM	no.	PM	PM	no.	PM	PY	no.	PY	no.	PY				
Africa	2	12	24	2	6	12	7	5	35	11	71	7.5	(5)	5	11	12.5	50	1.1	
Asia	0.75	12	9	0.75	6	4.5	5.5	5	27.5	7	41	4.25	(1)	1	7	5.25	20	0.7	
Latin America	0.75	12	9	0.75	6	4.5	5.5	5	27.5	7	41	4.25	(1)	1	7	5.25	20	0.7	
WANA	0.5	12	6	0.5	6	3	2	5	10	3	19	2	-	-	3	2	10	0.7	
TOTAL	4	12	48	4	6	24	20	5	100	28	172	18	(7)	7	28	25	100	0.9	
% of HQ-based			30%			15%			55%			100%							
% of Total Resources			20%			10%			40%			70%			30%		100%		

1) Person-Year (PY) = 9.5 Person-months (PM).

- (c) Numbers of NARS. By 1992, ISNAR plans to be cooperating with 28 NARS in its advisory service program. This figure requires 25 senior staff person-years available for advisory service (18 at headquarters and 7 outposted).

The resulting 0.9 person-year per NARS reflects the ISNAR expectation of increasing commitment to specific planning and implementation activities.

As new NARS are added to the list of those with which ISNAR cooperates most intensively, involvement with others will have to be (at least temporarily) decreased. Three types of development may lead to a less intensive ISNAR involvement with a NARS.

- (1) Completion of the review, planning, or implementation task(s) upon which ISNAR and the NARS have originally agreed.
 - (2) Entry into a period in which the balance of effort required between ISNAR and the NARS shifts significantly toward the NARS.
 - (3) Shift to more extensive forms of ISNAR/NARS cooperation, e.g., research and/or training.
- (d) Intensity of ISNAR Involvement. ISNAR plans that the intensity of its involvement with NARS in Africa will be higher than with NARS in other parts of the world. It expects a resource commitment of 1.1 person-years per African NARS, as compared with 0.7 person-years per non-African NARS.

The reason for this difference is the intention to place 5/7 of the outposted research management specialists to Africa. If these outposted staff are excluded from the above calculation, the resource commitment per NARS is expected to be similar for all NARS (i.e. about 0.5 person-years).

- (e) Regional Balance. Of the 28 NARS with which ISNAR expects to work in its advisory service program, 11 are likely to be in Africa, 7 each in Asia and Latin America, and 3 in West Asia/North Africa.

In terms of human resources, 12.5 of the projected 25 person-years available for advisory service are expected to be assigned to Africa, 5 each to Asia and Latin America, and 2.5 to West Asia/North Africa. These figures include the seven outposted staff.

IIB. THE RESEARCH PROGRAM

The research program is an essential input to the development of ISNAR's capacity as a service organization. One objective of the program is to generate knowledge about NARS which permits cross-country comparison and synthesis of experience. ISNAR must do research if it is to develop the planning approaches and management tools which NARS request and require.

A further objective of the research program is to multiply the results achieved by the advisory service. ISNAR can work intensively in only 20-30 NARS at one time. But the research program, by taking this ISNAR experience and combining it with experience reported by other NARS, can develop products of wide applicability. One example may be a methodology for allocating research resources across commodities and regions. Another may be a set of program budgeting procedures. Still another may be a format for setting up a management information system for research.

As NARS requests to ISNAR move much more in the direction of planning and implementation, the need for such approaches and tools developed through research can be expected to increase.

ACTIVITIES WITHIN THE RESEARCH PROGRAM. The research program carries out four types of activities which can be distinguished by their intended clients, focus, and intensity of development.

- (a) Development of a knowledge base on NARS.
- (b) Development of improved planning approaches and management tools for use by NARS. Intensive involvement in six of the twelve planning and management areas listed in Chapter 1. Outputs to include practical products for NARS leaders.
- (c) Build-up and maintenance of in-house diagnostic capacity in the remaining six of the twelve areas. Output to include materials which will allow the impact of these factors to be studied as part of a systems approach.
- (d) Special studies in response to specific requests from either NARS or donor agencies.

The following paragraphs describe each of the four components of the research program in more detail.

- (a) Development of a knowledge base on NARS. ISNAR has already made substantial progress in the establishment of a cross-national database containing information on NARS' organizations, programs, personnel, and financial resources. This database provides both ISNAR staff and NARS leaders with an important resource for comparative analysis.

Information included comes from a wide variety of sources: ISNAR reviews and planning exercises, published documents, and surveys sent to NARS leaders. Such data collection is often carried out in association with regional organizations. ISNAR expects to continue to work with these organizations and with NARS on the development of procedures for keeping information in the database relevant and current. The database will be in the public domain, and will therefore be available on microcomputer diskette(s) to NARS, research institutes, and donor agencies.

In the course of the medium-term plan period (1988-1992), ISNAR intends to publish at least one book and a series of analytical papers using information from the database.

ISNAR estimates that one person-year of senior staff time is required to continue development of the database and to undertake analyses of information from it. This amount represents roughly 10% of the resources allocated to the research program in the optimum scenario.

(b) Development of improved planning approaches and management tools for use by NARS. Six areas selected for intensive involvement. ISNAR has identified six of the twelve policy and management areas noted in chapter 1 on which it will concentrate in the period 1988-1992. If and when more resources become available, it will move intensively into the remaining six. The priority areas selected are:

- (1) Formulation of agricultural research policy: long-term planning, priority setting, and resource allocation.
- (2) Structure and organization of research systems.
- (3) Linkages between NARS, the technology transfer system, and users of agricultural technology.
- (4) Program formulation and program budgeting.
- (5) Program monitoring and evaluation.
- (6) Human Resources development and management.

The objective of work in each of these areas is the development of new, improved, and practical approaches to planning, organization, and management. Specific products are likely to include guidelines and "how to" manuals, as well as more analytic working papers.

In order to support the work of the research program in each of the primary six areas, as well as in the secondary six, ISNAR has created twelve working groups. Each such group is composed of staff from a variety of disciplines and experiences, thereby ensuring that each subject is approached from a variety of perspectives. Each senior staff member serves on approximately three such groups. Through this mechanism, each member of the ISNAR senior staff becomes an active member of the research program.

ISNAR estimates that one person-year of senior staff time is required for the development of improved approaches and tools in each of the six concentration areas. This activity therefore takes six person-years, or roughly 50% of the resources allocated to the research program in the optimum scenario.

(c) Build-up and maintenance of an in-house diagnostic capacity in six areas. As noted above, these six areas are ones for which ISNAR will not have the resources necessary to do concentrated work in the medium-term plan period. They are:

- (1) Interactions between national development policy and agricultural research
- (2) Linkages between NARS and policymakers
- (3) Linkages between NARS and external sources of knowledge
- (4) Information management
- (5) Development and management of physical resources
- (6) Acquisition and management of financial resources.

The objective of work in these six areas will be the development of a minimum analytical capacity which can be built on when and if additional resources become available. Specific activities will include literature reviews, identification of priority subjects for future study and action, and maintenance of contact with other research organizations working on these areas. It represents a solid capacity to borrow management approaches and apply them in ISNAR's work.

ISNAR estimates that one-third of a person-year of senior staff time is required to develop and maintain this functional capacity in each of the secondary six areas. Such activity therefore takes two person-years, or roughly 18% of the resources allocated to the research program. ISNAR believes that such a level is low given the growing number of requests from NARS in these particular planning, organization, and management areas; but realistic in view of the overall projected program size.

(d) Special studies in response to specific requests from either NARS or donor agencies. Such studies may be concerned with any of the twelve policy, organization, and management areas in which ISNAR works, or with special analyses using the database. They may come about in a number of ways. For example:

- (1) as a result of a priority need identified in the course of a NARS/ISNAR cooperative program;
- (2) as a result of an initiative taken by one of the internal ISNAR working groups;
- (3) as a result of a specific demand from the donor community.

Several such special studies have already been undertaken. In 1986, ISNAR provided technical leadership to a SPAAR (Special Project for African Agricultural Research) working group on the development of guidelines for long-term research strategies for African NARS. In 1987, it carried out an inventory of CGIAR activities in sub-Saharan Africa for the CG task force on Africa. It has also participated in a cross-national study of organizational, financial, and human resources issues facing West African NARS.

A major study of planning and management issues confronting on-farm client-oriented research in nine countries is nearing completion. And finally, largely in response to requests from NARS directors at a meeting at ISNAR in late 1986, a cross-national study of research/extension linkages has just been begun. Both studies follow the collaborative approach and are conducted with the full participation of NARS.

ISNAR estimates that at least two person-years of senior staff time annually are required for such special studies. Such activity therefore takes roughly 18% of the resources allocated to the research program in the optimum scenario and represents an important response capacity of ISNAR.

RESOURCES FOR THE RESEARCH PROGRAM (see Table 6)

- (a) Staffing. The (advisory) service ethic at ISNAR remains strong, with the result that ISNAR staff have so far been unable to dedicate to research the minimum amount of time per topic which the production of solid products requires. Internal working groups have prepared literature reviews on their subject areas, but progress beyond that point has been uneven. Only a few systematic attempts to develop and to test improved planning approaches and management tools have been undertaken.

As a result of such considerations, ISNAR plans to increase significantly its human resource commitment to the research program. In the course of the medium-term plan period, the number of person-years devoted to research will rise from 6 to 11. Moreover, through judicious use of consultants and contract research ISNAR can stimulate additional research on areas critical to its work.

- (b) Resource Allocation by Activity and Output. These eleven person-years will be divided between the four activities described in detail above as follows:

TABLE 5. Focus of Research Activities by Product

	<u>PY</u>	<u>%</u>
Database	1	9%
Dev. of Management Tools	6	55%
In-House Diagnostic Capacity	2	18%
Special Studies	2	18%

Table 6.

The Research Program: Activities and Resource Requirements							
	TYPE OF ACTIVITY					RESOURCES	
	Development of Knowledge Base on NARS PY	Development of Management Tools and concepts PY	Maintenance of ISNAR Diagnostic Capacity PY	SUB-TOTAL PY % PY		Special Studies on Priority Issues PY	Total ISNAR Involvement PY
NARS DATABASE	1			1	10%	2*	3
POLICY		1	0.33	1.30	15%		1.33
* Interactions between national development policy and agricultural research.			0.33				0.33
* Formulation of agricultural research policy: priority setting, resource allocation and long-term planning.		1					1
ORGANIZATION		2	0.67	2.70	30%		2.67
* Structure and organization of NARS.		1					1
* Linkages between NARS and policy makers.			0.33				0.33
* Linkages between NARS, the technology transfer system, and users.		1					1
* Linkages between NARS and external sources of knowledge.			0.33				0.33
MANAGEMENT		3	1.0	4.0	45%		4.0
* Program formulation and program budgeting.		1					1
* Monitoring and evaluation.		1					1
* Development and management of human resources.		1					1
* Information management.			0.33				0.33
* Development and management of physical resources.			0.33				0.33
* Acquisition and management of financial resources.			0.33				0.33
TOTAL	1	6	2	9	100%	2	11
% Total Resources	10%	50%	20%	(80%)		20%	100%

* Special studies may fall in any priority area.

(c) Resource Allocation by Theme. If the two person-years for special studies are not included, the allocation of research resources between the database and the twelve planning/management areas are as follows:

TABLE 7. Focus of Research Activities by Management Issue

	<u>Primary</u> PY	<u>Secondary</u> PY	<u>TOTAL</u>	
			PY	%
<u>Database</u>	1		<u>1</u>	<u>11%</u>
<u>Policy Context</u>			<u>1.33</u>	<u>15%</u>
* Link between natl. development policy and agri.res.		.33		
* Formulation of agri.res. policy	1			
<u>Structure & Organization</u>			<u>2.67</u>	<u>30%</u>
* Within NARS	1			
* Linkages between NARS and policymakers		.33		
* Linkages between NARS, the tech.transfer system, and users	1			
* Linkages between NARS and external sources of knowledge		.33		
<u>Management Processes</u>			<u>4.00</u>	<u>44%</u>
* Program formulation & program budgeting	1			
* Program monitoring evaluation	1			
* Information development management		.33		
* Human Resources dev. and management	1			
* Physical Resources management		.33		
* Financial Resources management		.33		
Total	<u>7</u>	<u>2</u>	<u>9</u>	<u>100</u>

- (d) Evolution of Research Priorities Over Time. ISNAR expects that its research priorities will evolve over the course of the medium-term plan period. In some planning/management areas, existing knowledge will permit new approaches and tools to be developed more quickly than in others. For example, program formulation and program budgeting is likely to be one area for relatively rapid development. But after 3-5 years of intensive involvement, ISNAR expects that basic concepts and methodologies should be clear. Although NARS are likely to continue to request ISNAR cooperation in this area, the need for further major adaptive research will probably decline to maintenance levels and activities will become part of the service offered by ISNAR.

On the other hand, some planning/management areas are likely to be ones in which new issues and problems will continually arise. Human resources development and management may be one such area. Topics there which will probably deserve continuing attention include methodologies for training planning, career planning, and conditions of service for agricultural research scientists and managers.

The allocation of resources within the research program will therefore be less static than the above descriptions and tables might suggest. TABLE 8 provides a summary of how ISNAR envisages the focus of its research program to evolve during the medium-term plan period.

IIC. THE TRAINING PROGRAM

The objective of the training program is to strengthen the management capabilities of NARS leaders. In many NARS, rapid growth over the past 10-15 years has resulted in younger scientists with modest experience being promoted into senior positions. Such new managers are then immediately asked to formulate research strategies, plan programs, make budgets, manage personnel, and oversee physical facilities. There is considerable evidence that many of them lack the leadership skills and knowledge of management techniques which they require.

The ISNAR training program responds to this challenge in three ways.

- (a) By developing management training materials which can be used either by ISNAR or by other training institutions. Such materials are a major way in which ISNAR disseminates to NARS the insights gained from its advisory service and research programs. They are therefore an important means of "multiplying" the number of NARS with which ISNAR can maintain active contact.
- (b) By organizing and supporting training courses for NARS leaders. These courses may be inter-regional, regional, or national. Participants may include agricultural research policymakers, senior NARS managers, and/or middle-level NARS managers.
- (c) By providing informal, intensive training at ISNAR headquarters to individual NARS leaders.

Table 8: Focus of Research Program 1988 - 1992

	1988	1989	1990	1991	1992
NARS Database					
<i>POLICY</i>					
Interactions between national development policy and agricultural research					
Formulation of agricultural research policy: priority setting, resource allocation and long-term planning					
<i>ORGANIZATION</i>					
Structure and organization within NARS					
Linkages between NARS and policymakers					
Linkages between NARS, the technology transfer system and users					
Linkages between NARS and external sources of knowledge					
<i>MANAGEMENT</i>					
Program formulation and program budgeting					
Monitoring and evaluation					
Development and management of human resources					
Information management					
Development and management of physical resources					
Acquisition and management of financial resources					

INTENSIVE DEVELOPMENT

BASIC CAPACITY

SPECIAL STUDY

ACTIVITIES OF THE TRAINING PROGRAM. The activities of the training program fall into three categories. (a) Development of training materials. (b) Organization and support of formal workshops, seminars, and training courses. (c) Provision of informal, intensive training at ISNAR headquarters to individual NARS leaders.

The following paragraphs describe each of these three components of the training program in detail.

- (a) Development of training materials. The objective of this activity is to assemble and/or produce training materials in agricultural research policy, organization, and management. Such materials include training cases and exercises, simulations, audiovisuals, lectures, and readings.

An important characteristic of such materials is that they be generic and of wide applicability. In other words, they should be usable not only by ISNAR but also by regional and national training institutions. They should also be specific enough for use in regional and national contexts, while at the same time being flexible enough for adaptation for use in other parts of the world.

All members of ISNAR senior staff participate in the development of training materials. The working groups play an important role, as do staff members directly involved in research. All materials go through a process of testing and adaptation in actual training courses before they are widely disseminated.

The amount of time required to prepare a training case or a series of readings varies. Nevertheless, ISNAR estimates that an overall commitment of 2 person-years to this activity is reasonable. The 2 person-years represent 25% of resources allocated to the training program.

- (b) Organization and support of formal workshops, seminars, and training courses. As noted above, these events may be held at the inter-regional, regional, or national level. Participants may include agricultural research policymakers, senior NARS managers, and/or middle-level NARS managers.

By 1990, ISNAR expects to be sponsoring approximately 19 training events annually. These events can be categorized as follows.

- (1) Inter-regional events. Two per year are planned. The first will be for leaders of NARS with which ISNAR is cooperating intensively in its advisory service program. It will usually be held in The Hague and will be both a management workshop and a program consultation (at which NARS leaders will make an input into ISNAR's program planning). The second inter-regional event will bring together specialists in research management from NARS, universities, and R&D centers around the world to examine a specific issue of mutual concern. In 1988, for example, the workshop will focus on agricultural research policy.

ISNAR estimates that each such event will require 0.4 person-years of senior staff time for preparation, implementation, and follow-up. Two events will therefore require 0.8 person-years, or 10% of resources allocated to the training program.

- (2) Regional events. Such events provide an opportunity for NARS leaders in similar historical and geographic environments to focus on common problems. Five regional events per year are planned. Two will be held in Africa (in connection with ISNAR cooperative programs in the Sahel and in Southern Africa) - and one each will be held in Asia, Latin America, and West Asia/North Africa.

ISNAR estimates that each regional training event will require 0.3 person-years of senior staff time for preparation, implementation, and follow-up. Five events will therefore require 1.6 person-years, or almost 19% of resources allocated to the training program.

- (3) National events. Such events often fit very closely with activities being carried out jointly by a NARS and by the ISNAR advisory service program. They usually focus on particular national issues and emphasize the development of particular management skills and tools.

ISNAR plans 12 NARS-level training events per year. Four are projected for Africa, three for Asia, three for Latin America, and two for West Asia/North Africa.

ISNAR estimates that each such event will require 0.25 person-years of senior staff time. Twelve events will therefore require 3 person-years, or about 39% of resources allocated to the training program. ISNAR has allocated such a large proportion of its training resources to NARS-level events at the request of NARS leaders themselves, who argue that management change can only be effected through such intensive efforts within each system.

- (c) Provision of informal, intensive training at ISNAR headquarters to individual NARS leaders. ISNAR organizes such training when one person (or a small group of persons) seeks in-depth exposure to ISNAR work in a particular planning or management area. Often the idea for such a training visit has grown out of cooperation between a NARS and ISNAR in the advisory service program. At the time of the visit to ISNAR, the NARS leaders have the opportunity to work closely with a range of ISNAR staff on the development of solutions to specific management problems.

ISNAR estimates that 0.5 PERSON-YEARS of senior staff time will be required to plan and implement such informal training activities. This amount represents 6% of the resources allocated to the training program. The demands from NARS for training of this kind can be expected to grow. As ISNAR capacity to collaborate with such visitors grows, consideration may be given to development of more formal internship and/or fellowship activities.

RESOURCES FOR THE TRAINING PROGRAM (see Table 11)

- (a) Staffing. The training program is an effective complement to ISNAR's service and research programs. It is an important way of strengthening planning, organization, and management capabilities in those NARS with which ISNAR does not cooperate formally in its advisory service program.

ISNAR therefore plans to increase significantly its human resource commitment to the training program. In the course of the medium-term plan period, under the optimum scenario, the number of person-years devoted to training will rise from 5 to 8. This amount represents 16% of total ISNAR resources.

- (b) Resource Allocation by Activity. The following table summarizes data presented above (% = % of total training program resources).

TABLE 9. Balance of Activities within Training Program

	<u>PY</u>	<u>%</u>
Development of Training Mats.	2	25
Formal training: workshops, seminars, and training courses	5.5	69
Inter-regional	(0.8)	(10)
Regional	(1.6)	(20)
National	(3.1)	(39)
In-house training	<u>0.5</u>	<u>6</u>
	<u>8.0</u>	<u>100</u>

- (c) Resource Allocation by Region. The following table also summarizes data presented above (% = % of total training program resources).

TABLE 10. Geographic Focus of Training Program

	<u>PY</u>	<u>%</u>
Africa	2.2	30
Asia	1.3	15
Latin America	1.3	15
West Asia/North Africa (WANA)	1.0	10
Inter-regional	<u>2.2</u>	<u>30</u>
	<u>8.0</u>	<u>100</u>

Table 11.

The Training Program: Activities and Resource Requirements

Development of Training Materials	TYPE OF ACTIVITY											RESOURCES					
	Cost PM	Formal Training Events ¹ :									Informal Training:		Total ISNAR Involvement				
		Seminars			Workshops			Training Courses			In-House Training		Total ISNAR Involvement				
		Global		Cost PM	Regional		National			SUB-TOTAL		Cost PM	Total ISNAR Involvement				
No.	Unit Cost PM	No.	Unit Cost PM		Cost PM	No.	Unit Cost PM	Cost PM	No.	Cost PM	PM		PM	PY	% Total Resources		
Global	13	2	4	8													
Africa	3				2	3	6	4	2.5	10	2	8	21	2.2	30		
Asia	1				1	3	3	3	2.5	7.5	6	16	2	21	2.2	30	
Lat. America	1				1	3	3	3	2.5	7.5	4	10.5	1	12.5	1.3	15	
WANA	1				1	3	3	2	2.5	5	4	10.5	1	12.5	1.3	15	
								2	2.5	5	3	8	1	10	1.0	10	
TOTAL	19	2	4	8	5	3	15	12	2.5	30	19	53	5	77	8	100	
% TOTAL	25%			10%			20%			40%		70%	5%			100%	

¹ Estimated duration of training events: 1 week.

IID. PROGRAM SUPPORT

The objective of activities in this category is to support the advisory service, research, and training programs. ISNAR has three main types of support activities.

- (a) Publications. Publications are one of ISNAR's most important means of disseminating information about agricultural research planning, organization, and management. The audience of ISNAR publications ranges from leaders of NARS, to executives of donor agencies, to managers at international R&D organizations, to academics. The ISNAR mailing list in 1987 contains approximately 3000 entries.

ISNAR produces the following major types of publications in English, French, and/or Spanish as appropriate.

- (1) General publications. The Annual Report, the Annual Program and Budget, long-range planning documents, etc.
 - (2) The Country Activity Series. Reports or system-wide or problem-specific reviews of NARS.
 - (3) The Research Management Series. Papers on general planning, organization, and management issues in agricultural research.
 - (4) The Working Paper Series. Staff papers on specific planning, organization, and management subjects.
 - (5) The Training Materials Series. Cases, exercises.
 - (6) Conference Proceedings.
- (b) Library and Documentation. A well-focused and easy-to-use library is essential for the advisory service, research, and training programs. It is used both by ISNAR staff and by NARS leaders (either when they visit ISNAR or when they request help in locating specific materials).

The ISNAR library includes NARS publications, donor publications, periodicals, and general reference works. Over the medium-term plan period, ISNAR expects to improve its access to various computer-based databanks around the world and to explore more advanced methods of information storage and retrieval.

- (c) Program Development and Coordination. ISNAR is in the process of developing an internal Project Management System. The product of this system will be continuous and current information on ISNAR program activities, finance, and personnel. The objective is to provide both ISNAR management and its donor agencies with data necessary for effective planning, monitoring, and evaluation. A by-product will be greater responsibility for individual ISNAR staff members in project design and execution.

A Program Development Coordinator maintains the information system, in addition to coordinating the development and financing of special projects.

These three support activities require two person-years of senior staff time. (See Table 12.)

IIE. MANAGEMENT AND ADMINISTRATION

ISNAR management is responsible for the development of strategy and program, the monitoring of implementation, and the evaluation of results. It consists of a Director General, two Deputy Directors General, and an Administrative Officer.

Each of the two Deputy Directors General devotes half of his time to management and half to program work. One is responsible for ISNAR collaboration with NARS and the other for Research and Training. The Administrative Officer is responsible for finance, personnel, physical facilities, and general administration.

ISNAR management therefore consists of three person-years of senior staff time.

TABLE 12. Program Support and Management: Activities and Resource Requirements

<u>Activities</u>	<u>Resources</u>	
	PY	
Program Support	2	
Publications/Information Dissemination		1
Library/Documentation ¹		
Program Development Coordination		1
Management ²	3	
Management		2
Administration and Finance		1
Total	<u>5</u>	

Notes:

- 1 The library/documentation unit is managed by a research associate.
- 2 ISNAR management consists of a DG, two DDG's who each contribute 50% of their time to management functions (the balance being allocated to program development) and an Administrative Officer.

Table 13. Resource Allocation Across ISNAR Programs Optimum Scenario

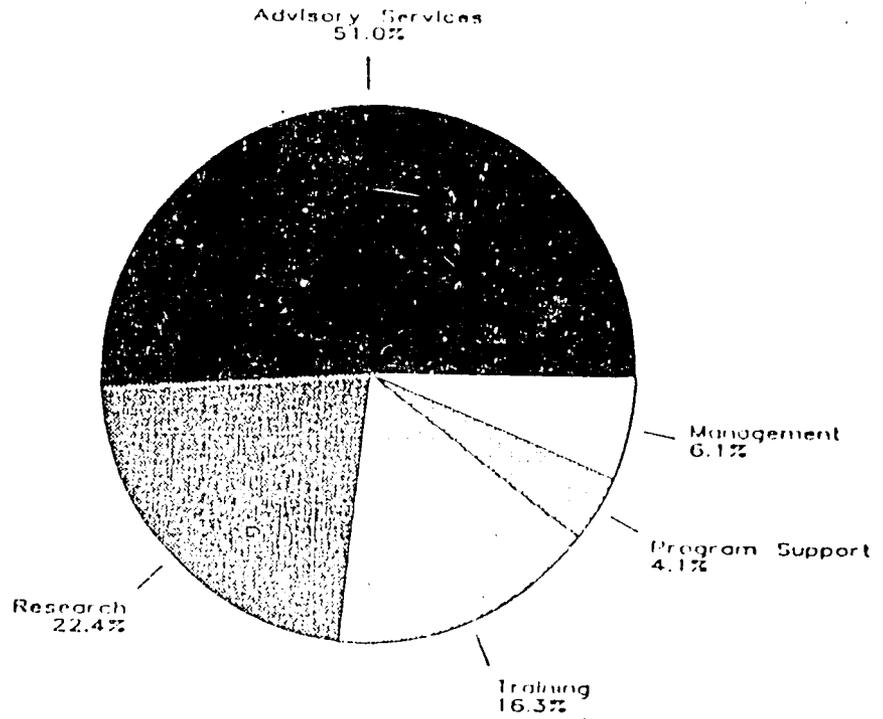


Table 14. Breakdown of Advisory Service Program Optimum Scenario

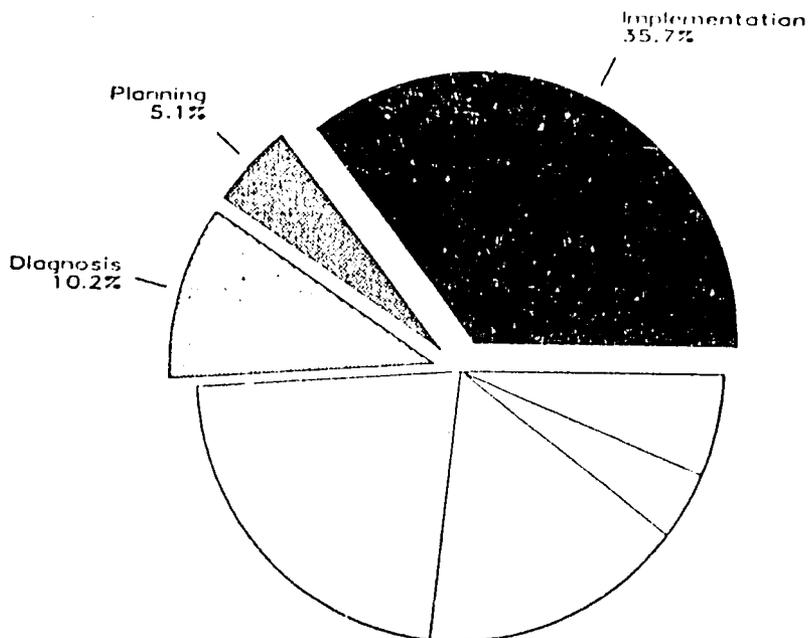


Table 15. Breakdown of Research Program Optimum Scenario

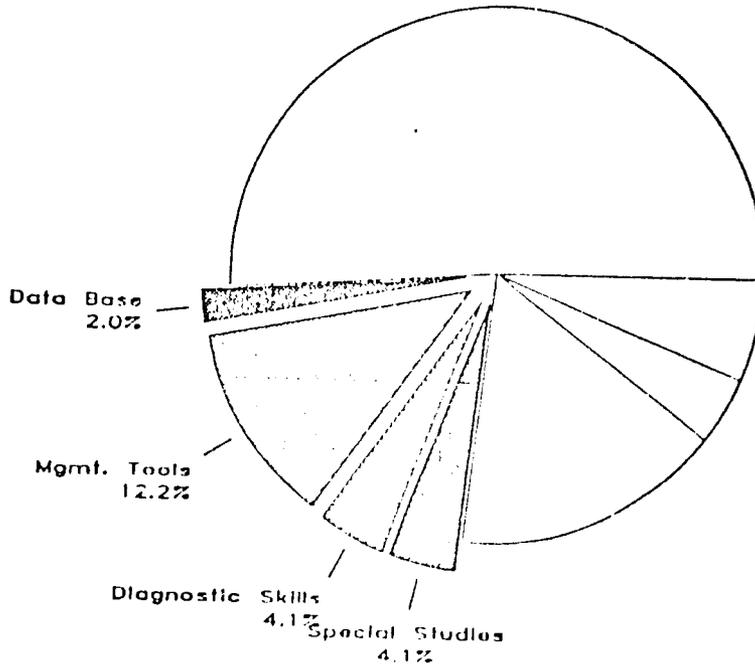
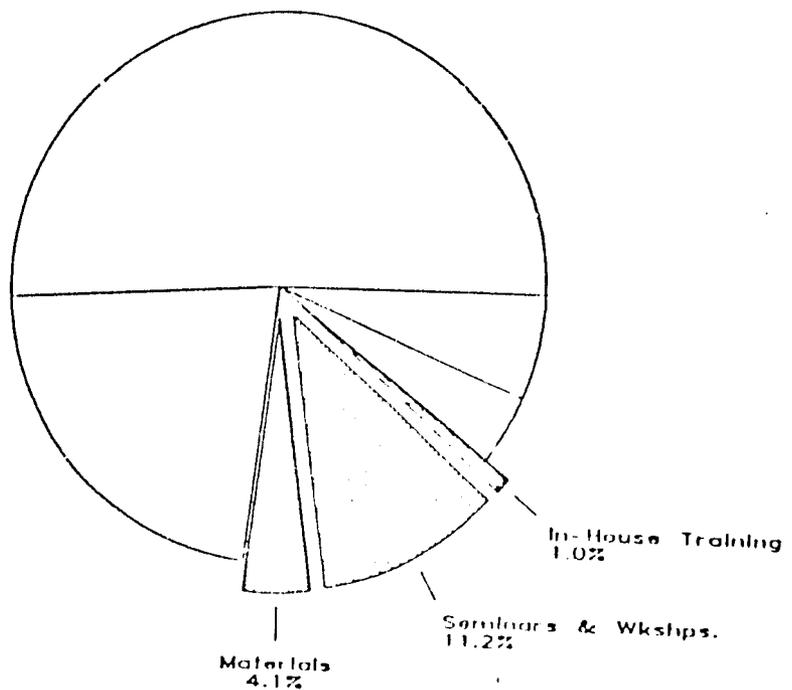


Table 16. Breakdown of Training Program Optimum Scenario



III. SCALE OF OPERATIONS: MINIMUM PROGRAM NEEDS AND OPTIMUM PROGRAM SIZE

IIIA. CONCEPTS USED IN DEFINING THE SCALE OF OPERATIONS

In defining the scale of operations, ISNAR used four concepts:

- (a) Minimum Program. The minimum program is the threshold which ISNAR must attain if its service to NARS will be adequately supported by research and training activities. It is a supply-side concept describing the critical mass needed at ISNAR: in research to develop appropriate tools and management approaches adapted to NARS; in training to produce training materials and organize the minimum number of workshops required for regional testing of the improved approaches and for the dissemination of information about ISNAR products; and in advisory service to provide the minimum level of service to NARS ensuring adequate geographic and program balance. It implies sustainability and continuous relevance of ISNAR's service through balanced development of research and training along with the necessary management and program support.

- (b) Base Program ("Essential" in TAC vocabulary). The "base" program has both supply and demand considerations. On the supply side, it must be at least as large as the "minimum" program or critical mass. On the demand side, the base program may be larger than that implied in the minimum program if donors and clients believe it is "essential" for ISNAR, acting in its service role, to reach a larger number of NARS and have resources to produce training materials, deliver training events, and develop improved management tools that sustain this service. It represents, therefore, an intersection between ISNAR's ability to supply, in an efficient fashion, the mix of activities described in the Medium Term Plan and the essential level of effective demand expressed by clients and donors. The size of the base program is to be determined by TAC in the light of the above considerations.

- (c) Additional Activities. In the present Medium Term Plan, ISNAR has considered that its base program and minimum program may coincide. However, the TAC and CGIAR may determine that it is "essential" for ISNAR to have an impact on a larger group of beneficiaries than implied in the minimum. ISNAR sees "additional" activities as building on the minimum program in balanced fashion by adding advisory service, training, and research support in the correct proportions. These activities are identical in character and balance to those in the minimum program; thus expansion is a question of scale. Some "additional" activities may be considered "essential" by TAC and donors and thus included in the "base" program. Beyond this level, additional activities could be considered "desirable" in the terminology proposed by TAC.

- (d) Optimum Program. The optimum program represents sustainable level of operations which maintains ISNAR's program balance, is consistent with ISNAR's management capacities and operational style, and keeps a balance both among and within activities of the different programs. It is the minimum program plus additional activities, all of which may be considered "essential" from the point of view of clients and donors. It is attainable without loss of efficiency and without changing the integrated nature of ISNAR's program and management. It is not a firm maximum but it represents a level beyond which ISNAR would not attempt to grow in the current planning period. Exceeding the optimum would imply overly rapid expansion for efficiency and a likely change in the management structure and operating style of ISNAR.

IIIB. CONSIDERATIONS IN DETERMINING PROGRAM SIZE

ISNAR took four considerations into account in defining the size of its 1988-1992 plan.

- (a) Demand considerations - Needs and requests of NARS. ISNAR is a service organization. As noted in Chapter 1, its planning is therefore continually guided by an estimate of what the policy and management challenges facing NARS are likely to be in the years ahead.

NARS demand for ISNAR products and services has always outpaced the capacity of the organization to respond. This unbalanced relationship between demand and supply is expected to continue throughout the period 1988-1992.

There are 96 NARS in the developing world, all of which could potentially request ISNAR collaboration. ISNAR does not a priori rule out collaboration with any specific NARS on grounds of size, state of advancement or regional considerations. It does, however, determine its response to requests from NARS on the basis of clearly defined priority considerations. ISNAR has decided to emphasize in its five-year plan activities which have the maximum potential multiplier. In practice, such a strategy means increased attention to the RESEARCH and TRAINING programs - both of which generate and extend improved management tools for use by NARS leaders.

- (b) Supply considerations - ISNAR's capacity to respond and produce an impact on NARS. There are both depth and breadth issues here. ISNAR obviously wants to work with as many NARS as possible, while at the same time ensuring that it is working with any single NARS intensively enough to have an impact.

In the optimum scenario, ISNAR would be able to work with 28 NARS. This figure is a target rather than a firm commitment. Further experience in working with NARS will permit more accurate estimates of the resources required by particular types of activity. Such a process of continuous evaluation might lead to a redefinition of both the minimum and optimum plan scenarios for ISNAR.

- (c) Considerations regarding the macro environment. Global considerations regarding the priority assigned to institution-building in the CGIAR play an important role in determining the future size of ISNAR. The build-up of NARS capacities is an important condition for the ultimate success of global research and technology generation efforts. Important resource flows to NARS require a sustained complementary effort to enhance the capacity of NARS, if maximum productivity of the overall effort is to be achieved. This conviction is reflected by increasing attention assigned by CGIAR members to systematic institution-building efforts at the national level.
- (d) Efficiency considerations related to program size and balance: Minimum and optimum levels of personnel. The advisory service, research, and training programs must maintain a balance with each other -- at the same time as they reach a critical threshold level. Direct demands from NARS for cooperative programs in advisory service create an indirect demand for research and training activities. All three programs must therefore expand together.

In order to maintain such a balance, ISNAR defines its minimum program size at 34 senior staff and its optimum at 49. These person-years will be distributed as follows:

TABLE 17. Program Size and Balance

	<u>Present Core</u>	<u>Minimum (PY)</u>	<u>Optimum (PY)</u>
Advisory Service	12	15	25
Research	4	9	11
Training	4	5	8
Program Support	1	2	2
Management/Admin.	<u>3</u>	<u>3</u>	<u>3</u>
	<u>24</u>	<u>34</u>	<u>49</u>

Below this minimum level, which may be seen as "essential" from a capacity perspective, ISNAR's research base, particularly, would be so weak that meaningful interaction between the three program areas would be impossible.

On the other hand, an expansion beyond the optimum level of 49 person-years of senior staff would also change the essential character of the institution. In such a case, ISNAR would have to consider the desirability of a heavier management structure and more internal differentiation of programs and activities.

For the purposes of this five-year plan, ISNAR assumes a growth to but not exceeding the optimum level of 49 person-years of senior staff.

IIIC. THE MINIMUM PROGRAM: AN ESSENTIAL SET OF ACTIVITIES

The minimum program is based on the interdependence of ISNAR's three programs, and is designed to enable ISNAR to perform four essential functions.

- (a) Within its advisory service program, to cooperate with 22 NARS. This number is a minimum if ISNAR is to be able to develop useful cross-national comparisons of agricultural research policy and management. Intensive involvement with 22 NARS ensures sufficient diversity in terms of size, structure, and resource availability.
- (b) Within its research program, to build-up a database on NARS, to work on the development of new approaches and tools in six of the twelve management areas noted in Chapter 1 and to maintain a basic diagnostic capacity in the remaining six areas. If the number of senior person-years available to ISNAR were to fall below the minimum level of 34, the number of management areas which could receive adequate attention would have to be reduced. The research program could no longer provide the backstopping required by training and advisory service.
- (c) Within its training program, to develop training materials and to conduct at least nine seminars and workshops per year (one global, four regional, and four national). Once again, if fewer than 34 senior person-years were to be available, ISNAR would have to reduce its commitment to training to even lower levels.
- (d) Within its program support and general management, to maintain an appropriate balance relative to advisory service, research, and training programs. Senior support and management personnel are at a minimum; any level of senior person-years below 34 would involve fewer resources for the three main ISNAR programs.

The 34 senior person years in the minimum plan are divided as follows. The size of this minimum plan is in line both with the recommendations of the CGIAR task force which led to the establishment of ISNAR and with the findings of ISNAR's first external review.

TABLE 18. The Minimum Program

	<u>Senior Person-Years</u>	<u>Percent</u>
Advisory Service	15	44
Research	9	26
Training	5	15
Program Support	2	6
Management	<u>3</u>	<u>9</u>
	<u>34</u>	<u>100</u>

On balance, the minimum program represents the sum of essential activities that together constitute a viable program. Furthermore, it represents a nucleus around which to build a larger program with expanded impact potential.

IIID. THE OPTIMUM PROGRAM: BUILDING UP TO OPTIMUM SIZE

The optimum plan strikes a balance between projected requests from NARS, probable impacts on NARS, effective and efficient use of resources, and internal management capacity. It is intended to enable ISNAR to carry out its three programs:

- (a) Within its advisory service program, to increase both the breadth and the depth of collaborative activities with NARS. In terms of breadth, adoption of the optimum plan will mean that the number of NARS with which ISNAR can have intensive involvements will rise to 28 (from 22). In terms of depth, it will increase the intensity of ISNAR involvement with selected NARS through the assignment of ISNAR staff to management advisory positions.
- (b) Within the research program, to allow work on not only the twelve management areas noted in Chapter 1, but also on special studies.
- (c) Within its training program, to move from the modest level of 9 training events per year to approximately 19 events. Management training is one of the areas of highest demand to ISNAR from NARS.

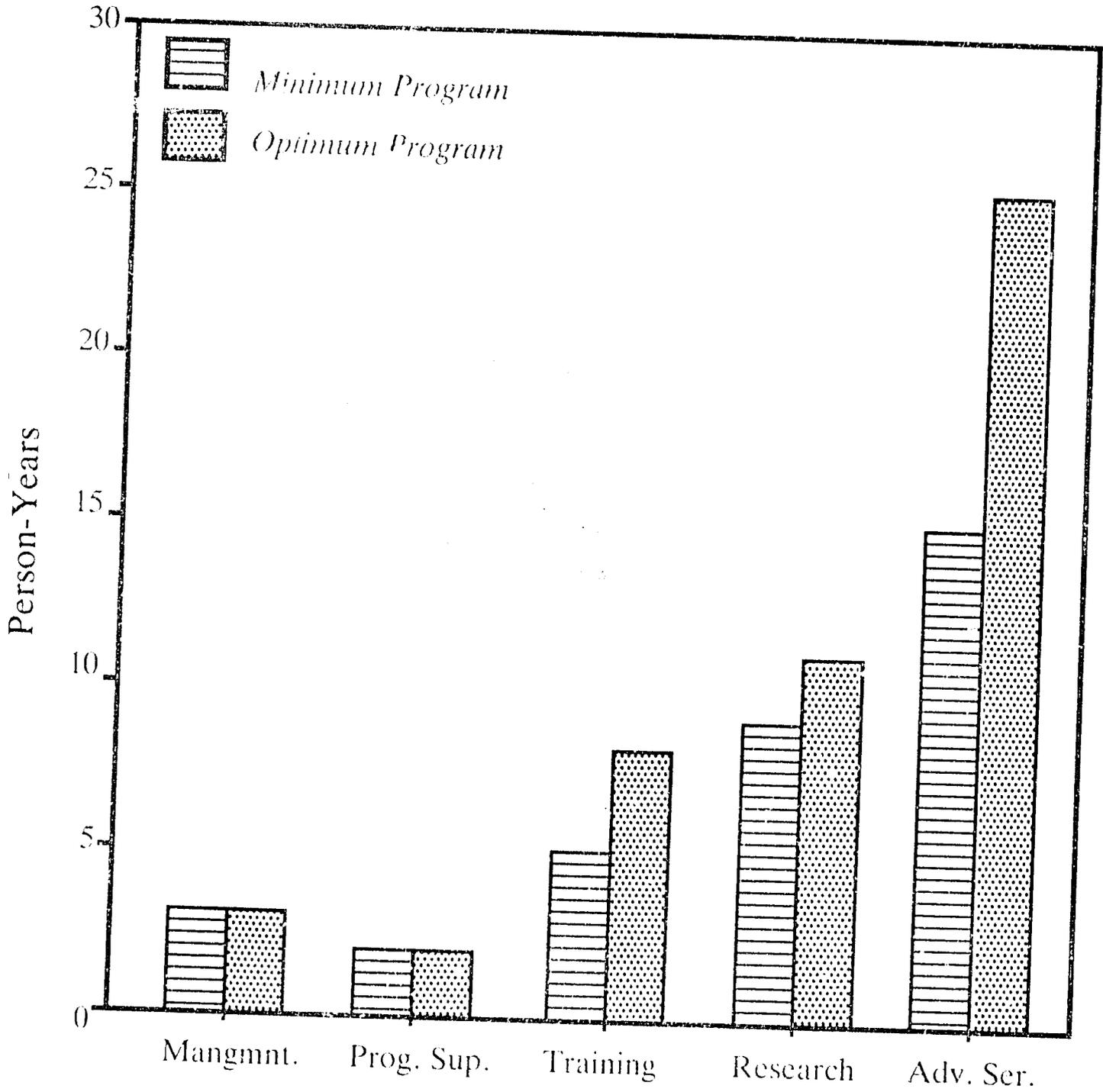
Table 19 shows the distribution of program activities, program output, and resource requirements under both the minimum and optimum scenarios. Table 20 shows the allocation of person-years to ISNAR programs under both scenarios.

Table 19. Program Activities, Program Output and Resource Requirements under the Minimum and Optimum Scenarios

	Minimum (essential activities)			Additional activities			Optimum program					
	Resources			Resources			Resources					
	PY	HQ	RA	PY	HQ	RA	PY	HQ	RA			
Adv. Service to NARS	15	14	1	Collab. system-building with 22 NARS:	10	4	6	Collab. system-building with 6 NARS:	25	18	7	Collab. system-building with 28 NARS:
	4	4	-	*Diagnosis: 3 system reviews	1	1	-	*Diagnosis: 1 system review	5	5	-	*Diagnosis: 4 system reviews
	2	2	-	*Planning: 3 long term plans	0.5	0.5	-	*Planning: 1 long term plan	2.5	2.5	-	*Planning: 4 long term plans
	8	8	-	*Impl.: Collab. with 16 NARS	2.5	2.5	-	*Impl.: Collab. with 4 NARS	10.5	10.5	-	*Impl.: Collab. with 20 NARS
	1	-	1	*Mgt. specialist in 1 NARS	6	-	6	*Mgt. specialists in 6 NARS	7	-	7	*Mgt. specialists in 7 NARS
Research	9			Generation of know./mgt.tools	2			Generation of know./mgt.tools	11			Generation of know./mgt.tools
	1			*Knowledge base on NARS					1			*Knowledge base on NARS
	6			*Management tools + concepts					6			*Management tools + concepts
	2			*In-house diagnostic capacity					2			*In-house diagnostic capacity
					2			*In-depth studies on priority management issues	2			*In-depth studies on priority management issues
Training	5			Build-up of mgt. skills:	3			Build-up of mgt. skills:	8			Build-up of mgt. skills:
	2			*Dev. of training materials					2			*Dev. of training materials
	2.5			*Formal training:9 workshops:	3			*Formal training:10 workshops	5.5			*Formal training:19 workshops
				- 1 interregional workshop				- 1 interregional workshop				- 2 interregional workshops
				- 4 regional workshops				- 1 regional workshop				- 5 regional workshops
				- 4 nat. training courses				- 8 nat. training courses				- 12 national workshops
	0.5			*In-house training					0.5			*In-house training
Program Support	2			Publications/info.dissem.					2			Publications/info. dissem.
				Library/documentation								Library/documentation
				Program and dev. coord.								Program and dev. coord.
Management Admin.	3			Management Administration & Finance					3			Management Administration & Finance
Total	34	(33)	(1)		15	(9)	(6)		49	(42)	(7)	

Note: PY : Person-year of senior staff
 HQ : Headquarters based staff
 RA : Research management specialists placed in NARS

Table 20 Allocation of person-years to ISNAR programs



IIIE. THE PATTERN OF PROGRAM GROWTH

ISNAR's objective in staffing is to reach the critical mass that it requires to implement its medium-term plan as soon as is feasible. Such a critical mass - which has been described in the "minimum" program - is defined as 34 senior staff person-years. The target date for reaching this level is 1990. In a parallel effort, complementing this minimum program by a set of "additional" activities, ISNAR strives to reach its optimum program in 1991. At that time, ISNAR will have a total of 49 senior staff person-years. Such growth of 16 person-years (over its present size) represents an increase of 48% over the four-year growth period. This plan implies a gradual and parallel build up of program staff under both the minimum and optimum scenarios. (See Table 24.)

Such growth is realistic. The table below shows both absolute increases in staff size and annual percentage changes.

TABLE 21. Aggregate Growth Under Minimum and Optimum Scenarios

	<u>Minimum</u>	<u>Additional</u>	<u>Optimum</u>
Present level	25	8	33
Target level	34	15	49
Absolute growth	9	7	16
Percentage growth	36%	88%	48%
Target date	1990	1991	1991
Average yearly growth (PY)	3	1.75	4
Average annual percentage growth	12%	22%	12%

When seen in terms of year-to-year growth, such a build-up is modest when compared to the demand for ISNAR services. ISNAR management and program structure have the capacity to absorb this growth. The table below provides annual figures.

TABLE 22. Annual Growth under Minimum and Optimum Scenarios

	<u>Minimum</u>		<u>Additional</u>		<u>Optimum</u>	
	PY	% Change	PY	% Change	PY	% Change
1987	25	-	8	-	33	-
1988	28	12%	10	25%	38	15%
1989	31	11%	11	10%	42	11%
1990	34	10%	13	18%	47	12%
1991	34	-	15	15%	49	4%
1992	34	-	15	-	49	-

Table 23. Growth in Senior Staff Level For Optimum and Minimum Scenarios

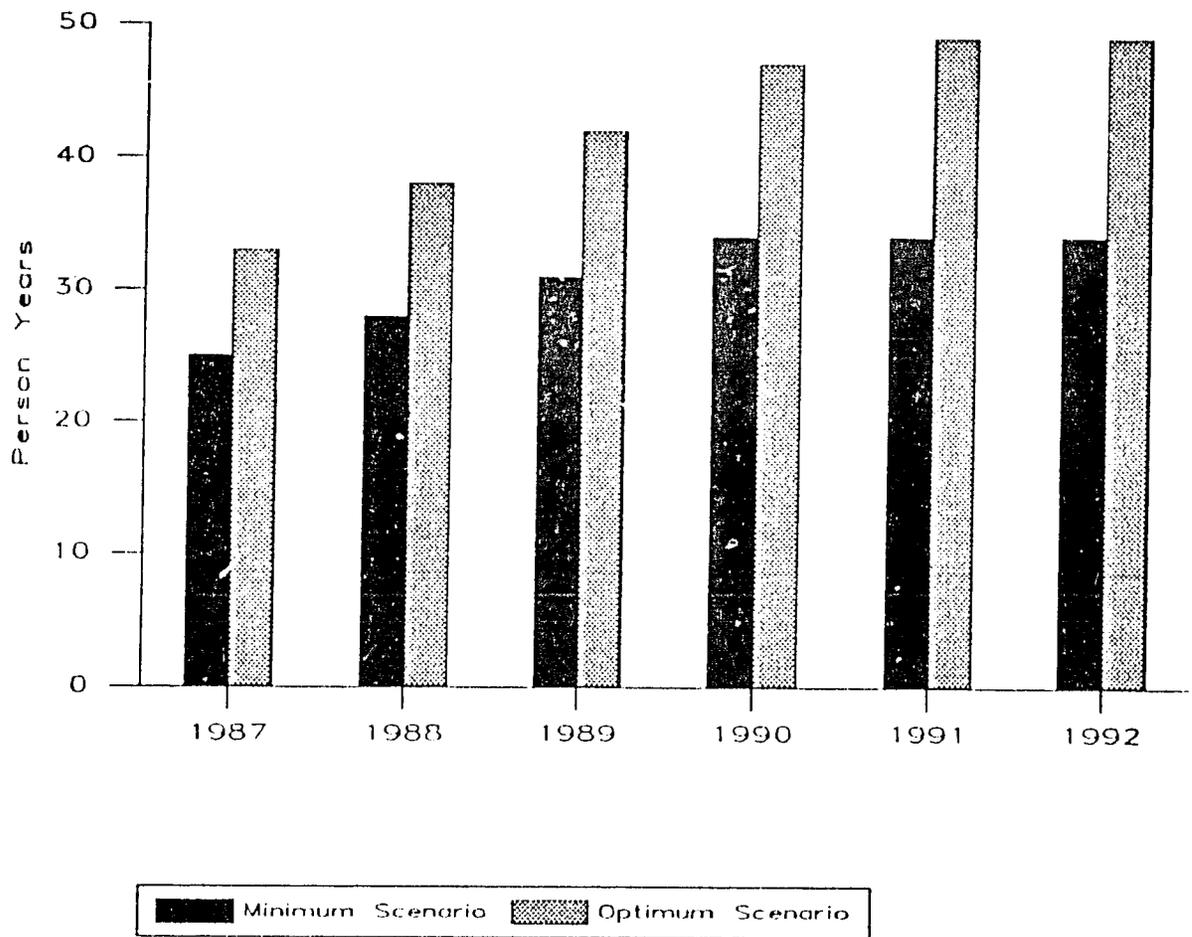


Table 24.

Build Up of ISNAR Program - Pattern of Growth (1988 - 1992)A. Evolution of resource requirements (senior person-years - PY)

	1986			1987 (Est)			1988			1989			1990			1991			1992		
	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.
Advisory Service to NARS	12	3	15	12	5	17	13	6	19	14	7	21	15	9	24	15	10	25	15	10	25
Research	4	1	5	4	2	6	6	2	8	2	2	10	9	2	11	9	2	11	9	2	11
Training	4	-	4	4	1	5	4	2	6	2	2	6	5	2	7	5	3	8	5	3	8
Program Support	1	1	2	2	-	2	2	-	2	2	-	2	2	-	2	2	-	2	2	-	2
Management & Administration	3	-	3	3	-	3	3	-	3	3	-	3	3	-	3	3	-	3	3	-	3
Total	24	5	29	25	8	33	28	10	38	31	11	42	34	13	47	34	15	49	34	15	49

B. Yearly additions projected (senior person-years - PY)

	1987 (Est)			1988			1989			1990			1991			1992					
	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.	Min.	Add.	Opt.			
Advisory Service to NARS	1	1	2	1	1	2	1	1	2	1	2	3	-	1	1	-	-	-	-	-	-
Research	-	1	1	2	-	2	2	-	2	1	-	1	-	-	-	-	-	-	-	-	-
Training	-	1	1	-	1	1	-	-	-	1	-	1	-	1	1	-	-	-	-	-	-
Program Support	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Management & Administration	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	1	3	4	3	2	5	3	1	4	3	2	5	-	2	2	-	-	-	-	-	-

Notes:

Min. : Minimum program (lower boundary of essential activities)

Add. : Additional activities once critical mass achieved.

Opt. : Total requirements under "optimum" scenario.

Table 25.

Total Staffing for Minimum and Optimum Scenarios by ISNAR Program
(in person years)

	1987 Estimate			1988 Proposal			1989 Proposal			1990 Proposal			1991 Proposal			1992 Proposal		
	<u>Min.</u>	<u>Add.</u>	<u>Opt.</u>															
Advisory Service to NARS																		
Senior Staff	12	5	17	13	6	19	14	7	21	15	9	24	15	10	25	15	10	25
Support Staff	7	1	8	7	2	9	8	3	11	9	3	12	9	4	13	9	4	13
Research																		
Senior Staff	4	2	6	6	2	8	8	2	10	9	2	11	9	2	11	9	2	11
Support Staff	5	3	8	9	3	12	10	3	13	11	3	14	11	3	14	11	3	14
Training																		
Senior Staff	4	1	5	4	2	6	4	2	6	5	2	7	5	3	8	5	3	8
Support Staff	2	1	3	2	2	4	3	1	4	4	1	5	4	2	6	4	2	6
Program Support																		
Senior Staff	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2	2	0	2
Support Staff	6	0	6	6	0	6	7	0	7	7	0	7	7	0	7	7	0	7
Management																		
Senior Staff	3	0	3	3	0	3	3	0	3	3	0	3	3	0	3	3	0	3
Support Staff	10	0	10	10	0	10	10	0	10	10	0	10	10	0	10	10	0	10
TOTAL																		
Senior Staff	25	8	33	28	10	38	31	11	42	34	13	47	34	15	49	34	15	49
Support Staff	30	5	35	34	7	41	38	7	45	41	7	48	41	9	50	41	9	50

Notes

Min.: Minimum Scenario (lower boundary of essential activities)

Add.: Additional activities once critical mass achieved

Opt.: Total requirements under "optimum" scenario

The growth pattern of individual programs is reflected for Senior Staff in Table 24. Table 25 shows this same growth for both Senior and Support Staff. High priority has been assigned to the rapid build-up of ISNAR's research base. Such a build-up is essential if ISNAR is to maintain the quality and relevance of its advisory service program and to provide products which its training program can disseminate. Even this rapid growth of research, however, requires the setting of priorities among the 12 critical policy, organization, and management issues identified in the ISNAR strategy. Such priority setting ensures that ISNAR will not go beyond sustainable levels of research activity and that its three programs will remain in balance. Overall program growth in research is five person-years, with the main increase (four person-years) occurring early in the planning period (1983-1989). The addition of one further person-year in 1990 will bring the research program to its optimum strength.

All five person years to be added in research will be considered part of the minimum program. Thus, in the optimum program size of eleven person years, nine will be part of the minimum (essential) program and two in the additional (desirable) category. This breakdown reflects the critical function of the research program at ISNAR.

The advisory service program will grow by eight person years, three in the essential program and five in the desirable category. This projected growth is spread fairly evenly over the four-year period 1988-91, permitting a gradual expansion and intensification of ISNAR collaboration with NARS. Three of the eight additional positions will be posted to NARS, thus bringing the total of outposted positions to seven.

The expansion of the training program by three person years, raising the total from five to eight, will occur relatively late in the quinquennium. This reflects the logical sequence of development in which advisory service and research activities prepare the basis for such an increase. Of the three additions, one will fall in the essential program and two in the additional (desirable) category. In the optimum program five will be in the essential category and three in the desirable. The intention is to maintain a strong capacity to prepare and deliver adapted training materials to a wider audience than can be reached by direct advisory service activities.

Throughout this planning, the emphasis has been on maintaining the logical balance among the three ISNAR programs while sequencing the growth to use resources most effectively.

IV. FUNDING IMPLICATIONS

IVA. COST ASSUMPTIONS

In preparing this program and budget, ISNAR has used the senior staff person-year (PY) as the basic unit of account. The use of a standard cost per PY is possible because of the basic similarity in cost structure across the three ISNAR programs. With the absence of departmental boundaries, and the participation of all staff to some degree in each of the three programs, the use of a standard cost per PY facilitates planning on the basis of decentralized projects.

The average cost of a PY in this medium-term plan is \$199,000 in 1987 dollars. The breakdown of this figure is as follows:

TABLE 25. Structure of Program Costs

Senior Staff Personnel Cost	53%
Support Staff Personnel Cost	18%
Travel	11%
Communications	4%
Office Operations, Supplies	3%
Indirect costs (share of rent, facilities)	<u>11%</u>
Total	<u>100%</u>

These costs are averages across the three programs. All three programs involve roughly similar amounts of travel, communications, and headquarters-based costs so that differences among them may be ignored for budgeting purposes. A slightly higher allocation to support personnel in the research program (for research assistants) is offset by slightly lower travel costs.

The figure per PY is a moderate increase over the figure used in recent years. This increase has been brought about by two factors: (a) an effort to bring ISNAR salary levels into line with those of comparable organizations, and (b) an increase in the level of support provided to senior staff. By 1992, the ratio of senior to support staff will be approximately 1:1. The cost of an average member of the support staff has been calculated using a composite of secretarial and research assistant costs.

The basic cost per PY is expected to remain stable over the period 1988-1992, rising only 2% per annum in real terms.

A standard price provision (for inflation) of 3% per year has been applied for the entire 1988-1992 period.

In the resource summary tables, the difference between programs in the cost per PY (i.e., total program cost divided by number of PYs) is explained by direct costs which are specific to each program. In the calculation of these direct costs, we have included the following items.

1. Research Program
 - * \$50,000 per year for contract research
2. Training Program
 - * \$80,000 each for inter-regional workshops
 - * \$60,000 each for regional workshops
 - * \$25,000 each for national-level workshops
3. Program Support
 - * \$237,000 for publications and documentation costs.

The provision for contract research is designed to facilitate the catalyst role which ISNAR hopes to play in encouraging collaborative research on critical management issues. In particular, it can provide seed money for the development of proposals, jointly with NARS professionals or researchers in universities, to stimulate research into agricultural research policy, organization, and management.

The provision for training events is designed to enable ISNAR to host one inter-regional workshop on agricultural research management per year, four regional workshops (one in each of the four geographic regions), and at least four national-level workshops. Such a commitment ensures a minimum response capacity of ISNAR's training program to training needs arising in the course of its collaboration with NARS. It is expected that longer training events at the national level will be supported by national or special project funds.

It is also necessary for ISNAR to maintain its own institutional infrastructure. Capital expenditure has traditionally been low at ISNAR. An allocation of \$75,000 per year up to 1990 and of \$50,000 per year thereafter is expected to fund: (a) the expansion of office furnishings and equipment to accommodate the projected growth of staff up to 1990; and (b) after that, the periodic upgrading of computer and word processing equipment.

To ensure operational flexibility, the working fund is projected to grow in line with program expansion up to a target level of 2 months operating expenses. This build-up will take place gradually over the period 1988-92.

IVB. RESOURCE REQUIREMENTS

The financial requirements of the proposed program reflect several trends. (Tables 27 and 28)

1. The gradual build-up of ISNAR's personnel base to a senior staff strength of 34 person-years under the minimum scenario with an additional 15 person-years in the additional (desirable) category.
2. An increase in the level of support to senior staff in the form of research assistance and computing services. Both of these additions will increase the productivity of senior staff.
3. An increase in the role that research will play at ISNAR in supporting the advisory service program and in the development of training materials.
4. An increase in the number of training events that ISNAR can deliver. The minimum (or base) program provides the nucleus on which desirable activities can build.

Table 27. Summary of Resource Requirements (1988 - 1992)
(1987 - \$ 000)

	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
Staffing: Senior Person Years (PY)	33	38	42	47	49	49
-Minimum	25	28	31	34	34	34
-Additional	8	10	11	13	15	15
Program Requirements	7.109	8.410	9.564	11.046	11.692	11.908
-Minimum	5.438	6.220	6.954	7.712	7.862	8.012
-Additional	1.671	2.190	2.610	3.334	3.830	3.896
Real Increase (%)	22.7 %	15.5 %	12.0 %	13.4 %	5.5 %	1.8 %
-Minimum	19.7 %	12.6 %	10.5 %	9.8 %	1.9 %	1.9 %
-Additional	32.6 %	23.7 %	16.1 %	21.7 %	13.0 %	1.7 %
Capital Requirements						
-Minimum	50	75	75	75	50	50
-Additional	0	0	0	0	0	0
Working Fund						
-Addition to Working Fund	100	150	150	100	100	100
-Level of W/F (Non-Add)	(750)	(900)	(1.050)	(1.150)	(1.250)	(1.350)
Price Provision	0	253	540	871	1.222	1.579
-Minimum	0	187	396	627	863	1.103
-Additional	0	66	144	244	359	476
Income	(200)	(100)	(100)	(100)	(100)	(100)
Total Requirements	7.259	8.888	10.329	12.092	13.064	13.637
-Minimum	5.388	6.532	7.475	8.414	8.775	9.165
-Additional	1.671	2.256	2.754	3.578	4.189	4.372

Note: Minimum refers to the essential or base program. Additional brings program up to optimum scenario.

Table 28.

Resource Requirements 1988 - 1992 by Program
(1987 - \$ 000)*

Program	<u>1986 ACTUAL</u>		<u>1987 PLAN</u>		<u>1988 PROPOSAL</u>		<u>1989</u>		<u>1990</u>		<u>1991</u>		<u>1992</u>	
	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>	<u>PY.</u>	<u>AMOUNT</u>
1. Advisory Service to NARS	15	2.669	17	3.010	19	3.781	21	4.263	24	4.968	25	5.275	25	5.375
-Minimum	12	1.858	12	2.120	13	2.557	14	2.842	15	3.105	15	3.165	15	3.225
-Additional	3	811	5	890	6	1.194	7	1.421	9	1.863	10	2.110	10	2.150
2. Research	5	915	6	1.167	8	1.642	10	2.081	11	2.329	11	2.374	11	2.419
-Minimum	4	611	4	811	6	1.244	8	1.675	9	1.915	9	1.952	9	1.989
-Additional	1	304	2	356	2	398	2	406	2	414	2	422	2	430
3. Training	4	739	5	1.306	6	1.534	6	1.738	7	2.237	8	2.502	8	2.543
-Minimum	4	654	4	881	4	936	4	955	5	1.180	5	1.204	5	1.227
-Additional	-	85	1	425	2	598	2	783	2	1.057	3	1.298	3	1.316
4. Program Support	2	445	2	753	2	635	2	648	2	661	2	674	2	687
-Minimum	1	445	2	753	2	635	2	648	2	661	2	674	2	687
-Additional	1	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Management & Administration	3	974	3	873	3	818	3	834	3	851	3	867	3	884
-Minimum	3	799	3	873	3	818	3	834	3	851	3	867	3	884
-Additional	-	175	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	29	5.742	33	7.109	38	8.410	42	9.564	47	11.046	49	11.692	49	11.908
-Minimum	24	4.367	25	5.438	28	6.220	31	6.954	34	7.712	34	7.852	34	8.012
-Additional	5	1.375	8	1.671	10	2.190	11	2.610	13	3.334	15	3.830	15	3.896

* In constant 1987 dollars

5. A growth in funding requirements which reflects an increase in staff size rather than major new capital expenditures.

V. PROGRAM AND BUDGET PROPOSAL FOR 1988

(a) Planned Activities

1988 is the first year of the medium-term plan. The program and budget proposal for 1988 represents the first phase in the implementation of ISNAR's strategy to strengthen NARS. It reinforces the concept of ISNAR as a service to NARS in which the quality of its product and its overall impact are enhanced through research and training activities. Senior staff will grow by three person-years under the minimum scenario.

Within the advisory service program, 1988 activities include a small increase in the number of NARS with which ISNAR undertakes intensive cooperation. It will work with 3-4 countries in carrying out diagnostic reviews and will engage in long-term planning exercises with an additional 2-3. This increase will require the addition of one person-year to the program. It also expects to work with some 18 NARS in strengthening particular components of their organization and management. Resources for 20 of these 24 NARS involvements are provided for in the base budget. In 1988, ISNAR expects to have 4-5 research management specialists outposted to NARS. Approximately 50% of the advisory service effort will go to sub-Saharan Africa.

In research, the addition of two senior person-years in 1988 will permit ISNAR to build toward the level of resources which is necessary to maintain a solid database on NARS and to generate improved management tools for use by NARS leaders. The resources devoted to research on the six critical management issues selected for intensive attention will be approximately two-thirds of the level which ISNAR considers essential under its minimum scenario. ISNAR recognizes, however, that a gradual build-up to a sustainable level of research is possible. Funding for two senior person-years of work on special studies has already been secured.

In training, a high priority for 1988 is the development of training materials. Two person-years are therefore assigned to this activity. The training program will continue to provide a forum for the transmission of improved management techniques and to act as a vehicle for the feedback of client needs to ISNAR's programs. In 1988, ISNAR plans two inter-regional workshops, four regional workshops, and 7 national training courses (six of which will be supported from special project funds). Staff level in the training program is not expected to change between 1987 and 1988.

These three program areas are supported by a publications and information service.

(b) Resource Requirements

The resource requirements for the 1988 program are summarized in Table 28.

VI. CONCLUDING OBSERVATIONS

The preceding pages have presented the ISNAR Medium-Term Program for the period 1988-92. The document has dealt with the critical issues of program scale and balance, the viability and sustainability of the program activities in the time frame discussed, the relevance of the strategic choices made, and the flexibility of the program to adapt to changing conditions.

Decisions taken with regard to program balance take account of the interdependence of ISNAR's advisory service, research, and training activities. ISNAR is a service to NARS and continues to devote more than 50% of its resources to advisory service work. At the same time, it is a research-based service which recognizes the important role that continuous synthesis of experience and development of improved management approaches will play in maintaining the quality of its products. ISNAR will be devoting slightly more than 20% of its resources to research by 1992. Training plays an essential role in achieving a broad impact from ISNAR's work through the dissemination of its accumulated knowledge about the functioning of NARS. As the products of research become more available for inclusion in training events, the training program will absorb between 15% and 20% of resources.

In order to achieve integration of its three programs, ISNAR has adopted a non-hierarchical and non-departmentalized management structure in which all staff contribute to some degree to all three programs. Its decentralized management approach, based on clearly defined projects, facilitates the interaction of staff and keeps management costs reasonably low.

The integrated program, with three program objectives, is presented here as consisting of two components:

- a. a "minimum" program consisting of activities which are considered as "essential" to ISNAR's long-term viability, and
- b. an "optimum" program which builds on that base and complements the set of essential activities with a set of additional (desirable) activities.

The medium-term plan, therefore, defines those "essential" activities which ensure the sustainability and the relevance of ISNAR's service to NARS over the long term. The resources devoted to research ensure that the content of the ISNAR program can evolve with the changing patterns of NARS' demand, while resources devoted to training ensure that ISNAR's impact can be as broad as possible.

A set of additional activities builds on the nucleus which is guaranteed in the minimum program. From a functional point of view, even these additional activities are clearly essential to the NARS and fall fully within the mandate of ISNAR. They deal with critical issues of agricultural research policy, organization, and management which are recognized as important in the ISNAR strategy. In qualitative terms, they are identical to the "essential" activities in the minimum program. They represent an expansion in scale.

It will be for TAC to determine to what extent those additional activities fall into the essential vs the desirable category. This decision will be guided, in part at least, by such global considerations as the importance the CGIAR will want to allocate in the quinquennium ahead to institution-building activities of the kind provided by ISNAR. It is these considerations that will lead to the determination of ISNAR's base program.

The plan is a dynamic one. It serves as a framework for yearly programming and budgeting. An annual international research management workshop and program consultation provides a mechanism for adjusting the program in light of the needs of NARS. The non-hierarchical structure of ISNAR and integration of its programs provide the mechanisms for resources to be reallocated across and within programs in the light of changing demands.

The aim of the ISNAR strategy and the present medium-term plan is to guarantee a program structure and firm institutional base on which an expanded scale of research activities can be built, along with the corresponding increases in services and training that this expansion implies. ISNAR's optimum program reflects a scale which is appropriate for the program balance and management structure of ISNAR. A larger scale is consistent with the program structure but would likely involve a more hierarchical and departmentalized management structure which would change the nature of ISNAR as an institution.

ANNEX

Presentation of ISNAR Program Using
TAC Classification of CGIAR Activities

Notes on the Procedure

The exercise has been a useful one which has encouraged an explicit look at individual ISNAR activities and the specific objectives of the program thrust to which they are attached. During the course of the exercise, we have identified not only the input-output relationship, but also the nature of the client and the need that such an activity serves. For ISNAR, as a service to NARS, this helps to clarify the priority choices that are made.

Although ISNAR has been able to distribute its activities across the suggested codes, the essential coherence of ISNAR's program thrusts, and the contribution of the activities to these thrusts, is not highlighted by the process. ISNAR activities distribute fairly well across Activities 15-20.

The following points might be considered, if revisions of the glossary are planned:

- (1) From ISNAR's perspective, there appear to be two overlapping categories in the training area which might be clarified if the product is used as a criterion for classification. Training falls under human resource enhancement (Activity 15) and Workshops fall under Activity 16. Both of these aim at imparting skills to the participants and could be part of the same activity. Conferences and seminars aim at information exchange and awareness of new technology or approaches and belong under the same category.
- (2) There are some ISNAR activities that fall in several categories and it might be desirable to admit some form of pro-rating system for classifying activities. Development of priority setting methodologies, for example, may involve research on procedures (Activity 18), policy analysis (Activity 24) and research on research (Activity 26).
- (3) There is no adequate place to put certain activities that for ISNAR imply significant resource commitments. One example is the development of training materials which is not appropriately covered under the description of human resource enhancement and not under the various social science research activities (22-26).
- (4) All Centers are likely to be involved in the development and maintenance of databases (agroecological zoning, state of NARS, etc). Such activities may well constitute a special category in the glossary, since they do not fall appropriately under "documentation and dissemination" and, may by nature of the activity involve special skills and resource commitments that are separable from the research activities they support.

The ISNAR activities have been classified to those reported in the glossary according to their principal characteristic without an attempt to pro-rate them among several secondary activities. Program support and management account for the remaining 4 person-years in both optimum and minimum scenarios.

Table 29.

STAFFING LEVELS FOR MINIMUM SCENARIO
BY TAC CLASSIFICATION OF CGIAR ACTIVITIES
 (in person years)

<u>Activity</u>	<u>Description</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
15	Human Resource Enhancement						
	Senior Staff	3	3	3	3	3	3
	Support Staff	1	1	2	2	2	2
16	Conferences, Seminars, Workshops						
	Senior Staff	1	1	1	2	2	2
	Support Staff	1	1	1	2	2	2
17	Documentation and Dissemination						
	Senior Staff	1	1	1	1	1	1
	Support Staff	5	5	6	6	6	6
18	Research on Procedures						
	Senior Staff	3	5	7	8	8	8
	Support Staff	4	7	8	9	9	9
19	Counselling and Advising NARS						
	Senior Staff	12	13	14	15	15	15
	Support Staff	7	7	8	9	9	9
26	Research on Research						
	Senior Staff	1	1	1	1	1	1
	Support Staff	1	2	2	2	2	2
	Management and Program Support						
	Senior Staff	4	4	4	4	4	4
	Support Staff	11	11	11	11	11	11
	TOTAL						
	Senior Staff	25	28	31	34	34	34
	Support Staff	30	34	38	41	41	41

Table 30.

STAFFING LEVELS FOR OPTIMUM SCENARIO
BY TAG CLASSIFICATION OF CGIAR ACTIVITIES
(in person years)

<u>Activity</u>	<u>Description</u>	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>	<u>1991</u>	<u>1992</u>
15	Human Resource Enhancement						
	Senior Staff	4	4	4	5	5	5
	Support Staff	2	3	3	4	4	4
16	Conferences, Seminars, Workshops						
	Senior Staff	1	2	2	2	3	3
	Support Staff	1	1	1	1	2	2
17	Documentation and Dissemination						
	Senior Staff	1	1	1	1	1	1
	Support Staff	5	5	6	6	6	6
18	Research on Procedures						
	Senior Staff	5	7	9	9	9	9
	Support Staff	6	10	11	11	11	11
19	Counselling and Advising NARS						
	Senior Staff	17	19	21	24	25	25
	Support Staff	8	9	11	12	13	13
26	Research on Research						
	Senior Staff	1	1	1	2	2	2
	Support Staff	2	2	2	3	3	3
	Management and Program Support						
	Senior Staff	4	4	4	4	4	4
	Support Staff	11	11	11	11	11	11
	TOTAL						
	Senior Staff	33	38	42	47	49	49
	Support Staff	35	41	45	48	50	50