# RESEARCH STRUCTURE AND EVALU

## Research Structure at JIRCAS

JIRCAS is located in the Tsukuba Science City, approximately 60 km northeast of Tokyo. Many of the Incorporated Administrative Agencies (IAAs) affiliated to the Ministry of Agriculture, Forestry and Fisheries (MAFF) are also located in Tsukuba, which itself is home to numerous other national, private and independent research institutions and experimental facilities.

JIRCAS currently has 162 staff members, including research scientists and administrators. Thirty-four of these staff members are located at the JIRCAS Okinawa Subtropical Station on Ishigaki Island in the southernmost region of Japan. JIRCAS is headed by a President and Vice-President, in addition to an Executive Advisor and Auditor who oversee the utilization of institutional funding and all matters related to budgeting and finance. The Research Planning and Coordination Division oversees seven research divisions which are comprised of the Development Research Division, Biological Resources Division, Crop Production and Environment Division, Animal Production and Grassland Division, Food Science and Technology Division, Forestry Division, and Fisheries Division, as well as the five laboratories of the Okinawa Subtropical Station. The Administration Division is responsible for general administrative affairs. JIRCAS's organizational structure is delineated in Fig. 1.

### Research Planning and Coordination Division

The Research Planning and Coordination Division itself does not act as a research division, but rather serves to oversee and support the activities of the seven Research Divisions and the Okinawa Subtropical Station. The Division consists of four sections: the Research Planning Section, Research Coordination Section, International Relations Section, and Publication and Documentation Section. In addition, several International Research Coordinators and a Public Information Officer are assigned to the Division.

In order to promote the implementation of research programs both overseas and in Japan, the first three sections listed above are responsible for the overall planning of JIRCAS research projects, dispatching of researchers on long- or short-term bases, implementation of programs for the invitation of researchers and administrators, and liaison and coordination with international and domestic institutions and agencies. The Publication and Documentation Section is responsible for the collection, classification and provision of bibliographic materials from both overseas and domestic sources, as well as the release of public relations materials. The International Research Coordinators are responsible for overseeing JIRCAS's comprehensive projects, such as those relating to China, South America, and Africa. The Public Information Officer oversees the planning, revision and release of all JIRCAS publications and is responsible for promoting public understanding of the institution's research activities. In addition, the Division is responsible for coordinating the organization of various meetings and workshops including JIRCAS's International Symposia.

### Administration Division

The Administration Division consists of three sections: the General Affairs Section, Accounting Section, and Overseas Staff Support Section. The General Affairs Section is responsible for the management of official documents, personnel-related matters and social affairs pertaining to JIRCAS staff. The Accounting Section handles overall accounting, auditing, budgeting, settlements, and wage distribution. The Overseas Staff Support Section is in charge of all matters pertaining to JIRCAS's overseas operations, including general international affairs, overseas expenditures, and overseas shipments of equipment and materials.

### Other

The Okinawa Subtropical Station has a General Affairs Section that is overseen by the aforementioned Administration Division (Fig. 1). Additionally, JIRCAS has two field management sections that oversee JIRCAS's experimental fields; one section is directly under the Okinawa Subtropical Station management, and the other is attached to the Research Planning and Coordination Division.

# ATION AT JIRCAS

**Fig. 1. JIRCAS organizational structure**

## Domestic institutional support of JIRCAS international collaborative research

JIRCAS's primary mission is to promote sustainable development of agriculture, forestry and fisheries compatible with preservation of the environment in developing regions of the world through integrated, collaborative research programs. Towards this objective, JIRCAS endeavors to play an active role in the international research community. Its collaborative projects in developing countries adopt a multi-disciplinary approach including the evaluation of socio-economic conditions in the target countries. In this way, JIRCAS and its counterpart specialists carry out "comprehensive research" in an effort to address the region's most urgent and important agricultural issues. Domestic research at JIRCAS in Japan, the JIRCAS visiting fellowship program, and cooperation with international research institutions all contribute towards and support these overseas research efforts.

To orchestrate a project, JIRCAS first systematically collects and analyzes data from a variety of sources including food supply and agricultural research in developing regions and then proposes international collaborative research strategies and policies tailored to the specific needs of the target country. In this capacity, by devising comprehensive research and policy proposals, JIRCAS essentially functions as a think tank. Next, JIRCAS utilizes existing technologies, policies and research to expand its role into the initiation of research programs to effectively confront such pressing matters as sustainable agricultural development, food security and environmental problems. Currently JIRCAS is conducting 10 comprehensive projects around the world in countries and regions such as Southeast Asia, China, South America, and Africa. Each project is guided and administered by a working group generally composed of the participating scientists, international research coordinators, and JIRCAS directors, who make the necessary adjustments as the project evolves.

JIRCAS maintains a formal staff of over 100 researchers, approximately 40 of whom are on long-term research assignments abroad. In addition, JIRCAS's international collaborative research projects receive substantial support from the Ministry of Agriculture, Forestry and Fisheries' seven other affiliated Incorporate Administrative Agencies (IAAs) and their 2,700-strong research staff. For example, when a project requires additional human resources, JIRCAS can request the dispatch of researchers from other IAAs on short-term bases typically lasting 1-2 months. JIRCAS researchers who are not on long-term assignments abroad are located in Tsukuba and at the Okinawa Subtropical Station; these staff support international collaborative projects by conducting project-related domestic research that cannot be accomplished in the target countries.

Finally, JIRCAS conducts an "Annual Meeting for the Review and Promotion of Research for International Collaboration" with the participation of representatives from MAFF, other MAFF-affiliated IAAs, universities, non-governmental organizations (NGOs), and the private sector, in order to ensure the efficient implementation of each project. At this meeting, the previous year's activities are evaluated and new strategies and goals are established for the coming year.

## JIRCAS as an Incorporated Administrative Agency

On April 1, 2001, under the Government of Japan's administrative reform facilitating the reorganization of government-affiliated research organizations, the Japan International Research Center for Agricultural Sciences (JIRCAS) became an Incorporated Administrative Agency (IAA) under the supervision of the Ministry of Agriculture, Forestry and Fisheries (MAFF).

The most distinctive feature of an IAA is its semi-autonomy, with limited prior control from external authorities and an *ex post facto* evaluation system by which it evaluates its own performance. The results of the evaluation are then applied to subsequent activities. Under this new system, MAFF defined JIRCAS's five-year mid-term objectives in April 2001, including the enhancement of research efficiency and the improvement of the quality of research programs and financial performance. Based on these objectives, JIRCAS drafted and implemented a detailed five-year plan (see Mid-Term Plan and in-house evaluation system below and Appendix).

The performance and budgeting management of research activities conducted by JIRCAS will periodically undergo evaluation by the IAA Evaluation Committee

established within MAFF, which is composed of experts from the private sector, universities and other research organizations. During each fiscal year, the Committee will investigate and analyze progress towards achieving the mid-term objectives, and the results of this evaluation will be applied, as necessary, to structural modifications of operational and financing systems for subsequent fiscal years.

The comprehensive assessment of JIRCAS's performance will contribute towards the enhancement of the quality of research programs as well as towards more efficient utilization of financial resources for promoting collaborative research in developing regions. To meet the requirements of this rigorous evaluation, JIRCAS has established an in-house evaluation system, which is described in the following sections.

## The Japanese government's basic concepts of science and technology evaluation

Under the 2001 "Science and Technology Basic Plan" which is reflected in the Japanese government's relevant policies, the Japanese community's acceptance of science and technology is extremely important. Research organizations that have become IAAs must clearly identify their research objectives and the implementation of research and development must be enhanced while utilizing funds in an efficient, cost-effective manner. IAAs are also responsible for explaining and communicating their performance both in research and administrative operations to the Japanese people through various information channels that are accessible to the public. To achieve these goals, it is necessary to establish an evaluation system that clearly defines the methodology and orientation of research activities in a manner that will meet public expectations.

Along these lines and in order for JIRCAS to accomplish its objectives, appropriate evaluation of the institution's research and administrative operations are to be conducted from quantitative and qualitative viewpoints based on an objective evaluation system.

## JIRCAS Mid-Term Plan and in-house evaluation system

JIRCAS conducts its research activities based on mid-term and annual plans (Table 1), with the results and efficiency of outcome evaluated by the aforementioned IAA Evaluation Committee. This evaluation system is best characterized as a bilateral process by which feedback is exchanged between JIRCAS and the Committee.

As shown in Fig. 2, under JIRCAS's in-house evaluation system, individual research themes outlined in the Mid-Term Plan and

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Fig. 2. JIRCAS In-House Evaluation System.

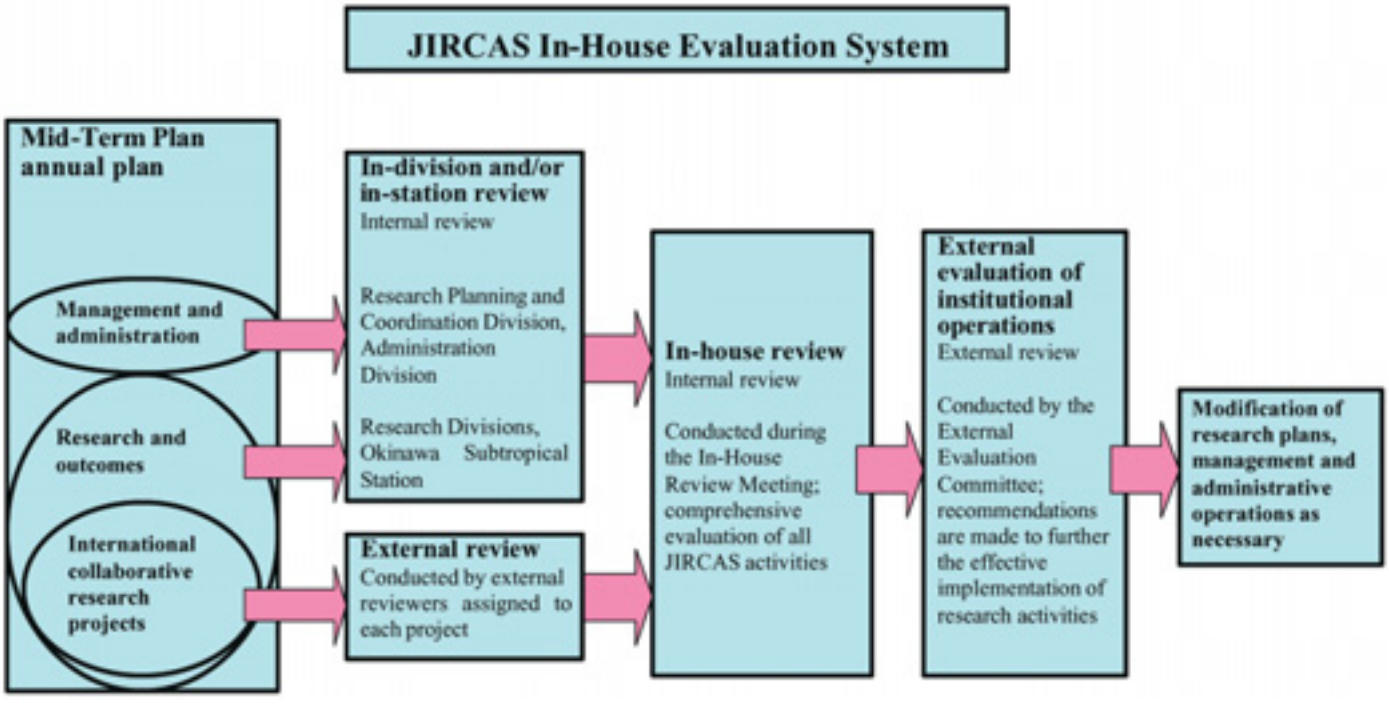

Table 1.

| JIRCAS Mid-Term Plan (April 2001-March 2006) Experiments, research and investigations | INTERNATIONAL | | |
|---|---|---|---|
| | Agro-pastoral systems in Brazil | Production and utilization of major food resources in China | |
| **A. Improvement of food supply and demand in the developing regions** | | | |
| 1) World food supply and demand and collaborative research strategy | | | |
| (1) Analysis for JIRCAS research strategy building | | | |
| (2) World food supply and demand model, particularly in China | | ● | |
| 2) Characteristics and direction of development related to food supply and the environment | | | |
| (1) Major constraints on development in Indonesia, West Africa, Vietnam, and other developing regions | | | |
| (2) Trends of development of sustainable farming systems in Indonesia, Vietnam, Thailand, South America, and other regions | ● | | |
| **B. Research for sustainable development** | | | |
| 1) Sustainable production technology for agriculture, forestry and fisheries commodities in harmony with environmental preservation | | | |
| (1) Evaluation of nutrient cycling in diversified cultivated ecosystems and soil amelioration | | ● | |
| (2) Low input production technology for rice and upland crops in Thailand, Vietnam, China, Indonesia, South America, West Africa, and other developing regions | ● | ● | |
| (3) Major diseases and insect pests of rice, soybean, and other crops in Southeast Asia, South America, and China | ● | ● | |
| (4) Local forage resources suitable for agro-pastoral systems | ● | ● | |
| (5) Physiological characteristics of livestock and of prevalent animal diseases in Thailand, Vietnam, and other developing regions | | | |
| (6) Supplementary natural regeneration of valuable tree species in tropical forests | | | |
| (7) Environment-friendly methods of aquaculture for aquatic organisms | | | |
| 2) Quality evaluation, distribution and processing of agriculture, forestry and fisheries commodities in developing regions | | | |
| (1) Quality parameters including appearance and aroma of food resources in Southeast Asia | | | |
| (2) Processing technology and prevention of quality deterioration of aromatic rice and other crops | | ● | |

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| | | | | | | | | | | | | | | | | | | | |
| ● | | | | | | | ● | ● | ● | | | | | | ● | | | | Soybean production and utilization in South America |
| | | | | | | | | ● | | | | | ● | | | | | | Rice production in West Africa |
| | | | | | | | | ● | | | | ● | ● | | | | | | Farming systems in Indonesia |
| ● | | | ● | | ● | | | ● | ● | | | ● | ● | | | | | | Farming systems in the Mekong Delta |
| ● | ● | | | | | | | | | | | | ● | | | | | | Reducing postharvest losses of staples in Southeast Asia |
| | | | | ● | | | | | | | | ● | | | | | | | Agroforestry technology for tropical forests |
| | | | ● | | | | | | | | | ● | | | | | | | Production systems in brackish mangrove areas |
| | | | ● | | ● | | | ● | | | | ● | | | | | | | Increasing economic options in rainfed agriculture in Indochina through efficient use of water resources |
| | | | | | ● | | | ● | | | | | ● | | ● | ● | | | DOMESTIC PROJECTS |
| ● | ● | | ● | ● | ● | ● | | ● | ● | | | ● | ● | | ● | ● | | | DOMESTIC PROJECTS SUPPORTED BY MAFF |
| | | | | ● | | | | | | | | | ● | | ● | | | | **PROJECTS WITH OTHER GOVERNMENT AGENCIES** |
| | | | | | | | ● | ● | | | | | | | ● | | | | **COMMISSIONED RESEARCH AND MAFF SPECIAL RESEARCH ALLOTMENTS** |

**COLLABORATIVE RESEARCH PROJECTS**

**MISCELLANEOUS PROJECTS**

Table 1.

| JIRCAS Mid-Term Plan (April 2001-March 2006) Experiments, research and investigations | INTERNATIONAL | | |
|---|---|---|---|
| | Agro-pastoral systems in Brazil | Production and utilization of major food resources in China | |
| (3) Uses for under-utilized wood resources such as oil palm residue | | | |
| (4) Uses for under-utilized aquatic resources in China | | ● | |
| 3) Genetic resources and biological functions in developing regions | | | |
| (1) Genetic engineering and mechanisms of resistance to environmental stresses | | | |
| (2) Evaluation of resistance to disease and pests of rice, wheat and other crops, and development of breeding materials | | ● | |
| (3) Collection, evaluation and preservation of genetic resources of vegetables, fruit trees, and various crops in tropical and subtropical regions | | | |
| 4) Environmental resources and bio-diversity in developing regions | | | |
| (1) Environmental resources related to agricultural production and land use | ● | ● | |
| (2) Regeneration of tropical forests and introduction of agro-forestry technology | | | |
| (3) Aquatic resources in coastal and brackish water mangrove ecosystems in Southeast Asia | | | |
| 5) Research activities in Okinawa | | | |
| (1) Characterization of heat and salinity resistance of snap beans and rice | | | |
| (2) Evaluation and utilization of characteristics of sugarcane and root crops | | | |
| (3) Regulation of tree form and eating quality of fruits and mass propagation of tropical fruit trees including mango and papaya | | | |
| (4) Incidence of major pests and diseases, such as citrus greening disease, in the tropics and subtropics | | | |
| (5) Meteorological and soil factors which cause instability in crop production on tropical and subtropical islands | | | |
| (6) Adjustment of variations in heading traits for the generation advancement of rice, wheat, and other crops | | | |

| | COLLABORATIVE RESEARCH PROJECTS | | | | | | | | MISCELLANEOUS PROJECTS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Soybean production and utilization in South America | Rice production in West Africa | Farming systems in Indonesia | Farming systems in the Mekong Delta | Reducing postharvest losses of staples in Southeast Asia | Agroforestry technology for tropical forests | Production systems in brackish mangrove areas | Increasing economic options in rainfed agriculture in Indochina through efficient use of water resources | DOMESTIC PROJECTS | DOMESTIC PROJECTS SUPPORTED BY MAFF | **PROJECTS WITH OTHER GOVERNMENT AGENCIES** | **COMMISSIONED RESEARCH AND MAFF SPECIAL RESEARCH ALLOTMENTS** |
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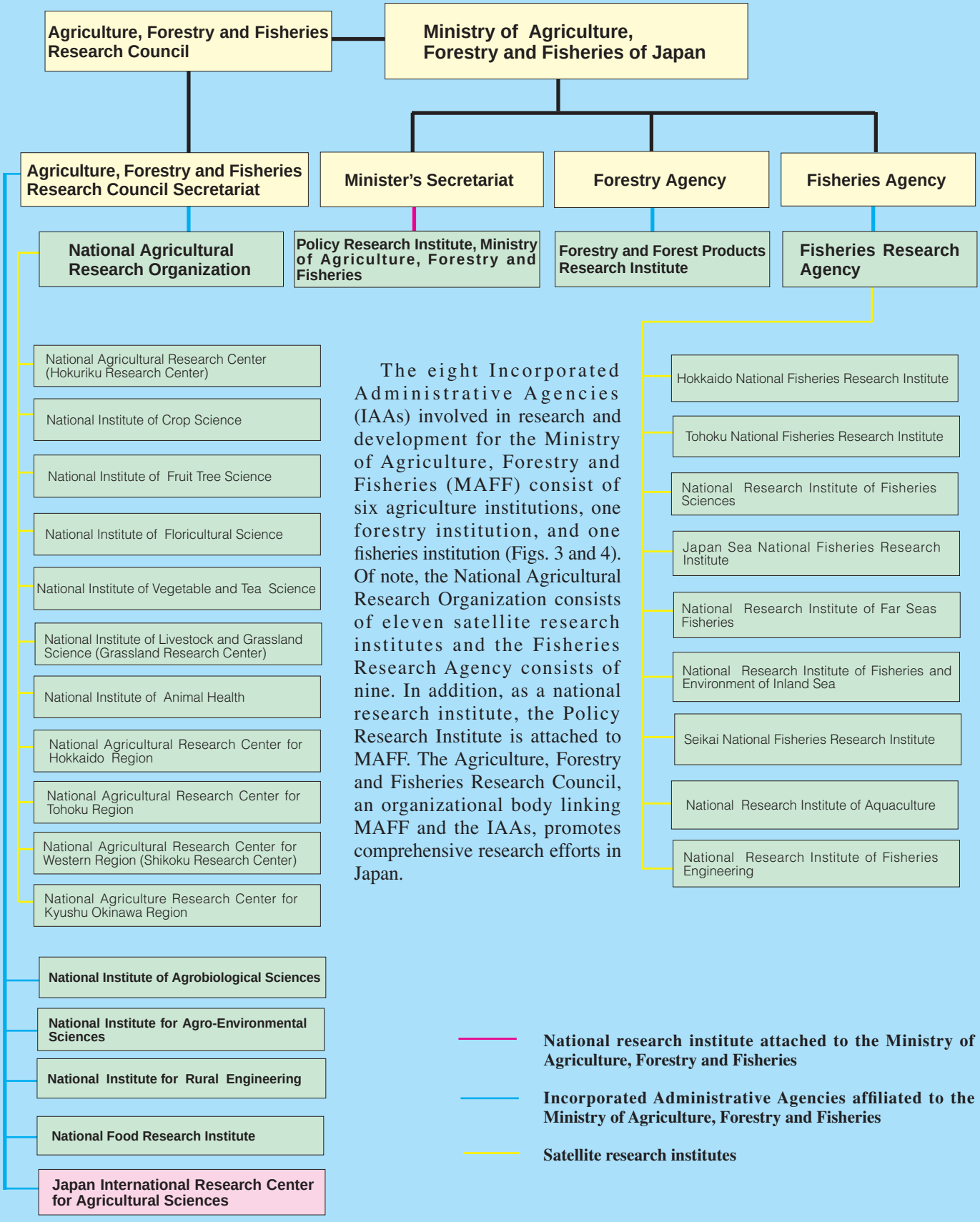
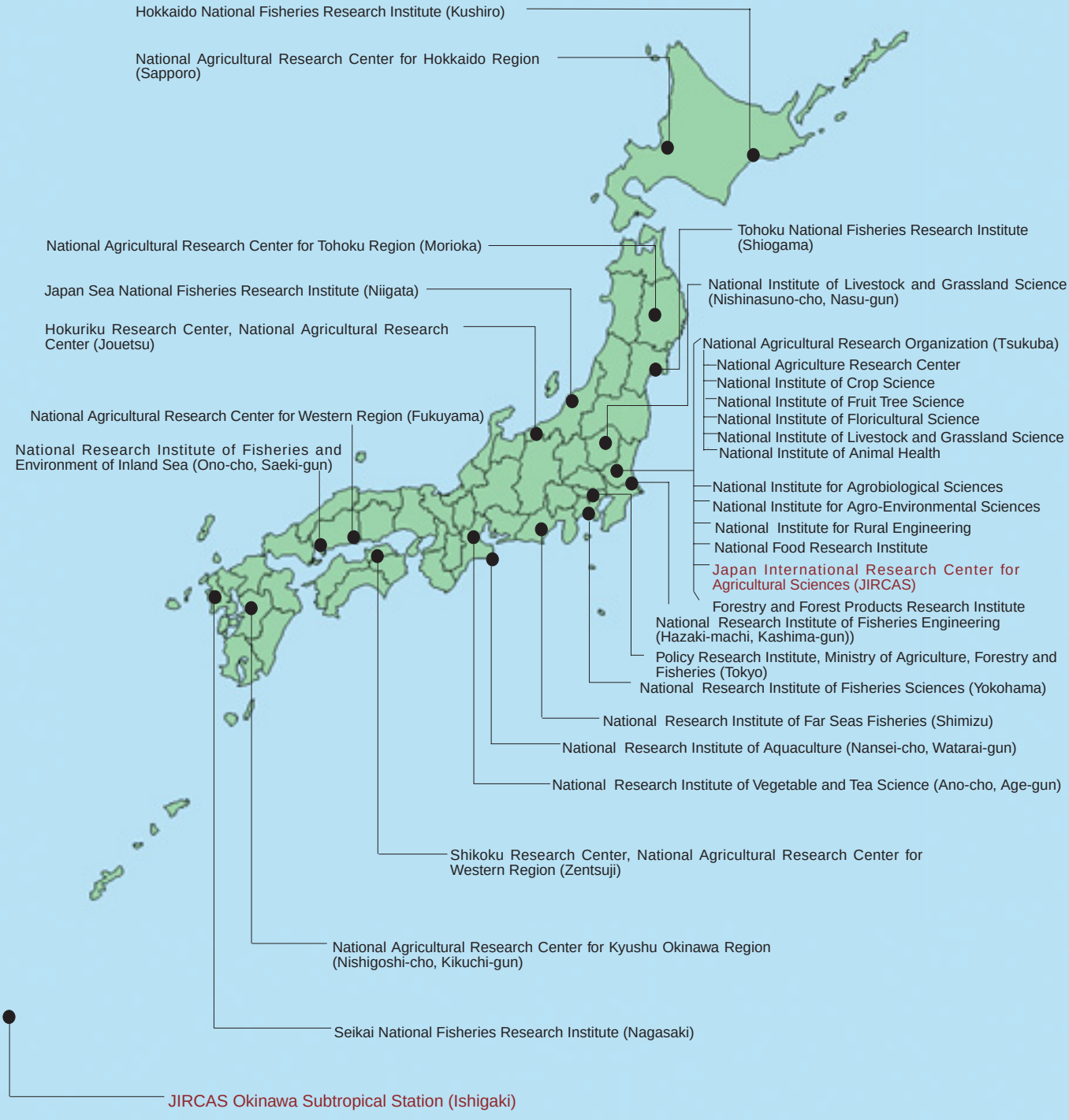
## Fig. 3. Incorporated Administrative Agencies affiliated to the Ministry of Agriculture, Forestry and Fisheries




The eight Incorporated Administrative Agencies (IAAs) involved in research and development for the Ministry of Agriculture, Forestry and Fisheries (MAFF) consist of six agriculture institutions, one forestry institution, and one fisheries institution (Figs. 3 and 4). Of note, the National Agricultural Research Organization consists of eleven satellite research institutes and the Fisheries Research Agency consists of nine. In addition, as a national research institute, the Policy Research Institute is attached to MAFF. The Agriculture, Forestry and Fisheries Research Council, an organizational body linking MAFF and the IAAs, promotes comprehensive research efforts in Japan.

## Fig. 4. Location Map



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annual plan are firstly evaluated at the division or station level by each director during internal review meetings attended by JIRCAS administrators and directors. These meetings are conducted from mid-December through early January. Concurrently, evaluation of the management and administration of JIRCAS's operations is jointly conducted by the Research Planning and Coordination Division and the Administration Division. The Research Divisions and the Okinawa Subtropical Station evaluate JIRCAS's research and outcomes, and examine the effectiveness of the dissemination of research results.

For efficient implementation of the individual research components of the Mid-Term Plan and annual plans, most of the components are organized into international collaborative research projects that focus on specifically targeted geographical or topical areas. Prior to in-house review, external reviews are conducted annually for individual international collaborative research projects by Japanese and foreign scientists, and administrators and officers from the public sector who are appointed by the president of JIRCAS. Several reviewers are assigned to each project.

Based on the above three types of evaluation, a comprehensive in-house evaluation of all of JIRCAS's activities takes place during the In-House Review Meeting held in early February, which is attended by all administrators, directors and International Research Coordinators. In March, the outcomes and conclusions of the In-House Review Meeting are presented to the External Evaluation Committee appointed by JIRCAS's president for the evaluation of all aspects of institutional operations. These external reviewers evaluate the overall achievement of objectives defined in JIRCAS's Mid-Term Plan and annual plans and make recommendations for the further effective implementation of JIRCAS's research activities as necessary.

Experiments, research and investigations conducted according to the JIRCAS Mid-Term Plan are shown in Table 1. The tenets of the Mid-Term Plan are detailed in the Appendix.

## JIRCAS ANNUAL REPORT EDITORIAL BOARD

JIRCAS's Annual Report is managed by the Research Planning and Coordination Division and an editorial board formed by staff administrators and researchers. In addition to a Chairman, Vice-Chairman, Editors-in-Chief, Editorial Committee, and Advisory Panel, the Board receives the participation of a student intern from Harvard University who serves as a Special Assistant to the Editors-in-Chief. (front row: Sho Kosugi, Akinori Noguchi, Marcy N. Wilder; back row: Takaharu Hayashi, Shuichi Asanuma, Jonathan Joel Tew, Vidya Jayasankar, Kumi Yasunobu, Zenko Hamada)