Issus in Agriculture is an evolving series of booklets on topics connected with agricultural research and development. The series is published by the Secretariat of the Consultative Group on International Agricultural Research (CGIAR) as a contribution to informed discussion on issues that affect agriculture. The opinions expressed in this series are those of the authors and do not necessarily reflect a consensus of views within the CGIAR System.
CGIAR ACTIVITIES AND GOALS:

TRACING THE CONNECTIONS

DONALD L. WINKELMANN
TAC Chairman
Introduction

This piece describes my view of the important lines of force that connect the CGIAR’s goals to its activities. I start with a sketch of the goals, comment on related questions, connect the goals with the work of the centers, introduce recent findings that empirically support what were leaps of faith, note what is not being claimed, and finally, take up two related points before concluding. Most of the discussion deals with the way the CGIAR has decided what it should do. There is little on how to do it, which means that there is little on recent discussions about monitoring the System’s work, various forms of collaboration, the expanding potential through high science, and the structure of the System.

Before continuing I want to make two scene-setting comments. For 25 years, the CGIAR has invested in work in developing countries. In the , the investment has led to notably large returns, especially to the poor. Virtually no other effort in development assistance has done as much for the poor and, arguably, for natural resources. I believe that the System has much to offer in the future and that transparency, of a kind I hope to portray here, will encourage support for its work.

Second, the CGIAR lives in a constantly changing environment. Science continually offers new opportunities. Research establishments in developing countries are changing, as are the relationships among them. Attitudes
toward the roles of the public and private sector are shifting. Concern for protecting natural resources has increased. And the perceived role in development of the crops, livestock, forest, and fisheries (hereinafter referred to as AFF) sector has gained in importance. Motivated largely by these changes, the CGIAR itself has changed. Recently, and singularly important for my purposes, the System refocused its goals, asked for more transparency in their pursuit, and gave added emphasis to efficiency and accountability.
The CGIAR's Goals Today

The overarching goals of today's CGIAR feature poor people and stress the efficient pursuit of three related aims for the world's poorest countries: (1) the alleviation of poverty, especially that of women, (2) protection for natural resources, and (3) sustainable food security. Several questions emerge from this brief statement.

First, why does the CGIAR emphasize the poorest countries? An obvious response is that those countries contain the poorest people. I believe there are other reasons. One is that the CGIAR's energies should be focused on constraints affecting people in those countries where resources per capita are so scarce that only limited possibilities exist nationally for handling the problems of poverty and natural resource management. As examples, Bangladesh has such limitations; clearly, the Republic of Korea does not; arguably, Brazil does not. A second reason is that, other things equal, the CGIAR's work will have its largest effects on poverty where much of the work force is engaged in AFF and where the acquisition of food absorbs much of the average family's resources; these are the characteristics of the poorest countries.

Is the CGIAR's goal of poverty alleviation congruent with the primary goals of the poor? All too much experience has shown that poverty brings in its train low self-esteem, poor health, and foreshortened life spans. With that, I take it as given that the poor assign high priority to an escape from poverty; so that the CGIAR's concern is notably consistent with the goals of the poor. I add that, while the Group's emphasis on the poor can be seen as emerging
from altruism, it is quite consistent with arguments based on enlightened self-interest.

Which natural resources? The System focuses on biodiversity, land, and water. It emphasizes their implications for future productivity and human health. There are other reasons for protecting such resources and for being concerned about the environment in general. Not even the poorest live by bread alone and they, too, feel the consequences of changes in the global environment. Even so, as I understand it, because of its emphasis on poor people, the System follows the logic of the poor and emphasizes these broader concerns for the environment after accommodating the primary concerns of the poor. In all cases, of course, CGIAR researchers are encouraged to look for solutions that simultaneously favor both the poor and natural resources. Beyond that, the System's decision makers should consider research that aims at reducing trade-offs between the two, all the while assessing how that research itself will trade off with other research, particularly that which favors productivity increases of special relevance to the poor.

What about sustainable food security? "Food security" rests primarily on food availability and access to it. For today's poor, and probably for tomorrow's poor, it is access to food because of limitations on income, not the availability of food, that is the operative limitation on food security. For the poor especially, food security accompanies the alleviation of poverty. As for "sustainable", this has to do with food security in the future, implying the need to conserve natural resources today, so that the resource base can support food security in the future.
My view is that, in its pursuit of the alleviation of poverty and protection for natural resources, the CGIAR is simultaneously pursuing virtually all of what is contained in "sustainable food security". One further observation here: Research on AFF has a larger and more dynamic role if it is motivated by poverty alleviation and natural resource conservation than if it concerned only with the availability of food. (More about this follows in the section linking goals and activities.)

Finally, as I see it, the CGIAR's recent emphasis on poor people has greatly clarified the System's goal statement and, in doing so, has notably sharpened decision making on priorities and resource allocations. Certainly the CGIAR has been concerned about people from its beginning. People consume food, they produce food, and they make decisions about the relevance of technologies. So people have always figured in the CGIAR's logic. Even so, at the System level they did so less directly, I think, than in the current formulation. Now, having anchored the goal statement with the poor, the CGIAR must judge its priorities and activities in terms of their consequences for the poor. From that position, the CGIAR has shaped a well-defined conceptual framework for choosing among activities, that is, other things equal, those activities that promise the most for present and future poor are favored. I believe that this framework has stimulated a stronger sense of purpose among all of those working within the CGIAR; has fostered stronger congruence between System, center, and program goals, has favored mutually beneficial relationships with partner organizations, and has reinforced the support of those who are investing in the System's work.
CGIAR: Relating Work to Goals

AVENUES

- Technologies
- Policy
- Infrastructure
- Education

LINES OF FORCE

- Productivity
- Natural Resource Management

GOALS

- Poverty Alleviation
- Sustainable Food Security
- Protecting Natural Resources

Many forces affect income.

1. While apparently the same, the relationships portrayed by the arrows actually vary in their importance.
Relating Goals and Means

In the poorest countries of the world, 60 to 80 percent of the work force is engaged in AFF and roughly half of the average family's means (whatever its source) is devoted to food. Clearly the dual importance of the AFF sector argues that increases in productivity there could do much to increase incomes and well-being. There are two avenues through which those effects are realized. The most immediate is that the increased productivity lowers the per unit cost of production, hence, raises returns to the resources committed to production, and, thereby, raises the incomes of those who hold such resources. The second is that the increases in output that accompany an increase in productivity simultaneously lower the price of food, thereby raising the real incomes of food consumers, both urban and rural. The apparent anomaly of higher incomes for producers with lower prices to consumers is made possible precisely by the increase in productivity. Indeed, barring such transfers as subsidies or relief, increased productivity is the only way to increase real incomes.

Historically, increases in productivity in the AFF sector have come largely from improved technologies, more effective policy, better infrastructure, and more education. The first has been the most reliable source of increased productivity. While each of the four rests on research to some degree, improved technologies and policies are most demanding of its product. And it is precisely there that the CGIAR centers focus their research and related activities. How do increases in productivity, with the resulting higher incomes to producers and lower prices to consumers, lead to higher incomes within the society as a whole?
With higher incomes within AFF, those holding resources, whether land, labor, or capital, are disposed to increase their spending for consumption and production goods. This stimulates widening rounds of spending and leads to higher levels of income elsewhere in the economy. Thus, AFF plays a role as an engine of growth. As well, because of lower food prices and the resulting increase in the real incomes of food consumers (100 percent of the population), they increase expenditures, stimulating further rounds of demand and widening rounds of income growth. Increased productivity in AFF then, leads to broadly based growth in incomes through two avenues.

An important point emerges from this relationship between productivity and income and the earlier point on food security. Some see the AFF sector primarily in terms of its contribution to stocks of food, that is, to availability. While perhaps important globally, this view misses crucial aspects of the sector's role in the poorest countries. In those countries, the sector's primary role is its contribution to the real incomes (including all sources) of producers and consumers, especially the poor. Those higher incomes widen the access to food while promoting economic growth. An income-focused view accentuates the importance of the sector, adds to the significance of efforts to increase productivity there, increases the perceived payoffs to such efforts, and justifies greater investment than would emphasis on the availability of food. One consequence of emphasizing access rather than availability, then, is to raise the profile of AFF: Having said that, it is also true that increased productivity will lead to increased availability of food. In a sense, then, access (through increased incomes) and availability (through increased production) both rest
on increased productivity and are two sides of the same coin in the poorest countries, but access has broader ramifications than has availability.

Returning to the main theme, it can be asked if other sectors would do a better job than AFF in stimulating widening rounds of growth. For poorer countries, recent studies with a macro view show that increases in income in AFF have a larger impact on countrywide income than increases in any other sector. The advantage of investment in the sector can be expected to diminish, however, as incomes increase. Especially, then, for those pursuing growth in national income in countries where high proportions of the work force are in AFF and high proportions of family resources go to foodstuffs (that is, the poorest countries), the best-bet strategy is to stimulate increased productivity in AFF.

Finally, to what extent do higher national incomes alleviate poverty? Until recently, perceptions on this question were based largely on theory and plausible associations. Happily, the past few years have brought strong empirical support for the relationship in developing countries. In particular, recent work at the World Bank strongly supports the view that economic growth and higher national incomes reduce poverty. Deininger and Squire (1996) reviewed some 90 studies reflecting long-term economic growth and income distribution in developing countries. In over 80 percent of the cases, the real income of the lowest 20 percent of the population increased with growth in national income. For those concerned with reducing poverty, these appear to be notably favorable odds. And this occurred even in cases where the income
distribution became less equal as growth progressed (as happened in roughly one-half of the cases reviewed).

In a 1998 paper, aimed at a different topic, Deininger and Squire reaffirm that "the poor benefit from measures that promote... growth." In the case of India (where relevant data are the most abundant and reliable), analysis by Datt and Ravallion of the World Bank showed that a 10 percent increase in average consumption (which itself is highly correlated with income) resulted in a 12 to 13 percent drop in the number of people below a defined poverty line.

Some continue to contest this conclusion, arguing that growth, even growth in AFF, has little effect on poverty. Ever fewer analysts take this tack, however, and the preponderance of recent evidence supports the view that, with high probability, growth in national income reduces poverty. Moreover, strengthening the argument that growth in rural areas is the best-bet strategy for reducing poverty, Datt and Ravallion show that in India, both rural and urban poor gained from growth in rural income, while urban income growth had little discernible effect on poverty in rural areas (at least during the period under analysis), where most of India's poor are found.

This is not to say that those concerned with poverty alleviation should focus exclusively on promoting economic growth. Other options, like better opportunities for women through education, can promote well-being. As well, policy may have a role in promoting patterns of growth more congruent with poverty alleviation, for example, by targeting investments in favor of rural labor-intensive activities. Neither should those concerned with
growth focus all of their attention on research-based productivity increases in AFF, given the myriad forces at play in stimulating economic growth. Primary education and roads have also been good investments. Too, while increased productivity in rural sectors is probably a necessary condition, I am not suggesting that growth there will be sufficient to raise all incomes to desired levels. In time, growth in the rest of the economy must draw labor and human capital out of agriculture, if poverty is to be eliminated. I am saying, however, that those concerned with poverty in countries characterized by high proportions of the population committed to AFF and high proportions of family resources going to foodstuffs should, other things equal, see productivity increases in the sector as their best-bet strategy.

Briefly, then, the CGIAR's ultimate goals are to reduce poverty and protect natural resources. The System pursues those aims through research and related activities aimed at increasing productivity in AFF while protecting natural resources. For poorer countries, increased productivity is closely related to improved technologies and policies, themselves based on research. These bring higher rural incomes and lower food prices for both urban and rural consumers, with the two effects combining to stimulate higher national income. All lead to reduced poverty. This is not to argue that the impact of CGIAR activities on poverty is immediate and direct; rather, the connecting lines run through productivity, prices, multipliers, and real incomes. Even so, a clear line of logic, supported by empirical findings, connects the System's work, step by step, to its goals. Moreover, there is little in recent research to argue that, for the poorest countries, there
are evidently better alternatives for attaining poverty reduction. I take it as established, then, that the CGIAR's work relates notably well to its goals, and that its goals conform notably well with those of the poor.

**Briefly on Two Topics**

Before going on to the conclusions, let me comment briefly on two important topics. One relates to how to assess the CGIAR's progress towards its goals, and the second, to an ethical standard with potentially strong implications for its priorities.

About the first, efforts to measure the direct impact of, say, new technologies on poverty are notoriously difficult, because of the myriad factors that affect the level of poverty in any given situation. That said, while desirable, such measures are probably not necessary in assessing CGIAR work, with its emphasis on international public goods. About the difficulty, with so many variables at play, sorting out the influence of a single factor, for example, agricultural technology, requires observations on a large number of cases; findings for a single country, whatever emerges, simply cannot be convincing. However, other studies, based on a large number of countries (for example, see Deininger and Squire), have noted an inverse relationship between changes in country-wide income and poverty. Add to that the relationship between productivity increases and country-wide income, a central part of the earlier discussion. Then the stretch from technology directly to poverty alleviation is not necessary to claim progress towards goals. What is needed is evidence that
research-based, improved technology has been adopted over a defined area, that productivity has increased in that area, that natural resource costs are limited to acceptable levels, and that real prices of products have declined. That kind of evidence can be brought together. Knowing that progress towards goals is being made is not, of course, enough for impact assessment nor for priority setting. However, the preceding measures, plus others that are also available, can be the basis for approaching those tasks.

The second topic relates to protecting natural resources. Earlier, I observed that ethical considerations are at play here. Among these is that present generations have obligations to future generations. One interpretation of that obligation is that the stock of natural resources handed forward must equal or exceed that brought from the past. A broader interpretation—and the view that I understand is held by the CGIAR—is that the stock of total capital (that is, the sum of natural, human, physical, and institutional capital) handed forward must exceed that inherited with the restriction that no single component fall below some minimum critical level. The West’s early history of investing heavily in human capital, even at a cost to its endowment of natural capital, fits well within the broader interpretation. (Could the West, it can be asked, have done as well in health/longevity, opportunity, and self-esteem for the representative citizen had its early stock of natural capital been maintained and investments in human capital curtailed?) As compared with the first, this broader interpretation of the covenant with future generations increases the options for dealing with poverty. Having said that, what about the claims that natural capital has reached minimum critical levels in some places? Prudence
dictates that apparently urgent situations be analyzed.
The CGIAR's poor people-centered strategy, I would argue, implies that the burden of proof lies with those making such claims.

**Concluding Remarks**

My intent here was to lay out evidence for the strong connections between the CGIAR's goals and the activities it finances while describing some of the important considerations that influence resource allocations within the System. A host of other, interesting themes were not treated. My story was told in the context of the now broader view of agriculture's role in the development process, a view that rests largely on the relationships traced out here, and a perception of trade-offs between and among various kinds of capital with which societies must be concerned. The CGIAR's emphasis on people-centered decision making is crucial to the story as the congruence between its goals and those of poor people plays a pivotal role in balancing its priorities.

Over the last few years, efforts to sharpen CGIAR goals, to more systematically reconcile resource allocations with goals, and to create further efficiencies by a greater emphasis on comparative advantage have improved the quality of CGIAR decision making. Other improvements not discussed here are in the offing, and the progress to date is cause for optimism about what will follow. In my view,
these developments will contribute to maintaining the System's relevance and credibility.

Finally, for the poorest countries, is it a safe bet that investment in useful research on AFF will lead to reduced poverty through increases in productivity and income? No, it is not a safe bet. Even so, the supporting empirical and theoretical arguments are sound. I conclude, then, that it is among the best bets available and that the CGIAR remains one of the world's most effective instruments for opening options to the poor.
References


DONALD WINKELMANN has chaired the CGIAR’s Technical Advisory Committee (TAC) since 1995. The TAC advises the CGIAR on the quality and relevance of the science of its 16 agricultural research centers, makes recommendations on priorities and resource allocations, and assesses strategic issues and their implications for the System. He was Professor of economics at Iowa State University before joining the International Maize and Wheat Improvement Center (CIMMYT, Mexico City) in 1972. He headed the Center’s economics program from 1972 to 1985, emphasizing the adoption of improved technologies and methods for effective on-farm research. He was Director General of the Center from 1985–1994.

Mr. Winkelmann has devoted his career to advancing agriculture and its research around the world. He holds a Ph.D. in Economics from the University of Minnesota (1964), an honorary degree from Punjab Agricultural University (1992), and the Condecoración del Aguila Azteca from the Government of Mexico (1994). He currently serves on the board of the North American Institute, an NGO focusing on strategic issues and relationships affecting Canada, Mexico, and the United States.
The CGIAR

The Consultative Group on International Agricultural Research (CGIAR) mobilizes the best in agricultural science on behalf of the world’s poor and hungry. Through its research, the CGIAR promotes sustainable agriculture for food security in developing countries.

The CGIAR supports a network of 16 international agricultural research centers, which implement an agreed-upon agenda in partnership with national governmental and non-governmental organizations, universities, and private industry. The Food and Agriculture Organization (FAO) of the United Nations, the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and the World Bank cosponsor the CGIAR.

For than a quarter century, the CGIAR has brought together the world’s leading scientists and agricultural researchers in a unique South-North commitment to reduce poverty and hunger in developing countries. This is important because 95 percent of the 90 million people born every year live in the poorest countries. Whether researching food crops, forestry, livestock, irrigation management, aquatic resources, or policy, the CGIAR focuses on productivity and natural resources management—which are emphasized in its services to agricultural research systems in developing countries. CGIAR activities have contributed to global food security, helping to keep the environment healthy and farming sustainable.

The 58 members that support the CGIAR include developing and developed countries, economies in transition, private foundations, and international and regional organizations. Developing-country participation has doubled in recent years. All 22 members of the OECD (Organisation for Economic Cooperation and Development) Development Assistance Committee belong to the CGIAR. Ismail Serageldin, Vice President for Special Programs at the World Bank, serves as the CGIAR Chairman.