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Charting the CGIAR's Future – A New Vision for 2010

A FOOD SECURE WORLD FOR ALL:

Toward a New Vision and Strategy for the CGIAR

Attached is the paper prepared by the Technical Advisory Committee (TAC) on a new vision and strategy for the CGIAR, following the request of the Group at ICW 99. An earlier draft of this paper was discussed by the Members of the Consultative Council at their meeting on 10 April 2000 at FAO, Rome. As a result of this discussion, TAC will also prepare an addendum to this paper which will be prepared in time for the next Consultative Council meeting on May 20.

The attached paper will be presented by the TAC Chair in plenary session under Agenda Item 3 *"Vision for the CGIAR"*.

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26 April, 2000

Dear Mr. Serageldin,

I am pleased to transmit herewith the final draft of the document, *A Food Secure World for All: Toward a New Vision and Strategy for the CGIAR*, for discussion by the Group at MTM 2000 in Dresden. The paper was slightly revised following our discussions at the Consultative Council meeting on 10 April in Rome. As agreed at that meeting, TAC will prepare an additional clarifying note on the strategic choices made in the attached paper in time for the next Consultative Council meeting that will be held in association with MTM.

TAC has prepared this paper in response to the CGIAR's request that the Committee lead a broadly consultative exercise to redefine the CGIAR's vision and strategy for 2010. In preparing it, the Committee has worked closely with the Centres and sought the views of CGIAR Members and stakeholders. It has also drawn upon the results of the 1998 System Review, other CGIAR reviews, TAC and CGIAR strategic studies, FAO's 2010 and IFPRI's 2020 Studies, and the views of outside experts. The document does not purport to be a consensus of all those consulted. Rather, it reflects the judgement of TAC on the future direction which the System should take, based on the consultative process which TAC set in motion at the request of the Group.

In keeping with the proposition that form follows function, TAC has not at this stage recommended the precise direction and scope of organisational changes needed to deploy future resources of the CGIAR. Nonetheless, the Committee's recommended vision and strategy has structural implications. TAC is prepared to develop recommendations on institutional and resource allocation changes pending the outcome of the Group's deliberations on the proposed vision and strategy.

In this context, I wish to note that the CGIAR's current approach to priority setting and resource allocation would need to change substantially to implement the programme strategy that TAC is recommending. I would draw the Group's attention to some, but by no means all, of the aspects of the vision and strategy, which have such structural implications:

- focusing strongly on poverty reduction at the regional level within a Systemwide priority setting framework;
- adopting modern research tools to complement or supersede conventional approaches to crop, livestock, forestry, fisheries, natural resources management, and policy and management research;

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Mr. Ismail Serageldin, Chair, CGIAR
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- articulating and integrating more closely CGIAR activities with those of its partners involved in technology generation, transfer, and utilisation in regions having high concentrations of poverty;
- increasing capability of NARS partners to share responsibility for research and research-related activities; and
- highlighting an organisational design feature that augments the System's capability to respond flexibly and rapidly to changing environments.

On behalf of the Members of TAC, I wish to thank all those who contributed to this visioning exercise. The Committee's work benefited enormously from their advice and counsel. We would like to express our sincere appreciation to the Group for having been given the opportunity to undertake this task.

I look forward to a stimulating discussion at MTM.

Sincerely yours,

Emil Javier
TAC Chair

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PROCESS AND ACKNOWLEDGEMENTS

At ICW99, the CGIAR requested TAC to lead an exercise to help address the future of the CGIAR (horizon 2005-2010) and to define: where we should be; what we should be doing and producing; how we should be doing it and with whom. In so doing, TAC was asked to involve the centres and seek the views of CGIAR Members and stakeholders. It was expected that the Committee would draw on previous work and move quickly to ensure completion of the task for consideration and adoption at MTM2000. To initiate the work, TAC Chair invited key stakeholders to a brainstorming session at the TAC Secretariat, which identified tentative issues and approaches for addressing the exercise. The TAC Secretariat reviewed the relevant documentation including background papers prepared for the 1998 CGIAR System Review. Various think pieces were commissioned to external experts and views were sought from stakeholders and a number of leading authorities. TAC subsequently organised a one month long electronic conference on a new vision and strategy for the CGIAR with logistical support from RIMISP in Chile. Four hundred participants, 300 of whom outside the CGIAR, subscribed to this open consultation labelled CGIAR 2010.

Under the leadership of the Chair of SCOPAS, the TAC Secretariat prepared and commissioned a number of documents, including a paper on alternative scenarios for a future vision and strategy for the CGIAR. These papers were discussed from 25-27 January 2000 at a special TAC meeting held at FAO, Rome and at a special meeting of the Centre Directors' Committee (CDC) at IPGRI, Rome. TAC and the CDC with representation from the Centre Board Chairs' Committee (CBC), the Global Forum, and the respective Chairs of the Oversight and Finance Committees met in joint session on 27 January 2000. The TAC Secretariat subsequently prepared a paper on the major elements that had been agreed on for a future vision and strategy and circulated this as draft chapters 5, 6 and 7 to TAC and Centre Directors. Centre Directors also formed sub-committees to prepare papers on CGIAR programmes and structure and on global and regional dimensions of a future CGIAR, which were submitted to TAC. TAC Members and Centre Directors provided comments on the early draft materials. Under the guidance of the TAC Chair and the Chair of SCOPAS, the TAC Secretariat then proceeded in preparing a first draft for deliberation at TAC 78. That document was subsequently revised and shortened to incorporate comments made at that meeting, which was, in addition to TAC Members and TAC and CGIAR Secretariat staff, also attended by several Centre Directors, Board Chairs and observers from CGIAR Members. A further draft was discussed at the special CGIAR Consultative Council meeting held at FAO, Rome on 10 April 2000. Thereafter, the final draft was prepared for discussion by the Members of the CGIAR at MTM2000 on 24-26 May 2000, Dresden, Germany.

TAC would like to thank the Centre Directors in particular, both individually, and collectively as CDC, for their excellent spirit of collaboration and their substantive inputs into the process of preparing the attached paper. Thanks are also due to the Centre Board Chairs, the CGIAR Secretariat, the NARS Secretariat and many members of the CGIAR and key stakeholders for their contributions, as well as to the authors of the think pieces and other commissioned papers.

All papers prepared or commissioned by TAC in the course of its deliberations can be found on the TAC Website (http://www.cgiar.org/tac/tacsec.htm).

SUMMARY

The Context

At present, some 1.2 billion people live in absolute poverty. Seventy percent of the poor are located in rural areas. The number of absolute poor is not expected to decline appreciably by 2010 and it is reasonable to assume that by that date the highest share of them will remain in South Asia and Sub-Saharan Africa. By 2020 the world's population will increase by nearly one-third to 7.5 billion people; with nearly 85 percent living in the developing countries. The challenge to sustainable agricultural development posed by these trends is enormous.

Over the last 25 years, the CGIAR has made significant contributions to food security and poverty reduction through its research and research-related activities on sustainable development of agriculture, forestry and fisheries. However, its impact has been largely confined to the more favourable areas. Extensive areas of the developing world with a high incidence of poverty did not benefit directly from technological advances in agriculture, even though poor consumers benefited indirectly from lower food prices brought about by increased food supply. Moreover, degradation of natural resources, in both favoured and less favoured areas, has emerged as a significant constraint to sustaining the productivity of agriculture, forestry, and fisheries and, hence, to food security in the long term.

TAC's proposed vision, goal, and strategy for the CGIAR has been formulated in the light of changes in external environments likely to influence CGIAR priorities and strategies, as well as trends in population, agricultural production, alternative suppliers and the status of natural resources and their implications for poverty, hunger and malnutrition toward 2020. In particular, TAC has given considerable attention to the dramatic advances in the world of science and technology; the massive entry of the private sector into agricultural research; increasing research capacity of developing countries; the revolution in information and communications; and actions at the intergovernmental level affecting such issues as global trade, ownership/stewardship of genetic resources, and intellectual property rights.

Vision, Goal and Mission

The uneven geographic impact of the CGIAR's work means that in the future the System must provide the scientific tools - production technologies, resource conservation and management practices, policy support, and institution strengthening – which will enable our developing country partners to break the productivity constraints in the less favorable environments as well as to address more flexibly the food needs of their people. In doing so, the CGIAR must derive its priorities from the livelihood situation of the poor whether they are located in urban or rural areas. This will require, among other things, not only surpassing the yield and productivity gains already achieved for the major staples, but customizing agricultural technologies to optimize income and employment generation in the rural sector, addressing issues of food quality and safety, and developing integrated approaches to natural resources management.

In this context, TAC recommends that the CGIAR adopt as its strategic framework the following vision, goal, and mission:

Vision: ***A food secure world for all.***[1]

Goal: ***To reduce poverty, hunger, and malnutrition by sustainably increasing the productivity of resources in agriculture, forestry, and fisheries.***

Mission: ***To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.***

The scientific, institutional, and policy outputs associated with this framework are, by themselves, insufficient to achieve the CGIAR's vision and goal. Nevertheless, they are essential to promoting sustainable agricultural development, and hence to reducing food insecurity and poverty in a broad range of environments.

Toward a New CGIAR Strategy

The main elements of TAC's recommended new strategy for the CGIAR are:

- **To sharply focus its activities on the reduction of poverty, hunger, and malnutrition in developing countries.**

Recognising that the determinants of poverty are complex, the CGIAR's operational goal will be to contribute to lifting as many as possible of the world's 1.2 billion absolute poor out of poverty by means of research and research-related activities in areas within the CGIAR's comparative advantage. Its future research agenda will, therefore, focus on the need to secure livelihoods for poor people located in regions where the incidence of poverty is high in relative and/or absolute terms. Its work will address the needs of both the rural and urban poor. In doing so, the System will co-ordinate its activities with those of current and new partners dealing with aspects of poverty beyond the agricultural sector.

- **To take vigorous steps to bring modern science to bear on difficult productivity and institutional problems that have proven intractable in the past.**

Exciting new scientific prospects now exist on which the CGIAR can capitalise. These include new advances in the area of functional genomics; new, powerful and increasingly affordable computing, information and communication technologies; remote sensing and spatial modelling; better understanding of human dynamics, social capital, and social organisation leading to participatory approaches to research and development and community management of common resources, i.e. forests, water, rangelands; and concepts of integrated

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[1] Food security refers to access at all times to sufficient, nutritionally adequate, and safe food. The CGIAR defines poverty as a multidimensional concept that includes income below a poverty line and lack of satisfaction of basic needs such as water, health and education, as well as quantitatively and qualitatively inadequate nutritional standards.

natural resources management (INRM) permitting a more consistent Systemwide approach to soil and water management research and to work on management of coastal environments. To capture these opportunities the CGIAR must give priority to the most advanced science, continue to deploy its scientists at the frontiers of their disciplines, enter into effective partnership arrangements with the private sector and new scientific platforms, outsource research on the basis of comparative advantage, and devise institutional arrangements permitting delivery of international public goods in the context of IPR and international agreements on access to genetic resources.

- **To give highest priority to developing a concerted approach to address the research needs of South Asia and sub-Saharan Africa where poverty is concentrated and growing, and major impacts can be made via technological breakthroughs in productivity and ensuring the sustainability of natural resources.**

South Asia has the largest number of poor and the situation of sub-Saharan Africa is severely worsening. Highest priority will, therefore, be given to these regions. Priority will be accorded to other regions commensurate with their respective concentrations of poor people, e.g., the Andes region in Latin America, the arid areas of Central and West Asia and North Africa (CWANA), Central America and the Caribbean, and other parts of East Asia and the Pacific. There is a critical need to better understand who the poor are, where they live, why they are poor and how agricultural research can help them to overcome their plight. To effectively address poverty and food insecurity at the regional level, the CGIAR, in partnership with others such as the UN-sponsored FIVIMS (Food Insecurity and Vulnerability Information and Mapping System) and the World Bank, must ensure that its priority setting is adequately informed by poverty mapping.

- **To adopt a regional approach to research planning in order to better address the heterogeneous nature of poverty.**

The CGIAR will adopt a regional approach to research planning in order to address more effectively the heterogeneous nature of poverty in specific regions. This will involve development of participatory regional priority setting to complement the current global priority setting process, recognition that the nature of poverty and strategy for poverty reduction will vary among regions, and responding flexibly to the differential needs and corresponding opportunities in each region. Greater integration of CGIAR activities with those of development partners in the regions - i.e., UN agencies, regional development banks, donors, national and local governments, regional research associations, NARS, NGOs, and GROs - would also be needed. The CGIAR's own role will be carefully defined based on its comparative advantage in research and research-related activities. The gains to be realised from this approach include regional comprehensiveness in attacking those aspects of poverty related to food, agriculture, and resource management; regional ownership of programmes through participatory approaches; regional accountability through long-term commitments and partnerships with local NARS; regional co-ordination and division of labour with relevant actors from local to international levels; and effective complementarities between regional and global knowledge.

- **To diversify and closely integrate its partnerships at the regional level to ensure that modern science is brought to bear on the problems of the poor efficiently and effectively**

Recent and prospective advances in molecular biology require that the CGIAR increasingly link with advanced international research networks and institutions and a much wider range of actors in the private sector. The System's collaboration with NARS will broaden beyond traditional breeding to include capacity strengthening in the utilisation of molecular tools. Particularly, but not exclusively, in the field of NRM, it will need increasingly to involve non-traditional partners such as NGOs, universities, professional associations, and community organisations in the national systems in its partnership arrangements. Their cooperation will be critical to the success INRM and to scaling up applications from community to regional and national levels. To realise these objectives will require new forms of outsourcing and contracting with public advanced research institutes, universities, and the private sector in both developed and developing countries. Diversification of partnerships within regions will also require institutional arrangements that more closely integrate the CGIAR's activities with those of its collaborators while maximising output and efficiency and minimising transactions costs.

- **To provide a strong impetus to the adoption of a task force approach to the organization and delivery of its products and services.**

To increase its flexibility to respond rapidly to problems of importance to the CGIAR that cut across Centres' disciplinary expertise and involve collaboration with external partners, the CGIAR will give strong impetus to the adoption and use of a task force approach to the organisation and delivery of its products and services. Task forces will deal with high priority issues requiring exceptional levels of co-ordination. They will have well-defined, time-bound objectives as well as assured support. The approach would serve to mobilise global expertise and resources from both traditional and non-traditional sources. The task force approach, as a key factor in the System’s future organisational design, could also be a way of introducing new, more flexible organisational structures that capitalise on the revolution in information and communications. Appropriate governance and accountability mechanisms would be developed to ensure the effectiveness of the task force approach.

The Future of the CGIAR in the Long Term

Increasing food production and reducing poverty without degrading the natural resource base on which agriculture depends will remain the principal challenge to agricultural research for some time to come. TAC, therefore, considered the FAO 2010 and the IFPRI 2020 scenarios, and two possible general scenarios towards 2050 and beyond. An optimistic scenario foresees population growth stabilised in the second half of this century, poverty substantially reduced, food production in developing countries increased, and relatively stronger national programmes. The need for international public goods research will narrow as a consequence of the increased capability of many NARS to look after their own research needs, and of the commanding role the private sector is expected to play. At that stage, there will be a trend towards more virtual research and development organisations with fewer physical structures and "centres without walls".

Some research themes will endure at the international level because certain problems will continue to require multilateral actions, smaller, less capable countries will need continuing assistance in the more advanced and strategic sciences, and the private sector may not consider these activities attractive investments. The enduring research concerns at the

international level will include: (1) genetic resources conservation, distribution and stewardship; (2) advanced and strategic studies and training of developing country scientists in these advanced fields; (3) steering/co-ordination of a global agricultural knowledge system; and (4) global policies and trends analyses on food, agriculture and resource use and access.

The alternative to this optimistic scenario would be a situation of slow economic growth, weakening of NARS, further degradation of the natural resource base, and widening gaps in science capability between North and South. Under this pessimistic scenario the need for international public agricultural research will not lessen but be even greater.

Regardless of actual outcome, the present choice is clear: we can either we refocus our efforts now to tackle more effectively the challenges of poverty reduction, food security and sustainable management of natural resources or leave a far more daunting task to future generations.

Next Steps

In keeping with the proposition that form follows function, TAC, at this stage, has refrained from recommending the precise direction and scope of organisational changes needed to deploy the future resources of the CGIAR in the most effective way. Nonetheless, TAC's recommended vision and strategy has structural implications and these have been outlined in broad terms in the paper.

CHAPTER 1 - CONTEXT

The Food/Population/Natural Resources Nexus

Currently, an estimated 1.2 billion people live in absolute poverty on less than US$1 per day; 2.8 billion if the poverty line is shifted to US$2 per day. Nearly 800 million of the world's poor are undernourished and some 70 percent of them live in rural areas. Between now and 2020, the world's population will increase by nearly one-third from 6.0 billion to 7.5 billion. Nearly all of this increase will occur in the developing world where some 6.3 billion people will live, the largest growth occurring in cities. At the same time, the natural resources upon which the world's population depends for its sustenance will be increasingly at risk from soil degradation, deforestation, water scarcity and contamination, biodiversity loss, and weather variability.

Given this scenario, the challenge of ensuring a food secure world for all in the decades ahead while protecting the natural resources that sustain agricultural production remains enormous. As a result of continuing population and income growth, particularly in developing countries, the world's farmers will need to produce 40 percent more grain in 2020 to meet global food and feed demand (Pinstrup-Andersen *et al.* 1999). Lack of access to fresh water is rapidly becoming a key constraint to global food production requiring urgent attention to water management issues. Significant production increases tantamount to a "livestock revolution" will be needed meet future livestock demand, given rapidly diversifying diets in the developing world (Delgado *et al.* 1999). Industrial roundwood and fuelwood production, the most critical commodities for the poor, are projected to grow at 1.2 percent and 1.0 percent per year, respectively, over the next 15 years (FAO, 1999b). In the meantime, deforestation continues at an alarming rate. Projected continuing strong demand for fisheries will impel Asia and Africa to increase fish catch by a 1.0 percent and 4.1 percent, respectively, per year up to 2010.

While there is some scope for the projected global demand for food to be met through world trade, it is generally accepted that the bulk of the additional food requirements will have to be produced by the developing countries themselves. Increasing food production sustainably - that is, without degrading the environment - poses formidable challenges for agricultural research.

The Role of the CGIAR

The direct and indirect impacts of agricultural research on poverty reduction and food security are well known. Agricultural research helps to produce the technology and knowledge necessary for sustainable agricultural development which, in turn, is a necessary condition for economic growth in rural areas. Such growth is known to be an effective instrument for poverty reduction and, hence, improved food security in countries where a majority of the poor are rural. As well, an increase in the supply of food results in lower prices for poor urban and rural consumers who spend a proportionately higher share of their income on food.

The CGIAR's origins lay in the poor state of agricultural development during the 1950s and 1960s when famine or near-famine conditions existed in many parts of Asia where population increase had greatly outstripped growth in food production. The introduction of high-yielding cereal varieties, together with the application of fertilisers, irrigation, pesticides and improved management allowed for a rapid increase in agricultural productivity. The so-called "Green Revolution" staved off the threat of mass starvation. In a 20-year period from the early 1960s to the early 1980s, total production in developing countries of wheat, rice and maize, the three most important cereals, increased from 270 to 600 million tons per year. This represented an average growth in production of 4.1 percent per year, compared to 2.3 percent growth in population in the developing countries during the same period.

Governments, visionary leaders, research institutions (global, regional, national and local), civil society, the private sector, universities, and national and international development agencies all contributed to this dramatic increase in agricultural productivity. At the heart of this revolution in production was the advent of short, early-maturing, stiff- strawed fertiliser-responsive varieties of wheat, rice and maize in farmers' fields, particularly in Asia. Such progress resulted from the application of modern science to the problems of agriculture and from the political will to bring the fruits of science into the hands of farmers. Among the key players in this development were the international wheat, maize and rice improvement centres which grew into the CGIAR which today is composed of sixteen Centres.

New Challenges and Opportunities

Over the last 30 years, the CGIAR has evolved and diversified its portfolio of research and research-related activities in response to the changing needs of its clients. It now works on more than 20 crops, which together account for over 90 percent of food production in developing countries; on ruminant livestock, fisheries, forestry, agroforestry and water which are of great importance to the poor in developing countries; on natural resources management to ensure the sustainability of agricultural production for the benefit of present and future generations; and on genetic resource conservation, policy research and strengthening national research capacities.

In recent years, there have been a number of rapid and profound developments in various external environments within which the CGIAR works that are likely to influence significantly its future priorities and mode of operation. New challenges and corresponding opportunities for combating hunger and poverty arise from the following:

Biotechnology

In the field of biotechnology, recent developments in genetics and genomics will enhance the efficiency and effectiveness of crop improvement through genetic engineering and marker-assisted selection. Integrating knowledge from research on genomics, biotechnology, physiology and environmental factors, among others, should make breeding of complex traits, such as those characteristic to stressed environments, quality, and yield more effective and thus result in enhanced production and improved livelihoods in both favourable and less favourable areas. Germplasm enhancement using these tools can also have direct effects on preserving natural resources and improving the environment through, for example, more efficient use of non-renewable resources, prevention of erosion and water pollution, diminished use of agro-chemicals, environmental remediation, development of substitute

products and safeguarding of biodiversity. Global collaborative efforts involving public and private sector institutions are already underway and are the key to success in this field. In order to fully exploit the potential of the basic research the CGIAR needs to be increasingly linked with these advanced international research networks and institutions.

Intellectual Property Rights (IPR)

Private investment in agrobiotechnology has accelerated greatly owing to expected returns to research costs via intellectual property rights (IPR). The future trend of IPR will be influenced, to some extent, by public perceptions of GMO products as well as by decisions taken at the intergovernmental level, e.g., CBD and WTO/TRIPS. Although CGIAR centres currently may operate freely in countries where patents are not held, the situation may change as a result of new national IPR regimes, rising local private sector investment, and increase in exports of agricultural products. Options for the CGIAR to counter these trends include obtaining licenses for necessary components, seeking IPRs for its own innovations, and obtaining freedom to operate in segmented markets. Given accelerating privatisation of science, the CGIAR will have to avail itself of opportunities to collaborate more effectively with a much wider range of partners in an environment that may become increasingly market-driven.

International agreements

The ongoing negotiations on the International Undertaking (IU) could have far-reaching impacts on CGIAR activities on genetic resources. A favourable outcome may involve increased responsibility for the CGIAR in safeguarding biodiversity and benefit sharing. While a broad consensus seems to be emerging that would give plant genetic resources for food and agriculture special status within a multilateral system, if the IU fails, the fate of CGIAR's collections and operations in crop improvement may be harmed, at worst, by claims for repatriation of collections or by impairment of the transfer, maintenance, and use of germplasm. Apart from continuing to honor its current international obligations vis-à-vis its in-trust collections, the CGIAR has a vital corporate interest in strengthening its technical and policy support to the IU negotiations to ensure a favourable outcome for poor farmers in developing countries. There is opportunity for increased collaboration with FAO and national partners on this issue.

NARS

Despite important gains in the size and capacity of NARS generally over the last twenty years, investment by the public sector in agricultural research in developing countries in the last decade has seen a major decline in all regions of the developing world. Most national systems have been slow to adjust institutional structures to the increasing demands being placed on them in a context of diminishing resources. As a consequence, most NARS have failed to develop "the science environment" needed to spur innovation on a sustainable basis resulting, in many cases, in a decline in the quality of scientific output and a continuing gap between public research supply and technology users. While NARS everywhere are now restructuring, the implications of these trends for the CGIAR are considerable. In the future the CGIAR and NARS will require much more complex partnerships among different types of organisations, both public and private, and greater devolution of both applied and strategic activities to advanced NARS and regional networks. Much higher transactions costs will be involved for all concerned in order to clarify positions and negotiate strategies and priorities.

Private Sector

Significant increases in agricultural research investment have been made by the private sector over the past two decades, particularly in the industrialised world, but also increasingly in developing countries. The private sector is also playing an increasingly important role in fisheries and aquaculture in developing countries. In assessing the global supply function for agricultural science in 2010, the CGIAR must pay particularly close attention to the private sector, for its investments dwarf those of the CGIAR. Increased private sector activity in some areas, e.g., in genetic engineering and pre-breeding, will begin to shift the comparative advantage in commodity research away from the CGIAR. At this stage, crop improvement research appears to be more attractive to the private sector than natural resources management research. Private sector activity depends on incentives for commercial investments as they are affected by developments in science, policy, IPR, public opinion, and the like. By most accounts, developments in these areas are likely to encourage the private sector to invest in research previously in the domain of the CGIAR or, indeed, of NARS. The CGIAR needs to explore ways of relating to the private sector as a deliberate component of its future strategy. A key element here would be partnerships that leverage private sector resources whenever appropriate.

Natural Resources Management

The field of natural resources management is evolving away from micro-oriented field level work to more systems-oriented, participatory, and adaptive approaches at the landscape level. This shift has been made possible by the development of more sophisticated computer modelling capacity, better understanding of the biophysical linkages between various changes in the components of the environment, and improved knowledge of externalities. Still, CGIAR efforts in NRM research have not, as yet, had significant impact on how poor rural communities and their members manage their natural resources. A review of the CGIAR's ecoregional research concluded there was need to better integrate socioeconomic dimensions into NRM research in order to sharpen its focus on poverty and on the users' role in the management of natural resources. In strategic terms, the implications are that the CGIAR must not only improve the technology component of its NRM work, but also develop its capacity to understand the processes by which poor rural communities can effectively incorporate NRM into cultivation practices. Themes of future priority would include biotechnology, social organization and social capital, participatory approaches, and performance indicators.

Information and Communication

New information and communication technologies (ICTs) have profound implications for the CGIAR's research and research-related activities. Apart from facilitating communication between researchers and greatly improving their ability to interface effectively with potential users of research knowledge, ICTs also facilitate the processing of large-capacity databases and the construction of simulation models with possible applications in ecosystem modelling and economics. Remote sensing and other space satellite outputs are providing detailed geographic information that facilitates land use planning and natural resources management. These advances offer the CGIAR opportunities for greater impact through effective networking in the development and implementation of global and regional research agendas. The two most promising fields of CGIAR research which could benefit from the new ICTs

are those of natural resources management and biotechnology. The System must exploit these instruments more fully and also make them available to NARS.

Partnerships

With only 4 percent of the financial resources of the global agricultural research system, the opportunity cost of the CGIAR's engaging in activities outside its comparative advantage is quite high. Well managed partnerships can reduce transactions costs, optimise risk allocation, augment resources and competencies, increase the scale of activities, and enhance strategic flexibility. Efficiencies associated with partnerships may help to offset a looming CGIAR financial constraint towards 2010. At least four partnership domains are important to the future work of the CGIAR, *viz.*, with other scientific institutions sharing the goal of agricultural technology generation, with institutions that facilitate the flow of agricultural technology to end users, with global policy networks whose decisions have a direct or indirect influence on the work of the CGIAR and its partners, and with other institutions sharing the goal of poverty alleviation. Partners of future importance to the CGIAR include advanced institutions specializing in molecular biology; non-traditional elements of NARS, especially for NRM research; UN agencies and NGOs providing technical and policy support to the UNCED conventions and fora; and development agencies working in sectors complementary to agricultural development.

Towards a New CGIAR Vision and Strategy

In view of the challenges and opportunities outlined above, it is timely for the CGIAR to review its role with a view to positioning itself for the future. Specifically, it is essential to consider whether the CGIAR's current goals and mission are still appropriate and what strategic choices may need to be made as the System looks towards 2010 and beyond.

While it is well documented that the CGIAR has offered high returns to its members' investments, dramatic Green Revolution-type breakthroughs in agricultural productivity have been largely confined to the more favourable and irrigated areas where conditions for the adoption of new agricultural technologies were in place. Thus, the impact of the CGIAR's work has been regionally uneven and limited progress has been made in addressing poverty, food security, and natural resources management challenges in the more difficult areas. This point will be considered in more detail in Chapter 3 in terms of the rationale for a new vision, goal and mission for the CGIAR.

In TAC's view, the CGIAR should not be deterred from tackling the problems of poverty, hunger, and malnutrition in difficult environments. On the contrary, developments in modern science and technology, information and communications, legal and regulatory frameworks, and partnership arrangements present the CGIAR with strategic opportunities and choices to address the production problems of the poor in *both* favourable and unfavourable areas. Cases in point are areas of South Asia and sub-Saharan Africa where the incidence of poverty is high and growing and there is scope for the CGIAR to have major impact via technological breakthoughs in production and the sustainable management of natural resources.

Many of those in poverty live in resource-poor environments and in communities where policies, institutions, marketing systems, and infrastructure are not in place to facilitate the adoption of the improved technologies and resource management techniques essential to

realizing these gains. TAC believes that in these difficult areas the chances that agricultural research can make a difference will depend critically on complementary interventions by development agents in other sectors. Coordination with these agents using a regional approach to research planning should therefore figure prominently in the CGIAR's future operational strategy. A corollary here is the System's need to diversify its partnerships to ensure an efficient and effective division of labour in the application of modern science and technology to the problems of the poor, and the need to increase its flexibility to respond rapidly to problems requiring inter-centre coordination and multidisciplinary approaches. In all of these things, the CGIAR must plug into the revolution in information and communications technology to expedite its work, achieve economies of scale, and extend its virtual and actual reach to its ultimate beneficiaries - the poor.

In moving towards a new vision and strategy, the CGIAR is compelled to choose its options in a context of limited resources, a rapidly increasing share of which have become restricted to particular programmes, leading to shortage of funds for some high priority activities. Thus, a premium will need to be placed on increasing the System's efficiency and effectiveness by, *inter alia,* completing or phasing out activities so that new priorities can be incorporated into the research agenda; further strengthening accountability through impact assessment and evaluation; eliminating overlaps in Centres' regional, commodity, and natural resources management mandates; focusing capacity building efforts and more carefully assigning responsibilities for particular areas of research; and avoiding dispersion of efforts at the cost of loss of critical mass.

Many of the challenges and opportunities treated in this chapter have been addressed in the 1998 System Review, as well as in TAC’s 1994 report on future structure, and the 1994 Conway report on a future vision for the CGIAR. What is needed now is to take these considerations a step further and to translate many of the recommendations, particularly of the last System Review, into a new strategy and style of operation. This report contains a proposal for a new vision and strategy for the CGIAR. Once agreement has been reached by the CGIAR on TAC’s proposals, opportunities can be explored for an institutional realignment and a restructuring of the CGIAR.

CHAPTER 2 - THE CGIAR TODAY

2.1. Current Mission and Goals

The System's current *mission* is to contribute to food security and poverty eradication in developing countries through research, partnership, capacity building, and policy support to promote sustainable agricultural development based on the environmentally sound management of natural resources (ICW98). Its overarching *goal* is to reduce poverty and protect natural resources in order to achieve sustainable food security (ICW97). The CGIAR's intermediate goals are to increase the productivity of resources in agriculture, forestry and fisheries, and to improve the sustainable management of natural resources.

2.2. Rationale/Comparative Advantage of the CGIAR

The original rationale for the establishment of the CGIAR lies in the special nature of international agricultural research and related activities. Because agroecological environments transcend national boundaries, international agricultural research can have significant spillover effects resulting in economies of scale that yield significant savings for research systems at national and regional levels. Demand for agricultural research and related activities conducted at the international level derives also from the uneven strength of national research programmes, a situation that can be expected to change over time. While the private sector has emerged in recent years as a large investor in agricultural research, incentives are not yet sufficient to induce private firms to allocate large resources to the improvement of traits of crops, animals, fish and trees of importance to the poor, nor to tackle NRM and environmental issues. Moreover, emerging IPR regimes tend to constrain access by the poor to privately developed technologies.

In the absence of viable and more efficient alternative suppliers, the CGIAR works to correct market failure by conducting international agricultural research of benefit to poor farmers and consumers in developing countries. To maximise spillovers across national borders, the System focuses on upstream strategic research and produces outputs of an international public-goods nature. This focus, together with its ability to sustain an effort and physical presence over a long term, as well as its multidisciplinary orientation and scientific excellence, is its comparative advantage vis-à-vis alternative research suppliers. The CGIAR conducts multidisciplinary research centred on specific commodities, natural resource management themes, and/or farming systems aimed at improving whole production systems in a sustainable manner. In all of its work, the CGIAR collaborates closely with a wide range of partners, first and foremost NARS but also NGOs, advanced research institutes, universities and the private sector. To enhance its collaborative efforts the CGIAR actively participates in the Global Forum for Agricultural Research.

2.3. Institutional Structure

The CGIAR's current research focus, mode of operation and global perspective are reflected in its institutional structure. The System is based on the concept of the international centre as

the organisational unit for conducting research and research-related activities on a particular commodity, theme or ecoregion. Each unit is expected to be a centre of excellence, politically neutral, with a problem-solving approach, a critical mass of scientific manpower and resources, a multidisciplinary research perspective, the capacity to catalyse and co-ordinate research on well-focused themes, and the ability to maintain continuity of effort over the long-term periods necessary for success. The centre concept is complemented by other organisational approaches such as network arrangements, consortia, collaborative research programmes, Systemwide activities and the outposting of staff.

A basic assumption of the CGIAR's current strategy is that increased productivity within agriculture (crops, livestock, fisheries and forestry) and more effective management of natural resources (especially biodiversity, forests, fish stocks, land and water) are central to alleviating present and future poverty and food insecurity, particularly in the poorest countries. The major impediment to adequate nutrition and food security is lack of access to food by the poor. For many of these rural poor, alleviating their poverty requires increased agricultural productivity, leading to higher incomes for these producers (via lower costs), and usually contributing to increased food supplies. This then can lead to greater access to food by consumers (through lower prices). In turn, agricultural growth can be an effective means of inducing broader economic growth via its impacts on the non-farm economy at local, regional and national levels. Better technologies and improved policies and institutions can all contribute to achieving increased productivity in agriculture. The quality and utility of these instruments rests ultimately on research of the kind emphasised by the CGIAR.

The activities or instruments by which the CGIAR pursues its mission are partitioned into five categories: increasing productivity, protecting the environment, saving biodiversity, improving policies and strengthening national research programmes. CGIAR Centres carry out projects within these categories, which are also used for the purposes of resource allocation and reporting (see below). Where applicable, a Systemwide approach is used in areas of common concern, which can benefit from further emphasis on collaboration between the CGIAR Centres and their partners.

2.4. Evolving Strength of the CGIAR

As indicated above, the CGIAR’s strength in the past has been its strong mission and problem-solving orientation, its excellence in science, and its ability to sustain over the long term a critical mass of effort. This has led to a large number of outputs, with considerable impact on poverty, the environment, sustainable food security, and capacity building in developing countries. However, after 30 years, the CGIAR is showing both good and bad signs of aging, i.e.

- valuable institutional memory, a deep and broad science base and network capital;
- slow responsiveness to needed change, slow uptake of new themes and methods, reduced inventiveness, and sometimes high overhead costs.

TAC's recommended strategy aims to maintain the CGIAR's valuable assets and effectively address its shortcomings. The main instruments for addressing the latter are:

- exposure to competition in public goods research of others (universities, private sector); and

- rigorous transparent monitoring of the scientific inventiveness (and contribution to innovation with established criteria) and impact assessment.

The CGIAR is set to overcome these challenges and a proposal on how to go about it is formulated in the following chapters.

CHAPTER 3 - VISION, GOALS, AND MISSION FOR THE CGIAR

The CGIAR's impact on agricultural development, achieved largely through yield-enhancing germplasm improvement for the major food staples complemented by institution strengthening, policy support and NRM research, has been largely confined to the more favourable areas where intensification of agricultural inputs was feasible and the necessary infrastructure was in place. In these areas, the CGIAR's contribution played an important role in reducing or stabilising the incidence of poverty and thus promoted food security by enabling agricultural production to stay ahead of population growth.

The uneven geographic impact of the CGIAR's work has meant that major regions having a high incidence of poverty – notably extensive areas within South Asia and Sub-Saharan Africa – have benefited much less from technological advances in agricultural productivity. The persistent and heterogeneous nature of poverty in these areas, their problematic and often degraded production potential and the weakness of their institutions, require a more concerted effort. Recognising that the CGIAR's comparative advantage lies in agricultural research, the System's activities should complement, as far as is practicable, the efforts of other organizations working in sectors whose development is key to agricultural growth, particularly health, education, nutrition and infrastructure.

In order to have maximum impact on sustainable food security and poverty in the future, the CGIAR must provide the scientific tools – production technologies, resource conservation and management practices, policy support, and institution strengthening – which will enable our developing country partners to break the productivity constraints in the less favourable environments as well to address more flexibly the food needs of their people.

In doing so the CGIAR must derive its priorities from the livelihood situation of the poor whether they are located in urban or rural areas. This will require, among other things, not only surpassing the yield and productivity gains already achieved for the major staples, but customizing agricultural technologies to optimize income and employment generation in the rural sector, addressing issues of food quality and safety, and developing integrated approaches to natural resources management.

It will be necessary to rationalize the CGIAR’s vision, goal and mission in order to induce a more efficient and effective deployment of System resources to address the multiple dimensions of the poverty and sustainable food security challenges. The first step in the process of developing the new vision and strategy will be to sharpen the poverty focus of the CGIAR's work with a view to reaching the very poor and, in particular, those who have not been reached before.

As noted in Section 2.1, the System's current overarching goal is to reduce poverty and protect natural resources in order to achieve sustainable food security. TAC's concept of sharpening the CGIAR's strategic focus on the more difficult constraints to poverty reduction requires that the instruments by which poverty, hunger and malnutrition are addressed be specified with precision and flexibility. The CGIAR's work on the sustainable management

of natural resources is an essential instrument in the System's portfolio, particularly given its cross-sectoral importance to improving agricultural productivity. However, other instruments within the CGIAR's comparative advantage, or that of its partners, will need to be deployed to address other constraints to poverty reduction and food insecurity. The precise mix will depend on regional focus, biophysical conditions, strength of NARS, policy environment, institutional endowment, and related variables. For these reasons, TAC proposes that the CGIAR adopt as its strategic framework the following new vision, goal, and mission:

Vision: ***A food secure world for all.***[2]

Goal: ***To reduce poverty, hunger, and malnutrition by sustainably increasing the productivity of resources in agriculture, forestry, and fisheries.***

Mission: ***To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment.***

The above framework is comprised of a hierarchy of causally related goals:

- At the apex, a *food-secure world for all* is identified as the CGIAR's ultimate vision, making explicit its global scope and hence the rationale for conducting international public goods research as well as the focus on benefiting the poor.
- To reduce *poverty, hunger and malnutrition*, the CGIAR will pursue the goal of fostering *the sustainable increases in the productivity of natural resources* which are instrumental to the sectoral growth needed to improve the livelihoods of the rural and urban poor.
- Finally, the CGIAR's vision and goal will be realised through *scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy and management of natural resources* drawing upon its unique role and strength as a knowledge-based organisation.

The scientific, institutional, and policy outputs associated with this framework are, by themselves, insufficient to achieve the CGIAR's vision and goal. Nevertheless, they are essential to promoting sustainable agricultural development, and hence to reducing food insecurity and poverty in a broad range of environments.

The implications of TAC's proposed vision, goal and mission for CGIAR strategy are treated in detail in Chapter 4.

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[2] Food security refers to access at all times to sufficient nutritionally adequate and safe food (FAO, 1996). The CGIAR defines poverty as a multidimensional concept that includes income below a poverty line and lack of satisfaction of basic needs such as water, health and education, as well as quantitatively and qualitatively inadequate nutritional standards.

CHAPTER 4 – TOWARD A NEW CGIAR STRATEGY

4.1. Introduction

Institutional strategic planning involves a series of strategic choices which cascade from the vision and mission of an organisation. In making such choices the CGIAR applies the following criteria: contribution to reduction of poverty and food insecurity; international public goods character of innovations; availability of alternative suppliers; and probabilities of success. Using these criteria in its analysis of the food security challenge described earlier in this paper, TAC recommends the CGIAR's future strategy be comprised of six elements:

Specifically, the CGIAR will henceforth:

- **sharply focus its activities on the reduction of poverty, hunger, and malnutrition in developing countries;**
- **take vigorous steps to bring modern science to bear on difficult productivity and institutional problems that have proven intractable in the past;**
- **give highest priority to developing a concerted approach to address the research needs of South Asia and sub-Saharan Africa where poverty is concentrated and growing, and major impacts can be made via technological breakthroughs in productivity and ensuring the sustainability of natural resources;**
- **adopt a regional approach to research planning in order to better address the heterogeneous nature of poverty;**
- **diversify and closely integrate its partnerships at the regional level to ensure that modern science is brought to bear on the problems of the poor efficiently and effectively;**
- **provide a strong impetus to the adoption of a task force approach to the organization and delivery of its products and services.**

4.2. Poverty Focus

The CGIAR will sharply focus its activities on the reduction of poverty, hunger, and malnutrition in developing countries.

Our operational goal will be to contribute to lifting as many as possible of the world's 1.2 billion people out of absolute poverty by means of research and research-related activities in areas within the CGIAR's comparative advantage, in concert with current and new partners working on other aspects of poverty. The CGIAR's future research agenda will address the need to secure livelihoods for poor people located in regions where the incidence of poverty is high in relative and/or absolute terms. Its work will focus on both the rural and urban poor.

Because the rural poor include not only smallholder farmers but also landless farm workers and other poor households (including fishing- and forestry-dependent people) not directly involved in farming, focusing only on the technology and resource management needs of small farms would be insufficient to address the goal of rural poverty reduction. Poor consumers, both rural and urban, have been, and should continue to be, the major beneficiaries of the CGIAR's work. Nonetheless, smallholders will continue to require special emphasis from the CGIAR because their technological requirements are difficult to satisfy owing to risk aversion, complex farming systems, adverse environmental conditions and related factors. Furthermore, the urban-rural distinction is now being blurred by the increasing importance of urban and peri-urban agriculture, opening up opportunities for CGIAR research to contribute more directly to urban poverty reduction.

To facilitate the accomplishment of these objectives, the CGIAR and its centres must relax their narrowly defined commodity/crop-based mandates, thereby increasing their flexibility to work on commodities and research themes that have a large potential contribution to income generation and employment opportunities for the poor.

4. 3 Bringing Modern Science to Bear on the CGIAR's Goals

The CGIAR will take vigorous steps to bring modern science to bear on difficult productivity and institutional problems which have proven intractable in the past.

Exciting new opportunities now exist to bring modern science to bear upon the CGIAR's objectives. These include the availability of new knowledge and tools from functional genomics, GIS, spatial modelling, remote sensing, communication and information technologies, and computing technologies which can be incorporated in germplasm improvement and livestock, forestry, fisheries and natural resources management research.

Stronger capacity in the physical and biological sciences will lead to solutions to yield and productivity constraints (e.g., breeding for drought and other abiotic stresses) that have thus far eluded scientists. This will facilitate development and delivery of new genetic traits of importance to the poor as producers and consumers, provide new instruments for more effective NRM, and give us flexibility to tailor our research to differing regional and local environments. Improved understanding of human, social, and institutional capital and their dynamics will strengthen participatory approaches to research and development as well as community management of common property resources, i.e., forests, fish stocks, water, rangelands.

The CGIAR will give much greater attention to water issues. Irrigation currently uses more water than all other sectors and agriculture faces competing demands for water from the urban sector. Unless properly managed, lack of access to fresh water may well emerge as the key constraint to global food production. Resolving water conflicts could become the single most important resource-management issue in the future, i.e., inter-sectoral management issues (water for agriculture, drinking, industrial uses, environmental uses including fisheries) within states and countries as well as water agreements between countries.

The CGIAR will continue to engage in NRM research for the conservation of natural systems (and protected areas) as they contribute directly to the reduction of rural poverty on a

sustained basis through the more productive and sustainable management of natural resources and greater off-farm employment. For soil and water management research, and management of coastal environments, the CGIAR will pursue more vigorously and consistently across centres an integrated natural resources management (INRM) approach.

To realise the full potential of the streams of modern science described above, the CGIAR must integrate the biophysical, social, and policy components of its research and bring them to bear on problems of the poor at regional and local levels. This will require not only giving priority to the most advanced science and deploying scientists on the frontiers of their disciplines, but new partnerships and institutional arrangements that ensure accountability for contributing to poverty reduction and food security in priority regions. The concomitant need to engage the private sector and to deal in a more concerted way with issues posed by IPR reinforces the rationale for an integrated approach.

4.4. Priority to South Asia and sub-Saharan Africa

The CGIAR will give highest priority to developing a concerted approach to address the research needs of South Asia and sub-Saharan Africa where poverty is concentrated and growing, and major impacts can be made via technological breakthroughs and ensuring the sustainability of natural resources.

South Asia has the largest number of poor and the situation of sub-Saharan Africa is worsening (Table 4.1). These regions will, therefore, be given highest priority. Priority will be accorded to other regions commensurate with their respective concentrations of poor people, e.g., the Andes region in Latin America, the arid areas of Central and West Asia and North Africa (CWANA), Central America the Caribbean, and parts of East Asia and the Pacific.

A focus on poverty requires that the CGIAR understand better who the poor are, where they live, why they are poor, and how agricultural research can help them overcome their plight. The relative priority to be accorded to South Asia (SA) and sub-Saharan Africa (SSA) is derived from World Bank estimates of the numbers of people living on US$1 per day in those regions. The CGIAR can further refine its regional priority setting by capitalising on and contributing to relevant global databases such as the Committee on World Food Security's FIVIMS (Food Insecurity and Vulnerability Information and Mapping Systems) whose secretariat is provided by FAO. The participation of CGIAR Centres in the FIVIMS Inter-Agency Working Group should contribute to the System-level objective of locating regional, subregional, and local concentrations of poor, food insecure people not only in SA and SSA but also in the rest of the developing world. The CGIAR's cooperation in UNEP/GRID (United Nations Environment Programme/Global Resource Information Database) should also serve this purpose, as should our future cooperation with other international agencies undertaking poverty mapping and assessments such as the World Bank and UNDP.

It should be emphasized that high priority for the research needs of South Asia and sub-Saharan Africa does not imply that the research would necessarily be conducted physically in these regions. For example, research carried out in Brazil and Colombia contributed to the control of cassava mealy bug in Africa. HYV wheats developed in Mexico have been very successful in India and Pakistan. In deploying the CGIAR’s resources in the future, these

opportunities for substantial research spillovers from one region to another should be exploited to the fullest.

Table 4.1: Population Living Below US$1 Per Day in Developing and Transitional Economies, 1987-1998

	Number of poor (millions)	
Region	**1987**	**1998 (est.)**
East Asia and the Pacific (with China)	415.1	278.3
East Asia and the Pacific (without China)	109.2	55.6
Eastern Europe and Central Asia	1.1	24.0
Latin America and the Caribbean	63.7	78.2
West Asia and North Africa[1/]	25.0	20.9
South Asia	474.4	522.0
Sub-Saharan Africa	217.2	290.9
Total	**1,196.5**	**1,214.2**

Source: Adapted from World Bank Poverty Website
URL: www.worldbank.org/poverty

[1/] The regional definition of Middle East and North Africa used by the World Bank does not correspond to the definition of West Asia and North Africa used by TAC. Specifically, Turkey and Afghanistan are not included by the World Bank, the former being included in Eastern Europe and Central Asia, the latter in South Asia.

4.5. Regional Approach to Research Planning

The CGIAR will adopt a regional approach to research planning in order to better address the heterogeneous nature of poverty.

The nature of poverty varies among regions; therefore, its complexity cannot be fully captured in an aggregated global research agenda. In order to succeed in its proposed new goal, the CGIAR and its partners must customize their approaches to poverty reduction to suit differing circumstances among or even within regions. For example, in many areas of South Asia and sub-Saharan Africa, the agroecologies are very similar but the institutional environments and the human and social capital circumstances are worlds apart. Clearly, the research agendas in these regions will necessarily be quite different. The CGIAR must, therefore, adopt a regional approach to research planning and priority setting as a complement to its current global approach. Ideally, this should be a participatory approach as well in order to bring local, regional and global knowledge to bear in a combined way on the problems of the poor, and to elicit ownership and commitment from among our partners - NARS, regional research fora, grassroots organizations, the private sector, and development organizations.

A regional approach also has implications for the relative priority to be given to commodities. While the staple crops - i.e., cereals, roots and tubers - naturally dominate priorities at the global level, there are unique opportunities and niches in the different regions for higher value-added horticultural crops as well as for fisheries and livestock products. These, in turn, require postharvest and processing technologies which generate additional employment in the countryside.

4.6 Closer Integration of CGIAR Activities with Partners in the Regions

A strategic focus at the regional level requires the diversification and closer integration of CGIAR partnerships in order to ensure that modern science is brought to bear on the problems of the poor efficiently and effectively.

Recent and prospective advances in molecular biology require that the CGIAR increasingly link with advanced international research networks and institutions. Given the accelerating privatisation of science, the System must also partner with a much wider range of actors. Advances in science have implications as well for the CGIAR's collaboration with NARS, broadening the scope of cooperation beyond traditional breeding to include capacity strengthening in the utilisation of molecular tools.

There is need for the CGIAR to increasingly involve other actors in the national systems beyond NARIs in its partnership arrangements. Nowhere is this more apparent than in the field of natural resources management research. The CGIAR will need to find non-traditional partners such as NGOs, universities, professional associations, and community organisations whose cooperation is critical to the success of applying NRM in a multidisciplinary way, and to scaling up applications from community to regional and national levels.

At the policy level, the challenge is to provide technical and policy support, on issues and decisions affecting agriculture, to the international conventions and fora (biological diversity, desertification, climate change, forests). The CGIAR should provide research-based information and advice, which can serve as a useful complement to the normative activities of such UN partners such as FAO, UNDP and UNEP.

Finally, in order to address the multidimensional nature of poverty, a cross-sectoral approach is required. The CGIAR must closely integrate its activities with those of development partners and other agencies, i.e., UN agencies, regional development banks, donors, national and local governments, regional research associations, NARS, NGOs and GROs, within comprehensive frameworks for development in regions of priority.

In operational terms, realising these objectives will require innovative forms of outsourcing and contracting with public advanced research institutes, universities, and the private sector in both developed and developing countries. These approaches must be vigorously pursued. Diversification of partnerships within regions will also require institutional arrangements that more closely integrate the CGIAR activities with those of its collaborators while maximising output and efficiency and minimising transactions costs.

4.7. Task Force Approach

The CGIAR henceforth shall provide a strong impetus to the adoption of a task force approach to the organization and delivery of its products and services.

The complexity of the poverty and food security challenges in the coming decades are such that research problems will become increasingly complex in terms of their demands on science and increasingly urgent in terms of the need for rapid response. No single institution will possess the range of instruments and flexibility needed to tackle such problems effectively.

TAC, therefore, strongly recommends that the CGIAR adopt a task force approach to problems deemed to be of high priority by the Group which require exceptional levels of co-ordination to achieve well-defined objectives within a specific time period. The Committee envisions that task forces would typically be organized as cross-sectoral, interdisciplinary projects and involve close collaboration between Centres working flexibly with partners appropriate to the research objective(s). They would mobilise global expertise and resources on issues cutting across Centre mandates and engage both traditional and non-traditional partners and sources of support.

Lessons learned from inter-Centre, Systemwide thematic and ecoregional programmes suggest that appropriate governance and accountability mechanisms would be needed for task forces to be effective. In most instances, accountability would rest with the lead Centre, and its Board of Trustees, whose disciplinary or regional focus most closely relates to the task force's objective(s). However, new accountability mechanisms, such as direct reporting to the Group, may need to be considered. As with all CGIAR activities, task forces would be subject to rigorous review processes and impact assessment.

The task force approach as a key feature in the System's future organizational design could very well be a way of introducing new, flexible structures. Among businesses and global organizations, the trend is clearly towards more networking, strategic partnering and alliances, and outsourcing/contracting. Increasingly, virtual organizations are replacing brick-and-mortar structures. Some future CGIAR initiatives may better lend themselves to virtual organisation. Similarly, some of the existing Centres and/or their programmes may be reformatted into the virtual mode without loss of effectiveness but with greater efficiency and cost savings.

CHAPTER 5 – THE FUTURE OF THE CGIAR IN THE LONG TERM (2050 AND BEYOND)

As noted earlier, the long-term food production and resource management challenge is enormous. Trends in population and income growth toward 2020 will require major increases in grain, livestock, fish and forestry production to meet global demand. Most of these requirements must be met by the developing countries themselves, and the pressures on our natural resources will increase dramatically. (See FAO 2010 and IFPRI 2020 scenarios.) Increasing food production and reducing poverty without degrading the natural resource base on which agriculture depends will remain the principal challenge to agricultural research for some time to come. In this context, we can consider two possible general scenarios towards 2050 and beyond - one optimistic, one pessimistic - and their implications for the CGIAR.

An Optimistic Scenario

Towards the second half of this century world population growth will have stabilised, agricultural production increased, and incomes in developing countries risen to a point where the majority of the population will have access to sufficient quantity and quality of food. In most developing countries, peace and broad-based economic development will contribute to increased employment and incomes. Economic growth will, in turn, promote diversification of diets and acceleration of global agricultural trade.

Increased agricultural production by developed countries will be needed to meet part of the expanding global demand for food and feed. The developing countries will have to satisfy the bulk of this demand through the use of improved agricultural technologies, sustainable management of natural resources, and better policies. Reduced population pressure on marginal lands in developing countries will enhance environmental conservation. Migration from rural areas will be redirected to economically flourishing medium-sized cities and towns with better amenities, services and employment opportunities for their inhabitants.

Broad-based development will generate resources for increased public and private sector investment in national agricultural education, research, and extension to ensure the long-term sustainability of agricultural development. Greater agricultural research capacity in many of the larger developing countries will have beneficial spillover effects for smaller countries whose agricultural sectors cannot support a sophisticated agricultural research infrastructure. Finally, the private sector in both developed and developing countries will have a commanding role in the way agricultural research and development is conducted globally as issues of intellectual property rights are successfully resolved through international agreements.

In such a future scenario, the scope for international public goods research will obviously become much narrower. Still, a number of research themes requiring multilateral action are likely to endure, including:

- the conservation, distribution and stewardship of genetic resources for food and agriculture;

- advanced and strategic studies in functional genomics, informatics and other new scientific areas likely to emerge in the future, and training of developing countries' scientists in these advanced fields;
- steering/coordination of a global agricultural knowledge system;
- global policies and trends analyses on food, agriculture, and resource use/access.

In addressing these themes the new information and communication technologies with their extraordinary capacity for organising, storing, processing, distributing and accessing information will help us to streamline the global agricultural research system, drawing upon and integrating the activities of a multiplicity of actors at national, regional, and international levels. Virtual research and development organisations which can respond flexibly and rapidly to changing environments will improve the efficiency and enhance the impact of the traditional international centre.

A Pessimistic Scenario

Taking a less optimistic view of the longer-term future, world population will grow unabatedly, outpacing economic growth in many developing countries, which will continue to have large segments of their rural and urban populations living in absolute poverty. Slow or stagnant agricultural growth in these countries will increase pressure on less favoured areas, further degrading their environments and forcing outmigration and urbanization to megacities. Effective demand for food in poor countries will remain weak, necessitating imports and/or humanitarian food assistance with attendant pressures on set aside lands in developed countries.

In the absence of broad-based economic growth, adequate resources will not be available to support national agricultural research systems in poor countries, resulting in a downward spiral of weakened research capacity, reduced agricultural production, and unsustainable management of natural resources. Weak agricultural markets and lack of infrastructure will reduce, or perhaps even cause the private sector to withdraw from, investment in agricultural research in developing countries. To protect their eroding position in global agricultural trade, the latter will nationalise their genetic resources for food and agriculture thereby impeding the international mobility of those resources and weakening the capacity of national and international agricultural research systems to produce the new technologies needed to improve productivity.

One can add to this rather bleak scenario a vision of global agriculture continuously subject to significant environmental threats, including water scarcity caused by increasing demands from both growing urban/industrial areas and the agricultural sector; soil degradation caused by such factors as salinization, nutrient depletion, and erosion; loss of global biological diversity; increased burdens on soils and water due to intensification of animal production, especially close to human settlements; the effects of global climate change and greenhouse gases, which could reduce productivity in some high-potential areas while increasing it in others; and continued desertification, often linked to expansion of agricultural land and deforestation. These trends would likely be compounded by the expansion of cultivated land and by agricultural intensification brought about by the growing demands of a rising population.

Under this scenario, the need for international public goods in agricultural research will likely increase rather than diminish. The focus of research will also shift to ecological and

environmental concerns arising from the increased use of land resources. The financial resources needed to support a broader agricultural research agenda will likely dwarf today's expenditures. The likelihood of success and of achieving impact will be more difficult in view of decreased research capacity at national level and of weakened incentives for private sector investment, reinforcing the need to strengthen partnerships with bilateral and multilateral development agencies, NGOs, and civil society organizations whose activities complement agricultural research.

While these scenarios are rather starkly drawn and the real future may lie somewhere between the two extremes, the necessity for strategic choice is nonetheless clear: we can either refocus our efforts now to tackle more effectively the challenges of food security, poverty reduction, and sustainable management of natural resources or leave a far more daunting task to future generations.

EPILOGUE: OUTSTANDING ISSUES

TAC has welcomed the opportunity to respond to the CGIAR's charge to lead a broadly consultative exercise to redefine the CGIAR's vision and strategy for 2010. In doing so, the Committee has worked closely with the Centres, and sought the views of CGIAR Members and all stakeholders. It has also drawn upon the results of the System Review, previous CGIAR reviews, TAC strategic studies, and the views of outside experts. The current document does not purport to be a consensus of all those consulted. Rather, it reflects the judgement of TAC on the future direction which the System should take, based on the consultative process which TAC set in motion at the request of the Group.

In keeping with the proposition that form follows function, TAC has refrained from recommending at this stage the direction and scope of organisational changes needed to deploy the future resources of the CGIAR in the most effective way. Nonetheless, the Committee's recommended vision and strategy has structural implications and these have been outlined in broad terms for the Group's consideration. TAC is prepared to develop detailed recommendations on organisational and resourcing changes pending the outcome of the Group's deliberations on the vision and strategy. The Committee wishes to note in this context that the CGIAR's current approach to priority setting and resource allocation would need to be changed substantially to implement the programme strategy which TAC is recommending. As suggested by members of the Consultative Council during the 10 April meeting in Rome, TAC is preparing a brief companion paper highlighting the future research priorities in the "heartland" of the CGIAR agenda and some of the implications of the strategy being proposed by TAC. This will be presented to the Consultative Council during its 20 May meeting.

In this context, TAC wishes to draw the Group's attention to some, but by no means all, of the aspects of the vision and strategy, which have structural and resource allocation implications. They are:

- A stronger focus on poverty reduction at the regional level within a Systemwide priority setting framework.
- Accelerated adoption of modern research tools to complement or supersede conventional approaches to crop and livestock improvement, forestry, fisheries, natural resources management, and policy and management research.
- Closer articulation and integration of CGIAR activities with those of its partners involved in technology generation, transfer, and utilisation in regions having high concentrations of poverty.
- Increasing capability of NARS partners to share responsibility for research and research-related activities.
- Highlighting an organisational design feature that augments the System’s capability to respond flexibly and rapidly to changing environments.

REFERENCES

Conway, G. (1994) *Sustainable Agriculture for a Food Secure World. A Vision for International Agriculture Research. A Statement by an External Panel Appointed by the Oversight Committee of The Consultative Group on International Agricultural Research (CGIAR*). July 1994. SAREC and CGIAR Secretariat, Washington, DC.

CGIAR System Review Secretariat (1998). *The International Research Partnership for Food Security and Sustainable Agriculture.* Third System Review of the CGIAR. CGIAR Secretariat, Washington, DC.

Delgado, C., M. Rosegrant, H. Steinfeld, S. Ehui, and C. Courbois (1999) *Livestock to 2020: The Next Food Revolution.* Draft 2020 Vision for Food, Agriculture and the Environment Discussion Paper. IFPRI, Washington DC.

FAO (1995). *World Agriculture: Towards 2010, an FAO Study.* Ed. N. Alexandratos. FAO, Rome.

FAO (1996). World Food Summit. Technical Background Documents Volume 1. FAO, Rome.

FAO (1999a). The State of Food Insecurity in the World 1999. FAO, Rome.

FAO (1999b) Preliminary data from the forestry chapter based on work in progress for FAO's study *Agriculture: Towards 2015/30* (unpublished)

IWMI (2000) *World Water Supply and Demand: 1995 to 2025.* IWMI draft contribution to the *World Water Vision* of the World Water Commission (WWC 2000). Draft for review purposes, IWMI, Colombo

Pinstrup-Andersen, P., Rajul Pandya-Lorch, and Mark Rosegrant (1999): *World Food Prospects: Critical Issues for the Early Twenty-First Century*. 2020 Vision, Food Policy Report. IFPRI, Washington DC.

TAC (1992) *Expansion of the CGIAR System*. Technical Advisory Committee of the CGIAR. Document No. AGR/TAC:IAR/90/24

TAC (1994) *The CGIAR in the 21st Century: Options for Structural Change.* Technical Advisory Committee of the CGIAR. Document No. AGR/TAC: IAR/94/6

TAC (1997) *CGIAR Priorities and Strategies for Resource Allocation During 1998-2000.* Technical Advisory Committee of the CGIAR. Document No. SDR/TAC:IAR/96/6.2

TAC (1997) *Priorities and Strategies for Soil and Water Aspects of Natural Resources Management Research in the CGIAR.* Technical Advisory Committee of the CGIAR. Document No. SDR/TAC:IAR/96/2.1

Yimin Ye (1999) *Historical Consumption and Future Demand for Fish and Fishery Products: Exploratory Calculations for the Years 2015/2030.* FAO Fisheries Circular No. 946. FAO, Rome.

ACRONYMS

CBC	Committee of Board Chairs
CBD	Convention on Biological Diversity
CDC	Centre Directors Committee
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Centre for Tropical Agriculture
CIFOR	Centre for International Forestry Research
CIMMYT	International Centre for the Improvement of Maize and Wheat
CIP	International Potato Centre
CWANA	Central and West Asia and North Africa
EPMR	External Programme and Management Review
FAO	Food and Agriculture Organization of the United Nations
GATT	Guaranteed Agreement on Trade and Tariffs
GPA	Global Plan of Action for the Conservation and Sustainable Utilisation of Plant Genetic Resources for Food and Agriculture
GRO	Grass Roots Organization
ICARDA	International Centre for Agricultural Research in the Dry Areas
ICLARM	International Centre for Living Aquatic Resources Management
ICRAF	International Centre for Research in Agroforestry
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
ICT	Inter Centre Training
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
ILRI	International Livestock Research Institute
INRM	Integrated Natural Resources Management
IPGRI	International Plant Genetic Resources Institute
IPM	Integrated Pest Management
IPR	Intellectual Property Rights
IRRI	International Rice Research Institute
ISNAR	International Service for National Agricultural Research
IU	International Undertaking
IWMI	International Water Management Institute
MTA	Material Transfer Agreement
NARS	National Agricultural Research System
NGO	Non-Governmental Organisation
ODA	Overseas Development Assistance, UK
PI	Production Index
PUA	Peri-Urban Agriculture
QTL	Quantitative Trait Loci
SCOPAS	TAC Standing Committee on Priorities and Strategies
TRIPS	Agreement on Trade Related Aspects of Intellectual Property Rights
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP/GRID	United Nations Environment Programme/Global Resource Information Database
WAICENT	World Agricultural Information Centre of FAO

WARDA	West Africa Rice Development Association
WHO	World Health Organisation
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation