

In Their Own Words

Remembered Yesterdays and Visions for Tomorrow

by

Richard H. Demuth
Warren C. Baum
S. Shahid Husain
W. David Hopper
Wilfried P. Thalwitz
V. Rajagopalan

CGIAR Chairmen, 1971-1993

with an Introduction by CGIAR Chairman
Ismail Serageldin



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Consultative Group
on
International
Agricultural
Research



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About the CGIAR

The Consultative Group on International Agricultural Research (CGIAR) is an informal association of 52 public and private sector members that supports a network of 16 international agricultural research centers. The Group was established in 1971.

The World Bank, the Food and Agriculture Organization of the United Nations (FAO), the United Nations Development Programme (UNDP), and the United Nations Environment Programme (UNEP) are cosponsors of the CGIAR. The Chairman of the Group is a senior official of the World Bank, which provides the CGIAR system with a Secretariat in Washington, DC. The CGIAR is assisted by a Technical Advisory Committee, with a Secretariat at FAO in Rome.

The mission of the CGIAR is to contribute, through its research, to promoting sustainable agriculture for food security in the developing countries. International centers supported by the CGIAR are part of a global agricultural research system. The CGIAR conducts strategic and applied research, with its products being international public goods. It focuses its research agenda on problem solving through interdisciplinary programs implemented by one or more of its international centers in collaboration with a full range of partners. Such programs concentrate on increasing productivity, protecting the environment, saving biodiversity, improving policies, and contributing to strengthening agricultural research in developing countries.

Food productivity in developing countries has increased through the combined efforts of CGIAR centers and their partners in developing countries. The same efforts have helped to bring about a range of other benefits, such as reduced prices of food, better nutrition, more rational policies, and stronger institutions. CGIAR centers have trained more than 50,000 agricultural scientists from developing countries over the past 25 years. Many of them form the nucleus of and provide leadership to national agricultural research systems in their own countries.

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List of Acronyms

CGIAR	Consultative Group on International Agricultural Research
FAO	Food and Agriculture Organization of the United Nations
ODA	Official Development Assistance
ORSTOM	Institut Français de Recherche Scientifique pour le Developpement en Cooperation
TAC	Technical Advisory Committee, CGIAR
UK ODA	Overseas Development Administration, United Kingdom
UNDP	United Nations Development Programme
USAID	United States Agency for International Development

CGIAR Centers

CIAT	Centro Internacional de Agricultura Tropical
CIFOR	Center for International Forestry Research
CIMMYT	Centro Internacional de Mejoramiento de Maiz y Trigo
CIP	Centro Internacional de la Papa
ICARDA	International Center for Agricultural Research in the Dry Areas
ICLARM	International Center for Living Aquatic Resources Management
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
IIMI	International Irrigation Management Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
IPGRI	International Plant Genetic Resources Institute
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
WARDA	West Africa Rice Development Association

Introduction

Ismail Serageldin
CGIAR Chairman

In January 1994, I was privileged to assume chairmanship of the CGIAR. In doing so, I was challenged to follow the very high standards set by my distinguished predecessors: Dick Demuth, Warren Baum, Shahid Husain, David Hopper, Wilfried Thalwitz, and V. Rajagopalan. The challenge was formidable, but inspiring. I drew confidence from the knowledge that my predecessors, together with their partners across the CGIAR, had built an institution on whose inward strengths the Chairman could rely.



From Mr. Demuth, who presided over the first formal meeting of the CGIAR on May 19, 1971, to Mr. Rajagopalan, who at the 1993 Mid-Term Meeting launched an important set of changes in governance, each Chairman provided the CGIAR with leadership that helped substantially to create the reputation for prescience and effectiveness it enjoys internationally today. Together, the former Chairmen represent the heart of the CGIAR heritage.

As today's CGIAR commemorates the 25th anniversary of its founding, it is appropriate that we should hear from the six past Chairmen, who have graciously agreed to share their thoughts with us. Each of them brought a different set of talents, interests, and experiences to the discharge of their responsibilities. Each of them left an uniquely personal impression on the CGIAR. What they hold in common, however, is that they all revelled in the challenges of chairmanship. This comes through in their own words.

I can understand and appreciate their feelings. I crossed a new frontier when I was selected to serve as CGIAR Chairman.

Of course, like all of us in the World Bank and most of us in the international development community, I knew of the CGIAR and the centers, and of how CGIAR-supported research had helped to improve the prospects of the world's poor by making basic foods abundant and relatively inexpensive. What I did not know but soon found out is that there is, indeed, something very special, very exciting, and very inspiring about the "CGIAR system." Co-sponsors, members, scientists, advisors, the staff of two Secretariats, and others all combine to form a dynamic whole that is most definitely more than the sum of its parts.

It is this combination, this meld, that makes the CGIAR unique. I have had the advantage of working with many creative, knowledgeable, and dedicated colleagues in the development community. Nowhere else have I encountered and experienced the combination of scientific skills and human concern—a marriage of head and heart—that permeates every aspect of the CGIAR. Think of it: for the past twenty-five years a group of benefactors has provided grants of some \$4 billion to some of the world's best agricultural scientists to work on behalf of the world's poor. Their efforts, in partnership with individuals and institutions in an evolving global agricultural research system, have enabled the poor to reap a rich harvest of benefits.

The major achievements of the twentieth century include: rapid increases in living standards in the developing world; a decline in the proportion of the world's people living in poverty; rapid technological change in agriculture; and declining real prices of food. The contribution of the CGIAR system to these achievements is research that has helped to transform agriculture, protect the environment, and combat poverty. The details are too well known to need repetition here. What is as important as past successes, however, are future challenges and how we will confront them.

Despite the progress achieved, much remains to be done. As the world moves toward 2020, when the world's population will be about 9 billion—7 billion in developing countries—the world's very poor will number one and a half billion. Some 70 percent of the poor will be women.

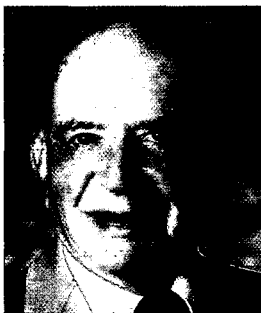
Within the same time frame, urbanization and increased income in developing countries will likely change dietary habits, with the demand for livestock and high value agricultural products increasing. This, in turn, will increase demand for cereals and coarse grains to be used as animal feed, in addition to their fundamental use as food for people. Simultaneously, current trends suggest that the world will continue to face serious environmental concerns, such as water and wind erosion, loss of soil nutrients, salinization, waterlogging, tropical deforestation, and loss of biodiversity, unless corrective measures are taken. Agriculture is at the heart of any effective solution to the nexus of problems encompassing population growth, environmental destruction, poverty reduction, and food security.

The CGIAR has prepared itself to meet these challenges through a program of renewal that helped to clarify its vision, refocus its research agenda, broaden its partnerships, stabilize its finances, and tighten its governance and operations. We have a proud past, and a strong present. We are, therefore, ready for the future—a future in which we will continue to dedicate our best efforts to rescue the poor from the demeaning grip of want.

Recollections of the Early Years

Richard H. Demuth
CGIAR Chairman
1971-1974

What a pleasure it is to be asked to share recollections of the start and early years of the CGIAR, which I served as the first (designated) Chairman and which is now celebrating its twenty-fifth birthday. The current participants in what has become the world's principal sponsor and coordinator of international agricultural research will doubtless find it difficult to appreciate the excitement and trepidation



with which my colleagues and I awaited the initial meeting of the Group two and a half decades ago. We had no mandate to guide us and no precedents to rely on for organizing and operating what, at the time, was a unique gathering of diverse and powerful members. Although we were then dealing with only four existing centers, with annual financial requirements of around \$10 million, we faced a number of difficult issues the solutions to which were far from clear. Yet, despite our fears and uncertainties, the start made by the Group at that first meeting laid solid foundations for the remarkable entity we know today.

In thinking back to those early years, the first thing that comes to mind is the outstanding character of the personae involved: George Harrar, Dave Bell, Frosty Hill, Sterling Wortman, Ralph Cummings, and Lowell Hardin, among others, from the Ford and Rockefeller Foundations, the originators of the wonderful center concept; Norman Borlaug, Bob Chandler, and many other outstanding scientists who proved that the center concept worked; John Hannah from USAID and Bill Mathiessen from the UK ODA, who provided critical financing; the late, beloved Jim Evans, Director of the World Bank's Agriculture Department, and Mike Lejeune, of the Bank staff and the Group's first Executive Secretary;

Myer Cohen and Bill Mashler from UNDP and Peter Oram from FAO, the Bank's fellow cosponsors; and always Sir John Crawford, Chair of TAC, who provided constant and stalwart support.

The second thing that comes to mind is the remarkable cooperative spirit that permeated the several meetings of the Group which I was privileged to chair. Members *wanted* the Group to succeed and joined together to find innovative solutions to problems which might otherwise have caused divisive debate. They did this with an extraordinary informality that permeated all of our meetings. I can recall no other official grouping in which the participants were so united to achieve a common goal.

We did have a number of difficult problems. One was, of course, representation of the developing countries. Another was whether to establish a central fund to finance the Group's sponsored research or to function through voluntary coordination by participating donors. A third which I recall was how to deal with the political sensitivities raised by a request for support from a vegetable research center located in Taiwan. And there were procedures to establish for reviewing the budgets of the system's centers, while still maintaining the necessary independence and authority of their boards of trustees for analyzing proposals for new programs, and for meshing the deliberations of TAC and of the CGIAR. All of these issues, however, were resolved harmoniously.

The Group had a number of substantive achievements, too, during those early days. I remember with particular satisfaction the decisions to accept CIP into the system and to establish as new entities ICRISAT, ILRAD—now ILRI, and IBPGR—now IPGRI. Their many accomplishments to date have contributed much to the CGIAR's success.

A final word on a more personal note. In 1973, when I turned over the chairmanship to the highly competent hands of my successor, Warren Baum, I knew I had just completed the most rewarding assignment of what had been an altogether fascinating twenty-seven-year career at the World Bank. The CGIAR has more than fulfilled the hopes which I and my colleagues in the Bank, UNDP, and FAO had when it started twenty-five years ago. May it continue to flourish for many a year to come.

The Evolution of the CGIAR

Warren C. Baum
CGIAR Chairman
1974-1983

My introduction to the CGIAR took place at the Virginia farm of Haldore Hanson, then-Director General of CIMMYT, in October 1974, immediately before my inaugural session as Chairman of International Centers Week. I was struck by the collegiality of those present (mostly agricultural scientists) who knew each other well, from their common educational backgrounds at Cornell or Iowa



State University or their association with the Rockefeller or Ford Foundations. It was the first time I felt that my graduate education at Harvard University placed me at a disadvantage! I was also struck by their down-to-earth and friendly spirit and the warmth of their welcome to someone of whom they knew nothing except that he was clearly of a different breed—a warmth that never flagged in the ensuing years.

The CGIAR was then three years old, and all of the component parts were already in place. It was off to a strong start under the capable leadership of the Group and TAC Chairs, Sir John Crawford and Ralph Cummings, both highly experienced, and with the full support of the two foundations.

In the next ten years the CGIAR went through a whole cycle of activity. By the end of 1973, three additional centers (ICRISAT, CIP, and ILRAD—now ILRI) had joined the original four. In the next three years, through 1976, four more centers were added (IBPGR—now IPGRI, WARDA, ILCA—now ILRI, and ICARDA). Some of these were already in existence; others were the fruits of studies launched at Bellagio in 1970. The total now stood at eleven, with several additional centers or programs denied admission be-

cause of their location, the character of their programs, or other considerations. The years 1977 to 1979 were officially designated as a period of consolidation, during which no new activities were adopted so that the existing centers, and their mounting financial requirements, could be absorbed. Work proceeded, however, on new proposals, and ISNAR became operational in November 1979, precisely at the end of the period of consolidation.

IFPRI, which presented several unique problems, was accepted the second time around, in 1980. This brought the number of centers to thirteen, where it was to remain for ten years. Worldwide economic difficulties beginning in 1980 had their impact on the financing of the system, introducing a period of constrained resources with serious issues of resource allocation, which continued far beyond my tenure.

The growth in the number of donors, and in the funds provided, followed a similar pattern. In 1972, the CGIAR's first full year, sixteen donors contributed \$21 million. In 1974, the number of donors stood at twenty and their contributions at \$35 million. Ten years later, at the end of the period I am discussing, there were thirty-five donors and the funds contributed were \$165 million. Funding increased in nominal terms every year, and in real terms every year but one. By any standard, the first thirteen years were ones of impressive growth, despite the slowing down and maturing of the system.

From the beginning, my principal preoccupation was how this novel enterprise was to be governed. Early references to the CGIAR as a "forum," "an arrangement for consultation," or "a loose federation of centers" were disingenuous and undoubtedly aimed at placating the doubters. The term "Consultative Group" was itself something of a misnomer, since it bore little resemblance to the Bank-chaired Consultative Groups from which it drew its name. For an international activity that immediately began to function on its own, the organizational structure and procedures were extraordinarily loose and informal. Decisions had to be made without any voting system, and none was ever devised; these decisions had

to be binding within an organization that had no legal identity; and funds had to be pledged and commitments honored without any method of cost-sharing, since as in the case of voting, no formula could fit so diverse a collection of international, regional, national, and private donors. Under other circumstances, these characteristics could be a recipe for failure, but for the CGIAR they have generally been sources of strength.

Decisionmaking by consensus presented a continuing challenge to one steeped in the hierarchical traditions of the World Bank. But even the largest donors seemed to enjoy the collegial and egalitarian spirit. My task was to ensure that the necessary staff work was done in advance; to lead (but not manage) the discussion in an impartial manner, allowing everyone who wished the opportunity to speak, while moving the discussion along; and then to identify and formulate a consensus that could command majority agreement or general consent, without ever defining the "majority," and implicitly recognizing on rare occasions that all donors were not created equal. Committees were established only for special purposes; the donors preferred to act as a Committee of the Whole, from which no one was excluded. I, too, felt that this was appropriate, even though it made the job more difficult.

The TAC Chair, who was always respected, played a major role in presenting issues such as consideration of new centers, research priorities, and center programs and budgets. The three cosponsors, including a World Bank representative separate from the Chairman, always provided support, often behind the scenes, and a legal foundation to the whole enterprise. Goodwill, based on a common perception that an important and clearly focused objective was being effectively pursued, was the amalgam that made all this possible.

Fundraising, a particular responsibility of the Chairman, was one to which I did not look forward. But as the international character of the CGIAR became increasingly apparent, I found that I, often accompanied by the TAC Chair or one or more Center Directors, took pride in recounting its success story, usually to a receptive audience. I believe that many donors contributed more gener-

ously then they would have under a quota system. The public process of voluntary pledging exercised some moral suasion. USAID held steadfast throughout these years at the 25 percent share that John Hannah had promised in Bellagio, and this combined with the World Bank's 10 percent, later raised to 15 percent, provided a financial anchor. Even during the period of financial stringency, the CGIAR fared well in comparison with other aid activities.

Frosty Hill and George Harrar had established IRRI and CIMMYT as models of "international centers of excellence," with an independent staff of internationally recruited scientists reporting to an autonomous and international board of trustees. Donors all agreed that the independence and autonomy of the centers were to be prized and preserved. But autonomy had to be reconciled with accountability. The foundations had once provided this stewardship, but now accountability became a major preoccupation. The ever-growing number of donors had to be satisfied, to satisfy their parliaments that their contributions were being used wisely and productively. Over time a comprehensive system of reviews was introduced, including: annual program and budget reviews of each center; quinquennial program reviews of each center, starting appropriately with IRRI and then CIMMYT; periodic management reviews of each center; five-year reviews of the CGIAR system itself; "stripe" reviews of across-the-board issues; and several studies of the development "impact" of the collective work of the centers. The list seems formidable, and Center Directors and Board Chairs may have found it so, but it met the needs of the donors.

What were my regrets? That, despite the growing number of developing country donor members, we were not able to increase sufficiently the participation of the South at Group meetings, representation through the UN regions not having proved successful. That we were not able to bring the practice of donor-financed "special projects" under better control. I thought that our efforts at annual aid allocation through program and budget reviews left something to be desired, but then I have never met a program and budget review system that I liked. While we were certainly aware of environmental concerns, it was not to the extent that is prevalent today.

What did I enjoy most about my CGIAR experience? Many things come to mind, but particularly: enabling the CGIAR to win the King Baudouin Prize; receiving the beneficent title of “Chairman Emeritus” on retiring; having the opportunity, thanks to a World Bank sabbatical, to write *Partners Against Hunger*, with a fellowship from the Rockefeller Foundation to work as a “resident scholar” at Bellagio; and a handwritten note from the ailing Frosty Hill enthusiastically welcoming the book’s publication. But above all I valued the occasional comments of participants that CGIAR meetings were the international gatherings that they liked most (sometimes the only one!) since they gave me some assurance that the collegial spirit had not been lost during the decade in which the CGIAR came of age.

Others are better equipped than I to talk about the future, but the broad outlines seem clear. The experts inform us that food production will have to double by the year 2025 to keep pace with the inexorable growth of population. Most of this increase will have to come from existing land. Research must play a vital part in making possible the necessary increases in productivity. The CGIAR, now renewed and revitalized thanks to the efforts of its present Chairman, remains strategically placed to play a central role.

Appreciating a Successful Development Initiative

S. Shahid Husain
CGIAR Chairman
1984-1987

The Consultative Group on International Agricultural Research is perhaps the most successful development initiative of the last fifty years. It has brought together scientists, research centers, foundations, international organizations, and governments in developed and developing countries to increase food production in developing countries. The results are beyond the expectations of its founders. The international research centers have made an invaluable contribution to the impressive increase in food production and rural employment in developing countries, particularly in Asia. They have helped to prevent mass hunger, considered inevitable as recently as in the early 1970s.



The work of researchers is never done. So is it with the CGIAR and the centers supported by it. Population continues to grow rapidly in developing countries. The strain on natural resources is heavy. Progress on African agriculture and arid and semi-arid lands is inadequate. Above all, our physical capacity to produce is increasing faster than our social and organizational capacity to manage, and deal with the consequences of, physical change. The risk to developing countries is that the current fatigue with international development efforts may weaken the capacity of the invaluable system that has developed during the last twenty-five years. A coordinated effort is needed to maintain the CGIAR's strategic focus on food while incorporating in its work the crucial issue of the environment. We must, at all cost, resist the temptation for proliferation.

I have worked on development issues for nearly forty years. Nowhere else have I seen the skills and dedication that the scientists of the CGIAR system have brought to bear on their endeavor. My four years as Chairman of the CGIAR were the most stimulating and rewarding years of my working life. I admire the strategic vision of Robert McNamara and Sir John Crawford in sponsoring the establishment of the CGIAR and supporting its work. As one from a developing country, I am deeply grateful to them and to the many others who have contributed to our system.

A Look Back, A Look Ahead

W. David Hopper
CGIAR Chairman
1987-1990

When CGIAR Chairman Ismail Serageldin asked me to prepare a few brief remarks for this twenty-fifth anniversary occasion, I found myself with two temptations: to reminisce about the past—something former Chairmen love to do—or talk about my vision of the future as “guidance” to the present Chairman. With a strong exertion of self-will I have resisted either temptation and have done both.



While we now celebrate the twenty-fifth anniversary of the CGIAR, it is an anniversary in the formal sense only. In fact, the CGIAR had its beginnings almost four decades ago by one count, or over fifty-three years ago by another. CIAT, CIMMYT, and CIP emerged in the 1960s as new incarnations of old Rockefeller Foundation programs, whose origins can be traced to 1943. These institutes, in their new guise, reflected a 1957 joint enterprise between the Rockefeller and Ford Foundations to jump-start global food production. The formal institutional structure began with the first of the Ford and Rockefeller joint ventures: IRRI. It was designed in 1958 and opened in 1962. By the mid-1960s the joint venture had been followed with three additional institutes: CIMMYT; CIAT, from older Rockefeller Foundation initiatives; and IITA, a new venture in tropical Africa. By the late 1960s the research findings and newly released varieties from these four institutions, supported by appropriate governmental policies, had launched a transformation in food agriculture from traditional agrarian to modern, science-based, intensive crop production in South and Southeast Asia and in parts of Latin America.

The influence and promise of the joint venture, coupled with a still disquieting longer-term outlook for world food, led the foundations to seek a wider inclusion of donor participation. With the added sponsorship of UNDP, the World Bank, and FAO, the leaders of the major donor agencies met in 1969 at the Rockefeller Foundation's Bellagio Conference Center to review the global prospects for agricultural development in the tropics. By mid-1971 the CGIAR was launched at the World Bank under the sponsorship of UNDP, FAO, the World Bank, and an initial group of just over twenty donors.

The new CGIAR was a lusty infant. The friendly takeover by the CGIAR of the joint venture institutes gave it a spectacularly successful worldwide research establishment—an establishment that grew quickly under the new management.

It is fair to ask what this close to fifty years of history has brought to those who built the substructures and now support the CGIAR.

In my view the most important accomplishment of the second half of this century was the work of joint venture and CGIAR scientists in raising the yield potential of the world's major cereals in the tropics to the levels of those attained during the first half of the century by agricultural scientists working in the temperate regions—levels that were double or quadruple traditional tropical yields. Innovative farmers did the rest. They were backed by the enlightened help of imaginative governments with the necessary institutional and infrastructural support for their innovation.

Farmer, private sector, and government willingness to grasp and subdue the risks of change together assured the daily bread and bowl of rice for a world population that has almost trebled in the last fifty years. Not a small accomplishment! And one that can be attested to by hundreds of millions of people who have never heard of the CGIAR.

This is the past. My real concerns in this note are the next fifty years. Global population will double, food demand will more than

double as people shift their consumption patterns to higher-value foods that concentrate and convert large quantities of carbohydrate into protein, or claim acreage from cereals for vegetables, fruits, and other, more exotic, food products. Is there a role for a CGIAR System in this environment?

I think some of the founders of the CGIAR would argue that there is not. A rapid doubling of the "pile of rice" was the founding focus of the earlier joint venture and the CGIAR system. It was a focus that stressed the short- and intermediate-term; the meeting of the food needs of poor people within a ten- to fifteen-year horizon. And while it was a focus that today draws the occasional outburst of ire from those who see the single-minded pursuit of enhanced yield as a threat to the sustainability of the natural environment that is cultured for food production, the CGIAR has already moved a considerable distance beyond this early purpose with the inclusion of "factor" or "input" or "system" centers among the "crop" or "production" or "output" centers. But this concern aside (for that is how the founders would probably view it), what, now, is needed for the CGIAR scientists to justify their continued claim as the frontierspeople of tropical agriculture?

To me the overwhelming answer is not Asia, or Latin America; it is Africa, and especially Sub-Saharan Africa. This gigantic landmass is the only region in the world where food production per capita is falling. Here our science has been found wanting. Except for some limited agroecological areas with favorable soils and rainfall, we do not have the technology to back the innovative farmer. In addition, too often even in these limited areas, a lack of infrastructure, available factors of production (including credit), and vibrant product markets militate against any cultivator incentive to risk resources on a proffered new technology.

The CGIAR magic has yet to prove itself in Africa. Providing that proof must and should be the major focus for the Group in the early decades of the next century.

The Sub-Saharan problem is fraught with issues of neglected rural development. For many African intellectuals there is a dis-

may seem sense that their countries have come to the table of international assistance “too late” to benefit from the largess that was lavished on Asian agricultural and concomitant rural development. Tight aid budgets from the industrial nations predispose these observers of Africa’s food outlook to argue that there must be an emphasis on agricultural development that is based on low inputs to crop production and low inputs to the infrastructures needed to promote rural development.

The present Director General of FAO, however, articulates arguments to this outlook that many of us who participated in or witnessed the Asian agricultural transformation would support. I recall a comment Dr. Jacques Diouf made two years ago on the occasion of the launching of the FAO *Special Programme for Food Security in Low Income Food Deficit Countries*: “We have tried the low input approach for several decades and it has brought us only a 2 percent decline in food output per person. That approach must be reversed. In the immediate-term we must focus on the areas of high production potential for which we have proven technologies. We must assure the farmers of these areas the full array of inputs and policies that will support their adoption of a modern, science-based system of intensive crop and livestock production. And, for the longer-term, we must develop the technologies that will bring a true transformation of agriculture to the whole of the African continent and to the other world nations that are food deficit because of lagging or backward agricultural and rural economies.”

The *Special Programme* has already revealed many nuances of the constraints to the agricultural advance in food deficit African and Asian nations. For these nations, most of which are part of Sub-Saharan Africa, the help of the CGIAR frontiersmen is an imperative need. Indeed, it is a need that reaffirms the founders’ single purpose focus.

While the immediate threat of hunger is most acute in Africa, in the longer-term of a fifty-year perspective the ability of global agriculture to meet the tripling of world food demand (due to a doubled population and a continued rise in the economic prosperity of the

world's peoples) must tax and shape the superb instrument of world food research that the CGIAR has become. The complex of sun-light-plant-water-nutrient-soil relations that are the foundation of agricultural science remains still a relative mystery. The recent CIMMYT-ORSTOM work on asexually propagated maize is a demonstration of the continued power of traditional plant breeding techniques underpinned now with the sophisticated knowledge of modern genetics and biotechnology. This combination of the traditional arts of agricultural science and the new horizons of biology, chemistry, and plant and soil sciences holds the high promise of establishing the firm scientific underpinnings that, over the next decades, will transform global food production science and technology. On this transformation rests the next "green revolution."

In truth, we have barely begun to unlock the deep scientific secrets of food agriculture. We still cannot deliberately manipulate the most basic chemical processes of the plant: photosynthesis and carbon fixation. A doubling of photosynthetic efficiency in cereals, bringing it closer to the efficiencies attained by sugarcane, would hold the potential to more than double yields of usable carbohydrate. Greater understanding and, eventually, manipulative control of the plant's "dark" reactions after photosynthesis could open many new paths for enhancing food production. For example, moving carbohydrate fixation from C_3 to C_4 pathways in our most common cereals would likely increase water use efficiency and provide greater drought protection. Genetically engineering the quality and composition of the protein-fat-carbohydrate components in the grain sink would open many opportunities for custom designing grains to match consumer needs. But all of these opportunities are dependent on cracking the codes of how the plant handles its most fundamental processes: the capture and conversion of daylight (the mechanism of its capture is well known) to the basic foodstuffs of humankind.

I realize that in selecting the fundamentals of photosynthesis and carbohydrate fixation I am neglecting adequate reference to pests and pathogens, to ruminants (of vital concern to both Sub-Saharan Africa and Latin America) or other ungulates, to forestry and agroforestry, to aquaculture, and even to sustainable agricul-

tural methods and practices—all matters of interest and importance; all matters that are among the vigorous research agenda of today's CGIAR; and all matters that will be critical in the decades ahead. But for this neglect I can only plead that, except for fisheries, the deep substructure of all that we call "agriculture" rests on this complex interaction of nucleotides, photobiology, chemical reactions, and physical designs. Understanding, unlocking, and eventually manipulating this extraordinarily complicated set of processes will be the central jewel in the crown of that "Queen of the Sciences": agriculture.

The CGIAR at twenty-five years of age is the successful culmination of a chain of events begun five decades ago. It has brought food abundance to millions by transforming traditional agriculture in most of the world's tropical regions; indeed, all the farming areas of the globe, except for parts of Sub-Saharan Africa, have benefited from this transformation. The immediate task at hand is to determine the most effective means of modernizing the traditional agrarian food production systems of these neglected areas of Africa. However, the longer-term goal of CGIAR scientists must be to unlock the many secrets of the sunlight-plant-water-nutrient-soil relations that are the fundamental blocks upon which agricultural science rests.

Challenges, Triumphs, and Confidence for the Future

Wilfried P. Thalwitz
CGIAR Chairman
1990-1991

At the end of my tenure as CGIAR Chairman, I said in a public address—the Sir John Crawford Memorial Lecture—that I shared the sentiments of one of my predecessors, Warren Baum, who once told me: “Of all the jobs I have had, the one I enjoyed most, the one that was most rewarding, was the one of chairman of the CGIAR.” I left the chairmanship five years ago, when the CGIAR was commemorating its twentieth anniversary.



Today, as the CGIAR looks back on the challenges, triumphs, and, of course, problems of its twenty-five-year-old history, my view remains unchanged. I will always remember the chairmanship of the CGIAR as stimulating, challenging, and satisfying.

The CGIAR is both a successful support mechanism for international agricultural research and a successful exercise in creative management of the development enterprise. It is something of a cliché now to say that the CGIAR does not actually exist. Some other institutions, too, have survived for several years without a formal charter, a legal personality, a corporate structure, or an empowered CEO. What makes the CGIAR special, however, is that, despite the loose arrangements under which it functions, it has been able to synthesize a broad range of views into a commonality of purpose that consistently supports agricultural research on behalf of the world's poor. That commonality has endured through changes of research emphasis, structural alterations in the configuration of centers, financial uncertainties, and changes of Chairmen.

From the Chairman's vantage position, I noted three important strengths that contributed to the effectiveness of the CGIAR. These were:

- the commitment of members who, despite divergences of views, worked at reaching consensus on major issues, and mobilized support for the centers, despite difficulties;
- the competence and enthusiasm of scientists at CGIAR centers who carried out their work with visionary zeal; and
- the analytical apparatus of the Technical Advisory Committee, which provides the CGIAR with an underpinning of options for strategy and operations.

These strengths were particularly evident and effectively combined in several key decisions that were made during my chairmanship. One of these decisions resulted both in a new emphasis on natural resources management and on an expansion of the CGIAR system. TAC had earlier been asked to review the desirability of drawing a number of non-CGIAR centers into the CGIAR family. TAC's review was based on the premise that the CGIAR, which was initially established to help increase the productivity of tropical agriculture, should now adopt productivity and natural resources management as twin pillars of research. Following from that premise, which the CGIAR fully endorsed during a two-year deliberative process, TAC recommended that agroforestry/forestry, banana improvement, and soil and water management should be included within the CGIAR agenda. The immediate result was that some existing centers entered the CGIAR—ICLARM (fisheries), ICRAF (agroforestry), IIMI (irrigation management), and INIBAP (bananas)—and that a new center, CIFOR was established for forestry research.

These were major changes in the CGIAR research agenda. Henceforth, all CGIAR activities, including germplasm improvement designed to increase crop productivity, would be character-

ized by environmental objectives; for example, breeding for pest and disease resistance to minimize the use of chemicals, as well as integrated pest management where chemicals are still indispensable. The fact that CGIAR members and scientists were equally committed to transforming a strongly productivist orientation to one which gives equal emphasis to natural resources management testified to their ability to keep abreast of, perhaps ahead of, changing needs. For the revised emphasis was not simply a matter of nomenclature, but of research methodology and funding. TAC provided the foundations for a new methodology in prescribing that CGIAR-supported research should fall into two clusters: global commodity activities, and ecoregional activities. Each of these clusters was explicitly defined and described by TAC, as follows:

- *global activities* would be focused on commodities and selected subject matter areas, such as policy, management, conservation of germplasm, and the maintenance of biodiversity; and
- *ecoregional activities* would focus on applied and strategic research on the ecological foundations of sustainable production systems, commodity improvement in collaboration with global commodity activities, and interaction with national partners.

The operational and organizational significance of the ecoregional approach would be far reaching and, I gather, is still evolving.

The wisdom of the “founding fathers” in creating a mechanism for independent scientific advice, and the enduring quality of that advice, were evident in these developments. TAC is the core of the CGIAR’s analytical capacity for system options. TAC’s major responsibility is to come up with options that are scientifically sound. To do this, TAC draws together the best available talent. Under the skilled and stirring leadership of TAC Chair Alex McCalla the Committee was a source of wisdom and strength. Alex McCalla himself was a star who added his own special luster.

When consensus was reached on options presented by TAC, the onus of putting new research emphasis fell on the centers, while it was up to CGIAR members to provide the necessary support. Indeed, the continuing support of the donor community became a critical issue during my chairmanship because the CGIAR system was going through a period of expansion based on scientific criteria at a time of disenchantment with ODA. In a political world that was transforming itself almost out of recognition, many major donors had their own agendas which did not embrace international agricultural research. The diplomatic task of holding donor support for the CGIAR fell on the Chairman. I enjoyed the challenge, and very much appreciated the response of donors who, after grueling discussion, maintained their commitment. An important result of the expansion exercise was that new financial systems were introduced. These involved a balance between supporting new approaches to research and ensuring full accountability. In this situation, I welcomed the effort by all concerned to pull together.

Overall, I found the CGIAR vibrant and justly proud of its achievements. It has made many changes in recent years, and will face the need for more as the development equation changes. I am confident that it will continue to be as effective in the future as it was in the past. I wish it well.

Thoughts on the Future Focus of the CGIAR

V. Rajagopalan
CGIAR Chairman
1991-1993

It was with great trepidation that I accepted the chairmanship of the CGIAR when Wilfried Thalwitz passed on the gavel to me at the concluding session of International Centers Week 1991. My only direct contact with the CGIAR until then was through two visits to IRRI and ICRISAT as a World Bank staff member. I was, of course, familiar with its record of achievement, and with its formidable reputation.



Sitting through the closing stages of that International Centers Week, I asked myself what contribution a Chairman was expected to make toward continuing the achievements and maintaining the reputation. My reverie was disturbed by expressions of goodwill, congratulations, and introductions. I found myself being introduced to a number of Chairs of this board or that, including the TAC Chair. So many Chairs...and the CGIAR Chairman as well...it was somewhat bewildering. How did the role of the CGIAR Chairman differ from that of other Chairs? Was it purely ceremonial? To preside over meetings, read prepared speeches, and present awards? Or was it different—something more substantial?

As CGIAR Chairman, the briefings provided by the CGIAR Secretariat and discussions with TAC Chair Alex McCalla soon after I took over as Chairman gave me a good start. In my final address to the CGIAR I described McCalla as a “class act.” I realized that in the first few minutes of a visit with him in Davis (University of California), at that time his academic home. I found that

his knowledge was as strong as his commitment was deep. Subsequently, with every visit to a center, I began to understand and appreciate better the mission, activities, and structure of the CGIAR and the major issues confronting the Group. I also began to see the Chairman's role primarily as that of a catalyst, and realized that one could spend as much or as little time as one chose to in fulfilling this role.

From the visits to the centers I came away with some strong impressions. First, I was fascinated by the range of work done at the centers and by the dedication of the staff. Second, the staff were clearly concerned about the declining trend in overall funding and its impact on their work programs. Some rightly worried that the quality of science was being eroded by the uncertainty over funding. Scientists were also concerned about their career development. Third, the Center Directors were so engaged in resource mobilization efforts that their quality time for research management was getting drastically reduced. Fourth, the centers were *not* seen by most developing countries as playing a bridging role between them and researchers in the developed countries.

However one dealt with these impressions, it was clear to me that given the collective wisdom and goodwill in the Group, certain aspects of governance, such as decision by consensus, the autonomy of the centers, and the collegial informality and nonpolitical character of the Group's deliberations, must be protected. And so, the first steps toward strengthening decisionmaking and bolstering fundraising efforts were taken at the 1993 Mid-Term Meeting in San Juan, Puerto Rico, with the setting up of an Oversight Committee and a Finance Committee from among the members of the Group.

I also felt very strongly that it was foolhardy to try to continue to support an international, multiyear, high-quality research effort on uncertain, annually pledged funds, as has been done in the past. I strongly believed that new approaches to funding were long overdue and that vigorous steps must be taken to attract trust funds from nontraditional sources and the private sector. I appealed to

the donors to make multiyear commitments and exhorted the Group to establish a Trust Fund as a stabilization mechanism. My only regret has been that my term was too short to follow-up on these initiatives, but it is tempered now with my knowledge that considerable progress has been made in the last two years, especially in increasing overall funding. This is a significant achievement that should be commended.

Another issue of concern to me throughout my tenure as Chairman was the weak linkage between the centers and the agricultural research systems in developing countries. I am very pleased that this issue is currently being addressed. I was distressed that the World Bank itself was not making much use of the research findings of the CGIAR centers in its agricultural pursuits. I pointed out to Bank management the need to rectify this situation and am very pleased that the new position of Director for Agricultural Research, which would provide a better link between the CGIAR and the Bank for systematic use of research findings, is now fully operational. Essential as is the generation through research of new knowledge and technology, it is the transfer of such knowledge and technology to developing countries that would ultimately justify the existence of the CGIAR. That this aspect needs to be constantly monitored and continuously nurtured cannot be overemphasized. It is here that the cosponsors have a special responsibility and a major role to play in enabling technology transfer through their agencies' regular activities. It will also help to deal with the concern that the CGIAR is moving away from scientific solutions and becoming more involved in technical assistance or development *per se*.

Clearly, in the years ahead, the focus of CGIAR research should be on expanding food production in low-income, food deficit countries where the majority of the world's hungry people live. Since in a number of these countries land will remain the major provider of food for increasing populations, research should help to increase the productivity of small plots and address the specific problems of poor farmers in Africa, Asia, and elsewhere. In particular, research leading to the improvement of "orphan commodities" such

as cassava, coarse grains, pulses, and tropical vegetables, which are in many instances critical to the survival of poor farmers, should be specifically protected from funding cuts because they would otherwise be ignored or neglected.

The need for continuing aggressive research in all of these areas and across many disciplines by the CGIAR and national research centers is self-evident. Farmers are the first to notice when yields decline despite the ever-increasing application of inputs. They are increasingly voicing their concerns that current technologies are less and less satisfactory over time. Are current research systems sufficiently sensitive to these concerns? Today's farmer requires far more knowledge in order to make environmentally appropriate decisions and to cut costs of production. Information resources will need to substitute in the future for the all too frequent current excessive use of physical resources.

Meeting these challenges should be the future agenda of the CGIAR as it celebrates its twenty-fifth anniversary and prepares itself to continue to contribute through research to promoting sustainable agriculture for food security in developing countries.





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