



SCIENCE COUNCIL

CGIAR

**Ethical challenges
for the CGIAR:
Report of three studies**

November 2008



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Acronyms

ARENA	Applied Research Ethics National Association
ARIs	Advanced Research Institutions
CFR	Code of Federal Regulations
CGIAR	Consultative Group on International Agricultural Research
CIAT	International Center for Tropical Agriculture
CIOMS	Council for International Organizations of Medical Sciences World Commission on the Ethics of Scientific Knowledge and Technology
COMEST	World Commission on the Ethics of Scientific Knowledge and Technology
ExCo	Executive Council of the CGIAR
FAO	Food and Agriculture Organization of the United Nations
GM	Genetically Modified
GMO	Genetically Modified Organisms
ICH	International Conference on Harmonisation
ICLARM	WorldFish Center
ICRAF	World Agroforestry Center
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics
IFPRI	International Food Policy Research Institute
ILRI	International Livestock Research Institute
IP	Intellectual Property
IPG	International Public Goods
IPGRI	International Plant Genetic Resources Institute
IPR	Intellectual Property Rights
IRB	Institutional Review Board
IRRI	International Rice Research Institute
iSC	Interim Science Council
MDG	Millennium Development Goals
MTP	Medium Term Plans
NARS	National Agricultural Research Systems
NGO	Non-governmental Organizations
NRM	Natural Resources Management
OLAW	Office of Laboratory Animal Welfare
PEM	Protein-Energy Malnutrition
PPP	Dollar-per-person-per-day
SC5	Fifth Science Council Meeting
SCOPAS	Standing Committee on Priorities and Strategies
SPPS	Standing Panel on Priorities and Strategies
TAC	Technicals
TFP	Total Factor Productivity
TOR	Terms of Reference
UN	United Nations
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
WARDA	Africa Rice Center

Preface

This volume brings together the results of three different but related studies of ethics in the CGIAR, together with commentary and recommendations from the Science Council which commissioned the studies over a four-year period.

In 2004, at the request of the Science Council, Professor Peter Sandøe, assisted by Karsten Klint Jensen, prepared a review paper (entitled *How Should the CGIAR Handle Ethical Challenges?*) on the possible ethical issues affecting the CGIAR. This Report, constituting Study I of this volume, identified four major areas of ethical concern to the CGIAR: *research ethics, equity, protecting nature and respect for donors and partners*.

The categories of *research ethics* and the *respect for donors and partners* are concerned with questions of how the right means (i.e. acts and procedures) should be chosen and reinforced to meet the goals of the CGIAR. These topics necessarily focus on the internal processes of doing research within the CGIAR and in collaboration with Center partners. The report included a recommendation and the general terms of reference for further review and development of these issues through the creation of a panel of experts. The first panel study was formulated and addressed the question of *Ethics and CGIAR Research*. The major recommendation of this report, delivered in 2006, is that the CGIAR needs to develop common policy on ethical issues governing the conduct of science (an "Ethics Codex") together with matching Center and program-level policies where these do not already exist. The detailed Science Council Commentary (included as part of Study II in this volume) builds on the Panel's Report to provide specific practical advice and examples of international best practice for implementation of this recommendation.

By contrast, *equity* and *protecting nature* are not only concerned with the choice of means, but with the selection of goals for the System, too. Assessing the merits of different goals depends on the manner in which these broader concepts are defined and requires a somewhat different focus, on development policy more broadly. For example, different definitions of what constitutes *protecting nature* can radically alter the manner in which 'sustainability' is interpreted and, consequently, the very mission of the CGIAR, as well as its priorities and strategies which have been the subject of extensive deliberations over the past several years. Thus a second panel study on *Ethics and the CGIAR Mission* was commissioned and their Report (2008) and the Science Council Commentary are included in this volume as Study III.

The Science Council commends the reports for the attention of the Alliance (or bodies which will take on the role of policy development for the CGIAR system in the future) as well as other CGIAR stakeholders. The SC considers that the reaffirmation of the CGIAR mission, and the ethical and practical advice regarding program design and implementation contained in these studies to be of great importance, particularly at a time when the CGIAR is re-examining its future tasks and make up.

STUDY I

How Should the CGIAR Handle Ethical Challenges? - Issues and Proposal for a Strategic Study

Proposal prepared by **Peter Sandoe and Karsten Klint Jensen** Centre for Bioethics and Risk Assessment, Royal Veterinary and Agricultural University, Denmark, in August 2004

Report considered at 2nd SC Meeting, FAO Headquarters, Rome, Italy,
6 – 10 September 2004

**SC Commentary on the study:
How Should the CGIAR Handle Ethical Challenges?**

September 2004

(Extract from the End of Meeting Report from SC2: Agenda Item 3: Ethics and Science in the CGIAR)

“Professor Peter Sandoe presented the report “How should the CGIAR Handle Ethical Challenges? – Issues and Proposal for a Strategic Study”, which he had prepared with Karsten Klint Jensen. The Council thanked Professor Sandoe for providing an enlightening study on ethics as they affect the CGIAR. The proposed recommendations for two future reports, one on Research Ethics and the CGIAR and the second on Ethics and the CGIAR Mission were welcomed. The Panel felt that the studies, particularly the first, were extremely important for the CGIAR by providing guidelines for ethical behavior, building on the existing Centre code of conduct. The SC believed that there was not only a need to highlight and unify approaches across Centers around common codes of conduct, but to bring codes in line with those used by other partner ARIs whose collaboration could well be prohibited should such codes not exist.

The Council decided to ask its Standing Panel on Priorities and Strategies (SPPS) to:

(i) prepare terms of reference for the proposed study to be undertaken as soon as feasible, and identify a suitable chairperson for the panel; and (ii) consider convening the second panel preferably before 2006 so as not to delay important outcomes for the CGIAR.”

**How Should the CGIAR Handle Ethical Challenges?
- Issues and Proposal for a Strategic Study**

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1 AIM AND STRUCTURE OF THE PRESENT PAPER

The present paper has two aims. These were set out in a letter from the interim Science Council to Professor Peter Sandøe dated 4 May 2004. They were: 1) to identify and assess issues of ethics that are relevant to the CGIAR; and 2) to propose a strategic study to be conducted by a panel of experts.

To achieve these aims the following steps have been taken:

- Section 2, “The definition of ethics”: What is meant by the evasive concept of *ethics* in the present context is clarified. Four different aspects of ethics, each of which is relevant to the CGIAR, are distinguished.
- **Section 3, “Relevance of ethics for the CGIAR”: Increased interest in ethics is a general tendency. It is explained how the factors underlying this tendency apply to the CGIAR.**
- Section 4, “Outline of substantive ethical issues which may be dealt with by the CGIAR”: The issues fall in four groups connected with: research ethics, benefiting poor people, protecting the environment, and respecting donors and partners.
- Section 5, “An overview of the academic ethical debate”: A brief overview of the different schools of ethical thought is provided. Two issues – food security and sustainability – are used to show how the academic debate may help to clarify what is at stake in an ethical discussion.
- Section 6, “Whose point of view?”: The academic debate serves to clarify and structure the ethical discussion, but it cannot, at the end of the day, determine standards of right and wrong. Any decision on standards must be based on the culture shared by the involved nations and organizations. How does this square with cultural relativity? A tentative answer is given to this difficult question.
- Section 7, “Initiatives within the field of ethics taken by the CGIAR, the FAO and others”: This overview should allow the present initiative to draw lessons from what has been done in the past.
- Section 8, “Most important issues for the CGIAR”: Here the principal ethical issues that ought to be dealt with by the CGIAR are described. These include research ethics, equity, and protection of nature.
- Section 9, “Proposal for a strategic study”: Here suggestions about objectives, scope, the composition of the panel and timeframe are made.

2 THE DEFINITION OF ETHICS

As humans we act, and what we do affects ourselves, other people, nature, and indeed what more generally we think of as sacred. Therefore, everything we do, in a way, has ethical significance. However, we also formulate norms and visions regarding how we ought to behave towards ourselves, towards other people, towards our God or gods, and towards nature. The development of these norms and visions is a central part of culture and civilization. Traditionally, this development has taken place within religious movements and institutions. Often in history, ethical norms have been sanctioned by the state, and trespassing has been punished.

With the development of culture and the evolution of more liberal societies, ethical norms and visions have been subjected to philosophical scrutiny. Different schools of ethical thought have developed, e.g. utilitarianism, rights theories and virtue ethics. In modern times philosophers

have also tried to analyze and understand the role and status of ethics; and here they have made comparisons with the main branches of science. It has been concluded that ethical questions about what we ought to do and how we ought to live can't be answered by means similar to those by which scientific questions are answered. However, philosophers disagree about the extent to which ethical questions can be the subject of rational discussion, and about the extent to which such discussions may lead to convergence on universally accepted ethical principles.

During the last century ethical norms have also been made the object of study within sociology, anthropology and other branches of social science. Whereas moral philosophers and other so-called ethicists typically study ethics with the aim of improving our ethical norms and our ethical thinking, social scientist want to describe and compare existing norms, and examine their role in human life.

On the basis of the above, it is possible to distinguish between four topics falling under the general heading "ethics":

- **The ethics of a person or a group of persons:** Values underlying how a person or group of persons treat themselves, others, the sacred and nature.
- **Stated ethical norms and visions:** Traditionally these norms and visions can be found in religious texts, but they may also be found in secular form in, e.g., ethical declarations. Ethical guidelines of organizations like the CGIAR belong to this latter category.
- **Critical ethics:** The attempt to understand, criticize, improve and systematize existing ethical values, norms and visions.
- **Empirical ethics:** The study by social science of the values that people live by, of their stated values, norms and visions, and of the role of these values, norms and visions in social groups and societies.

3 RELEVANCE OF ETHICS FOR THE CGIAR

Over the last three decades, the subject of ethics has attracted growing interest from corporations, governments and international organizations. This is not just because moral standards have been going up. Rather, this is in many ways a sign of crisis. This crisis is rooted in the following five factors. 1) The breakdown of traditional hierarchies and value systems that arrived in the Western world with the so-called youth revolution in the late sixties. 2) The decline in technological optimism and trust in science – something which makes it obvious that difficult priorities must be set when we try to solve the problems of this world. 3) Economic stagnation combined with increased international competition. This has made it especially clear to governments in the rich world that there is a limit to tax revenues and a need for priorities regarding the spending of taxpayers' money. 4) New scientific and technological developments, notably gene technology, creating ethical challenges, which are not easily dealt with by existing values, norms and visions. 5) Growing awareness of environmental problems that call for new solutions and which challenge traditional anthropocentric ethical values, norms and visions. 6) Globalization. We have become more aware of the fact that other people have different values and do not necessarily share our norms and visions; also, globalization in itself creates new ethical challenges.

Each of these factors is clearly relevant to the situation of the CGIAR. 1) Since the establishment of the CGIAR, there has been a shift in the ethical values at play in the relation between rich and poor countries. On the one hand, the rich countries are required to treat the poor countries as equals who, in turn, are seen not just as recipients of help but as active agents determining their

own future. On the other hand, demands are placed on poor countries, notably in the area of human rights. 2) The CGIAR system assumes that modern biological science can be used to improve agricultural productivity in the third world. In the aftermath of the green revolution, which in its own terms was a great success, growing skepticism about the solutions offered by agricultural science has developed. 3) Together with the decline in technological optimism, there has been a growing awareness of the fact that economic resources made available to fight poverty and malnutrition in the third world are bound to be limited. Since, at the same time, the problems seem to be growing, there is increasing awareness of the need to set priorities in helping the third world. 4) Gene technology is in many ways a potent and obvious tool with which to achieve the goals of the CGIAR system. However, in many parts of the Western world, and to some extent in the Third World also, there is a widespread skepticism about GM food. 5) Clearly, there may be conflicts between the short-term aim of providing food to the poor to prevent starvation and malnutrition and the long-term aim of preserving nature and the environment. To deal with this the CGIAR system has had, over time, to change its strategies. 6) Within the CGIAR system there is a growing awareness of the need both to respect the values and world views of different cultures and to abide by universal declarations regarding human rights, protection of biodiversity etc. It is also true that globalization creates new problems: for example, food standards defined in the rich countries may have a serious impact on agricultural production in the poor countries.

Another reason why the CGIAR should focus on ethics is that CGIAR work depends heavily on voluntary collaboration from governments in donor countries, governments in the third world, farmers' organizations and NGOs and other organizations. Ethical arguments cannot force anyone to do things, but they surely have a role when it comes to motivation. In an earlier report¹, the concluding part of the background section provides the following:

“Given the diversity of human cultures and value systems, the rapid advances in science and technology, the particular goals and focus of the CGIAR, it is important that the ethical values and principles that guide the CGIAR and the conduct of all its research are explicitly reflected upon and described. Ethical issues and integration of ethical consideration into CGIAR's work apply not only to the development of GMOs but to a wide range of other aspects of the CGIAR research agenda such as genetic resources, water management, animal and fish production, forest management, the environment, the way research relevance and quality is sought and sustained, the manner by which research products and information are made accessible and shared, the relationships with partners, farming communities and other stakeholders...”

In this extract, it is pointed out that an important role of ethics for the CGIAR system is to *reflect upon and describe* ethical values and principles that are already at work. So the role of ethics is not exclusively to change values; it can also be to make underlying values transparent. This in turn may be important for both internal and external communication.

However, it is clear from the report that, within the field of ethics, the CGIAR system foresees not just clarification but also change. Thus, in the report it is suggested that a panel of experts should

¹ *Ethics and the CGIAR*, an unpublished paper developed by the Standing Committee on Priorities and Strategies for consideration of the interim Science Council/TAC 82nd Meeting, Lima, Peru, 2002. (SCOPAS, SDR/iSC: IAR/02/15)

be set up “to help develop an ethical framework of policies and guiding principles of conduct for the CGIAR scientific activities, products and expected outcomes”.

In the report, the following terms of reference for the panel are suggested:

1. *Assess the present CGIAR policies and the policies and practices of the CGIAR Centers with regard to ethics.*
2. *Identify the issues in ethics that are relevant to the Mission, research activities, and partnerships of the CGIAR.*
3. *Develop principles of conduct to guide the Centers in the safe and ethical use of science, based on current principles and practices and emerging trends, and in the development and dissemination of its products.*
4. *Make recommendations on a possible future ethical framework of policies and guiding principles of conduct for the CGIAR scientific activities, products and expected outcomes which may form the basis for a Code of Ethics for the CGIAR-supported Centers. This should include advice on how the CGIAR System can continue to monitor developments in ethics and have in place mechanisms (including the necessary institutional strengths) to ensure that the ethical principles and practices of the Centers reflect current best practices and timely responses to emerging issues.*

In view particularly of points 3 and 4, it is clear that changes may be anticipated regarding both the principles and visions that form the basis of CGIAR activities *and* the mechanisms (such as the ethical review boards) that are set up to make sure that the centers act in accordance with the defined principles.

4 OUTLINE OF SUBSTANTIVE ETHICAL ISSUES WHICH MAY BE DEALT WITH BY THE CGIAR

The issues here fall into four broad groups: research ethics, benefiting poor people, protecting the environment and respecting donors and partners.

In research ethics, it is important for the CGIAR to safeguard the integrity of research. This will involve good scientific practice (avoidance of scientific dishonesty), principles governing research involving human research subjects (avoidance of misuse of research subjects in the name of science) and principles for research involving genetic resources (respect for ownership of genetic resources, the sharing of knowledge, and so on). Within research ethics, there are also a number of issues focusing on intellectual property (publication, patenting, and so on).

When it comes to benefiting poor people the main issue is equity – i.e. giving poor people access to a fair share of basic resources. It is an uncontroversial goal to prevent hunger, malnutrition and ill health, but setting priorities in the attainment of this goal may be difficult. A number of other issues are of great importance here: respect for ownership of genetic resources, benefit-sharing, the distribution of political rights, empowerment – in general, allowing the poor a key role in solving their own problems and showing respect for different cultural and religious values.

Within the CGIAR, there is growing awareness of the ethical duty to protect nature and the environment. To treat future generations fairly, sustainable use of renewable resources is necessary, as is wise use of non-renewable resources. There is also growing awareness of the

need to protect natural biodiversity – not only as potential resource but in its own right. This, of course, gives rise to a host of ethical questions about our duties towards nature.

Finally, a number of ethical issues arise about the treatment of donors and partners. Those who contribute have a right to be treated with respect. This in turn gives rise to issues of accountability, transparency, donor involvement and respect for cultural and political values in donor countries.

Tools to deal with these highly complex issues can be found by examining key elements of the academic ethical debate.

5 AN OVERVIEW OF THE ACADEMIC ETHICAL DEBATE

Outside the academic world, it is natural to meet ethics in the form of concerns and considerations that appear to enter with some force into the deliberations about how to act in a given situation. The concerns might be about hunger, poverty, exhaustion or destruction of natural resources, decreasing biodiversity etc. The considerations might be equity or fairness, increasing welfare, respect for rights, individual autonomy, democracy, protection of nature and sustainable development.

Academic ethics is mostly concerned with ethics in the sense of critically understanding, improving and systematizing ethical values, norms and visions. The critical nature of its methods and investigations leads to serious disagreement about its arguments and results. There is not even agreement as to what are the most fundamental questions.

Still, it is possible to describe certain schools of thought that have evolved over time as competing research programs. An ethical theory, as such a program is called, provides – at least in principle – a precise interpretation of the ethical concerns, and a determination of their relative weight in decision-making.

In modern times, the dominant task for ethical theories has been to answer the question: which act (or acts), in a range of alternatives, is (or are) *morally right* in a given situation? An ethical theory is, accordingly, a systematic account of all the relevant ethical considerations and a determination of how these considerations combine to form an overall judgement as to which act is right.

Theories of the right act are often divided into *teleological* (consequentialist) theories and *deontological* (non-teleological, non-consequentialist) theories. There is some disagreement about how this distinction precisely should be drawn, but we suggest the following rough definitions. Teleological theories claim that the right act is exclusively determined by considerations about the *good*, whereas deontological theories deny this claim. A teleological theory thus builds on or implies a theory of the good. A theory of the good tells us how to determine the relative value of outcomes (consequences) of an act.

Utilitarianism is the best-known teleological ethical theory. It claims that the right act is the act that maximizes total welfare. Thus its underlying theory of the good claims that the best outcome is the outcome with the greatest total of welfare. This theory of good is *individualistic* – it claims that the overall good is an increasing function of what is good for individuals (individual welfare) and nothing else. Other teleological theories would allow for non-individualistic values,

i.e. values or ideals whose fulfillment is considered good even though nobody thereby gets a better life. Equality, cultural integrity, the nation and autonomy are examples of such non-individualistic values. (Note, however, that these values also could be interpreted individually.)

Among individualistic theories, utilitarianism claims that only the *total* of welfare counts. Other individualistic teleological theories would claim that the *distribution* of welfare also counts. Thus, (individualistic) *egalitarians* claim that, for a given total of welfare, the more equally it is distributed the better; and *prioritarians* claim that benefiting people matters more, the worse off these people are.

Utilitarianism and other individualistic teleological theories must incorporate a theory of welfare: what makes one life better than another (gives it higher welfare)? Here several theories have been proposed. Most prominent are perfectionism (the good life consists in realizing the essential aspects of human nature), hedonism (the good life consists in the greatest balance of pleasure over pain), preference satisfaction theory (the good life is the life preferred by the individual) and various religious theories (e.g. the good life consists in living in accordance with one's religion).

Teleological theories set up a common goal for all of us: maximizing the good (however defined). Deontological theories claim that some ethical considerations work in another way. One example is side-constraint theory. This claims that certain specified acts are wrong. A side-constraint cannot be outweighed by considerations of the good. An example is the Kantian view that we should not use other persons exclusively as means in pursuit of our goals – not even in pursuit of the overall good (however defined).

Another class of deontological theories are *contractualist*. They claim, roughly, that the right act in a given set of circumstances is the act that rational and equal agents can agree on under certain more or less idealized conditions. Contractualist theorists differ as to what the relevant conditions are. Some theories attach weight to the idea that ethics should appeal to self-interest only. Others emphasize the idea that agreement should be unbiased and unforced. All involve an attempt to define conditions of agreement that ensure the right kind of impartiality.

An important, and in some ways separate, question here is concerned with how *states* ought to act. *Liberals* claim, roughly, that the state should be neutral between competing conceptions of the good life; it should not prescribe how citizens ought to live, as long as their way of life does not harm others. *Communitarians*, on the other hand, claim that the state ought to promote values inherent in the local, historically evolved community and its culture. The state, therefore, need not be neutral between competing conceptions of the good life.

A complication for ethical theories concerns uncertainty. If there is uncertainty about what exactly the outcome of an act will be, there will be a risk of unintended consequences. Ethical theories have disappointingly little to say about uncertainty. However, very roughly, the teleological tradition would want to take probabilities into account when valuing acts with uncertain outcomes; the side-constraint tradition would like to maintain that a given *act* is either right or wrong, regardless of its possible unintended consequences; and the contractualist tradition would seek rational agreement about how to deal with the uncertainty in question.

Another task for ethical theories is to say which traits of character each of us ought to develop. These traits are often called *virtues*. Many ethical theorists consider this question a secondary one.

They believe the answer should be derived from the answer to the primary question about the right act, and hence, in effect, that the virtues are the traits of character that lead a person to do the right act in any circumstances. However, quite a number of theorists – often drawing on classical or medieval traditions – argue that characterizing the virtues is the fundamental task.

A final task is to answer the question, who are, or what is, entitled to be taken into account in ethical deliberation? Traditionally, ethical theories have been anthropocentric. They have concentrated on human needs and interests. Even this claim raises difficult problems of demarcation. When does a human being come into being and when does it cease to exist? Are future generations entitled to be taken into account?

However, animal ethicists and environmental ethicists have challenged the anthropocentric view. One line of argument (*extensionism*) claims that the properties we would cite in explaining our moral concern for humans require us to care for sentient animals, and – some environmental ethicists claim – even plants, because sentient animals, or plants, share those properties. Another line of argument (often called *holism*) claims that anthropocentric ethics, as well as extensionism, represent an individualistic conception of nature. But if we reflect on the value of nature, we shall see that we are also obliged to value nature (i.e. ecosystems or landscapes) as interdependent wholes. A third line of argument (*deep ecology*) claims that if we reflect on ourselves and how we are intertwined with other life forms, we shall eventually develop a new understanding of “self” that involves recognizing other life forms on equal terms as being part of our own flowering as beings.

From the perspective of an organization like the CGIAR, a body committed to practical action, academic debate about subjects like food security, third world aid and the like may appear disappointingly abstract and removed from the real world. However, the importance of academic ethics does not lie in its no doubt rather artificial settings, but in the distinctions it draws, the questions it raises, and the conflicting lines of arguments it uncovers. These features provide useful tools for analyzing the situation in which the CGIAR has to act.

The goal of increasing food security and alleviating poverty is a case in point. Discussions of the ethical principles underlying this goal often take the “right to adequate food” as their point of departure. Since this right is part of the Universal Declaration of Human Rights, it is widely recognized, legally as well as politically. However, from an academic ethical perspective, the nature of the right to food is contestable.

It is common to distinguish between negative and positive rights. A positive right is a right that other others do certain things to the holder of the right, whereas a negative right is a right that others *do not* do certain things to the right-holder. Hence, a negative right implies that others have a duty to abstain from certain acts, and a positive right implies that others have a duty to provide certain things. In connection with food security, the right that others refrain from taking food to which you are entitled is a negative right; the right that poor people with no access to food are provided with access is a positive right.

The libertarian tradition has argued that there is big difference between the status of negative and positive rights. Negative rights protect people against harmful acts of other individuals, organizations and governments to which they have not consented. This protection is a matter of respect for persons, i.e. not treating them exclusively as means in the pursuit of goals; and this

respect should be backed up by legal sanctions. Governments are entitled to use force to keep a person from violating another's negative rights.

Positive rights, on the other hand, imply a duty that something (e.g. food) is provided for others. But who has this duty and how is it to be fulfilled? Suppose a government would use tax money to provide food for the poor. According to the libertarian tradition this would violate the taxpayer's negative right not to have others taking resources to which they are entitled away from them without their consent. The upshot is that positive rights (if they deserve that title at all) must be respected on a voluntary basis, not by the use of force.

Where could the duty to respect positive rights derive justification? One answer to this question is given by utilitarianism. Utilitarianism prescribes universal benevolence. It claims that the only right-making feature of an act is its tendency to promote the total sum of welfare in the universe. This implies a duty to use resources most efficiently with respect to the objective of maximizing total welfare: each individual, organization or government should allocate resources so as to produce most welfare. Given the diminishing marginal benefit of resources, they are most efficiently used when all beneficiaries derive the same marginal benefit from them. This will typically imply that rich people's resources are best transferred to poor people to the point where both parties derive the same marginal benefit.

As is apparent, the utilitarian objective of universal benevolence conflicts with the libertarian ideal of respect for persons. It may very well produce a higher total welfare to transfer resources from the rich to the poor by force; but that transfer would violate the rights of the rich. The utilitarian answer is that respecting people's rights involves a cost in the sense that people will be worse off than they might have been. One way to resolve this conflict is to involve rich people in the decision. If the utilitarian objective of universal benevolence is morally important, it should be possible to convince rich people of this and thereby gain their consent to that form of benevolence.

The utilitarian ideal of efficient use of resources with respect to welfare has also been criticized for being in conflict with the ideal of fairness. One line of thought (*prioritarianism*) claims that we have a duty to benefit the worse off simply because they are worse off and not just to the extent they derive a higher marginal benefit than others. Certain very badly off persons might be very costly to benefit. According to utilitarianism, it might therefore be inefficient to help them. However, in this line of thought, we have a duty to benefit the worse off, even though that might prove inefficient. Another line of thought (variants of *egalitarianism*) claims that fairness requires us to ensure that everybody has a certain minimum level of basic resources. This minimum might include the basis of self respect, the right to decide about one's own life and the right to participate in political decisions.

A third criticism of the utilitarian objective of universal benevolence is that it is too demanding. For instance, it appears to demand that people in the developed countries give up most of their wealth for the sake of the developing countries and future generations. Doing that would seriously conflict with the possibility of pursuing one's own goals in life and thereby threaten the integrity of individuals. There are two sorts of utilitarian answer to this criticism. One is short: the fact that benevolence is demanding does not make it mistaken. The other involves a refinement of the utilitarian calculation: it is probably a psychological fact that, in practice, people are only able to provide help for others to a certain extent and still maintain a good life for themselves. Hence, if the demand for benevolence is unchecked, it risks being counterproductive.

So efficiency is probably best achieved by modest demands: there are good utilitarian reasons to respect the integrity of donors' lives.

Another important concept for the CGIAR is that of *sustainability*. However, this widely used concept is seldom precisely defined, and its clarification involves making up one's mind about a range of difficult questions. A starting point is to define sustainable agricultural practice as a practice that can be continued in perpetuity. However, as economists would point out, the possibility of substitution of goods (for instance, due to technological development) makes it irrelevant to consider continuing the *same* practice in all future. But if we are to compare the sustainability of evolving practices, sustainability has to be measured on a more fundamental level.

Our Common Future suggested the measure that the present generation's need-satisfaction does not compromise the need-satisfaction of future generations. Some economists have tried to state this more precisely as the view that economic development should be constrained by the condition that natural resources do not *decrease* over time. However, in this form, the measure still raises several questions. First, at present we do not know what substitutions will be possible in the future. This uncertainty clearly affects the prescriptions that follow from the no-decrease measure of sustainability. Some authors distinguish between optimistic and pessimistic views on possibilities of substitution, the latter leading to stricter requirements than the former.

Secondly, on either reading this measure of sustainability implicitly assumes that each generation will contain the same number of people. But this assumption is extremely unlikely to be correct. However, if generations differ in size, it is not clear what conclusions we should draw concerning sustainability: should each generation have the same stock of natural resources, or should each individual have the same stock?

Thirdly, again on either reading the measure takes a rather rigid view of equality between generations. It might well be doubted that this rigid view is tenable. At the opposite extreme is the utilitarian measure of maximizing the total of welfare of all generations. This allows for the case in which some generations get less than others if this will increase the overall total. A middle position would allow some trade offs between equality and overall total of welfare.

Fourthly, many environmental ethicists would protest that the ideal of sustainability builds on an anthropocentric view on nature: it directs us to protect nature merely because it provides natural resources for the satisfaction of human needs. But nature should not only be valued instrumentally as a resource for human welfare, the protest goes; it should also be valued for its own sake. Thus, for instance, certain areas should be left alone and allowed to develop flora and fauna on their own terms, instead of being used for human purposes.

The ideal of protecting natural diversity raises a similar problem. From an anthropocentric point of view, biological diversity is valuable because it represents a valuable resource – for instance, for future developments in agriculture. But from an environmental ethicist's view, we should also value the evolved natural diversity for its own sake.

Let us conclude this section by summarizing some important distinctions. Ethical considerations can be divided in two different types. One concerns the way in which we compare the outcomes of action. Should our objective be one of universal benevolence (utilitarian in nature), or should such benevolence be balanced by equality or fairness? Should it be strictly anthropocentric or

should it also be concerned with nature for its own sake? The other type of ethical consideration introduces constraints on the pursuit of the first objective. These constraints include respect for persons and their right to autonomy, self-determination and political participation. These constraints demand that the overall objective is pursued only through acts that are acceptable in that they do not violate rights or other standards of conduct.

6 WHOSE POINT OF VIEW?

Academic discussion of ethical issues may help to clarify ethical concerns and the kinds of priority and trade-off that have to be made within the CGIAR system. However, it cannot in itself create consensus about which ethical concerns are relevant, the relative importance of these concerns, or any other ethical issue that is relevant to the mission, research activities, and partnerships of the CGIAR. Individual moral philosophers subscribing to specific schools of ethical thought would be willing to set out answers to the questions over which consensus is desirable; but they would offer *different* answers, depending on their theoretical views, and so obviously this cannot be the right way to proceed in the face of the serious disagreements described above.

If academics cannot be relied upon to reach agreement over what is right or wrong, how will the experts who undertake the ethical review move towards any kind of consensus? One answer is that the experts should refer to the shared culture of those nations and organizations that are covered by the CGIAR. However, this answer seems to run into an objection from cultural relativism, which is that since ethics is based on culture, and since culture varies from place to place, there is no single, correct ethical perspective but a number of conflicting such perspectives, each connected with a cultural tradition.

Clearly different cultures do indeed have different values, but this objection involves two further ideas. 1) The values in different cultures define ethical perspectives that are in conflict with each other. 2) If different cultures define conflicting ethical perspectives, there is no way in which it is possible to find common global ethical standards. These ideas are intuitively plausible, but both can be questioned.

Regarding the first claim, it is certainly true that in India and in China and in the Christian, the Buddhist, the Islamic and the Jewish traditions, ethical thinking and ethical practice have developed in different ways. However, this is not to say that the world's great ethical traditions are in conflict. Of course, if one picks and chooses, it is easy to find examples of conflict. For example, the focus on individual autonomy in some forms of Christianity may be in conflict with more collective forms of thinking found in some forms of traditional Chinese philosophy. On the other hand, if one takes a closer look at the main ethical traditions, it soon becomes clear that *within* each there are tensions and conflicts that are as serious as those between the traditions. For example, within the Christian tradition one finds very hierarchical and highly egalitarian views about the duties and meritorious characteristics of the individual person. If ethical thinking is pervaded with tension, as indeed it is, the lines of conflict are not necessarily to be drawn between different cultures.

Regarding the second claim, it is worth noticing that, in point of fact, some kind of system has evolved by means of which the world community is able to define ethical standards that are broadly viewed as binding on everyone. The system has grown out of international law and incorporates a number of conventions and declarations which are widely seen as having ethical

significance. For example, after the Second World War, conventions about the use of human subjects in biomedical research grew out of the trials of leaders of the defeated Nazi regime. These are widely recognized as having ethical significance. Thus, today, a biomedical program in which human subjects are involved upon without informed consent can be said to violate not only international law but also recognized ethical principles.

Some may argue that this is just the power of the strongest in disguise. Strong, influential nations band together and impose international law on the rest of the world; and among the different parts of international law they pick and choose those that they wish to elevate to the status of ethical principles.

Three points deserve to be made about this view. First, in reality no nation is in a position to dictate the content of international law. The very Western nations that were instrumental in setting up the relevant systems of international law are themselves sometimes being hit by laws that they do not like. Second, what is the alternative? It is widely recognized that in the age of globalization it is necessary to operate with a shared ethical vision and binding minimum ethical standards of conduct. There is no obvious alternative to the present system of trying to reach a common understanding through argument, with all its imperfections. Third, parts of international law protect religious and ethical differences. Likewise, the ethical framework of international collaboration ought to accept and respect cultural differences as far as this is compatible with key ethical principles and concerns.

In the specific case of the CGIAR, it can be said that the ethical codes defined within the UN system form a natural background against which ethical policies can be defined. However, it is also important that ethics is not reduced to a subdivision of international law. International law should be looked upon as an important source and a starting point for ethical reflection, but ethical arguments need to go beyond legal considerations.

7 INITIATIVES WITHIN THE FIELD OF ETHICS TAKEN BY THE CGIAR, THE FAO AND OTHERS

The CGIAR

The ethical initiatives taken so far by the CGIAR are described in the working document *Ethics and the CGIAR* (March 2002) mentioned above. This document also serves as background to the present assignment to prepare a paper for the interim Science Council (iSC).

CGIAR ethical initiatives have mainly focused on the conservation, use and enhancement of genetic resources. A workshop on *Ethics and Equity* held in 1977² led to the formulation of the *CGIAR Statement of Ethical Principles Relating to Genetic Resources* in 1998, which declares:

“The CGIAR was founded on the ethical imperative of eliminating hunger and starvation, and has, since its inception, followed certain ethical principles. Increasing food security and alleviating poverty have long been central to the System’s science-based humanitarian mission.”

² Documented in *Ethics and Equity in Conservation and Use of Genetic Resources for Sustainable Food Security*, CGIAR/IPGRI 1998.

However, due to the growing complexity of the problems addressed by the CGIAR, and the expanding number of partners, there is an increasing need to bring the system's underlying ethical principles out in the open. The statement presents the main ethical principles under four headings:

- Equity
- Trusteeship of Genetic Resources
- Respect, Responsibility, and Integrity in Science
- Social Benefits

One initiative that is not mentioned in the working document is the international conference on biotechnology and its potential impact on agriculture in developing countries held at the World Bank in October, 1999, and convened by the CGIAR and the U.S. National Academy of Sciences³.

The FAO

Prompted by major changes in food and agriculture, the FAO in 1999 designated "Ethics in Food and Agriculture" as a Priority Area for Interdisciplinary Action. It established an internal Committee on Ethics in Food and Agriculture to guide its actions in this regard. In 2000 the Director-General of the FAO also established an independent Panel of Eminent Experts on Ethics in Food and Agriculture to advise him on pressing issues within this field.

The Panel of Eminent Experts held its first session in September 2000. A report of the session was published in 2001. According to its terms of reference, the Panel "shall reflect on and promote reflection on ethical issues arising from food production and consumption practices, and on agricultural development, including forestry and fisheries". In particular, it "shall consider ethical issues relating to the interests of the present and future generations regarding the sustainable use of natural resources, the safeguarding of biodiversity and a balanced mix of traditional and modern technologies to increase food security and sustainable agriculture." On the basis of these considerations, the Panel will promote an overall sense of international responsibility and seek to increase the awareness of these issues among the relevant actors.

The Panel notes that there are differences of opinion concerning ethical values, among them the difference between utilitarian and libertarian approaches, and the difference between assessment of consequences or outcomes and assessment of actions. It also notes that cultural differences may create differences of opinion. However, the Panel maintains, the Universal Declaration of Human Rights provides common ground as "one basic value framework that spans culture, religions and ideologies". The Declaration is "a comprehensive package of concerns in which the separate rights are considered to be interdependent and indivisible".

The Panel summarizes:

In sum, ethics requires people to go beyond self-interest and to care for one another. It requires people to care for the earth and to be prepared to share common resources. However, it must be taken into account that, in practice, these values can be

³ The conference is documented in G.J. Persley and M.M. Lantin (eds.): *Agricultural Biotechnology and the Poor. An International Conference on Biotechnology*, CGIAR/The World Bank, 2000.

conflicting. The respect for life is fundamental for ethics. Therefore, food and the guarantee of access to adequate supplies by everyone are among the top priorities in the hierarchy of human values.

Despite the fact that the right to food is recognized by the international community, more than 840 million people are chronically hungry. The root of this problem is not global lack of food, but rather a *lack of access* to food. This lack of access is due to poverty and is exacerbated by armed conflict and environmental degradation. The most urgent ethical task is therefore, the Panel concludes, to “assess activities relation to food and agriculture in the light of their actual and potential impact on the reduction of poverty, hunger and malnutrition”.

The Panel has set out an annotated list of observations and issues of concern:

- The impact of human population growth and demographic shifts
- The impact of disease on food and agriculture
- Pressure on natural resources
- Gaps and differences
- Economic globalization requires cooperation in global governance.

It has made the following list of types of advice and suggestions:

- Ecosystem management
- Buffering the negative consequences of agricultural intensification
- Counteracting the negative consequences for agricultural research of the concentration of economic power
- Information and education.

It has also endorsed the following list of guidelines for an equitable system based on ethical considerations:

- Creating the mechanisms necessary to balance interests and resolve conflicts
- Supporting and encouraging broad stakeholder participation in policies, programs and projects
- Designing incentives that will encourage individuals, communities and nations to engage in dialogue and, ultimately, to do what is ethical
- Ensuring the transparency of information and decision-making
- Fostering the use of integrated and empirical science and technology in the service of a more just and equitable food and agriculture system
- Encouraging cooperation and solidarity among institutions engaged in research and development, making it possible to take appropriate action more quickly
- Ensuring the incorporation of ethical considerations in all programs, policies, standards and decisions, thereby contributing to improved human health and well-being and environmental protection.
- Developing codes of ethical conduct where they do not currently exist
- Periodically reviewing ethical commitments and determining whether or not they are appropriate on the basis of new knowledge and changes in circumstances.

Finally, the Panel made a preliminary examination of issues relating to the use of biotechnology, including genetically modified organisms.

In 2001, the FAO launched its “FAO Ethics Series” with two publications: Volume 1: *Ethical Issues in Food and Agriculture*; and Volume 2: *Genetically Modified Organisms, Consumers, Food Safety and*

the Environment. Drafts of these papers served as background material for the first session of the Panel of Eminent Experts.

Volume 1 addresses ethical questions as they relate to FAO's mandate. Only rarely has the FAO reflected on ethical values, although they are embedded in the preamble to its Constitution. These underlying values are analyzed as:

- The value of food
- The value of enhanced well-being
- The value of human health
- The value of natural resources
- The value of nature.

However, today ethical concerns are central to debates about the future world. This is the result of a number of profound changes to which the Panel of Eminent Experts have themselves alluded:

- Human population growth and demographic shifts
- Pressure on natural resources
- Industrialization of agriculture
- Concentration of economic power
- Globalization
- Human-induced change
- New biotechnologies
- Informatics.

Each of these changes "raises profound ethical questions that FAO must address in carrying out its mandated activities". The issues are:

- Bias against the poor
- Ineffective guardianship of the global commons
- An emerging global economy, but not a global society.

The volume concludes with a number of suggestions as to how a more equitable and ethical food and agriculture system might be developed. These suggestions were in fact adopted by the Panel of Eminent Experts (see above).

Volume 2 seeks to analyze the ongoing GMO debate from an ethical perspective. The key issues that GMOs raise for ethical consideration are listed as:

- Food safety
- Environmental impact
- Perceived risks and benefits
- Transparency
- Accountability
- Equity.

The volume concludes by recommending that there be more opportunities for exchange of information and views among scientists, corporate representatives, policy-makers and the public at large.

In March 2002, the Panel of Eminent Experts held its second session. This was reported in 2003. At this session, "the Panel did not seek to adopt specific recommendations, but pursued a more

detailed examination of key issues with a view to preparing a set of tentative guidelines at the third session”.

Also in 2002, there was an FAO Expert Consultation on *Food Safety: Science and Ethics*. This was reported in 2003. The Expert consultation was asked to:

- [define] value judgments included in the risk analysis and make recommendations as appropriate;
- provide practical guidance for improving risk communication at national and international levels;
- make recommendations on food safety policy and procedures in the context of food aid situations; and
- make recommendations on food safety policy in relation to the “right to food”.

The Expert Consultation made the following recommendations:

- The ethical and value dimensions of food safety policy be explicitly addressed in order to have an informed and balanced discussion of these dimensions.
- Discussion and decision-making on these ethical and value dimensions be transparent for interested parties, participatory in design and characterized by good communication among all interested parties.
- In order to participate equitably in ethical and scientific discussions, the capacity of the involved or affected parties has to be built.
- The right to adequate food is the right to food that is safe, nutritious and culturally acceptable.

Other Relevant Initiatives

Finally we should like to point out the interactive e-conference on *Global Business Ethics Standards* organized by the [World Bank Institute](http://www.worldbank.org/devforum/forum_ethics.html) and the Office of Business Ethics and Integrity in 2001. Proceedings can be viewed at: http://www.worldbank.org/devforum/forum_ethics.html.

Another final point concerns the fact that UNDP’s Human Development Report 2004: *Cultural Liberty in Today’s Diverse World* highlights the concept of cultural liberty.

8 THE MOST IMPORTANT ISSUES FOR THE CGIAR

Introduction

The ethical issues that confront the CGIAR can be divided into the following two types: (A) Efforts to define the goal of CGIAR activities. This includes both setting objectives and deciding how to make priorities and tradeoffs when it is not possible to do all the good and important things outlined in the objectives simultaneously. Discussions about equity, and to some extent discussion about sustainability, belong in this category. (B) Efforts to select the right *means* (i.e. acts and procedures) to achieve the goals set. Discussions about the protection of human subjects used in research belong in this category.

In what follows, the key ethical issues for the CGIAR will be presented under four headings: Research ethics (which clearly falls into B); Equity (A); Protecting nature (A and B); and Respect for donors and partners (B).

Research Ethics

Traditionally research has been viewed as something that by definition is pursued for the good of mankind. Science aims at finding the truth, which is a close relative to the good. However, a number of developments have undermined this common view of science:

1. Personal interests (e.g. regarding careers and success in science) may create incentives for scientists to engage in various forms of dishonesty such as fabricating data or stealing ideas from other scientists.
2. Increased dependence on external funding leads to growing competition between different groups. This might not only tempt scientists into various forms of scientific dishonesty but also tempt them to deliver results which are wanted by those who pay for the research, saying what is convenient rather than what is true.
3. In the process of creating scientific results human subjects may be used, e.g. in medical or nutritional experiments; and the results may be achieved at a cost to the health, well-being or integrity of those experimented on.
4. Natural (e.g. genetic) resources may be used as raw material in scientific inventions that benefit those who do the research and those who fund it without benefiting those who live in the areas where the resources were found.
5. More generally, those who engage in scientific discoveries may be rewarded through patents and other forms of intellectual property right, and this goes against the ideal of sharing knowledge which was central in traditional research.
6. The input to development made by modern science is increasingly seen as part and parcel of a controversial technological development – pesticides and gene technology are prominent examples of this.

It is important for the CGIAR to have policies, including in some cases various forms of institutional set-up, to deal with the issues listed above. In connection with 1 and 2, it is probably possible for the CGIAR to take over existing norms for handling scientific dishonesty and introduce requirements, for example, for peer review publication of all results produced within the system.

Regarding 3, it is important that the CGIAR has a clear policy on the use of human subjects in research. This policy will need to incorporate the requirement that research involving the use of human subjects is approved by an independent ethics committee. There are different standards for this in different countries, and it is important that the CGIAR has a policy that is in compliance with the most stringent rules currently being enforced.

On the use of genetic resources within science, CGIAR also needs a clear policy that is in line with the wording and spirit of international conventions regarding the protection of biodiversity. The main view here is that nations where genetic resources are found must be involved and must have a share in any scientific benefits these resources are involved in creating.

Property rights serve as an important incentive for the development of new scientific ideas, but it remains vital that the poor people for whose sake the research is undertaken obtain benefits. A

policy relating to 5 is needed to prevent personal greed, or the greed of institutions, from becoming the motive for research undertaken within the CGIAR.

Where the development and application of new controversial technologies is concerned, it is important for the CGIAR to have a policy of both precaution and dialogue. In connection with the latter, it should be recognized that the perspectives of non-experts need to be taken seriously when guidelines for the development of new technologies are being defined.

Equity

Within the CGIAR, discussion of the notion of equity must take as its point of departure the existing goal and mission of the CGIAR, cf. *A Food Secure World for All: Toward a New Vision and Strategy for the CGIAR*, TAC Secretariat, FAO 2000. This states the following strategic framework:

<i>Vision:</i>	<i>A food secure world for all</i>
<i>Goal:</i>	<i>To reduce poverty, hunger and malnutrition by sustainably increasing the productivity of resources in agriculture, forestry and fisheries</i>
<i>Mission:</i>	<i>To achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, livestock, forestry, fisheries, policy and natural resources management.</i>

The CGIAR system is thus committed to alleviating poverty and reducing hunger, and this commitment is clearly connected with some notion of equity or fairness. Commitment to an ethical objective like this raises problems of priorities. If sub-optimal acts as regards the goal are chosen, less good is achieved than might have been the case, and that could be a serious ethical problem. In order to choose the optimal policy, the goal needs to be clearly stated, and the relations between the goal and possible ways to achieve it need to be known.

The CGIAR's work has been based on the assumption that increased productivity within agriculture is central to the alleviation of present and future poverty. Over the years, the main impact of the CGIAR has been achieved largely through yield-enhancing germplasm improvement for the main food crops. However, this impact has been concentrated in areas where intensification of agricultural inputs has been feasible and the necessary political and socio-economic conditions were in place. Large regions, notably in South Asia and Sub-Saharan Africa, have benefited much less from technological advances bringing about greater agricultural productivity.

This has recently led to a shift in the CGIAR priorities. The CGIAR now gives "highest priority to areas where the greatest numbers of poor live and where the severity of poverty is greatest, and where new technologies and policies will have maximum impact". However, from an ethical point of view, this priority might be justified by two underlying objectives that are in conflict.

The impact of increased productivity is well documented. Thus, total cereal production in developing countries has increased threefold since 1961, primarily through yield increases. However, this benefit is reduced by the fact that, over the same period, the total population of developing countries has more than doubled.

Increased productivity clearly has a role to play in alleviating poverty, but it cannot stand alone. Due to population growth, the absolute number of poor people has increased, even though their proportion of world population has decreased. Also, benefits are distributed unequally, particularly in areas where land and income are unequally distributed and markets, government services and infrastructure are poorly developed; and in areas where agro-ecological conditions vary. Hence, to alleviate poverty complementary socio-economic interventions must be undertaken; this means that the CGIAR must seek to cooperate with a range of other actors.

Given recognition of these facts, it could be argued that the strength of the CGIAR lies in its contributions to increased productivity, and that the ethical aim of the CGIAR should be to deploy its resources where they will have maximum impact. Maximum impact might be understood as maximal increase in total welfare – that would be a utilitarian interpretation.

Equally, it could be argued that this policy, once again, would be likely to benefit only some of the more favorably situated poor people, not the least advantaged; and that the ethical aim of the CGIAR should rather be to focus on the least advantaged poor people. ‘Maximum impact’ should be understood as relating to this latter objective, even though measures targeted at the poorest people might be more costly. A stronger focus on poverty also makes it more pressing to reflect on the balance between increased productivity and other poverty reducing measures.

Both of these arguments seem ethically important. But they are in conflict – they cannot both be optimally achieved. Striking a reasonable balance between them is a difficult task. Economic considerations are not neutral in this endeavor: the concept of economic efficiency does not take the fairness of initial endowments into account. Thus any choice of policy implies an implicit trade off between efficiency in increasing total welfare on the one hand and the demands of fairness or priority to the worse off on the other.

There has been, and will continue to be, an ongoing discussion in the CGIAR about which policy to pursue. Similarly, there has been, and will continue to be, an ongoing discussion about the relation between means and ends. There is good reason for the CGIAR to make the ethical components of these discussions explicit, to engage in ethical reflection on the correct goal to pursue, and to find ways of integrating such ethical reflection into the policy making process.

Another facet of equity concerns respect for the rights and autonomy of recipients the benefits of agricultural research. Worldwide, there is an increasing demand for empowerment that ensures that poor people become involved in decisions about their own future. A related concern is respect for cultural diversity.

Letting the poor people have a say in setting the research agenda and the research process might improve performance, since they live with the problems to be solved and perhaps possess important knowledge about regional agro-ecological conditions. It is important for the CGIAR to state guidelines for the empowerment of recipients, and to develop and improve procedures for a respectful and mutual dialogue.

Protecting Nature

The CGIAR has so far taken a rather anthropocentric view on the protection of nature: the focus is on (poor) people, and nature should be protected for the sake of them by not using technologies in agriculture which, through negative effects on the environment, could endanger

future production. Similarly, the protection of biodiversity is mainly understood as the protection of genetic resources for future agricultural production.

The CGIAR has good reasons for focusing on these considerations. It is important, however, to be aware that these priorities have been contested – by donor governments as well as NGOs. It is now common to believe that nature should be respected for its own sake. This pushes respect for wildlife, the protection of valuable non-cultivated areas, and the protection of biodiversity (species diversity), up the agenda.

Even on anthropocentric terms, the interpretation of sustainability is contested. Some would consider it a constraint on the satisfaction of the present generation's needs. Others would consider it part of the overall ethical goal: we have a duty to benefit not just the present generation (particularly the poor) but all generations. Within this understanding, the use of discounting is also a contested issue. While there might be economic reasons to discount the value of future commodities, it appears on the face of it unjustified to discount the welfare of future people. Clearly, these problems determine what requirements sustainability places on the present generation.

Since the CGIAR will necessarily have to enter into dialogue with other stakeholders on these questions, it is important that it starts reflecting on them. Eventually, this might lead to revision of policies concerning respect for nature and future generations.

Respect for Donors and Partners

Donors and partners are entitled to have many of their interests and requirements respected. Since the cooperation of donors and partners are necessary for the CGIAR if it is to achieve its goals, and since donors and partners act on a voluntary basis, it is simply a prudential imperative that their aspirations for the collaboration are satisfied.

Thus, it is necessary that the CGIAR acts in an accountable and transparent way, because on their side, donors and partners are obliged to act accountably and transparently towards their parliaments, tax payers, boards, and the like. Likewise, it is prudentially imperative to respect the values and wishes of donors and partners, and this is probably best done by involving them in decision-making.

It is our impression that the CGIAR is very well aware of these requirements, and that it has as a consequence already developed policies and procedures to deal with them. We therefore see few ethical issues in this area that need to be dealt with.

However, it might be advisable to organize ethical discussion of the costs of donor requirements, control measures etc. The problem is that very heavy demands in this area will draw resources away from the CGIAR's main goal: to alleviate poverty and hunger. Also, some requirements that make sense in the industrialized world might be counter-productive in the regions in which the CGIAR has to act because they cannot be met by poor farmers or very small businesses.

We fully recognize the legitimate rights of donors and partners. Still, there might be good ethical reasons for reflecting on ways to strike the right balance between respecting these rights and achieving the goal of alleviating poverty and hunger. If it is impossible for the CGIAR to start a debate like this, an independent group of experts might be encouraged to become involved.

9 PROPOSAL FOR A STRATEGIC STUDY

In this section we propose a strategic study conducted by a panel of experts. According to the assignment on which the present paper is based, such a proposal “should include the objective and scope of the study, the panel composition, the study process and time required by the panel chair and members”.

Objective and Scope of Study

It has been argued in the previous section that two kinds of subject ought to be studied: those concerned with defining the goals of the CGIAR and those concerned with choosing the best means to attain these goals. We suggest that the proposed study be divided into two parts, roughly following this division. The first part of the study, “Research Ethics and the CGIAR”, would focus on choosing the right means; the second part, “Ethics and the CGIAR Mission”, would focus on the goals themselves.

There are three reasons for dividing things up in this twofold manner. 1) The subjects and the kinds of instrument that are going to be recommended are very different: the study of research ethics mainly focuses on the internal process of doing research and may suggest instruments such as review boards. The study of the CGIAR mission, on the other hand, will focus on policy relating to development and is mainly going to provoke thought about a later revision of CGIAR policy. 2) It will be easier for the SC and the rest of CGIAR to take adequate action on the basis of the studies if the recommendations come in two separate packages, and if substantial interval of time, such as one year, separates the delivery of these. 3) The task of the panel will be more easily organized and managed if it is divided into parts.

Regarding content, the two parts of the study should deliver principles and guidelines concerning the matters listed below:

- Research Ethics and the CGIAR
 - General research ethics, including ways of dealing with scientific dishonesty, publication, authorship etc.
 - The use of human subjects in research
 - The use of genetic resources, covering both research and later applications
 - Intellectual property rights concerning scientific inventions
 - Consultation and debate relating to controversial technologies.
- Ethics and the CGIAR Mission
 - Equity, how to balance size of impact against the focus on helping the very poor
 - Intergenerational justice, how to balance concern for the people living now and in the near future against concern for future generations
 - Nature protection, how to protect parts of nature that are production resources but may possess intrinsic value
 - Empowerment, how to develop capabilities, political rights, self esteem and initiative among the least privileged groups
 - Ends and means, how to evaluate the efficiency of means in the light of the above points.

Panel of Experts

In *Ethics and the CGIAR*, the following suggestion is made regarding the composition of the panel:

The Panel will be composed of a Chair and a Panel Convenor/Scientific Secretary, both of whom should have dealt with issues of ethics in scientific research. They should be complemented with two experts... The Panel may coopt other specialists from the global community of experts to assist in the assessment of specific areas of CGIAR's activities and/or to review the work of the Panel members as they prepare their contributions to the overall report.

We believe that it is a very good idea to have a small panel which, if necessary and on an *ad hoc* basis, can call for the assistance of other specialists. With a small panel it is, however, important to have the right mix of competences and personalities.

We suggest that the panel should combine the following three profiles: an academic ethicist (with a background in philosophy or theology); an expert in human rights, conventions on biodiversity and other relevant parts of international law; and an expert on poverty, third-world agriculture, food supply and/or other aspects of development. Besides this, each panel member should have a broad mind, plenty of common sense, and a willingness to engage in interdisciplinary discussion. The panel should include people from both the developed world and the developing world, and members of both sexes.

There is a compelling reason for having this mix of profiles. The academic ethicist should ensure that the panel makes full use of the intellectual resources found within ethical theory to describe dilemmas, visions, principles and guidelines in a clear and transparent manner. The expert within the field of international law should ensure that the panel takes relevant parts of international law as a starting point for reflection. Finally the expert on development should be able to bring to the attention of the panel to how things look from the point of view of those who, in very practical terms, work on development issues.

Persons of the kinds needed as panelists are likely to be very busy. It is therefore important that membership of the panel does not carry too big a work burden. This could be achieved 1) by having a panel convenor/secretary who is well-qualified and able to work in an independent manner; 2) by having virtual meetings that limit the amount of travel panelists undertake; and 3) by defining clear priorities and a reasonable time schedule for the work of the panel.

Study Process and Time Required

We envisage the following schedule:

Study on Research Ethics: 12 months running through 2005

Study on Mission: 12 months running through 2006

Each study should conclude with a report to be delivered to the SC. It will be the responsibility of the SC to see that adequate action is taken on the basis of the study.

STUDY II

Ethics and CGIAR Research

The report has been prepared by an independent panel consisting of Peter Sandøe (chair), Linda Adair, Clarence Dias and with the assistance of Karsten Klint Jensen and Peter Gardiner and was submitted in June 2006.

The SC considered the report through virtual review and finalized its Commentary on the report in November 2006

**Science Council Commentary
on the Report: "Ethics and CGIAR Research"**

November 2006

Summary

The Science Council confirms the major finding of the Report that there is a need for the CGIAR at the System level to develop and adopt a uniform policy on ethical issues for the CGIAR. The guidelines and processes should follow international conventions. The Science Council believes that the development of such guidelines is a System-wide process, which should be led by the Alliance Executive/Alliance Board, in order to develop a common "Ethics codex". Guidance on the content of such guidelines, and models for the component parts, are provided in the Report and reviewed in this Commentary. The approach should also include recommendations for dealing with cases of serious misconduct. Subsequently, the specifics of implementation would be left to the Centers according to their particular needs and contexts, with due reference to host and partner country norms and requirements of funding agencies. The Science Council will subsequently review and endorse to ExCo the CGIAR Systemwide policy on Ethics developed by the Alliance.

A. Background

At SC2 in Rome, in September 2004, the Science Council received a report from Professor Peter Sandoe on "How should the CGIAR Handle Ethical Challenges? Issues and Proposal for a Strategic Study". The report made a recommendation for two further studies, the first to consider "Research Ethics and the CGIAR" and a second on "Ethics and the CGIAR Mission". The Science Council determined that it would be best to develop the studies consecutively, and so draft Terms of Reference for the study "*Research Ethics and the CGIAR*" were developed first, and these specified that the study should address the following topics:

1. The principles and guidelines of the System and the individual Centers, which should draw on extant international legal requirements and research ethics protocols in force at advanced research institutions (ARIs) around the world.
2. The extent to which Centers should adapt or extend prevailing Institutional Review Board approaches extant within ARIs.
3. Procedures for Institutional Review Boards at Centers, including guidelines for committee composition.
4. Consideration of whether System-wide level oversight is needed on matters of research ethics and, if so, how to operationalize such oversight.
5. Procedures and guidelines for identifying which research protocols need to undergo ethical review and which can be exempt.
6. Guidelines for when funding by or within the CGIAR should be awarded exclusively on a competitive basis.
7. System and Center policies and procedures for individual declarations of interest to prevent conflicts of interest in professional activities.
8. Whether the research ethics protocols of the Centers can or must be integrated with those of either local or national partners who might not have comparable protocols.

9. Plans and possibilities for research ethics training course(s) for CGIAR scientists.

A panel was formed under the chairmanship of Professor Sandoe. The report was presented to SC5 at WARDA in spring 2006 by Professor Sandoe who noted that Centers and the System need to embrace ethics and ethical guidelines both because it is inherently correct to do so and because of the potential liability Centers face without them. The report covers participation and communication with stakeholders, dissemination, research on human subjects, research on animals, IPRs, Biodiversity, Biosafety and Risks, Good Scientific Practice, and Handling and Receiving Funding.

A final version of the report was delivered on the 30th of June 2006. The report lays out the principles for the ethical review of CGIAR Research and includes reference to existing CGIAR ethical guidelines and CGIAR policies regarding IPR, biodiversity and biosafety.

A further study on the subject of "*Ethics and the CGIAR Mission*" will be commissioned to address issues such as the trade offs in doing international public goods research, intergenerational benefits versus needs for short term impacts, and biodiversity.

B. Major recommendations of the Panel's report

The report's major recommendations include the following:

- That the CGIAR develop and adopt common policy/guidelines for the implementation of the ethical review of research projects in relation to how these fit the CGIAR mission and affect those involved in the research, as well as for dealing with scientific misconduct and conflicts of interests.
- That the CGIAR set up an institutional framework at system and/or Center levels to carry out the ethical review of research and to handle complaints about serious scientific misconduct.

A more detailed list of recommendations mentioned in the report is attached as Annex I to this Commentary.

C. General comments about the report

- The report presents an authoritative discussion of ethical issues and is based on state-of-the-art ethical principles and a number of internationally recognized conventions.
- The report's presentation and critique of current practices of ethical review of the CGIAR makes a compelling case for recommending guidelines and new structures and procedures. Despite some advances in particular Centers, the ethical review of CGIAR research processes is deficient in many instances. In particular, the ethical review of research involving human subjects and surveys or the use of data with personal identifiers should be implemented in all Centers conducting such research. Deficiencies in ethical review leave the CGIAR vulnerable to considerable liability and leave a gap that must be addressed as a System-wide issue.
- The report describes generally the process of ethical review in the CGIAR and makes recommendations for filling the considerable gaps. However, the report stops short of developing a full set of policies and guidelines to be adopted by the CGIAR. The authors feel that the Centers themselves need to be involved in defining and implementing the review process and that "an important part of the exercise lies ahead".

- The Science Council strongly endorses the *general* recommendations that guidelines and institutional structures for ethical reviews be developed as soon as possible.
- The Science Council agrees with the advice of the Panel in relation to Research on human subjects, Research on animals, IPR, Biosafety and Risks, Good scientific practice, Handling and receiving funding, and, Dissemination.
- The Science Council further agrees with the Report that CGIAR Guidelines should include clear ethical principles on Biodiversity and Participation and communication with stakeholders. Several of the Panel’s advisory statements on these subjects should be taken into account in the formulation of such guidelines. However, the Science Council recognizes that the development of guidelines will require a careful review of the implications and feasibility for implementation of each of the recommendations. Specifically, the Science Council demurs from three of the Report’s suggestions (identified below and in Annex 1), as it considers that their implementation, whilst desirable in principle, is beyond the CGIAR’s practical responsibility.

Specific considerations: The Science Council is pleased to endorse in principle the general advice provided by the report. It is important that the Alliance moves swiftly and thoughtfully to undertake the definition of guidelines and feasible implementation steps.

In the formulation of such guidelines, the Science Council only demurs from the advice in the Panel Report’s in three cases:

- i) In relation to Biosafety and Risks, the Report suggests that the CGIAR should:
“Engage in dialogue with expert organizations on equity, gender, conservation, sustainability, and nature protection issues with an aim to form partnerships and to integrate their concerns in research on genetic resources.”

The Science Council confirms the advantage of broad consultation in the formulation of research and policy on genetic resources. The Science Council notes the desirability of partnerships on specific issues and that balanced decision making in this area is required in line with the mandate and mission of the CGIAR, rather than the necessary integration of all contrasting view points.

- ii) In relation to Participation and Communication with Stakeholders, the Panel suggests that the CGIAR should:
“Develop policies for empowerment of local communities, particularly in the decision-making process”.

The Science Council notes that it is necessary for the CGIAR to provide information to stakeholders prior to, during and subsequent to research directly impinging on human subjects and communities. However, the generalized empowerment of local communities over and above those aspects accruing from research is beyond the remit of the CGIAR.

- iii) In relation to Participation and Communication with Stakeholders, the Panel also suggests that the CGIAR should:
“Strike a balance between pursuit of CGIAR objectives and local autonomy/empowerment”

The Science Council notes that the planning of CGIAR research should take into account the beneficial and potential adverse effects of its research on its immediate stakeholders and to share research-related knowledge, but that further influence over the empowerment of local

communities is beyond the research remit of the CGIAR. Similarly, beyond pointing out any redistributive risks arising from the differential adoption of new technologies, the CGIAR cannot be held responsible for changes in local autonomy.

The Science Council stands ready to provide technical assistance, including through the continued discussion on the ethical roles and duties of the Centers and through the suggested implementation steps summarized in the study report and below.

D. System-wide implementation steps

- The Science Council agrees that there is a need for the CGIAR at the System level to develop/adopt a uniform policy on ethical issues for the CGIAR.

This might include issues related to:

- Transparency;
- Dealing with human research participants;
- Animal experiments;
- IPG-oriented IPR protection;
- Genetic resources in agriculture;
- Biosafety;
- Dialogue/partnership with expert organizations and stakeholders on relevant ethical issues;
- Good scientific practice (research protocols, data documentation/storage, interpretation, presentation, publication, dissemination); and
- Funding and dealing with conflicts of interest (disclosures and evaluation).

In some cases, it might be possible to consider and adopt existing documents with little change - such as ILRI's "Standard Operating Procedures for Animal Experimentation". In other cases, a more extensive review of internationally accepted guidelines might be necessary. (A list of such models and examples mentioned in the report are collected at the end of this Commentary as Annex II).

The Science Council believes that this is a System-wide process, which should be led by the Alliance Executive/Alliance Board (including Challenge Program Coordinators or Directors), in order to develop a common "Ethics codex". Subsequently, the specifics of implementation would be left to the Centers according to their particular needs and contexts. The Science Council will subsequently review and endorse to ExCo the CGIAR Systemwide policy on Ethics developed by the Alliance.

- The Science Council suggests that there is also a need for guidelines for setting up an Ethics Committee in each Center. The Ethics Committee would possibly have the following tasks mentioned by the report:

- Review, approve, oversee research projects from early stages and as necessary, with special focus on: long-term implications on other stakeholders; projects involving human subjects (clinical trials and surveys); and projects involving animal experiments.
- Handle complaints about serious scientific misconduct
- Oversee and evaluate possible conflict of interests
- The Science Council agrees that mechanisms for in-house training in ethics and research are needed. Guidelines are needed on who should be trained and certified. One suggestion is to use or develop on-line training material, with certification issued after passing a test.
- The report appears to call for a standing committee within the Science Council to be set up at System level to act as “a formal system to which complaints about serious scientific misconduct can be lodged for investigation and judgment”. While the need for mechanisms of review is clear, the Science Council is not the most appropriate existing body for this purpose. The Science Council notes that, normally, responsibility for staff issues is ultimately vested in the Boards of the Centers that employ them. The Science Council suggests that potential processes to meet the scientific and legal demand for review of cases of serious scientific misconduct be considered and proposed during the deliberations of the Alliance.

E. Steps at the level of Centers and Challenge Programs

- Each Center and Challenge Program would be responsible for participating in the development and approval of the Ethics Codex, as well as in its implementation at the Center or Challenge Program level.
- The Science Council suggests that each Center/Challenge Program would develop a detailed guideline on ethics and a framework through which the Ethics committee could conduct its work on ethical issues relating to research, including those mentioned in Section D, above.
- The Ethics committee could draw upon external expertise and/or set up sub-committees as necessary according to the nature of the research or question being addressed.

F. Next steps

- The Ethics Panel Report recommends that the Alliance takes the lead in developing the guidelines and the implementation plan and that these are approved by the Science Council. The Science Council endorses this recommendation and urges the Alliance to act on this recommendation without delay.

Annex I
Summary of detailed advice in the study “Research Ethics and the CGIAR”

This Annex provides, in summary form, the advice contained in the Panel’s report relating to ethical considerations in the conduct of CGIAR research. These are excerpts from the Study and are therefore the suggestions made by the authors of the Study. It should be noted that whilst the advice is largely endorsed by the Science Council, caveats are proposed in the Commentary of this text in relation to three aspects (marked with §). Thus each aspect of advice still requires careful consideration of how it should be implemented, and not all advice would necessarily lead to specific activities.

As a guide, this Annex to the Commentary further indicates the means (e.g. setting policies or establishing committees) that might be used for addressing the requirements and the level (Center or System) at which the policy or processes might be established. Suitable precedents and guidelines for the establishment of these processes are listed in Annex II.

(PO: policy; TR: transparency; CO: committee; ED: education)
(S: system-wide level; C: centre-level)

<i>Advice</i>	<i>Means</i>	<i>Level</i>
Research on Human Subjects		
<ul style="list-style-type: none"> Establishment of ethical committee or Institutional Review Board (ideally for each centre, or by establishing agreement with local committees) who will review and approve projects involving human subjects 	CO	C
<ul style="list-style-type: none"> Each institution conducting human subjects research should have a written, publicly available statement of its principles, policies and procedures for the protection of human research participants 	PO CO	S / C
<ul style="list-style-type: none"> Institutions should have a policy and a means to provide for education in the ethical conduct of human subjects research for all personnel who may be involved in such research 	PO ED	S / C
Research on Animals		
<ul style="list-style-type: none"> Animal experiments must be regulated by governmental authority set up for the purpose or within an Animal Care and Use Program 	PO	S / C
<ul style="list-style-type: none"> An Institutional Animal Care and Use Committee that reviews all proposed uses of 	CO	C

animals and has the responsibility for oversight and evaluation		
<ul style="list-style-type: none"> All members of the Institutional Animal Care and Use Committee, all researchers responsible for animal experimentation, and all staff directly involved in handling and care of the animals should receive proper education and training 	ED	C
<ul style="list-style-type: none"> At every facility where animal experimentation takes place there must be a veterinarian who has the authority to oversee key components of the Animal Care and Use program 	PO	C
IPR		
<ul style="list-style-type: none"> Ensure that intellectual property of research products is protected in order to pursue the IPG nature of research products, rather than for securing financial returns. 	PO	S/C
<ul style="list-style-type: none"> Actively negotiate with the private sector, universities, advanced research institutes, NARS, etc. to minimize any restrictions of third party IP for innovative technology associated with its mission. 	PO	S/C
Biodiversity		
<ul style="list-style-type: none"> Introduce measures to protect IPR in order to pursue the IPG nature of research products 	PO	S/C
<ul style="list-style-type: none"> Promote ready access to breeding materials for breeding and research activities, including GM varieties 	PO	C
<ul style="list-style-type: none"> § Engage in dialogue with expert organizations on equity, gender, conservation, sustainability, and nature protection issues with an aim to form partnerships and to integrate their concerns in research on genetic resources 	PO	S/C
Biosafety and Risks		
<ul style="list-style-type: none"> Handle any biosafety-related issues through 	PO	S/C

dialogue with the relevant stakeholders, particularly when the balancing is needed between the concern for biosafety and the duty to benefit the poor		
Good scientific practice		
<ul style="list-style-type: none"> State and enforce clear policies on good scientific practice by CGIAR formulating common policies on the presentation of research protocols, data documentation and data storage, and interpretation, presentation and publication of results. 	PO	S/C
<ul style="list-style-type: none"> Center staff to go through training courses on good scientific practice 	ED	C
<ul style="list-style-type: none"> Center supervisors to ensure that the norms of good scientific practice are known and adhered to by the entire staff 	ED	C
<ul style="list-style-type: none"> CGIAR to adopt the Vancouver rules as its standard for good scientific practice 	TR	C
<ul style="list-style-type: none"> Ensure that all members of the research team, including local and external scientists and non-research partners be appropriately credited. 	TR	C
<ul style="list-style-type: none"> CGIAR to have a formal system to which complaints about serious scientific misconduct can be lodged for investigation and judgment. 	CO	S
Handling and receiving funding		
<ul style="list-style-type: none"> Centers to maintain and enforce a written policy on conflict of interest, which establishes requirements for disclosures and evaluation. 	PO	S/C
<ul style="list-style-type: none"> Institutional review boards or ethics committees to evaluate conflict of interest 	CO	C
<ul style="list-style-type: none"> Ensure that collaborations with the private sector is done only if they complement and enhance a Center's ability to achieve its 	PO	S/C

mandate (using guidelines developed by Future Harvest Centers)		
<ul style="list-style-type: none"> Staff within the CGIAR system with conflict interests to voluntarily withdraw from decisions on funding 	PO	S / C
<ul style="list-style-type: none"> Preferably, allocate funding through open competition and review quality, i.e. through peer review. 	TR	S / C
<ul style="list-style-type: none"> Maintain transparency about the conflict of interests and how the balance was struck. 	TR	S / C
Participation and Communication with Stakeholders		
<ul style="list-style-type: none"> Ensure a clear link to the end-beneficiaries 	PO	S
<ul style="list-style-type: none"> Transparency in how the research is directed 	TR	S / C
<ul style="list-style-type: none"> Decide level of actual involvement of local stakeholders 	PO	C
<ul style="list-style-type: none"> Seek procedures for involvement that balance the costs and the added value 	PO	C
<ul style="list-style-type: none"> § Develop policies for empowerment of local communities, particularly in the decision-making process 	PO	S / C
<ul style="list-style-type: none"> § Strike a balance between pursuit of CGIAR objectives and local autonomy/empowerment 	PO	C
<ul style="list-style-type: none"> Research projects should be reviewed for their lifetime implications on other stakeholders, and the issues requiring dialogue with other stakeholders, at the early planning stage 	CO	C
<ul style="list-style-type: none"> Normative and factual premises underlying advocacy of the use of certain technologies, or the pursuit of certain policies must be presented clearly 	TR	C

Dissemination		
<ul style="list-style-type: none"> Dissemination of research results to the scientific community should follow internationally agreed principles and guidelines (Vancouver rules) 	TR	C
<ul style="list-style-type: none"> Partnering directly with individuals who have more expertise in communication 	PO	S/C
<ul style="list-style-type: none"> Develop content and modes of communication to maximize accessibility and comprehension for all stakeholders 	PO	C
<ul style="list-style-type: none"> Consider development of public education tools that are not reliant solely on text 	PO	C

Annex II

Example of useful documents

(includes both documents mentioned in the study “*Research Ethics and the CGIAR*” and additional recommended documents)

Focus on Poverty

- CGIAR Charter, November 2004

Participation and Communication with Stakeholders

- CGIAR Charter, November 2004
- Universal Declaration of Human Rights,
- UN Declaration on the Right to Development
- International Covenant on Civil and Political Rights
- Convention on the Elimination of All Forms of Discrimination Against Women
- African Charter for Popular Participation in Development
- CIAT Code of Ethics, 2005

Dissemination

- A Food Secure World for All: Toward a New Vision and Strategy for the CGIAR. TAC Secretariat, Food and Agricultural Organization of the United Nations, October 2002
- CIAT Code of Ethics, 2005
- Data Management Policy (Draft-1), ILRI
- Vancouver rules: Uniform Requirements for Manuscripts Submitted to Biomedical Journals <http://www.ICMJE.org>

Research on Human Subjects

- The Nuremberg Code http://www.ushmm.org/research/doctors/Nuremberg_Code.htm
- The Declaration of Helsinki. <http://www.wma.net/e/policy/b3.htm>
- The Belmont Report <http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.htm>
- International Conference on Harmonization *Guideline for Good Clinical Practice* http://www.ich.org/MediaServer.jserv?@_ID=482&@_MODE=GLB
- Council for International Organizations of Medical Sciences *International Ethical Guidelines for Biomedical Research Involving Human Subjects* (2002) http://www.cioms.ch/frame_guidelines_nov_2002.htm
- Principles, Policies and Procedures for the Protection of Human research Subjects at the International Food Policy Research Institute. Assurance of Compliance with Federal Regulations for the Protection of Research Subjects. IFPRI 2003.
- Research Ethics, ICRAF Policy Guidelines Series, 2004.
- CIAT Code of Ethics, 2005
- Core International Human Rights Instruments are available at:
- <http://www.ohchr.org/english/law/>
- Office for Human Research Protections, US Department of Health and Human Services (2005) *International Compilation of Human Subject Research Protections.* <http://www.hhs.gov/ohrp/international/HSPCompilation.pdf>
- "Guide for Establishing Ethics Committees", Division of Ethics of Science and Technology of United Nations Educational, Scientific and Cultural Organization (2005). <http://unesdoc.unesco.org/images/0013/001393/139309e.pdf>

- Code of Federal Regulations, Title 45 Public Welfare, Department of Health and Human Services, Part 46, Protection of Human Subjects, Revised June 23, 2005.
<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>
- Health International, Research Ethics Training Curriculum for international scientists.
<http://www.fhi.org/en/RH/Training/trainmat/ethicscurr/index.htm>

Research on Animals

- Bayne, K & de Greeve, P: An Overview of Global Legislation, Regulation, and Policies on the Use of Animals for Scientific Research, Testing, or Education, in Hau, J & Van Hoosier, GL (eds.) *Handbook of Laboratory Animal Science, Second Edition: Essential Principles and Practices*, Vol. I, Chapter 2, pp 13-31, 2002: CRC Press LLC, USA.
- Animal Procedures Committee (2003). *Review of cost-benefit assessment in the use of animals in research*. Home Office, Communication Directorate: London. www.apc.gov.uk
- Standard Operating Procedures for Animal Experimentation, lasted version by ILRI Institute Animal Care and Use Committee, 2004.
- Research Ethics, ICRAF Policy Guidelines Series, 2004.
- Russell, W.M.S. and Burch, R.L., *The Principles of Humane Experimental Technique*, London: Methuen, 1959.
- For more detailed descriptions of how to fill out the standards, reference should be made to one of the following guides:
- ARENA (Applied Research Ethics National Association) and OLAW (Office of Laboratory Animal Welfare), NIH (2002). *Institutional animal care and use committee guidebook*. Second edition. OLAW, NIH: Bethesda, MD.
<ftp://ftp.grants.nih.gov/IACUC/GuideBook.pdf>
- Australian Government National Health and Medical Research Council (2004). *Australian code of practice for the care and use of animals in scientific procedures*. Australian Government.
<http://www7.health.gov.au/nhmrc/publications/synopses/ea16syn.htm>
- New Zealand National Animal Ethics Advisory Committee (2002). *Good practice guide for the use of animals in research, testing and teaching*. MAF: Wellington.
<http://www.biosecurity.govt.nz/animal-welfare/naeac/papers/guide-for-animals-use.pdf>

IPR

- Strategies for the CGIAR to Conduct Research and Deliver Technological Innovation that Benefit the Poor in a Context of Intellectual Property Rights., 2005.
- Policy of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) on Intellectual property Rights (IPR). ILRI's Policy on Intellectual Property Rights, Biosafety and Bioethics, 2000. Assessment of Third Party Property related to the Challenge Program on Water and Food.
- ICRISAT *Guiding Principles on Management of Intellectual Property* Annex I, 2000.
http://www.icrisat.org/ip_management/policy.htm

Biodiversity

- CGIAR's Ethical Principles Relating to Genetic Resources.
www.cgiar.org/corecollection/docs/sgrp_policy_booklet_2003.pdf
- ICRISAT Guiding Principles on Management of Intellectual Property Annex I, 2000.
http://www.icrisat.org/ip_management/policy.htm
- The FAO-CGIAR Agreement on Genetic Resources. The FAO International Undertaking of Plant Genetic Resources for Food and Agriculture.

Biosafety and Risks

- Report of the Biosafety Panel to the CGIAR Science Council on Biosafety Policy and Practices of the CGIAR Centers
- CIAT Code of Ethics, 2005

Good scientific practice

ICRAF: Scientific Fraud, Research Discussion Paper 1.

- CIAT Code of Ethics, 2005.

Integrity and Misconduct in research: Report of the Commission on Research Integrity,

<http://www.faseb.org/opar/cr.html>

Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication. <http://www.ICMJE.org>

Handing and receiving funding

- Policy on Partnerships in Research and Related Activities, ICLARM
- CIAT Code of Ethics, 2005.
- Alliance of Future Harvest Centers of the CGIAR: "Guidelines for center modes of collaboration with the private sector", May 2005, WorldFish Center, Penang, Malaysia

On setting up ethics committees (New Addition; not In Sandøe Panel Report)

- WHO (2000) Operational guidelines for ethics committees that review biomedical research. TDR/PRD/ETHICS/2000.1
<http://www.who.int/tdr/publications/publications/ethics.htm>
- WHO (2002) Surveying and evaluating ethical review practices. TDR/PRD/ETHICS/2002.1
<http://www.who.int/tdr/publications/publications/ethics2.htm>
- Report of a conference "Research Ethics Committees in Europe: facing the future together", Brussels, 27-28 January 2005
http://ec.europa.eu/research/conferences/2005/recs/index_en.htm
- UNESCO SHS (2006) Bioethics Committees at work: procedures and policies.
<http://www.unesco.org/ethics>
- World Commission on the Ethics of Scientific Knowledge and Technology (COMEST): Code of Conduct for Scientists (in process since 2004), UNESCO.
<http://www.unesco.org/shs/est>

Report: Ethics and CGIAR Research

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Summary of Future Tasks for the CGIAR Concerning Research Ethics.

The CGIAR has already issued statements and advice to Centers on Intellectual Property Rights and guidelines for the use of Genetic Resources. The Science Council has endorsed the recommendations from a study on biosafety. The Centers have developed guidelines for selected specific areas. The CIAT Code of Ethics covers a wide range of ethical issues.

The panel acknowledges these existing guidelines and advisory statements, which on their own terms appear very reasonable, balanced and thoughtful. However, the Alliance as a whole still has a long way to go in order to reach a common policy on research ethics which systematically covers all important areas. Hence, the most important task for the Alliance in the areas covered by the mentioned guidelines and advice is to clarify and systematize them and to complement them where necessary. Similarly, the individual Centers need to complement their guidelines and policies on research ethics related issues.

The panel thus recommends the following development of common guidelines for the Alliance to ensure that scientific research and research related activities are in accordance internationally recognized ethical standards:

1. Development of common guidelines for and implementation of ethical review of research projects within the CGIAR regarding relation of the research to the CGIAR mission. This involves:
 - a) Potential for contributing to the overall objective of the CGIAR (cf. section 1-2)
 - b) Potential links to implementation for end beneficiaries (cf. section 2)
 - c) Lifetime implications for stakeholders and plan for consultation, dialogue and involvement (cf. section 2)
 - d) Plan for dissemination (cf. section 3).
2. Development of common guidelines for and implementation of ethical review of research projects within the CGIAR on how the research affects other parties. This involves:
 - a) Research on human or animal subjects (cf. sections 4-5)
 - b) Biosafety issues and risk analysis (cf. section 8)
 - c) Participation of vulnerable groups (cf. section 8)
 - d) Bioethical issues (cf. section 8)
3. Development of common guidelines for and implementation of systems for dealing with scientific misconduct and conflicts of interest regarding funding (cf. sections 9-10).

The panel furthermore recommends the set up of the following set of frameworks:

4. Each Center should set up an institutional framework for ethical reviews. A possible framework would be a Standing Ethics Committee which has at least half of its members drawn from stakeholder bodies outside the Centre, and reports directly to the Centre Director General. Apart from the ethical reviews described in 1 and 2 above, a Standing Ethics Committee could also systematize and further develop advice and policies concerning
 - a) issues concerning IP (cf. section 6),
 - b) biodiversity (cf. section 7),
 - c) good scientific practice (cf. section 9),
 - d) funding (cf. section 10) and
 - e) other ethics related issues for the centre.

5. In case the research involves human or animal subjects (according to the definitions in sections 4-5), the research protocol has furthermore to be reviewed by an appropriate review board.
 - a) In case the Center conducts significant amounts of research on human subjects, it should have an Institutional Review Board like IFPRI; in other cases, it should find a suitable External Review Board.
 - b) Similarly, for research on animals: in the case the Center does a lot of research on animals, it should have an Institutional Animal Care and Use Committee, like ILRI; in other cases, it should find a suitable external committee.
6. The CGIAR should set up a framework for handling complaints about serious scientific misconduct (cf. section 9).

The panel finally suggests a process leading up to fulfillment of these recommendations along the following lines:

- A. This report is passed on to the Alliance with the following annexes:
 - a. Existing CGIAR guidelines
 - b. CGIAR policy statements regarding IPR, biodiversity and biosafety
- B. The Alliance works out guidelines and a plan for implementation
- C. The guidelines and plan are approved by the Science Council.

Introduction

The present document aims to carry through one of the proposals made in an earlier Science Council-commissioned report: “How should the CGIAR handle ethical challenges? - Issues and proposal for a strategic study”⁴. That report proposed that the CGIAR should launch two separate studies of ethical issues of relevance for the CGIAR, one about “Research Ethics and the CGIAR”, and another on “Ethics and the CGIAR Mission”. The reason for treating the ethical issues in two separate studies stems roughly from the ethical distinction between ultimate goals and the process leading to these goals.

The proposed study about the CGIAR mission is envisaged to be concerned with the challenges and possibly conflicting ethical considerations involved in the *ultimate goal* of the CGIAR mission – to achieve food security and reduce poverty in developing countries. The issues center on how to balance cost efficiency in achieving food security and reducing poverty against the need to help the very poor, how to balance concern for the people living now and in the near future against concern for future generations, how to protect parts of nature that are production resources but at the same time may possess intrinsic value and how to develop capabilities, political rights, self esteem and initiative among the least privileged groups.

The present study is concerned with ethical issues relating to the *process* involved in the CGIAR mission – scientific research and research-related activities. Roughly, these ethical issues can be divided into three different categories.

The *first* is about the implications of the CGIAR’s overall objective for the way the research activities are conducted, i.e. the requirements of ensuring that the end beneficiaries of the research actually are benefited through dissemination of research results, through empowerment and through participation in relevant parts of the research process. Another implication is the requirement of ensuring a stable and transparent research process through dialogue and communication with the relevant stakeholders.

A *second* type of ethical issue is that relating to the parties affected by the research activities. These are, among others, human or animal research subjects, the environment and the general public. Important issues are concerned with ensuring that research results remain a public good and how to deal with intellectual property (IP) issues. Other important issues are biodiversity protection and biosafety.

The *third* types of issue relate to the ethical requirements internal to the conduct of research activities. These requirements include norms of good scientific practice and norms concerning the handling of funding.

Research ethics is important for the CGIAR not only because of the duty to act rightfully but also because misconduct – be it e.g. in the form of scientific fraud or of unrightful treatment of human or animal subjects – is very likely to attract negative attention internationally. Increasingly, donors and other stakeholder will expect that the CGIAR is able to document how it handles research ethical questions and conflicts.

⁴ “How should the CGIAR handle ethical challenges? - Issues and proposal for a strategic study”, Study I, this volume.

The aim of this study is to provide a review for the CGIAR on the ethical issues relating to the research process. Each section, except the first, is structured in three sub-sections. First, the background is presented, that is, a description of the issues of concern. Also, reference is made to relevant documents, comprising a review of CGIAR documents relating to the issues and reference to relevant international guidelines where they exist. Next, the fundamental values and principles are outlined, and potentially conflicting considerations are discussed. Then some more specific advice is derived from these principles. In some cases, the advice is to further develop existing CGIAR policies; in other cases, the advice is to adopt widely recognized international standards. Finally, in some cases, the advice is to develop new policies or structures, either individually as Centers or jointly. The report concludes in a summary (placed at the beginning) on recommendations and future tasks for the CGIAR concerning research ethics; particularly, an overview of the recommendations about ethical review of research projects is provided.

The purpose of this review therefore is to sharpen the CGIAR's attention to ethical considerations. The panel hopes to inspire Centers to develop more specific policies, either individually or jointly. The panel has not seen it as its task to develop a full set of policies and guidelines to be adopted by Alliance and the Centers. Guidelines should express the ethical views actually held within the Alliance. Hence, it is the conviction of the panel members that detailed ethical guidelines only makes sense if they are worked through and stated by the Alliance or the Centers themselves. Hence, an important part of the exercise still lies ahead for the Alliance and the Centers.

A. IMPLICATIONS OF THE CGIAR'S OVERALL MISSION

1. The Focus on Poverty

*The mission of the CGIAR is to achieve sustainable food security and reduce poverty in developing countries through scientific research and research-related activities in the fields of agriculture, livestock, forestry, fisheries, policy and natural resources management.*⁵

Values and Principles

The most fundamental requirement is that the research is constructed to meet the avowed CGIAR goals in as efficient a way as possible. In other words, the research of the CGIAR should be relevant for the objective of achieving sustainable food security and reducing poverty in developing countries. Clearly, this requirement has a number of implications for the research process. Most importantly, there is a need to choose research topics of relevance for achieving the overall objective. This raises many questions of how to understand the objective in operational detail. For instance, how should poverty be defined and how should the poor be identified? How precisely is research in the fields of agriculture, livestock, forestry, fisheries, policy and natural resources management most effective in ensuring sustainable food security and reducing poverty for the poorest? However, we believe that these questions about the content of the research are so closely related to the ethics of the mission itself that we want to leave them for the second study. In the remaining part of the first section, we shall deal with other more formal requirements of the research process that derive from the overall objective of the CGIAR.

⁵ CGIAR Charter, November 2004

2. Participation and Communication with Stakeholders

Background

The CGIAR charter defines *stakeholders* as “the broadest possible group of individuals and organizations that have a stake in agricultural research for development”.⁶ We should like to stress that, from an ethical point of view, stakeholders should be understood as the groups of individuals or organizations who affect, and/or are affected by CGIAR research and related activities. A rough outline of stakeholders includes members, partners and challenge program participants, donor organizations and donor countries, the end beneficiaries, local governments and local communities, national and international NGOs, national and international scientific communities within the fields of agriculture and development, private national and international enterprises or corporations, and national and international press.

In pursuing the objective of reducing poverty, hunger and malnutrition, the CGIAR Centers inevitably will be involved with controversial issues. One example could be research in, or even advocacy of using technologies, such as GM crops, that are perceived as controversial by some constituencies. Another example could be advocacy of policies with effects on traditional ways of life, such as local power relations or gender relations. In such cases, dialogue with local or international stakeholders on the choice of research areas or development of policies derived from the overall objective of the CGIAR system might be mutually beneficial.

In principle, all affected parties have a moral right of participation in the decision-making process. In this broad sense, ‘participation’ means having one’s interests considered. In some cases, there is a legal right of participation in a more formal sense as a right of being heard, or even a right to participate in meetings where decisions are made. In most cases, it is prudent to involve the affected parties in the decision-making process, because it increases the chance of decisions being robust and sustainable. However, it should be acknowledged that it is time-consuming and financially costly to involve others in the decision-making, and it could lead the decisions to vary from the overall objective of the research or impair efficiency. The problem is therefore: who should be involved, what should they be involved in, and how should they be involved?⁷

The CIAT Code of Ethics contains guidelines on public communication.⁸ It also has guidelines on research planning, implementation and dissemination. In planning and implementing research, it says, the ethical acceptability of the research should be reviewed according to the Code.

Principles

The general principle is that pursuit of the overall beneficial objective of the CGIAR should be constrained by choice of ethically acceptable means. Most important here is respect for the interests of the persons affected by the choice of means. This implies that the affected parties have

⁶ CGIAR Charter, November 2004, p. iv.

⁷ Relevant documents on participation include: The Universal Declaration of Human Rights, UN Declaration on the Right to Development, the International Covenant on Civil and Political Rights, the Convention on the Elimination of All Forms of Discrimination Against Women, and the African Charter for Popular Participation in Development

⁸ CIAT Code of Ethics, 2005.

the opportunity to give their consent to the means chosen in pursuit of the overall objective. Hence, there is a general duty to engage in open dialogue with the relevant stakeholders.

The main objective of the CGIAR Centers is to produce research results that will benefit the poor by reducing poverty, hunger and malnutrition sustainably, i.e., without increasing the risks that future generations will face poverty, hunger and malnutrition. Most important in relation to this goal are the potential beneficiaries. Firstly, there is the moral right of beneficiaries to participate effectively in decisions which affect their lives. The primary duty of the CGIAR is to benefit the poor through research; however, a secondary duty is to respect and possibly strengthen local autonomy through the implementation of research. The poor should, as far as possible, decide for themselves how their problems are to be solved. Secondly, involvement of the beneficiaries is clearly instrumental to achieve sustainable results of the research in relation to the goal of reducing poverty, hunger and malnutrition. A necessary condition for the research results to be effective is that the beneficiaries actually find such results relevant and useful and are willing to expend social energy in their implementation. Their interests should be taken into account throughout the agenda-setting, the decision-making processes and dissemination of knowledge.

Advice

From the initial planning phase, to the dissemination of research findings and implementation of practices informed by research results, there is a duty to make sure that there is a clear link to the end-beneficiaries and their needs and wants. Early in the planning phase, it should be transparent how the research is directed towards the goal of contributing to the reduction of poverty, hunger and malnutrition in one way or another. Reasonable scenarios for the implementation of the results should be considered so as to maintain the link to the beneficiaries. Deciding the level of actual involvement, e.g. by local beneficiaries or relevant NGOs, is a matter of balancing the duty to respect the right to participation, and the potential benefits of doing so, against the duty to respect the integrity of science and not to make decision-making unduly time consuming or financially costly. It is the responsibility of the centre management to strike this balance in a fair way. The guiding principles should be to ensure that involvement takes place where it adds important value – as compared with considering the affected parties' interest; and furthermore, to seek out procedures for involvement that keep the costs of involvement in reasonable proportion to the added value.

Locally, it will be necessary to involve the beneficiaries in the decision making process. Local communities should be educated to ensure the necessary understanding of a policy and its implications. The Centers should develop policies for empowerment of local communities to ensure that every contact with local communities is governed by a thoroughly considered plan for how to respect and strengthen the beneficiaries' autonomy.

In some cases, there will be conflict between pursuing the beneficial objective of the CGIAR most efficiently in the short term and perhaps costly and time-consuming procedures of respecting autonomy or setting up education schemes in order to ensure effective dissemination. In these cases, a reasonable balance has to be found. However, in striking this balance, the long term effects of autonomy and empowerment are likely to be helpful in relation to achieving the overall goal, and this should be taken into account.

Very early in the planning stages, research projects should be reviewed for their lifetime implications on other stakeholders, and the issues requiring dialogue with other stakeholders should be identified. Each CGIAR Center needs to develop policies for running an open dialogue

with relevant stakeholders during the lifetime of a research project. This implies setting up routines for identifying relevant stakeholders, locally, as well as internationally. It also implies developing ways and channels to engage in dialogue with different types of relevant stakeholders.

In advocating the use of certain technologies, or the pursuit of certain policies, the Centers should always be transparent. This means that the normative and factual premises underlying the advocacy should be presented for all relevant stakeholders in a clear way. Particularly, the relation to the overall beneficial objective of reducing poverty, hunger and malnutrition should be apparent. In case some technology or policy advocated for by a Center involves heavy burdens on some group, there is a duty to ensure that this burden is distributed and shared in an equitable way.

3. Dissemination

Background

It follows clearly from the CGIAR's overall mission that research results, in order to be efficient, should be effectively disseminated to the potential end beneficiaries. Moreover, one of the seven planks that define the vision and strategy of the CGIAR, is that the CGIAR should strengthen its role as a "catalyst, integrator, and disseminator of knowledge within the overall global agricultural research system".⁹ Attainment of these goals requires effective communication of research results to a wide range of audiences.

ILRI has developed a data management policy¹⁰ with the purpose of archiving data in a form so they can be shared with other research groups and collaborating partners and be made available for integrated studies, long term studies, different sorts of publications, and for the scientific community and the general public. This could serve as a model for other CGIAR Centers. Also, the CIAT Code of Ethics contains guidelines on data sharing, on confidentiality and on dissemination.¹¹

Principles

As members of an organization with the goal of producing publicly available research outputs within the fields of agriculture, livestock, forestry, fisheries, policy and natural resources management, the CGIAR Centers have a duty to disclose all findings that might benefit the poor by reducing poverty, hunger and malnutrition, in a manner that reflects honesty and transparency in research goals and findings. The dissemination of knowledge should focus on, and be tailored to the following audiences, under the principle that all have the right to know:

1. *The scientific community.* Research results and technical information should be communicated through scholarly, peer reviewed publication in order to provide an evidence-base for actions and policies, and a foundation for further research within the Center and by other scientists. Peer reviewed publication also serves as a basis for projected impact assessments, and as a

⁹ A Food Secure World for All: Toward a New Vision and Strategy for the CGIAR. TAC Secretariat, Food and Agricultural Organization of the United Nations, October 2002

¹⁰ Data Management Policy (Draft-1), ILRI.

¹¹ CIAT Code of Ethics, 2005.

source for evaluation and accountability of Center activities. Collaboration in the preparation of research papers for publication is also important for building local research capacity.

In addition, with adequate protection of privacy and confidentiality, data and documentation should be shared in a timely manner so that it is available for other researchers and the general public.

2. *Governments, private enterprises and NGOs.* These are the groups most likely to be able to act on research findings and thereby contribute to the goals of alleviating poverty and malnutrition in developing country contexts. While scholarly publications can be used for this purpose, a deliberate attempt to translate research findings into a more accessible format such as policy briefs and reports, is likely to be more effective.
3. *Potential beneficiaries of the research,* which may include communities and individuals. Local organizations, communities, and individuals need information to inform practices that may lead to outcomes such as improved agricultural or economic productivity. Hence, there should be a focus on translation of scientific information into practical messages and communication in multiple modalities.

Advice

Dissemination of research results to the scientific community should follow the principles (though not necessarily the details for manuscript preparation, formatting, and submission) articulated in the *Uniform Requirements for Manuscripts Submitted to Biomedical Journals*,¹² also known as the "Vancouver Rules", see Section 9. Decisions about when to disseminate information should balance urgency with careful evaluation of the scientific evidence.

Though peer-reviewed publication is necessary, it is not sufficient for achieving the CGIAR's goal. The translation of scientific results and their communication to policy makers and the public is a responsibility as well as an important challenge. Researchers should consider partnering directly with individuals who have more expertise in communication with these groups. Special efforts should be made to develop content and modes of communication to maximize accessibility and comprehension for all stakeholders. Consideration should be given to the development of public education tools that are not reliant solely on text.

¹² Uniform Requirements for Manuscripts Submitted to Biomedical Journals <http://www.ICMJE.org>

B. PARTIES AFFECTED BY THE RESEARCH ACTIVITIES

4. Research on human subjects

Background

The Nuremberg trials at the end of World War II brought to light the horrors of experimentation on prisoners conducted by Nazi doctors and scientists, and identified an urgent need for standards to guide the ethical conduct of research involving human subjects. The *Nuremberg Code*¹³ established a legal standard for such research. In 1964, the World Medical Association reinterpreted and expanded the Code to include medical research with a therapeutic intent. This new code of research ethics came to be known as the *Declaration of Helsinki*.¹⁴ In the United States, the National Research Act of 1974 established a National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research, which, in the *Belmont Report*,¹⁵ articulated basic ethical principles and guidelines for the ethical conduct of research with human subjects. Federal regulations were implemented in the US to insure the protection of human subjects of biomedical and behavioral research. Similar national statutes guide the conduct of human subjects research in other countries, but not all countries have appropriate statutes.

Several organizations have addressed the need for international guidelines. Representatives from regulatory agencies and industry associations of the United States, Japan and Europe formed the International Conference on Harmonization (ICH), to standardize the process by which new drugs are developed, tested and brought to market. Their *Guideline for Good Clinical Practice*¹⁶ establishes an “international ethical and scientific quality standard for designing, conducting, recording and reporting trials that involve human subjects.” Many pharmaceutical companies have voluntarily adopted these guidelines as the standard for conducting clinical trials. The Council for International Organizations of Medical Sciences (CIOMS), a non-government organization officially related to the World Health Organization and UNESCO has focused on the application of guidelines in developing countries. They have published *International Ethical Guidelines for Biomedical Research Involving Human Subjects*.¹⁷

The CIOMS guidelines identify a challenge of particular importance to the CGIAR. This is to “apply universal ethical principles ... in a multicultural world”. The guidelines take the position that human subject research must not violate any universally applicable ethical standards, but that the application of principles needs to take account of cultural values while respecting the absolute ethical principles. The guidelines emphasize the need for research conducted in developing countries to take account of factors which make the country or specific communities especially vulnerable to harm or exploitation from external scientific research. These include economic disparity, authoritative or corrupt political systems, lack of protection of human rights, lack of individual autonomy and lack of infrastructure for scientific/ethical review. Those who

¹³ The Nuremberg Code http://www.ushmm.org/research/doctors/Nuremberg_Code.htm

¹⁴ The Declaration of Helsinki. <http://www.wma.net/e/policy/b3.htm>

¹⁵ The Belmont Report <http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.htm>

¹⁶ International Conference on Harmonisation *Guideline for Good Clinical Practice* <http://www.ich.org/MediaServer.jserv?@ ID=482&@ MODE=GLB>

¹⁷ Council for International Organizations of Medical Sciences *International Ethical Guidelines for Biomedical Research Involving Human Subjects* (2002) http://www.cioms.ch/frame_guidelines_nov_2002.htm

are involved in international research should therefore have some understanding of and sensitivity to the social, economic, and political milieu that frames the context in which their research is taking place.

IFPRI has a document on the protection of human research subjects.¹⁸ The document states that the institute is guided by the ethical principles set forth in the Belmont Report. It is part of the institutional policy to have an Institutional Review Board. ICRAF has made policy guidelines on research ethics.¹⁹ These also refer to the Belmont Report; however, they do not go into detail about ethical review of research. Also, the CIAT Code of Ethics²⁰ contains guidelines for informed consent in research. Though the importance of an Institutional review Board or a similar body is mentioned, the guidelines does not set up standards for such a Board.

The present document presents standards that can provide for equivalent protections, while respecting local differences.

Definitions: A working definition of human subjects research is needed to enable organizations to make judgments about activities to which the guidelines may apply. According to the Belmont Report, *research* is an “activity designed to test an hypothesis, permit conclusions to be drawn and thereby to develop or contribute to generalizable knowledge (expressed, for example in theories, principles and statements of relationships).” Research is described in a formal protocol that sets out objectives and procedures. *Human subjects* are living individuals about whom an investigator obtains data through intervention or interaction with the individual, or identifiable private information.

In ordinary circumstances, the CGIAR is not involved in clinical research on patients. A typical kind of research that involves human subjects would be nutritional trials of biofortified staples produced by either conventional breeding or genetic engineering. Any negative impacts on health resulting from such trials would constitute a violation of that person’s right to health under the Universal Declaration on Human Rights and the International Covenant on Economic, Social and Cultural Rights. Another typical kind of research would be social science research with questionnaires involving identifiable private information.

Principles

All research involving the participation of human subjects should be guided by the following ethical principles:

Respect for persons: This requires an acknowledgment of autonomy, or the individual’s freedom to choose whether or not to take part in research, in the absence of coercion. Respect for the human person mandates informed consent, a process for ensuring voluntary participation in research after being fully informed and comprehending all procedures, risks, and benefits. Respect for the human person

¹⁸ Principles, Policies and Procedures for the Protection of Human research Subjects at the International Food Policy Research Institute. Assurance of Compliance with Federal Regulations for the Protection of Reseach Subjects. IFPRI 2003.

¹⁹ Research Ethics, ICRAF Policy Guidelines Series, 2004.

²⁰ CIAT Code of Ethics, 2005.

also demands protection of individuals with diminished autonomy and for individuals who are cognitively, or otherwise impaired.

Beneficence: Research should maximize benefits and minimize harm to participants.

Justice: There should be equal sharing of the burdens and the benefits of research. The principle of justice has important implications for the selection of research subjects, with special care taken to avoid the exploitation of poor communities.

Advice

Standards

1. *All research involving human subjects should be reviewed by a properly constituted ethical committee or Institutional Review Board and be approved by the committee before the research begins.*
 - a) The IRB/ethics committee should be comprised of a diverse group of individuals who possess expertise which allows them to understand the scientific merit as well as the ethical issues surrounding the research questions being addressed. Committee members should be familiar with the customs and traditions of the community in which the research is carried out. The committee members should be free from conflicts of interest, being independent of the investigator, the sponsor or any other undue influence. The committee should be in conformity with international law²¹, and the laws of the country in which it is operating.

*An International Compilation of Human Subject Research Protections*²² developed by the Office for Human Research Protections of the US Department of Health and Human Services identifies country-specific sources of information about laws, regulations, or guidelines pertaining to human subjects research.
 - b) The IRB/ethics committee should conduct careful reviews of all protocols for human subjects research to determine that:
 - risks to participants are minimized and are reasonable in relation to benefits
 - there are adequate provisions for obtaining the informed consent of each individual research participant
 - participation is voluntary and free from coercion
 - there are adequate protections to maintain participants' privacy and the confidentiality of information they provide
 - there are adequate protections for vulnerable individuals and populations (children, pregnant women, cognitively or otherwise impaired individuals, prisoners, members of disadvantaged communities)
 - there is an equitable distribution of burdens and benefits of research.

²¹ Core International Human Rights Instruments are available at:

<http://www.ohchr.org/english/law/>

²² Office for Human Research Protections, US Department of Health and Human Services (2005) **International Compilation of Human Subject Research Protections**

<http://www.hhs.gov/ohrp/international/HSPCompilation.pdf>

- c) Whenever possible, the IRB/ethics committee should be local to the research so that the views of persons knowledgeable about the prevailing community culture and norms can be taken into account. Ideally, each CGIAR constituent organization would have its own IRB/ethics committee or would establish an agreement with a local university or government committee. The committee should have expertise related to the range of research represented by the activities of the organization, be it clinical trials, or community based behavioral research.
 - d) For organizations wishing to develop their own committees, the Division of Ethics of Science and Technology of United Nations Educational, Scientific and Cultural Organization (UNESCO) has published a *Guide for Establishing Ethics Committees*²³.
2. *Research should be conducted with a high level of vigilance and high standards of institutional accountability.* Each institution conducting human subjects research should have a written, publicly available statement of its principles, policies and procedures for the protection of human research participants. Whenever research is conducted in collaboration with, or funded by a sponsor external to the performance site, the research should adhere to local laws as well as the procedures mandated by the sponsor's country. Investigators from institutions outside of the country where research takes place must respect the ethical standards of their own countries and the cultural expectations of the societies in which studies are undertaken, unless this violates basic ethical principles. For example, research conducted in collaboration with, or funded by, the US must conform to 45 CFR 46, the Code of Federal Regulations²⁴ that governs federally funded human subjects research.
 3. *Institutions should have a policy and a means to provide for education in the ethical conduct of human subjects research for all personnel who may be involved in such research.* Educational resources in several different languages are available. For example, many international organizations make reference to Family Health International's Research Ethics Training Curriculum for international scientists.^{25 26}

It should be noted that very poor people are particularly vulnerable and therefore require stronger protection. It is important to be aware of cases where there is doubt about whether consent is fully informed, e.g. due to illiteracy, or whether it is fully voluntary, e.g. because

²³ "Guide for Establishing Ethics Committees", Division of Ethics of Science and Technology of United Nations Educational, Scientific and Cultural Organization (2005).

<http://unesdoc.unesco.org/images/0013/001393/139309e.pdf>

²⁴ Code of Federal Regulations, Title 45 Public Welfare, Department of Health and Human Services, Part 46, Protection of Human Subjects, Revised June 23, 2005.

<http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

²⁵ Versions are currently available in English, French, Spanish, and Portuguese <http://www.fhi.org/en/RH/Training/trainmat/ethicscurr/index.htm>.

²⁶ Web addresses and documents are cited as these are most easily accessed. In many cases, the cited documents are publicly available on many websites such as the CODEX Rules and Guidelines for Research http://www.codex.vr.se/codex_eng/codex/ and the US Office for Human Research Protections <http://www.hhs.gov/ohrp/>

compensation for participation may imply that there is no free choice. In such cases, guardians should be appointed.

5. Research on Animals

Background

Contemporary research in the life sciences involves experimentation on live animals. This research is considered an important tool in the progress of science. Within the CGIAR system and affiliated institutions animal experimentation is primarily used in studies relating to human nutrition, in studies concerning biosafety of products and in studies relating to livestock production and health.

However, dating back to the nineteenth century the use of live animals for experimentation has given rise to controversies relating to an underlying ethical problem: Animals are used as tools with the aim of protecting humans against illness or to improve their wealth or quality of life. In the process animals may in various ways be harmed. Thus it seems that we allow animals to be harmed with the aim of making life better for humans. Even though the end may be good, it may be debated from an ethical point of view whether the end justifies the means.

In Europe, Northern America and Australasia the problem has been dealt with in the following way: Animal use is accepted, provided that care is taken to consider alternative means of achieving the same result, that care is taken to keep the animals under good conditions, and that great effort is put into designing experiments so that results can be achieved with no or a minimum of suffering for the animals. A parallel reason speaking in favor of good animal care is that lack of care leads to unreliable research results.

There are significant differences in legislation, regulations and policies across the continents. In Europe there is a system with binding rules enforced by governments, whereas in the US there is a more flexible system based on the idea of local Animal Care and Use Program that should be complied with by every individual and institution involved in animal experimentation.²⁷

ILRI has an Institute Animal Care and Use Committee. The panel is not aware of the guidelines set up for this committee; however, the committee has produced a detailed manual for Standard Operating Procedures for Animal Experimentation²⁸ to ensure animal welfare. The ICRAF guidelines on research Ethics²⁹ refer to the standards and practices developed by ILRI to be used when research has animal welfare implications.

²⁷ Relevant documents:

Bayne, K & deGreeve, P: An Overview of Global Legislation, Regulation, and Policies on the Use of Animals for Scientific Research, Testing, or Education, in Hau, J & Van Hoosier, GL (eds.) *Handbook of Laboratory Animal Science, Second Edition: Essential Principles and Practices*, Vol. I, Chapter 2, pp 13-31, 2002: CRC Press LLC, USA.

Animal Procedures Committee (2003). *Review of cost-benefit assessment in the use of animals in research*. Home Office, Communication Directorate: London. www.apc.gov.uk

²⁸ Standard Operating Procedures for Animal Experimentation, latest version by ILRI Institute Animal Care and Use Committee, 2004.

²⁹ Research Ethics, ICRAF Policy Guidelines Series, 2004.

Principles

Animals should be respected as sentient beings. Animal experimentation is only acceptable when substantial human benefits are at stake and animal suffering is minimized. The three Rs proposed by Russell and Burch³⁰ – the replacement of existing experiments with animal-free alternatives, or reductions in the number of animals used, or refined methods that cause animals less suffering – should guide animal researchers to ensure that animal suffering is minimized.

Advice

Whenever animal experiments are conducted at CGIAR institutions or at other institutions financed by CGIAR funds, they must be regulated by governmental authority set up for the purpose or within an Animal Care and Use Program in accordance with the following standards.

Standards

An Animal Care and Use Program must cover at least the following elements:³¹

An Institutional Animal Care and Use Committee. This committee should review all proposed uses of animals and has the responsibility for oversight and evaluation of the entire animal care and use program and facilities. The committee should consist of a minimum of five members. Of these at least one should be Doctor of Veterinary Medicine, at least one should be a practicing animal-research scientist, at least one should be a non-scientist; and at least one should not be affiliated with the institution in question. The committee should receive administrative support and should refer directly to the top management of the institute.

Education. All members of the Institutional Animal Care and Use Committee, all researchers responsible for animal experimentation, and all staff directly involved in handling and care of the animals should receive proper education and training. This should ensure that those responsible for animal experimentation are up to date with developments in experimental methodology, bearing in mind particularly the design of alternative methods. Those responsible for the housing and daily care of laboratory animals will ideally be equipped with a thorough understanding of the behavioral and physiological needs of the relevant animal species and know how to implement various form of environmental enrichment.

³⁰ Russell, W.M.S. and Burch, R.L., *The Principles of Humane Experimental Technique*, London: Methuen, 1959.

³¹ For more detailed descriptions of how to fill out the standards, reference should be made to one of the following guides:

ARENA (Applied Research Ethics National Association) and OLAW (Office of Laboratory Animal Welfare), NIH (2002). *Institutional animal care and use committee guidebook*. Second edition. OLAW, NIH: Bethesda, MD. <http://ftp.grants.nih.gov/IACUC/GuideBook.pdf>

Australian Government National Health and Medical Research Council (2004). *Australian code of practice for the care and use of animals in scientific procedures*. Australian Government. <http://www7.health.gov.au/nhmrc/publications/synopses/ea16syn.htm>

New Zealand National Animal Ethics Advisory Committee (2002). *Good practice guide for the use of animals in research, testing and teaching*. MAF: Wellington. <http://www.biosecurity.govt.nz/animal-welfare/naeac/papers/guide-for-animals-use.pdf>

Adequate veterinary care. At every facility where animal experimentation takes place there must be a veterinarian who has the authority to oversee key components of the Animal Care and Use program.

6. Intellectual Property Rights

Background

The CGIAR mission demands that the Centers can operate freely and can produce research results as international public goods. However, the situation is becoming difficult as a result of new national IPR regimes, rising local private sector investment in developing countries, and increases in the export of agricultural products based on proprietary science. The increasing importance of intellectual property rights (IPR) and proprietary science is leading to greater investment by the private sector in agricultural research (especially in the applications of modern biotechnology), but also to the commercialization of the processes and the commodification of the products of such research.

Given the importance of IPR, it is not surprising that the CGIAR has developed detailed guiding principles. There has also been a study on IPR strategies.³² In addition, several centers have made statements.³³ However, there are several versions of the CGIAR guidelines. The most complete version seems to be the one quoted as an annex in the ICRISAT statement.³⁴ The present panel confirms its support to the policy inherent in these guidelines. We shall quote some of the underlying values.

Principles

“The management of intellectual property by Centers will be guided by the CGIAR mission to contribute to food security and poverty eradication in developing countries through research, partnerships, capacity building and policy support. The Centers will manage intellectual property issues with integrity, equity, responsibility and accountability.”

Advice

- *The CGIAR does not view the protection of intellectual property as a mechanism for securing financial returns upon which it may depend. To the extent that such returns are generated, they will be used in support of specific tasks and projects fully compatible with the CGIAR mission and objectives.*
- *The CGIAR promotes ready access to breeding material for breeding and research activities. Subject to the paragraph below, the CGIAR regards any information, inventions, processes, biological material or other research products funded or developed by the CGIAR or the Centers (research products) as international public goods to be used in furtherance of its mission. Full and timely disclosure of research results and products in the public domain is the preferred strategy for preventing misappropriation by others.*

³² Strategies for the CGIAR to Conduct Research and Deliver Technological Innovation that Benefit the Poor in a Context of Intellectual Property Rights., 2005.

³³ Policy of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) on Intellectual property Rights (IPR). ILRI's Policy on Intellectual Property Rights, Biosafety and Bioethics, 2000. Assessment of Third Party Property related to the Challenge Program on Water and Food.

³⁴ ICRISAT Guiding Principles on Management of Intellectual Property Annex I, 2000. http://www.icrisat.org/ip_management/policy.htm

- *Recognizing there may be times when using intellectual property is a necessary or preferred means to pursue CGIAR and Center objectives, Centers may consider acquiring and managing intellectual property in research products developed or funded by the Center when to do so would:*
 - a) *support public and private partnerships which pursue mission-based research or which develop and apply research results;*
 - b) *assure ready access by others to research products developed or funded by the Center;*
 - c) *ensure the Center's ability to pursue its research, together with its partners, without undue hindrance;*
 - d) *facilitate the transfer of technology, research products and other benefits to the resource poor including, where appropriate, through commercialization or utilization of research products; and/or*
 - e) *facilitate the negotiation and conclusion of agreements for access to proprietary technologies of use to the Center's research and in furtherance of its mission.*

The CGIAR has a duty to engage the private sector, universities, advanced research institutes, National Agricultural Research Systems, and other organizations to use the Centers' research products in order to bring them to bear on the opportunities of poor people. The CGIAR should actively negotiate to minimize any restrictions of third party IP for innovative technology associated with its mission, and that which may benefit people in developing countries. Engagement with the private sector should follow the guidelines outlined in Section 10.

7. Biodiversity

Background

Perhaps no single input is as important to the work of the CGIAR as genetic resources. Hence, the CGIAR has been playing a leading role internationally, regarding plant and animal genetic resources and biodiversity.

Ethical issues relating to genetic resources and biodiversity include erosion and species loss; bio-prospecting; collection, characterization and conservation (both *in situ* and *ex situ*) of genetic resources; ownership and control of and access to plant genetic resources and to improvements; equitable access and sharing of the benefits deriving from plant genetic resources; and the patenting of plant genetic resources.

The issue of biodiversity is regulated by the *Convention on Biological Diversity*. The issue of genetic resources was the first area, in which the CGIAR made a statement on ethical principles.³⁵ The CGIAR guidelines on IPR also covers the issue of genetic resources.³⁶

Principles

The guiding principle is the CGIAR's commitment to maintain genetic materials and bio-control agents in its collections in the public domain and to ensure access to, and free and equitable exchange of such materials. Designated germplasm is held in trust for the world community and the CGIAR is obliged to conserve, maintain, study, improve, and distribute germplasm world-

³⁵ CGIAR's *Ethical Principles Relating to Genetic Resources*. www.cgiar.org/corecollection/docs/sgrp_policy_booklet_2003.pdf

³⁶ ICRIAT *Guiding Principles on Management of Intellectual Property* Annex I, 2000. http://www.icrisat.org/ip_management/policy.htm

wide for use in agricultural research and development. The CGIAR has a responsibility for safe and secure conservation of these In-Trust genetic materials for present and future generations, including their duplication in at least one other location for safety.

The CGIAR recognizes the contributions of farming and indigenous communities to the conservation and enhancement of local genetic resources. The CGIAR furthermore recognizes the right of these communities to benefit from these resources. However, the CGIAR is also committed by its duty to ensure equitable access to genetic resources and cannot, as a general rule, support exclusive rights for particular communities.

Utilizing local genetic resources sometimes conflicts with the duty to respect wildlife and to protect valuable non-cultivated areas. The CGIAR should encourage solutions that minimize such conflicts.

Advice

The CGIAR is in principle committed to regard any information, inventions, processes, biological material or other research products funded or developed by CGIAR as international public goods to be used in furtherance of its mission. To achieve this in practice some measures to protect intellectual property rights may be required to be put in place. The CGIAR should promote ready access to breeding materials for breeding and research activities; where appropriate this should include new genetically modified varieties that can be made available when they are off patent (and perhaps even when they are on patent by licensing at nominal rates). The CGIAR encourages germplasm donors to permit the designation of material in accordance with the 1994 agreements with FAO.³⁷

The CGIAR recognizes the expertise of many national and international NGOs on equity, gender, conservation, sustainability, and nature protection issues. The CGIAR therefore commits itself to engage in dialogue with these organizations according to the principles outlined in Section 2, and can, where appropriate, form partnerships with them to integrate these concerns in research on genetic resources.

8. Biosafety and Risks

Background

Biosafety is an issue clearly important to the CGIAR. A panel on biosafety reported in 2002 to the SC of the CGIAR³⁸ and made 12 specific recommendations:

- *Enhance CGIAR Centre Biosafety Policies*
- *Enhance Capacity Building in National Biosafety Policies and Practices*
- *Strengthen Centre Capacity in Biosafety Practice and Research through Pro-active Approaches to Biosafety*
- *Develop an Integrated Approach to the Practice of Biosafety in the Centers*
- *Establish a CGIAR System Biosafety Network*

³⁷ The FAO-CGIAR Agreement on Genetic Resources. The FAO International Undertaking of Plant Genetic Resources for Food and Agriculture.

³⁸ Report of the Biosafety Panel to the CGIAR Science Council on Biosafety Policy and Practices of the CGIAR Centers

- *Increase Biosafety-related Research by the Centers*
- *Publish and Communicate Results of Biosafety Research*
- *Prepare for Forestry and Fisheries Biosafety Issues*
- *Undertake more Risk/benefit Analysis*

Develop Plans for Preparing Risk Assessment Dossiers for Product Approval

Better Address Bioethical Issues

- *Initiate a CGIAR System-wide Biosafety Workshop to Plan Implementation of the Biosafety Panel's Recommendations*

The present panel acknowledges the ongoing work in this area. Particularly, we note the panel recommended that the Centers should “better address bioethical issues”, and to this purpose, the panel further recommended that each centre maintain a standing ethical committee to give advice on biosafety. This report was endorsed in principle by the Science Council, but the means by which the CGIAR might proceed to implementation was qualified in an SC Commentary. Most importantly, the SC did not see any important ethical difference between Genetically Modified Organisms (GMOs) and organisms produced by traditional breeding. The present panel fully approves of the recommendations with this qualification added and it shall not add any further advice in this respect. However, it might be useful, in context of these guidelines, to clearly state the underlying values in the concern for biosafety.

An area of special concern is the risk of unintended effects of CGIAR research. Examples could be farmers’ participation in participatory breeding or resource management experiments which alter the efficacy of former genetic or natural resource use by the participants involving risks of greater reliance on monocropping, unsustainable input levels and the like. Another example could be community management experiments involving a risk of gradual exclusion of people rather than inclusion. Even though such research does not, in the technical sense, involve human subjects, some of the same doubts about informed consent can arise here: Does the poor farmer understand the risk of participating? Is there a truly free choice?

We should also like to mention the CIAT Code of Ethics,³⁹ which states that “CIAT scientists takes steps to implement protections for the rights and welfare of research participants and other persons affected by the research” and “In planning and implementing research CIAT scientists consult those with expertise concerning any special population or agroecosystem under investigation or likely to be affected”.

Principles

The general principle at stake here is that the duty to benefit the poor is constrained by the principle of respect for persons. Biosafety becomes an ethical issue for the CGIAR because a technology or a policy used in the pursuit of the objective of reducing poverty, hunger and malnutrition often to some degree involves risks of unwanted outcomes. It is wrong to sacrifice individuals in the pursuit of benefiting the poor. It is also wrong to expose others to serious risk of harm in the pursuit of benefiting the poor. Similarly, it is wrong to harm the environment or to expose the environment to serious risk of harm.

In the case of Genetically Modified Organisms (GMOs), these risks are often regulated, such that GMOs only can be approved in cases where a risk assessment has demonstrated that the risk of

³⁹ CIAT Code of Ethics, 2005.

unwanted effects is acceptably low. However, as the SC rightly points out in its comments to the report on biosafety, there are biosafety issues, and thus ethical problems, also for traditional types of breeding, even though they are not regulated.

Another issue concerns uncertainty about how well a means will achieve the overall objective of reducing poverty, hunger and malnutrition. Thus, certain technologies or policies might involve serious risks, e.g. of an environmental catastrophe, and thereby endanger the long term achievement of the overall objective. Through its commitment to sustainable development, the CGIAR clearly has a duty to adopt a precautionary approach which seeks to find beneficial solutions that avoids unnecessary risk-taking in the short term and which obviates endangering future possibilities of reducing poverty, hunger and malnutrition.

The Precautionary Principle, as it is used in most contexts, is a principle allowing governments to enforce restrictions or bans on technologies or products not just in case of a scientifically documented harmful effects at an unacceptable level on human health or the environment, but also when there is a scientifically-based worry of such harmful effects. What we mean by a precautionary approach, in this context, is an approach where the agent, when comparing relevant alternatives of action including doing nothing, seeks to avoid unjustified risks or unduly high stake risks. Clearly, in very poor countries, a continuation of the status quo is very likely to have serious harmful effects in terms of continued poverty, hunger or malnutrition. The risk of alternatives to the status quo should be judged in the light of this fact; however, there is still reason to be aware of risks and particularly to avoid high stake risks for future generations.

Advice

Biosafety issues should always be handled through dialogue with the relevant stakeholders as outlined in Section 2, in order to choose means where the risk of harm to others or to the environment is acceptably low for all affected parties. National regulation of risks should of course always be respected.

Ethically speaking, in the areas not regulated, there is no clear limit for how serious a risk of harm must be before it is wrong to expose others to it without their consent. Thus, in some cases there could be a dilemma, when the risk for others in question is considered low, and the consequence of avoiding running the risk is a serious constraint on achieving the objective of benefiting the poor. In such cases, the balancing between the concern for biosafety and the duty to benefit the poor should involve the affected stakeholders.

Research involving participation by vulnerable groups, e.g. very poor farmers, should be reviewed by an ethical review board, and guardians should be appointed where necessary.

C. THE INTERNAL SCIENTIFIC PROCESS

9. Good Scientific Practice

Background

Science has evolved from ideals such as truth, objectivity, openness and rationality. Scientists are brought up to respect these ideals of science throughout their education. However, massive structural changes pose challenges for maintaining the integrity of science. Scientists are involved in hard competition to get funding, and therefore they are under a strong pressure to present results. Scientists also have become increasingly specialized, and they are almost exclusively evaluated by their peer-reviewed international publications. Hence, an increasing number of scientists may be tempted to engage in dishonesty or even fraud in the production and presentation of scientific results in order to pursue their career interests. Problems with scientific dishonesty include practices such as fabrication of data, misleading or distorting interpretation or presentation of results, plagiarism and inappropriate credit for authorship.

ICRAF has produced a good discussion paper which makes it clear that scientific dishonesty is a possibility of which the CGIAR Centers have to be aware.⁴⁰ The CIAT Code of Ethics contains guidelines for a number of issues like scientific standards, competence, use and misuse of expertise, delegation and supervision, non-discrimination and non-exploitation, harassment, employment decisions, conflicts of interest.⁴¹ The code also has guidelines for reporting of research, plagiarism, authorship credit, publication and review, and education and training.

Principles

The fundamental value at stake is the integrity of science. Ideally speaking, science is the search for the truth through rational and openly documented procedures, serving all mankind. If individual scientists seek to further personal interests through deceitful or fraudulent conduct, the integrity of science is threatened, because the scientific enterprise as a whole is called into question. The integrity of science builds on the fact that scientific results are open for public scrutiny. But it is also dependent on the integrity of scientists. Scientists must be reliable in their production and presentation of results. Hence, science as an institution needs to protect its integrity by fostering good scientific practice among scientists. Also, it needs to detect scientific dishonesty and seek to eliminate it from the scientific corpus.

Advice

The Centers need to state and enforce clear policies on good scientific practice. We recommend that the CGIAR formulate common policies on the presentation of research protocols, data documentation and data storage, and interpretation, presentation and publication of results. The *Ryan Commission Report on Research Integrity*⁴² provides guidelines on these issues.

In order to ensure adherence to the norms of good scientific practice throughout the CGIAR system, we suggest that the policies be taught in training courses for the staff. It is the responsibility of supervisors to ensure that the norms of good scientific practice are known and

⁴⁰ ICRAF: Scientific Fraud, Research Discussion Paper 1.

⁴¹ CIAT Code of Ethics, 2005.

⁴² Integrity and Misconduct in research: Report of the Commission on Research Integrity, <http://www.faseb.org/opar/cr.html>

adhered to by the entire staff. This also implies that supervisors motivate staff by making sure they understand the context and reasons for the work. Unreasonable requests or work loads should not be imposed.

Concerning authorship and publication, we suggest the CGIAR adopt the Vancouver rules⁴³ as its standard for good scientific practice. While this guidance was developed for biomedical publications, the principles relating to ethical considerations in the conduct and reporting of research and aspects of publishing, and editorial issues related to publication are applicable to all scientific disciplines. In relation to authorship, the main point of these guidelines are:

Authorship credit should be based on 1) substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data; 2) drafting the article or revising it critically for important intellectual content; and 3) final approval of the version to be published. Authors should meet conditions 1, 2, and 3.

It is particularly important that the contribution of all members of the research team, including local and external scientists and non-research partners be appropriately credited, either through authorship, contributorship or formal acknowledgement. An author shall have contributed substantially to the research process, s/he shall have contributed substantially to the preparation of the manuscript and s/he shall take responsibility for appropriate portions of the content. We recommend that a comprehensive *co-author statement* should be prepared and signed by all authors, describing precisely the nature and extent of each author's contribution without using stereotypical language.

Also, the CGIAR should have a formal system to which complaints about serious scientific misconduct can be lodged for investigation and judgment. We recommend that the CGIAR set up common rules for the handling of scientific fraud. These rules should prescribe an independent committee, based within the Science Council, to which substantial doubts about the honesty or integrity of a work can be referred and appropriately pursued. The committee should conduct a full investigation and make a determination adhering to due process standards. The rules should also describe the relevant sanctions in the event of demonstrable fraudulent behavior.

10. Handling and Receiving Funding

Background

Objectivity and integrity of researchers are essential values in scientific research, and form the basis for public trust. A conflict of interest arises when a researcher or employee of an organization has competing professional and personal obligations or financial interests that would make it difficult to fulfill his or her duties objectively.

Within the CGIAR, activities related to improvement of commodities, plant and animal genetics such as plant breeding for improved micronutrient content of foods have potential for economic gains and thus require careful scrutiny. Concerns are raised when financial considerations may compromise or have the appearance of compromising an investigator's professional judgment

⁴³ Uniform Requirements for Manuscripts Submitted to Biomedical Journals: Writing and Editing for Biomedical Publication. <http://www.ICMJE.org>

and independence in the design, conduct, or publication of research. As for receiving funding, a principal question is how to deal with such conflicts of interests.

The CGIAR's internal funding decisions concern the use to which funds are put, particularly prioritizing between research fields. The CGIAR also makes funding decisions when it chooses between partners in Challenge Programs through running competitive tenders. We envisage two types of conflicts concerning the handling of funding within the CGIAR system. One is concerned with the cases where a scientist or Board of Trustee Member within the CGIAR is both a potential receiver of funding and member of a funding committee. The other is the conflict between funding allocated through open competition and funding allocated to special issues or to the benefit of special areas or the like. The general trend is that more and more funding is allocated through open competition, because open competition is believed to be the best guarantee for scientific quality and freedom from conflict of interest.

ICLARM (now the WorldFish Center) has a policy on partnerships⁴⁴ which states guidelines for collaboration with partners such as government and non-government national institutions, advanced scientific institutions, regional and international organizations, research centers, individual scientists, the private sector and participating farmers or fishers. Similar guidelines would be useful for all Centers. The CIAT Code of Ethics⁴⁵ contains guidelines on conflicts of interest and contractual and consulting services.

Principles

It is important to avoid not only actual conflicts of interest, but also apparent and potential conflicts in order to maintain the public's trust. Concerning receipt of funding, the guiding principle should be that the CGIAR only accepts such funding if it is compatible with the overall mission of the CGIAR and the duty to keep research a public good. In all cases of funding and collaboration, there should be transparent declaration of interests from the involved parties.

Funding decisions within the CGIAR system should be free from conflict of interest, and the process by which decisions are made should be transparent. Decisions about funding should consider the duties and responsibilities of the CGIAR to all of the communities that it serves. First and foremost, the CGIAR has the duty to do research that actually benefits the poor. Second, the CGIAR has a duty to do the best science possible and to strengthen the scientific capacity in local communities. Finally, the CGIAR has a duty to choose the most cost-effective means to benefit the poor through methodologically sound science.

Advice

Centers should maintain a written policy on conflict of interest which is enforced to protect the integrity of the scientific process, the missions of the institutions, the investment of stakeholders in institutions and public confidence in the integrity of research. This policy should establish requirements for disclosures of conflict of interest.

Evaluation of the potential for conflict of interest should be part of the review of research protocols conducted by institutional review boards or ethics committees, since the protection of human subjects requires objectivity in communicating risks, selecting subjects, promoting

⁴⁴ Policy on Partnerships in Research and Related Activities, ICLARM.

⁴⁵ CIAT Code of Ethics, 2005.

informed consent, and gathering, analyzing and reporting data. As for funding from the private sector, we believe the Alliance of Future Harvest Centers of the CGIAR has provided useful guidelines:⁴⁶

As such, fund raising is not the focus for collaboration with the private sector but, rather, partnerships with the private sector will be entered into when they serve to enhance the capability of the Center to deliver to its stakeholders and collaborators the best quality science aimed at meeting the Center and CGIAR objectives and goals.

- *The CGIAR policy on these matters is that we will enter into such arrangements only if they complement and enhance a Center's ability to achieve its mandate of service to the resource-poor and the environment. In simple terms, will a particular agreement help us to more quickly develop new, appropriate technologies and/or deliver them to beneficiaries in developing countries?*
- *Wherever possible, the terms of the collaboration will be consistent with the International Public Good's basis of the Center's work and the use of its products. Where products of the partnership cannot be so protected, the Center will ensure that our target beneficiaries, the poor in developing countries, can gain from the products of the partnership.*
- *As the nature of the CGIAR changes to include more research arrangements with advanced research institutes both public and private we believe that it is important that the best efforts should be exercised to ensure that the major partners are well informed of the arrangements with the private sector.*
- *Private sector collaborations will be governed by appropriate, time-bound legal contracts and memoranda of agreement which will clearly define the Center's obligations and protect the Center from potential liabilities.*
- *Where other major research partners have been directly involved in research and related activities of relevance to the private sector partnership, best efforts should be exercised to obtain the agreement of these partners before entering into arrangements with the private sector.*
- *The Center will follow good business practices such as efficient use of resources, respect for legal contracts and confidentiality provisions. In the specific area of IP the Centers shall act in a manner fully consistent with national and international law in this area, while ensuring that issues such as exclusive licensing is only adopted when clearly consistent with the best interests of its beneficiaries as indicated in other provisions of these guidelines.*
- *Centers will not accept funding from private companies that could reasonably create a conflict of interests or in any way compromise the objectivity of the results of work carried out.*

Staff within the CGIAR system participating in committees that allocate funding have a duty to declare any real or potential conflict of interest. Persons whose conflicting interests may raise questions about their ability to make fair decisions should withdraw from decisions about funding, on their own initiative.

In general, scientific quality is best served by allocating funding through open competition. However, there might be cases, where funding to an important and potentially beneficial topic cannot be allocated through open competition, because there is only one competent research group within the area. In these cases, it should be possible to allocate earmarked funding directly.

⁴⁶ Alliance of Future Harvest Centers of the CGIAR: "Guidelines for center modes of collaboration with the private sector", May 2005, WorldFish Center, Penang, Malaysia.

However, it is important to note that all science – including science funded through earmarked money – should be reviewed for quality, i.e. through peer review from independent experts. Regardless of how this balancing plays out, it is important that the CGIAR is transparent about the conflicting values at stake and how the balance is struck in a particular instance.

STUDY III

Ethics and the CGIAR Mission⁴⁷

The report has been prepared by an independent panel consisting of Peter Sandøe (chair), Gebisa Ejeta, Michael Lipton and with the assistance of Karsten Klint Jensen and Peter Gardiner, and was submitted in August 2008

The Report was considered at the 10th Meeting of the Science Council at the Royal Museum for Central Africa, in Tervuren Belgium, 2-4 September 2008 and the SC finalized its Commentary on the report in October 2008

⁴⁷The panel acknowledges the inputs of two external reviewers of an earlier version of the manuscript.

Science Council Commentary on Panel Report: Ethics and the CGIAR Mission

October 2008

Overview

The Science Council (SC) discussed the report “*Ethics and the CGIAR Mission*” at SC-10 (September 2008) following a presentation by Professor Sandøe (the Chair of a four member panel) of a synopsis of the Panel’s findings.⁴⁸ The report, the third of a series of SC commissioned studies of Ethics, considers the ethical implications for the organization of possessing and trying to implement its mission statement. The Report has been written to induce thought about the system’s goals and the dilemmas in designing research to reach those goals, rather than attempting to solve these for every possible situation. The Report provides important guidance that should be considered in the design and implementation of research programs to tackle the long term goals of the system. Following the consideration of this study by ExCo the SC will consolidate and publish the three studies of Ethics for the CGIAR.

Synopsis of the Panel’s summary and recommendations

The panel describes the ethical problem of poverty as a lack of welfare. However, it is useful operationally for the CGIAR to state its goal in terms of food insecurity, poverty, hunger and malnutrition, as these can all be thought of as indicators of poor welfare. The Panel therefore endorses the CGIAR’s mission as being principally focused on the two main stated goals, poverty alleviation and sustainability.

- While acknowledging the complex relationship between hunger and poverty, the Panel suggests CGIAR to focus on *poverty that translates into food insecurity*.
- The Panel recommends *micronutrient deficiency* be given more emphasis, so that under-nutrition and micronutrient deficiency are considered with equal priority.
- The Panel argues that the ethical goal of the CGIAR should place a stronger emphasis on fighting the serious inequality (and the resultant hunger and malnutrition) facing the very poor.
- In considering the ethical values underlying the CGIAR goals and mission, the Panel recommends explicit reference be made to *empowerment* as an important value, and as a goal in itself, in addition to poverty alleviation and sustainability.
- Regarding the issue of sustainability, the Panel observes that the CGIAR is not primarily concerned with intergenerational equality, but rather with the inequality within the present generation and the equitable sharing of costs and benefits. The Panel recommends that nature

⁴⁸ The current Report is the third SC-commissioned study of Ethics following “[How Should the CGIAR Handle Ethical Challenges? - Issues and Proposals for a Strategic Study](#)” (August 2004) and “[Ethics and CGIAR Research](#)” (November 2006). The first study reflected generally on ethical approaches and discussed in which areas of the System’s undertaking a more detailed evaluation of ethical considerations would be most important. The second study (of 2006) considered the practical aspects of how to ensure that ethical guidelines and principles were being followed in the conduct of CGIAR research. The overarching recommendation from that study, endorsed by the SC, is the need for the Alliance of CGIAR Centers to develop and adopt system-level ethical guidelines against which matching Center-level policies should be developed.

protection, while not a direct goal of CGIAR research, must be an important element to consider in the context of the possible effects of agriculture on “wild nature” (a term used by the Panel to encompass ecological values including ecosystem services and natural biodiversity).

- The Panel stresses that resource allocation must be considered to bring optimal result in accordance with the goal and mission of the CGIAR, viewed in light of its underlying principles as well as its comparative advantage over other agencies.
- The Panel underlines the need for CGIAR to maintain its world-wide focus, even if some Centers specialize in the concerns of particular regions. It recognizes, however, that there might be cases of serious regional problems that would be ethically compelling for CGIAR to give more weight. The Panel therefore places more stress on the maintenance of access to the products of CGIAR research rather than a strict interpretation of international public goods.
- Recognizing the importance of listening to the end-users of CGIAR’s research, the Panel recommends partnerships to be thought out with proper division of labor allowing engagement of all relevant stakeholders in the chain from discovery to delivery.
- The Panel recommends that the ethical need for the CGIAR and its donors is to maintain its focus on the long-term mission, rather than moving away in order for the Centers simply to survive.

SC Comments on the report and the recommendations

The Panel focused on and endorses the *vision, mission and goals for the CGIAR* encompassed in the 2002 statements of its strategic framework.⁴⁹ The SC notes that, as of May 2008, ExCo has endorsed a draft statement for a new vision and mission of the CGIAR.⁵⁰ However, the SC believes that the Panel findings and suggestions on the 2002 CGIAR vision are still relevant, particularly as the CGIAR finalizes the proposed reforms in the forthcoming months.

The Panel provides a critical ethical assessment of the goal statements and identifies issues and dilemmas in matching intent to the implementation of research. The Report notes that the CGIAR’s research mission hinges on improving the welfare of the poor and that, as welfare has a number of dimensions, it is expedient for the CGIAR to continue to state its goal in terms of food insecurity, poverty, hunger and malnutrition. The Panel assesses that the CGIAR’s principle contribution will be to provide advances to improve “nutrition security”, a term intended to recognize the dual targets of energy nutrition and “hidden hunger” (or micronutrient deficiency). The Panel believes that the former has always been at the forefront of CGIAR considerations but suggests that ethical considerations demand that both targets be tackled equally. The SC confirms

⁴⁹ CGIAR (2002). *Vision: A food secure world for all. 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, livestock, forestry, fisheries, policy and natural resources management.*

⁵⁰ CGIAR (2008) Report of Working Group 1, Change Management Process. *Vision: to reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high-quality international agricultural research, partnership and leadership. Mission: to be proactive and forward-looking global leader, catalyst and partner of choice in the conduct of international agricultural research for development, harnessing human ingenuity and innovation, leading to the empowerment of the poor, especially women, to overcome poverty, hunger and ill-health and to sustainably manage and enhance natural resources in the face of climatic and socio-economic change.*

the Panel's suggestion that redressing energy under-nutrition and micronutrient insufficiency of the poor are, ethically, equal in importance. However, because of the differences in research strategies and methods required for these complementary approaches ethical importance will not necessarily translate into direct equivalence in research dollars spent on the two approaches.

The Panel's Report discusses the poor as target and beneficiaries of the work of the CGIAR noting that CGIAR planning should make transparent which classes of poor are being targeted by CGIAR programs and how. The Report draws attention to the classes of the poor and considers that research should be designed so that it does not exacerbate inequalities amongst the classes of the poor. The Panel interpret the 2002 CGIAR vision document as strengthening the tendency to give additional weight to the very poor and recognizes the challenge this poses for the CGIAR when some (many) aspects of poverty are caused by local circumstances, vis-à-vis the global orientation of the CGIAR's agricultural research. The Panel therefore urges that programs to be developed are clear about their aims and tradeoffs and the involvement of partner agencies and their tasks in carrying the design through to provide the likely impacts from the intent of the research. The SC welcomes the Report's discussion of poverty and degrees of poverty and the need for clarity in setting long term research goals and impact pathways. The discussion also has relevance to the discussion of the CGIAR's role as supplier of IPGs and in development outcomes at a local level.

The Panel notes that whilst empowerment is not explicitly stated as a CGIAR goal, it is implicit in much of the CGIAR's *modus operandi*, through capacity building of national programs (which may in turn provide assistance to poor farmers, for instance). As the Panel note, hunger and poverty are very disempowering and so improving human capacity would seem to be an ethical imperative and to provide opportunities for self help in overcoming disadvantageous circumstances. The Report argues that empowerment should be made a more explicit goal of the CGIAR as an ethical consideration in its own right and not just as an efficiency argument. The SC notes that the suggestions of Working Group 1 (WG1) of the Change Management Process in their review of the CGIAR mission have similarly placed emphasis on empowerment. The SC notes that empowerment of collaborating scientists and other members of national programs is inherent in much of the CGIAR capacity building allied to the system's research function, but that it becomes more difficult to empower smaller groups and individuals directly through research approaches. Thus, whilst welcoming the statement of empowerment as an additional goal, the SC recognizes that to reach down (beyond NARS towards small groups and individuals) is best done through partnership with the appropriate agents and cannot be interpreted as the CGIAR working with all the poor. However, the overall aim should be to empower individuals and the CGIAR may need to give more evident emphasis to this goal in its capacity building strategies, particularly through the tailoring of knowledge and through engaging with relevant partner organizations.

In contrast, the SC finds that the Sandøe Report places less emphasis (than did the WG1 paper) on gender, discussing instead the several dimensions of generational equity, of which gender is one. The gender dimension of agriculture research is important, particularly in many developing countries, by way of the predominance of women as farmers and therefore the main users of technology. The SC also confirms the broader perspective of the Ethics Panel's Report which urges that balanced approaches to research would seek to ensure that they not promote particular groups of the poor to the disadvantage of any other groups of poor.

The Panel firmly recommends that in tackling nutrition security, the CGIAR's primary interest in undertaking environmental research is to protect and enhance the sustainability of food systems of the poor. According to the Panel, the main role of the CGIAR is not to do work directly on the protection of nature. Rather, the role should be to consider the implications of innovation in agriculture on nature and environmental provisions. Where there are cases to be made, the CGIAR should enter into appropriate partnerships and ensuring that the very poor are not inequitably burdened with the costs of resource management. When considering intergenerational equity, the Panel considers that, ethically, the specific concern of the CGIAR should be for future food insecure people, rather than the general welfare of all "future" people. The SC notes that recent CGIAR literature focuses more on "resilience" rather than sustainability of natural resource systems. The SC confirms that a poverty focus should underpin the natural resources management research and that research on (what the Panel refers to as) "wild nature" should only be undertaken with this distinct rationale in mind and preferably in partnership with appropriate environmental research agencies.

Turning to criteria relating to implementation of research, the SC welcomes the Report's good description of when and under what circumstances the CGIAR would enter into research programs. The Panel notes that issues may vary regionally and that the context of poverty may require local solutions. Thus, the Report recognizes that there is a tension between helping the very poor and the ability to conduct internationally oriented research. The Panel further questions whether the strict application of the term "international public goods" is useful (even allowing for a broader understanding of the term in the CGIAR). Ethically, the Panel suggests, the commitment of the CGIAR should be instead to the non-exclusive access to CGIAR results and knowledge. In promoting the concept of IPG, the SC has placed emphasis on the intent of research to provide wide spillovers, so that this in turn helps to identify the character of the research and the CGIAR entry point (differentiated from the competitive advantage of others). The SC will continue to analyze the practical implication for describing the scope of CGIAR research as IPGs (e.g. at a workshop on this topic jointly organized with the Alliance Deputies at AGM08).

The Panel's views on the need to map out partnerships and (size of) impacts are directly akin to impact pathway analysis which the SC has urged should be more precisely carried out (e.g. through current MTPs). For the poor to benefit from new technologies, the risk assessment calculations of the poor will have to be accommodated. Whilst in general agreement, the SC notes that the Report has adopted a somewhat mechanical view of activities and impacts (more akin to development projects) rather than accommodating the serendipitous nature of some impacts which can result from hypothesis testing and research. This in turn demands transparency and understanding of the nature of the results the CGIAR expects to deliver.

Finally, the Report notes that there is a need in the developing world in general, including the poor, to continue to increase agricultural productivity. This challenge, plus the underlying natural resource management issues, requires long term research. Because of the multifaceted nature of poverty, poverty traps etc, poverty alleviation is often dependent upon many other simultaneous advances as well as agricultural change. The CGIAR and donors should be more transparent and more realistic about what can be accomplished in the time frames given for research to avoid unethical "gaming" and unfulfilled promises to either the sector or the intended human beneficiaries. The Panel confirms that the CGIAR Centers should adhere to the long term goal of the CGIAR and not deviate from this goal simply in order to survive and that it cautions on the practice of over stating the likely benefits of the research outputs.

The SC notes that the discussion of empowerment, poverty and degrees of poverty should encourage the CGIAR to consider how to frame research to make its aims transparent. This is linked to the reduced use of rhetoric and more effective planning of partnerships and impact pathways i.e. the need to match realistic claims to the likely deliverables of the CGIAR now and in the future. The SC suggests that the CGIAR enter these ethical considerations into the design and development of new collaborative and impact-oriented research programs.

Ethics and the CGIAR Mission

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Summary and Recommendations

The Report provides a critical ethical analysis of the values underlying the CGIAR goal and mission with the aim of understanding the underlying ethical concerns and dilemmas involved.

The panel describes the ethical problem of poverty as a lack of welfare. However, it is useful operationally for the CGIAR to state its goal in terms of food insecurity, poverty, hunger and malnutrition, as these can all be thought of as indicators of poor welfare. The Panel therefore endorses the CGIAR's mission as being principally focused on the two main stated goals, poverty alleviation and sustainability.

Because of the multifaceted nature of severe poverty and the existence of poverty traps, the relation between hunger and poverty is not a simple and uniform one. Again, from the perspective of welfare, the panel suggests that CGIAR's main concern should be with that type of poverty that translates into food insecurity. Thus, the CGIAR's main means to address its goals is through research on the provision of food through Agriculture. The CGIAR has put most weight so far on addressing energy under-nutrition and less on 'hidden hunger' (micronutrient deficiency). However, judged from the effects on welfare, the panel thinks that under-nutrition and micronutrient deficiency should be given equal priority.

In balancing work on sustainability, the panel suggests that conducting research concerning nature protection *per se* is not a main role of the CGIAR. However, an important element of research concerning innovation in agriculture must be to consider possible side effects on wild nature; and it must be important for the CGIAR to build strong alliances with institutions set up to protect natural biodiversity.

As part of the discussion of poverty alleviation, the panel argues that *empowerment* should be considered as an important value and a goal in itself. Increased concern for the very poor also implies strong weight on empowerment of the very poor. However, the panel does not underestimate the great challenge for the CGIAR, while being efficient as regards the goal of long-term food and nutrition security, to at the same time to work for enhancement of empowerment – in the last resort for individuals. Appropriate partnerships with agencies more directly connected to the poor are encouraged.

Ethical considerations can also assist in the choice of research and issues such as how to balance size of impact against the focus on helping the very poor. The ethical goal of the CGIAR should be to fight, at all times, the serious inequality arising from some people living with a welfare level so low in absolute terms that they face hunger and malnutrition. This concern is stronger, the worse off people are, the more inequality there is amongst the poor, and the worse off the poor are relative to the better off.

As for intergenerational equity, the panel considers that the CGIAR is not primarily concerned with sustainability in the wide sense of equality of welfare between generations, but rather with the serious inequality within the present generation and how it develops over time. Hence, the CGIAR would favor food security for all at all times. Equitable sharing of local costs and benefits of environmental protection, therefore, seems very important for the CGIAR.

The panel places emphasis on the CGIAR as an agency for the *world's* poor supported by *worldwide* donors and NARS. It considers that it should have an agenda for *world* research options, prioritized by their likely contribution to the CGIAR goal. The emphasis should be less on a strict interpretation of international public goods, rather the CGIAR should seek to ensure that the results of research, whatever their nature, are made non-exclusively accessible for the poor, directly or, for example, through agencies expected to catalyze sustainable increases in productivity of relevance to the poor. To optimize achievement of the CGIAR goals, the CGIAR should seek the most appropriate division of labor with other organizations with, generally, the CGIAR concentrating on the longer term and on problems of a more general nature than a NARS typically would do, in areas where private-sector or developing institutions will not provide knowledge outcomes freely or cheaply.

The Panel encourages the CGIAR and its donors to focus on the long-term mission. It notes that a conflict has evolved between the long-term ethical goal that the CGIAR has set itself and the nature of research for development funding which is allocated for impact in shorter actual and political timeframes. The response to this challenge should be that CGIAR seeks out expert partnerships and perhaps the slow assimilation of new expertise (sufficient to maintain an effective brokerage role) but not the wholesale institutionalization of new skills. The response should *not* be to move away from the long-term ethical goal in order for the Centers simply to survive.

1 INTRODUCTION

The CGIAR mission was from the outset driven by an ethical agenda: the global commitment to mobilize the advancement of science to feed humanity, avert hunger, and safeguard our natural resources. The CGIAR mission is not fulfilled until the repugnant problems of severe hunger and poverty and depletion of natural resources have been solved.

On the background of this honorable ethical agenda it might seem superfluous to discuss the ethics of the CGIAR mission. However, the aim of the present study is not to question the mission as it was originally conceived – we strongly affirm it – but rather to re-vitalize it. This has become necessary for a number of reasons.

Firstly, the CGIAR centers – like any other research organization – tend, over time, to become prisoners of their own logic of survival. Funding needs to be found to continue activities and avoid cut-backs and redundancies. Directors who not only maintain a certain level of activities but manage to expand and grow are seen as successful. Similarly, donors need to rationalize their existence and manage their solvency, to appear more bold and ambitious, more focused and on target. Donors need to be seen to perform in the eyes of their domestic constituencies – commercial, NGO or other; or to follow the current fashions in development or aid. In order to make a visible impact – preferably in a rather short term – new hitherto undiscovered constraints and conditions for success are identified. Such constraints and conditions are perceived by the donors as adding focus and sharpening approaches and activities towards achieving the primary goal(s).

However, whereas changing paths and making adjustments sometimes is necessary to make things happen, to add and sharpen focus and to reduce time to reach goals, the CGIAR at other times experience wholesale shifts of research agendas or gross changes of programs among

donors that often have the unintended effect of making pursuit of long-term research strategies difficult for the CGIAR.

Short-run pressures – recently the sharp rise in world staple and energy prices – create a hectic climate of rapid shifts in supply and demand of activities aimed at finding ways of making poor people more food and nutrition secure. Then, there is a real danger that the ethical vision is lost, played down or inappropriately exploited for the benefit of securing contracts and making ends meet in the budgets of the centers. However, the short-term ‘logic of survival’ pressures have a high and rising price. The cost is felt in terms of the CGIAR’s capacity to adapt to pursue an ethical goal, to reflect on and develop this goal and to continue to find the best ways to pursue the goal. The tendency for donors to restrict funds to specific projects sharpens this conflict.

Secondly, the CGIAR needs to adjust to a number of new long-term challenges:

- Large parts of Africa and some parts of Asia require new approaches, if they are to be reached by Green Revolution strategies.
- *Moreover, the classic approach has run into diminishing returns. Rice and wheat semi-dwarf varieties have reached almost all suitable areas. Although gains in the future may come from tolerance of abiotic stress, in general plant breeding is increasingly defensive against new biotypes.*
- Hence, new, non-classical ways to meet the goal of reducing poverty are required. This reflects the finding that the main cause of food poverty turns out to be failure of ‘entitlements’ to food,⁵¹ more than a too-small ‘pile of grain’ as the fathers of the Green Revolution believed.
- Environmental changes – worsening soil depletion, water scarcity and climate change – make additional demands on CGIAR research.

Moreover, there are also challenges in the context in which the CGIAR operates as priorities and sensibilities have changed dramatically since the early days of the Green Revolution. These changes necessitate reflection on the goals and means of the CGIAR, resulting in a clear statement that could help the CGIAR to navigate successfully and make its values more transparent to stakeholders.

For example, today’s technical solutions aimed at making agricultural production more effective are met with skeptical attitudes by many influential stakeholders and by large segments of the populations both in rich and poor countries. This is true both for the use of pesticides and for the application of various forms of biotechnology. Often the concerns relating to new technologies are expressed in ethical terms and have to be addressed as ethical issues. Also it is an ethical requirement to try to take seriously the worries and concerns of those that one tries to help. Finally, if such issues are not addressed properly it may make the attempt to solve problems for poor people less efficient, both because of lack of uptake and because of lack of support from donors.

A second example is the rise of concerns relating to the protection of the environment and nature. These concerns have clearly been taken up by the CGIAR system in terms of an increased focus on sustainability in relation to agricultural production. However, the debate about protection of the environment and nature cannot be reduced to a simple operational notion of sustainability.

⁵¹ Amartya Sen: *Poverty and Famines. An Essay on Entitlement and Deprivation*. Oxford: Clarendon, 1981.

Very diverse values are at play; and these need to be articulated and discussed to make sure that key stakeholders are not alienated.

A third reason has to do with the position of the CGIAR system as part of an international community rooted in the UN system. As such, the CGIAR should on the one hand respect different cultures and traditions and on the other hand it should have a solid base in the international human rights framework which is the foundation of international collaboration. To manage this delicate combination - of a pluralist view and a stance on issues where international law has had a clear say - it is important to be able to state and express clearly the values at stake.

A fourth example worth mentioning here is the increased focus on empowerment of poor people. Some will see this simply as a way of making help to poor people be more effectively disseminated. The logic is that the uptake of new ideas based on agricultural research will be higher if the end-users – or people trusted by the end-users – are involved from the start. However, for others, empowerment is a goal in itself and should be pursued even in cases where there are no obvious benefits to be achieved in terms of increased efficiency. Here, the focus will be on personal autonomy rather than on efficiency.

1.1 Background

By terms of reference of 1 May 2007, the Science Council of the CGIAR has commissioned a panel study “to address the topic of *Ethics and the CGIAR Mission*.”

The study will focus on policy relating to development, to provoke discussion and thought about issues that may require possible later revision of CGIAR policy. The study should deliver principles and guidelines concerning the following:

- Economic Equity:
 - how to balance size of impact against the focus on helping the very poor
 - how to balance concern for the welfare of the poor in various regions
- Intergenerational Equity: how to balance concern for the people living now and in the near future against concern for future generations
- Nature protection: how to protect parts of nature that are production resources but may possess intrinsic value
- Empowerment: how to enhance the share of benefits from research that accrue to the very poor in the context of their relative lack of empowerment compared to the more privileged
- Ends and means: how to evaluate the efficiency of means in the light of the above points.”

The commissioning of the present report can be seen as part of a larger process, which started with the reformulation of the vision and strategy of the CGIAR in 2002 (and the work leading up to it),⁵² followed by the work on how to derive priorities for research and related activities⁵³ and the still ongoing work on how to interpret this foundation and derive precise guidelines from it.

⁵² A Food Secure World for All: Towards a New Vision and Strategy for the CGIAR (TAC, 2002)

This process was, for one thing, motivated by the recognition of the fact that the then dominant CGIAR strategy of yield-enhancing improvements of the major food crops mainly has had impact in the more favorable agro-ecosystems. The statement of the new vision, goal and mission for the CGIAR intended to put more focus on tackling the complex problems of poverty in the marginal and hard areas, notably extensive areas within South Asia and Sub-Saharan Africa. This intention reveals an ethical motive: the aspiration to put more weight on fighting the kinds of poverty which has turned out to be more difficult to eradicate.

Another motivation was to respond to changes in the external environment in which the CGIAR operates, such as “the broader natural resources and social agenda, and the need for new types of partnerships with the private sector, NGOs and development institutions”.⁵⁴ This reveals another ethical motive: changes in the environment make adjustments in the strategy and priorities necessary in order to ensure that the goals will be effectively pursued in the new environment.

Hence, ethical motives are involved in the ongoing process of reforming the CGIAR at two levels: in clarifying and stating precisely the goal of the CGIAR, and in ensuring that the optimal means to achieve the goal are chosen. What becomes clear from the process is that discussions about the mission of the CGIAR cannot just start from a well-defined goal and then focus on finding the most efficient means to reach the goal. Rather, the two levels are related, and therefore a discussion about ethical values is necessary to connect the two levels. The TORs put it this way:

The mission of the CGIAR, achieving sustainable food security and reducing poverty through scientific research, is by its very nature a task charged with complex ethical concerns, which in turn raise problems of priorities. If sub-optimal means as regards the goal are chosen, less good is achieved than might have been the case. In order to choose the optimal policy, the goal needs to be clearly stated, and the relations between the goal and possible ways to achieve it need to be known. Changing social norms and associated ethical values, globalization, environmentalism and the creation of new technologies, such as genetically modified organisms (GMOs), within a multicultural setting are only a few of the difficult issues that affect the CGIAR. Successful navigation of these and other complex issues necessitates direct reflection on, and a more thorough understanding of, the ethical principles and assumptions that underpin the work of the CGIAR. A clear statement of these principles will not only make the values of the CGIAR more transparent to stakeholders, thereby enhancing the policies and principles that embody these values, but also has the potential to offer a better understanding of the responsibilities of the CGIAR to its donors, national and international partners, and the people that it attempts to serve in developing nations.

The panel wants to confirm these reasons to clarify the goal of the CGIAR and to reconsider its strategy in the light of this clarification; in fact, we have added further reasons in the

⁵³ A Food Secure World for All: Towards a New Vision and Strategy for the CGIAR: Companion Paper on Priority Research and Related Activity Themes (TAC, 2002) and System Priorities for CGIAR Research 2005-2015 (CGIAR Science Council 2005).

⁵⁴ *A Food Secure World for All: Towards a New Vision and Strategy for the CGIAR*, p. 12.

introduction. However, it is one thing to recognize the ethical character of this process; it is another thing to introduce ethics explicitly into this process. However, this is the task the paper seeks to address.

1.2 The Role of Ethics

There is a distinction to be drawn between two notions of ethics:

- **The ethics of a person or a group of persons:** Values underlying how a person or group of persons, e.g. the CGIAR, treat themselves, others, nature and the sacred.
- **Critical ethics:** The attempt to understand, criticize, improve and systematize existing ethical values, norms and visions.

This report will use *critical ethics* to understand, systematize and possibly help improve the *ethics of the CGIAR*, as this is stated in the CGIAR Vision document (TAC, 2002 op. cit.) and other relevant documents. The goal of engaging in ethical thought, from the point of view of the CGIAR system, is, of course, to end up adopting a convincing ethical position which provides transparency as to which values underlie the goal of the CGIAR and how these values trickle down into the CGIAR mission and priorities.

However, to reach this goal, critical ethics is called for and the reason for this has to do with *justification*. Ethical views cannot be confirmed or rejected empirically in the way scientific hypotheses can. The only way to “test” an ethical view is by setting it up against alternative views to see if it “does better” than the alternative views. Philosophers who work professionally in the field of ethics have developed an advanced discourse where different, so-called ethical theories are presented and discussed in great detail. Ethical theories can be compared to competing research programs, each with the intent to provide – at least in principle – a precise interpretation of relevant ethical concerns, and a determination of their relative weight in decision-making.

Different ethical theories will have different implication for what is right in a given situation. Roughly, an ethical view on what is right in a given situation can be said to be confirmed or justified, if it is implied by the theory and if the theory has no other implications that would be incompatible with the view. Ethical theories thus aim at covering our ethical views by more fundamental concerns in a coherent way; and the better they do this, the more both views and theories are justified. This form of justification will thus allow for more than one coherent system of ethical theory and ethical views being justified.

Because of this interrelation between ethical theories and ethical views, critical ethics can serve to increase *transparency*. To allow people to see the ethical choices and priorities which underlie the CGIAR goal and mission is to state clearly how this goal is defined and how it is specified in terms of the mission statement. By means of ethical theory it will be possible to clarify how the values mentioned in these definitions and specifications are to be understood in terms of more fundamental concerns.

To serve as a background for the following discussion of the CGIAR goal and mission we have in Annex 1 attempted a very brief overview of so-called ethical theories which make up the intellectual backbone of critical ethics. With this outline of ethical theory as background, we will in the rest of this report conduct a critical ethical analysis of the CGIAR mission. Firstly, there is a discussion with the aim of clarifying the vision, goal and mission and the related ethical values

that should underlie all activities within the CGIAR system. Secondly, CGIAR's choices and means of operation are discussed in the light of these values. This paper seeks to open discussion about how the CGIAR centers should focus to make a maximum impact in terms of realizing the fundamental goals of the system. Finally the main conclusions and recommendations of the study are summarized.

2 UNDERSTANDING THE VALUES UNDERLYING THE CGIAR GOAL AND MISSION

The CGIAR has adopted the following strategic framework:

- *Vision: A food secure world for all*
- *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, livestock, forestry, fisheries, policy and natural resources management.*

In this section we shall conduct a critical analysis of this framework. The aim is of course not to claim that the vision of a food secure world is in any way wrong, but rather to understand the ethical concerns and dilemmas involved in it. We shall focus on the two main stated goals, poverty alleviation and sustainability. As part of the discussion of poverty alleviation we shall discuss a further value, empowerment, which is not explicitly adopted by the CGIAR system but which according to the present panel ought to be seen as an important value in the further work to develop the CGIAR goal and mission.

The discussion is mainly about understanding the goals. What the CGIAR can and should do to contribute to the achievement of these goals is discussed in Section 3. It is important to clarify the goals, before the choice of means is considered, rather than just choosing between what appears to be the only available strategies. Sometimes, better understanding of the underlying concerns in a conflict between goals allows search for new solutions that may soften what otherwise may appear to be un-resolvable dilemmas.

2.1 Food insecurity, poverty, hunger and malnutrition

If we turn to ethical theory, the main teleological ethical explanation of why food insecurity and poverty are bad is based on the idea that the ultimate good of people is to have as high a welfare status as possible. There are, as mentioned above, competing theories about what welfare, or the good life, consists of precisely. These range from rather narrow theories like hedonism (the good life consist in good quality of one's mental states), over preference-satisfaction (the good life is the one you prefer) to broader theories like perfectionism, Rawls' primary goods or Sen's capabilities. We shall not here try to settle on a specific understanding of the nature of welfare.

The general implication of considering welfare the ultimate good of people is that a situation is ethically worse the worse off people are. Some theories make the urgency of the badness increase the worse off people get. One sort of theory (*prioritarianism*) claims that the weight ascribed to increasing people's welfare increases the worse-off they are – and thus increases the urgency to act. Another sort of theory (*egalitarianism*) would claim that it is worse ethically if some are worse-off than others; of particular interest is the claim that it is worse if people do not have a fair share of (important) resources, and much worse if they fall below some threshold of minimal shares.

It seems natural to understand the CGIAR strategic framework in the light of these concerns. Firstly, the major deontological ethical theory of relevance for food security and poverty reduction is human rights theory, according to which there is a right to fulfillment of certain basic needs. Contributing to structures which keep people in poverty, but which could be avoided, therefore violates these people's human rights. But the CGIAR can hardly be accused of contributing to such structures. Rather, the CGIAR is involved in pursuit of goals relating to making life better for food insecure and poor people in the developing countries. Secondly, in the case of teleological theories, if increasing the welfare of the well-off as well as the worse-off had the same weight, why bother particularly about the poor? However, on the contrary, the CGIAR puts great weight on trying to avoid people having such low levels of welfare that they are food insecure.

The problems with the concept of "welfare" are, firstly as was noted above, that it is controversial how it is to be defined precisely, and secondly, that it is a theoretical entity which is not directly measurable. It is therefore far more operational for the CGIAR to state its goal in terms of food insecurity, poverty, hunger and malnutrition. These can all be thought of as indicators of low levels of welfare.

The overarching ethical goal, as stated in the vision, is *food security* for all. The TAC refers to the FAO definition that food security is 'access at all times to sufficient nutritionally adequate and safe food.'

Food insecurity and hunger seem to be related. The prime need is to avoid famine. Secondly, it is important to avoid people being hungry and unable to eat. However, for two reasons, *nutrition security* is probably a better formulation of this goal than 'food security'. Good nutrition means avoiding serious imbalance between food intake and requirements. A level of food intake inadequate to maintain good health, adult work capacity, and child growth is usually one symptom of 'protein-energy malnutrition'⁵⁵ (or PEM). Over time, populations experience big changes in requirements (due to changes in age-structure, physical activity, or frequency of pregnancies) and this may render previously adequate food intake either much too little, or much too much, for nutrition adequacy. In order to stress the importance of adequate nutrition, we shall use the term 'food and nutrition security'.

However, malnutrition can also result from 'hidden hunger' (micronutrient deficiency) even in people with enough calories and protein. Cutting 'hidden hunger' is a structurally different problem from cutting energy under-nutrition, and the CGIAR was set up mainly to deal with the latter problem only. Increasingly, more focus has been put on micronutrient deficiency, most recently spurred by the Harvest Plus Challenge Program.

The CGIAR is *not* set up to tackle another fast-growing problem of malnutrition – a paradoxical one. In North Africa, the Caribbean and Polynesia 15-25%+, and in South East and some of South Asia and Latin America a rapidly increasing 10-15%+, of (most urban) people are obese. Though some are not poor, many are. They are pressured by poverty and work away from home to eat

⁵⁵ The vast majority of people with PEM are short of calories, but not *independently* of bioavailable protein or specific amino-acids: i.e. they would have enough of these if current food intakes increased so calories were adequate.

large amount of energy-dense snack foods (fats and sugars), and by the “less-than-agriculturally-active” nature of their new work not to burn up many calories.

In using ‘malnutrition’ as an indicator of the welfare of the poor, it is important to judge the importance of these problems for the CGIAR vis-à-vis the problem of energy under-nutrition. It appears that the CGIAR so far has put most weight on energy under-nutrition, less on ‘hidden hunger’ and still less on obesity. The present panel agrees that obesity should not be a key concern of the CGIAR system. However, judged from the effects on welfare, the panel thinks that under-nutrition and micronutrient deficiency should be given equal priority. Considering both the potential competences of the system and the relatively small additional costs of fighting micronutrient deficiency, this appears an obvious priority. Anyway, it is important that the priorities of the CGIAR here are made clear.

The stated goals of the CGIAR system – besides the reduction of hunger and (energy and micronutrient) malnutrition (which are both included in food security as defined above) – also includes reduction of poverty. What is the relation between poverty and hunger? Even though we should expect a rough correlation, recent IFPRI work has demonstrated that, because of the multifaceted nature of severe poverty and the existence of poverty traps, the relation is not a simple and uniform one. This raises the question of the relative importance of these concerns.

Again, from the perspective of welfare, the panel would suggest that the form of poverty that should concern the CGIAR the most is the poverty that translates into food insecurity; i.e. the poverty that consists of not having entitlement to sufficient and properly-balanced food. It seems worse to have more money but experiencing hunger than having less money but being able to eat more adequately.

2.2 Who should be benefited?

This section tries to address the question of

- how to balance the size of impact against the focus on helping the very poor.

In order to be able to act on the goal of food and nutrition security, it is essential to identify or describe the beneficiaries more precisely.⁵⁶ As we have just noted, consumption is theoretically a better measure than income. But often, only income measures are available.

The first step is to determine the level at which the poverty line should be drawn (ideally, the poverty line should be measured in terms of income per consumer-unit (adult-equivalent), with modest allowance for the fact that larger households enjoy some economies of scale in consumption). For a NARS, the *national* poverty line is clearly the relevant one. But the CGIAR and each Centre have to compare poverty impact of (past or potential) projects affecting different groups of countries. To maximize poverty impacts through this approach, comparable poverty

⁵⁶ Discussion and references for the contents of this paragraph appear in M. Ravallion, *Poverty Comparisons*, Harwood (Chur), 1994; and M. Lipton and M. Ravallion, ‘Poverty and Policy’, in *Handbook of Development Economics* (vol. 3B), ed. J. Behrman and T.N. Srinivasan, North Holland (Amsterdam), 1996.

measures for all countries are needed. The only one currently available is the PPP-dollar-per-person-per-day.⁵⁷

The next step is to decide on the balancing between the size of impact against the focus on helping the very poor and then develop a poverty measure which reflects this balancing. For instance, it could well be that some crops used by the poorest are less amenable to research than crops used by moderately-poor people. If only the number of poor below the poverty line counts, it is therefore likely to be more cost efficient to research the crops used by the moderately-poor. But the CGIAR might consider it ethically more important to help the very poor. Thereby it assigns ethical weight to the size of the shortfall below the poverty line.

In the vision and strategy statement of 2002, the CGIAR appears to give highest priority to great severity of poverty while still giving some weight to the moderately-poor. This tendency has perhaps been strengthened during the recent focus on the ultra poor and the causes of their poverty.

One can try to define in a more exact way how to measure the outcome of attempts to alleviate poverty. Such measure may be assessed in the light of the above considerations. For example, instead of alpha-0 (poor as proportion of population), more relevant measures, in light of what was said above, would therefore be:

- Alpha-one, where each individual is weighted by its proportionate shortfall below the poverty line, and the results added and expressed as a proportion of total population. This poverty measure rises with intensity of poverty (even if the numbers stays the same) but is not affected by distribution of income among the poor.
- Alpha-two, where each individual is weighted by the square of its proportionate shortfall below the poverty line, and these amounts added and expressed as a proportion of total population. Alpha-two is a poverty measure that increases with (i) number of poor, (ii) intensity of average poverty, and (iii) inequality among the poor.

The choice between these measures thus depends on whether *vertical inequality* among the poor is thought to matter ethically. We see no reason why it should not. It seems worse if some net gain in poverty reduction is achieved by increasing inequality among the poor rather than the same net gain achieved without increasing inequality.⁵⁸ However, concern for inequality among the poor raises challenges for the CGIAR. This question is pursued in Annex 2.

That point granted, some version of Alpha-two would be the right measure to develop. There is still a trade-off with efficiency, if a higher proportion of poorest than of moderately-poor cannot

⁵⁷ In 2010-15 a new formulation of the MDGs will almost certainly be sought. If, as we believe, the moral focus of the CGIAR is on reducing *food* poverty and insecurity, it makes sense for the CGIAR, as such, to press for an internationally comparable poverty measure that reflects this. Such a measure is provided by the so-called *food energy method*: the consumption-per-adult-equivalent at which – given the actual spending pattern, both for foods and for non-foods, of a typical household at risk – dietary energy intake just suffices to avoid PEM at all times.

⁵⁸ Consider this example: Raising the income of a person 10% below the poverty line by 11% reduces Alpha-0 (incidence) and Alpha-1; raising the income of a person 30% below the poverty line by 11% does not affect Alpha-0, and probably cuts Alpha-1 less than does concentrating relief on the less-poor. Virtue is accorded to the wrong choice!

work (old, sick, etc.) and therefore has lower output response to a given spending on poverty policy. Hence, the measure should reflect the priorities of the CGIAR, and it earns its justification if it (in theory at least) could be translated into an ethical ordering of consequences which again reflects the priorities of the CGIAR.

Having said that, it is clear that the nature of a CGIAR strategy renders it uncertain what the exact impact of CGIAR research will be. The main charge for the CGIAR is to gear its science to solving palpable agricultural and natural resources problems. The issues are often long-term, and the effects of the research can be both direct and indirect, and the impacts depend heavily on the actions of others: long after the research is done, the delivery and dissemination of the technology and identification of the target community for the technology is often decided by others, i.e. local public/private/political forces beyond the CGIAR.

Hence, the CGIAR cannot take the full responsibility for what comes out of its research in terms of poverty reduction. However the system has the responsibility to keep the goal of poverty reduction clear and seek for the strategies that make it most likely that the goal is achieved.

Another relevant consideration for the CGIAR is *horizontal inequality* between genders, regions, ethnic groups, clans, tribes or castes. The issue here is whether or not to focus specially on groups that over-represent the poorest, such as Xinjiang province in China, scheduled castes in India, minority tribes in Kenya, families with many children and few adults almost everywhere. If it is believed that some form of discrimination, or lack of access, causes the unusually high prevalence of poverty among such a group, two things follow.

First, attending to any particular measure of overall inequality among the poor may not help much: those at a given poverty level will have less chance to access the poverty-reducing input (e.g. annually distributed open-pollinated hybrids) if they are in a discriminated-against group. Instead, focusing the money on, say, a scheduled caste usually helps mainly the better-off in that caste.

Second, unlike the case of vertical inequality and attending to the poorest persons, there is in the case of horizontal inequality likely to be an efficiency-growth *benefit*, rather than trade-off, in attending to (some of) the poorest groups. Members of the poorest groups have been denied competitive access to a 'level playing field', then according such access can both reduce their poverty and improve efficiency and growth.

Such inequality is a source of serious injustice and resentment, and perhaps of conflict, societal breakdown and even civil wars. Country specialists should be asked to explore the possible effects of CGIAR research outcomes that might increase or reduce such inequality, especially regionally and among ethnic groups, tribes or castes.

The CGIAR's poverty focus, as so far discussed, has been on absolute poverty. As countries move to middle-income status, their populations increasingly become concerned with relative poverty – the gap between the poor and those at median (or sometimes mean) income. Despite evidence that smaller farmers are at least as efficient resource users as larger farmers – and in developing

countries socially more efficient, due to higher yields and employment-intensity⁵⁹ – history shows that the better off are more likely to capture new technology and enhance existing income gaps. This can be affected by clan status, family relations or politically. Also here, we see no reason why relative inequality should not matter ethically. To the extent that CGIAR policy decisions can reduce ‘elite capture’ and stem relative poverty *without* cost to their impact on absolute poverty, they should do so, e.g. by focusing on crops, regions or techniques of greater concern to the relatively poor.

2.3 How to benefit: Empowerment

According to an influential line of thinking, to benefit someone is to prevent suffering (or create pleasure) for that person or it is to increase that person’s preference satisfaction. The outcome is all that matters – it does not matter how the outcome is produced, whether it is the product of that person’s own effort or brought about by others.

Of course, according to the same line of thinking, there can in many cases be good reasons why it is more efficient to help people to solve their own problems rather than solving them on their behalf. As the saying goes: “Give a man a fish; you have fed him for today. Teach a man how to fish; and you have fed him for a lifetime.” However, whether one should help people directly or rather help them to help themselves is of not of intrinsic moral significance – it is only a matter of what is most efficient in terms of the final outcome.

Other traditions in ethical theory will take a different view on this matter. Firstly, one may consider the theory of Amartya Sen, according to which what matters in helping others is not provision of welfare but of capabilities, i.e. the ability to control one’s own life. Secondly, in the Kantian tradition of ethical theory, a key value is autonomy, i.e. that an individual governs her own life by defining her own standards and aspirations.

Both these lines of thought have been extremely influential in discussions about development; and it is fair to say that the Kantian tradition is reflected in the human rights framework that is part of the international law foundation of the international community. Therefore, there may be good reasons for the CGIAR system to take empowerment seriously not just as a means to provide more efficient aid but also as a goal in itself.

So far the value of empowerment has not been explicitly adopted by the CGIAR in the vision and strategy statement, but it nevertheless seems to play some role within the system. Empowerment is implicit in the CGIAR practice of making research results accessible for the local organizations where the poor people live, and even more in enhancing the capacity of local NARS and the capacity of farmers to adapt to a changing environment in their management of natural resources.

Empowerment is clearly related to food and nutrition security, since hunger, severe poverty and environmental collapse are themselves very disempowering. Indeed, the formulation of the TORs for this study infers that lack of empowerment could even work like a poverty trap:

- Empowerment: how to enhance the share of benefits from research that accrue to the very poor in the context of their relative lack of empowerment compared to the more privileged

⁵⁹ R. Eastwood, M. Lipton and A. Newell, ‘Farm size’, in R. Evenson and P. Pingali (ed.), *Handbook of Development Economics*, Rotterdam: Elsevier, 2008 (forthcoming).

Thus, the value of empowerment as a goal in itself, and the increased concern for the very poor, both imply strong weight on empowerment of the very poor, e.g. through providing education, basic health care, employment opportunities etc. In sharing the goal of food and nutrition security with NARS, local governments and others, it is a great challenge for the CGIAR, while being efficient as regards the goal of long-term food and nutrition security, at the same time to work for enhancement of empowerment – in the last resort for individuals – through these partnerships. The CGIAR's approach to empowerment can be direct, focusing on measures that can be directly linked to agriculture and improved natural resources management, or indirect, going through partners with more direct contact with end-beneficiaries.

2.4 Sustainability

The vision and strategy statements add the further requirement that achievement of food security should be sustainable. Sustainability is a notoriously contested notion, which has been defined in many ways. Consideration of the sustainability of activities date back to the late 19th century, where the question arose within forestry how to determine the maximum cut that could be sustained in the long term; later, similar considerations were developed within fisheries science, and eventually they spread into many other areas. The underlying principle was the constraint that the resource stock in question should be kept constant over time, and the simple prescription was to keep the harvest rate per year within some area smaller than or equal to the natural regeneration rate per year for the resource within the area.

In a similar vein, the CGIAR is concerned with protecting and possibly increasing the productivity of natural resources in agriculture, forestry and fisheries. However, natural resource systems change naturally with time, and the size of a given stock is often influenced by other factors than harvest, e.g. different sorts of pollution. The base line for sustainability also depends upon when we intervene; for instance, many of the world's fisheries are today well below historical levels. It seems arbitrary to link sustainability to the baseline where the intervention starts. Then there is the question of how to deal with finite, exhaustible resources and the possibility of extinctions. And, finally, technological development might increase production efficiency, but it may also make certain resources superfluous by making it possible to substitute them with others. Hence, it seems odd to assign value per se to sustaining harvest of some resource over time, if technology or other developments will make that resource superfluous.

There is therefore reason to be concerned rather with the value of natural resources over time. This is captured by the statement of the Brundtland Commission that the need-satisfaction of the present generation should not compromise the need-satisfaction of future generations. Here, the value of natural resources is measured by their ability to satisfy human needs.

However, the Brundtland Commission makes sustainability a constraint on development which is rather rigid in the sense that it does not allow one generation to have slightly lower degree of need satisfaction even if later generations could have a far higher one. A more general way to understand sustainability would be to understand it as a concern for equality between generations but allow for trade-offs between equality of welfare between generations and the total of welfare over time.

What is relevant for the CGIAR is particularly the management of natural resources, in the widest sense, on which the poor will be dependent for food. The productivity of resources should

be safeguarded and possibly be increased when they are handed over to future generations also dependent on them for food and nutrition security.

This concern raises a number of trade-offs. Two such questions raised in the TORs of this study are:

- Intergenerational Equity: how to balance concern for the people living now and in the near future against concern for future generations
- Nature protection: how to protect parts of nature that are production resources but may possess intrinsic value

For intergenerational equity, there is a conflict between an impartial view that would consider future generations worthy of concern for their own sake, and the economic practice of discounting for time, reflecting the present (decision-making) generation's natural bias in favor of itself and its nearest and dearest. However, in this debate it is often not made clear exactly what should be discounted, and the details are rather complicated. The panel shall therefore not attempt to settle this issue.

Rather, the panel considers inequality *within* generations and how *it* develops over time a far more important issue for the CGIAR. This is because the CGIAR is not primarily concerned with sustainability in the wide sense defined here (equality of welfare between generations). Equality in the *average* level of welfare, and even an increase of the *average* level of welfare over time, are compatible with the continued existence of food insecurity for some people.

Rather, the CGIAR's concern with future generations is concentrated on the poor. Hence, compared to the scenarios just described, the CGIAR would favor food security for all at all times, even if the implication would involve that rich people now and in the future became less rich than they otherwise would have been. In the concern for environmental protection for the sake of the future poor, equitable sharing of local costs and benefits, evidently, must be very important for the CGIAR.

A particular question is how to balance the concern for food insecure people living now in a certain area and dependent on certain natural resources against the concern for future poor people likely to live in the same area or to be dependent on the same resources. (We do not here consider the scenario where some development makes all parties better off.) Part of this problem is that increasing risks in the long term does often do not get sufficient attention.

From an impartial perspective, the concern for the welfare of the future food insecure people should be the same as the concern for the present food insecure people. But whether or not this impartial perspective is taken, the Panel would stress that the concern for the future food insecure people ought to be given much more weight than the concern for other future people.

The practical answer depends very much on the options available. Firstly, a solution could be to improve the capacity of local communities to manage natural resources so as to be better placed to counter changes in the ecosystem. Secondly, as was hinted at in the paragraph above, if natural resources in some area are threatened by some praxis, the local community could be paid compensation in order to protect the endangered resources. Thirdly, certain practices might irretrievably compromise water or other resources if they are continued. In this case, migration/establishing other livelihoods for the involved people might be the best solution (of

course the CGIAR could only recommend this, not bring it about). Again, equitable sharing of costs is very important.

As for nature protection, the attempt to increase productivity of resources will often involve a trade-off between exploitation, changes in land and water use etc. and conservation. So far, in the discussion of sustainability, nature is only seen as a resource for production of food and other human necessities. However, as was made clear in the brief outline of ethical theories above, people may be worried about nature not just as precious resource but also as something worth protecting in its own right. It is possible to consider the concern for nature in itself (e.g. biodiversity, protecting habitats for wildlife) as part of the general ethical goal to be balanced against the concern for human welfare. (It might also be considered part of human welfare that nature is protected for its own sake, not just considered a resource for use.) This is actually not a new idea – it originates in the idea of nature as something created in the image of God, an idea found in many of this world's old religions. The idea has again come to the fore with the growing awareness of losses in nature and biodiversity as a result of human activities.

The balancing here is difficult and depends on the importance of either side. Protection of nature for its own sake appears to have most weight when there are serious threats of irreversible losses of important aspects of nature. The concern for the poor appears to have most weight when they have no other possibilities. But again, it would seem very unfair, if the cost of protecting nature were to be borne by the poorest people rather than being shared equitably.

Clearly, it can never be a primary objective of the CGIAR system to engage in protection of nature and biodiversity not related to food production. However, it can be important, in the effort to find new ways to increase and improve food production for poor people, to consider the concern for protection of wild nature. This is so for at least three reasons:

Firstly, there are precautionary reasons for including nature protection in the effort to develop food production. Genetic resources, land, soil and water provide the ingredients of agricultural and natural resource systems and it is expedient to use these components wisely for current and future uses. There have in the past been many cases where man has damaged nature with severe, unforeseen consequences for future livelihood. For example felling and burning of natural forests may lead to further land degradation or have adverse effects on water levels and climate.

Secondly, wild nature may both in the short and the long term be of value for people living in the poorer countries. In the short term for example, wildlife in Africa provides a resource for the tourist industry and the sections of the human population who depend on this industry. In the longer term, when the livelihood of the population has been secured, local nature may again be seen as a valuable asset by the local population. In the more well-off countries enormous sums are now invested to recreate nature which was destroyed recently when food production (or industrial production or energy) was the only priority.

Thirdly and finally, protection of nature as a concern for the CGIAR may increase the willingness of people and decision-makers in the rich countries to support the activities of the CGIAR system. Whether one likes it or not, the protection of this world's natural heritage seems for many people in the rich part of the world to be a higher priority than bringing poor people out of poverty. To appeal to positive side-effects on nature protection of CGIAR activities may serve as part of a contractualist argument in favor of support. Just like representatives of the CGIAR system often argue that poverty alleviation may benefit people in the rich world by preventing unrest and

terrorism, it may, if the CGIAR system does its job in the right way, be argued that support for CGIAR is also support for a development where there is focus on nature protection.

It is not a main role of the CGIAR to do research on the protection of nature *per se*. However it must be a central element to sustain the productivity of natural resource systems and useful agrobiodiversity. It will continue to be an important element of research concerning innovation in agriculture and its possible side-effects on natural ecosystems. The CGIAR will need to build strong alliances with institutions set up to protect natural biodiversity.

2.5 Conclusions

The paper so far, has discussed ethical principles in the light of the present statement of the CGIAR goal and mission. Furthermore the panel recommends that empowerment should be considered a goal on par with poverty alleviation and sustainability. In summary, the panel suggests that the CGIAR strategic framework should be understood in the light of the following principles:

The ethical goal of the CGIAR is to fight, at all times, the serious inequality consisting in some people living with a welfare level so low in absolute terms that they face hunger and malnutrition. This concern is stronger

- *the worse off people are*
- *the more inequality there are among the poor*
- *the worse off the poor are relative to the better off*
- *the less empowered the poor are*

and it should be addressed while at the same time observing concern for protection of wild nature.

However, none of these principles have simple and uncontroversial definitions; rather they can be given different interpretations in the light of different and potentially conflicting ethical traditions.

The panel recommends that the CGIAR should be transparent about the tradeoffs made. Before embarking on major research initiatives, CGIAR institutions should always report on possible tradeoffs – or complementarities – between the relevant concerns. To ensure transparency, it is important for the CGIAR to engage in explicit reflection on how to understand the two key goals of poverty alleviation and sustainability.

3 CHOICE OF STRATEGIES AND THE DECISION CONTEXT

We now focus discussion on the CGIAR's choices and means of operation in the light of the ethical principles outlined in the previous section.

Compared to the size of the problem it is dealing with, the CGIAR has very limited resources. Therefore it is important that these resources are spent in a way that gives an optimal result in the light of the goal and mission of the CGIAR viewed in the light of the underlying principles. So for every potential task one may ask whether it is worth pursuing, and, if so, whether there are other agencies that would do the job better.

In the mission statement, the CGIAR identifies itself as an organization concerned with *scientific research and research-related activities in the fields of agriculture, livestock, forestry, fisheries, policy and*

natural resources management aimed at reducing poverty, hunger and malnutrition by sustainably increasing the productivity of resources. Hence, the CGIAR sees its core strength in agricultural research. It follows from this that the CGIAR has to choose between *strategies* or, more precisely, alternative portfolios of strategies for its research and research-related activities.

Locating its activities somewhere in the middle of the research-development continuum, the CGIAR has tried to define its position vis-à-vis other agents. Very roughly, the CGIAR has earned its *raison d'être* through the fact that it has succeeded in applied research for the benefit of the poor that would otherwise not be conducted: not by the private sector because the poor people have insufficient buying power; and not by the NARS in the developing countries, because their limited finance largely confines them to urgent local problems and they do not have the resources necessary for general or basic research, or for research with benefits that cannot be substantially confined to the country that finances it. This ethical *raison d'être* has been put as a mandate for CGIAR to generate 'international public goods' in areas where the CGIAR possesses 'comparative advantage'.

However, the CGIAR has struggled hard to make this positioning more precise.⁶⁰ The most important reason for the difficulties appears to derive from the CGIAR's increased focus on the ultra poor, as underlined by the panel in Section 2 of this document. This concern puts the traditional positioning under pressure in two respects. Firstly, the causes of severe poverty are often of a location specific nature, such as particular difficult agro-ecological conditions, lack of infrastructure and health care, etc. Fighting severe poverty thus has a tendency to pull the CGIAR away from conducting *international* research, i.e. research that is targeted at two or more countries. Secondly, fighting severe poverty involves many other activities than agricultural research; e.g. investments in education, health care, roads, markets, credit institutions, water management infrastructure, etc. Hence, fighting severe poverty has a tendency to pull the CGIAR in the direction of development and away from research. We shall discuss each of these challenges in turn.

3.1 Regionally versus Internationally Targeted Research

If the term 'international public goods' is used correctly and rigorously as a technical term (non-price-excludable, non-rivalrous, and benefiting many countries but none sufficiently to justify it in researching the product in its own public sector), its use to 'screen' CGIAR activities is inconsistent with achieving the best impact on sustainable poverty reduction. Many of the CGIAR system's knowledge products are not non-rivalrous and therefore not public goods; indeed, making access charges to developed-country institutions and/or private companies is on the CGIAR agenda and may have already happened. Nor would, or should, the CGIAR rule out research into private goods that benefited many poor people and would not be researched outside the CGIAR. Similarly, nobody would claim that all CGIAR knowledge was international in this sense. Nor should the CGIAR reject research, say, because it would help 'only' 200 million poor Indians and a sprinkling of people elsewhere, while researching knowledge products that would benefit 5 million poor people in, say, seven well-scattered small developing countries across the world.

⁶⁰ Cf. particularly Jim Ryan: "International Public Goods and the CGIAR Niche in the R for D Continuum: Operationalizing Concepts", in *Positioning the CGIAR in the Research for Development Continuum*, SC CGIAR (2006), pp. 1-24.

The particular commitment of the CGIAR, as we see it, is to make its results available for the poor by providing *non-exclusive access*. The initial results may, but need not, be public goods (which are *non-rivalrous* and *non-exclusive* in consumption). The important thing is that the results, whatever their nature, are made non-exclusively accessible for the poor, directly or e.g. through agencies expected to catalyze sustainable increases in productivity of relevance to the poor.

True, 'international public goods' is used by some in the CGIAR system in a different, often vaguer, sense to mean roughly what we say here.⁶¹ However, uncertainty about how to understand the term 'international public goods' create muddles and confusions, mostly verbal, but with big effects in derailing and muddling CGIAR efforts to define, let alone discharge, a clear ethic in allocating or planning resources and uses. The positioning of the CGIAR, in the last resort, should get its justification by being the position that contributes most to the ethical goal.

The ethical goal of the CGIAR implies that the impact should be measured in numbers of poor targeted, where each individual is weighted according to how bad off he or she is, how much inequality there is among the poor, how bad off the poor are relative to the better off, and how much they lack empowerment; and the impact should be pursued while at the same time observing concern for protection of wild nature.

Other things being equal, this ethical goal implies that the CGIAR should put highest priority on extreme-poverty regions, perhaps especially where emigration (often even to other parts of the same country) is difficult for linguistic, educational or ethnic reasons. Thus people will depend on better agriculture in place to start escaping extreme poverty.⁶² As noted, this priority creates challenges for an internationally oriented research organization.

Discussion of this challenge comprises discussion of the second part of the question on economic equity raised in the TORs, i.e.

- how to balance concern for the welfare of the poor in various regions?

The CGIAR, as an agency for the *world's* poor supported by *world-wide* donors and NARS, should have an agenda for *world research options*, prioritized by their likely contribution to the CGIAR goal. Only after establishing a high priority research option should it select which agenda items should be done by the CGIAR system or possibly by other agencies. This depends on what the *world* consequences would be, should the CGIAR not do it.

As a general rule, there should be a proper division of labor, which will optimize achievement of the CGIAR goals. Other things being equal, this implies that the CGIAR should concentrate on the longer term and on problems of a more general nature than a NARS typically would do, in

⁶¹ E.g. Appendix by P. Pinstrup-Andersen to the paper by J. Ryan (see note 11).

⁶² Poverty-reducing growth in the rural non-farm sector generally requires prior growth in smallholder incomes as a source of local demand. See, for example, P. Hazell and C. Ramasamy, *The Green Revolution Reconsidered*, Baltimore: Johns Hopkins, 1991.

areas where private-sector or developing institutions will not provide knowledge outcomes freely or cheaply.⁶³

In general, it is likely to be more efficient on the medium or long term, if local NARS do research related to national or regional problems, even if the CGIAR were able to do it more cost efficiently in the short term. Were the CGIAR to do it, it would be likely to reduce the incentive for the national government to allocate funds to the NARS and perhaps crowd out the national researchers; this again is likely to have a negative impact on the CGIAR goal of poverty reduction in the long term, and it would also be a problem in terms of empowerment.

In the case of a serious regional problem and where there is a NARS with capacity to solve it, things are straightforward: the NARS should do the research. If there is a NARS, but it lacks capacity, there has been long standing tradition in the CGIAR for capacity building of local NARS (courses, program-associated training, and networking) or for performing research in partnership with the NARS, both of which are in good accordance with the concern for empowerment. If there is a NARS with capacity but lack of will to engage in the problem, the CGIAR should engage in advocacy in order to establish funds from the national government or international development agencies and encourage the NARS to engage in the relevant research.

However, there might be cases of serious regional problems, where nothing is likely to be done were the CGIAR not to take action, simply because no other agents appear to be available. Then it would follow from the ethical goal that the CGIAR should engage in the problem. However, two qualifications are important here.

Firstly, even when engaging in a regional problem of severe poverty with specific local causes, the CGIAR should keep an eye for the general aspects of the problem in order to build up knowledge that may be useful in other regions. Secondly, it is an operational need to attract widespread support and funds (and also support from NARS). This can, however, be achieved if the CGIAR system as a whole is working for people in many parts of the world, and donors and NARS feel that the CGIAR system as a whole is doing this well, even if some Centers specialize in the concerns of particular regions.

3.2 Empowerment, Participation by End-Users and Advocacy

The CGIAR research should consider the whole chain from discovery to delivery. To be efficient, it is necessary to ensure that research output actually contributes to the ethical goal. Hence, for all CGIAR research, beginning at the initial planning stages, the project or program should be evaluated as how it is likely to achieve this goal. In this subsection the panel will focus on how the CGIAR ought to involve stake-holders and end-users to achieve its goal; and in the following subsection the panel will discuss the need for the CGIAR and its donors to focus on the long term mission.

In order to ensure effective dissemination of research results, it is important that CGIAR researchers listen to end-users (farmers, laborers and consumers) in order to understand their

⁶³ But sometimes, other things may be radically unequal. When rice was attacked by grassy stunt, only the IRRI germplasm collection allowed identification of a wild *O. nivara* rice variety that had resistance. This very short-run, emergency use of CGIAR resources had huge returns.

needs and wants and to learn from them, for the simple reason that if people are engaged in solving their own problems, these problems are usually likely to be better solved, if sometimes more slowly. This is an area, where well thought out partnerships with proper division of labor allowing engagement of all relevant stakeholders in the chain from discovery to delivery are necessary for creating effective synergy and impact for all groups of poor.

The literature is growing and offers snippets of evidence for why and (occasionally, how) local knowledge becomes invaluable in adding relevance and efficiency in developing technologies that would work for users. Examples of where the understanding of the bio-physical environment for which the technology under development will be utilized, or why traditional farmers grow certain cultivars in certain situations, or employ certain management practices in a certain way, has provided invaluable perspective and increased efficiency to the research and development work of keen scientists.

Other examples come from the field of participatory plant breeding. Typically, a new cultivar may be highly productive and resistant to pests and diseases, but may not fit into the preferences of a farm household. Possible reasons include timing of labor requirements; compatibility with highly localized soil, water, or crop-mixing conditions; suitability of straw for animal feed; and storage or cooking characteristics. These and similar problems are good to anticipate *ex ante* so as not to be surprised at the end. Such approaches may increasingly complement on-station research with regular scientist-farmer dialogue.

A similar point holds true for the introduction of new technologies. For example, with the introduction of genetically modified crops it is important that a dialogue is held with a number of stakeholders to make sure that the new crops will be accepted and that the national frameworks are in place to deal with the new regulatory issues following the use of these crops (For a further discussion of this point, see Study II, this volume 2.)

A third point is that the advancement of the ethical goal through research is not only dependent on effective dissemination of the attained knowledge. Because of poverty traps and the multifaceted nature of severe poverty, science has to be applied within a range of other measures (provided by partners and not the CGIAR). Thus, creating alternative livelihoods outside agriculture, or better infrastructure etc., appear to be outside the scope of CGIAR options. Also, the urban poor are likely to be helped rather indirectly through price stabilization and, perhaps, diversification of available nutrition at affordable prices.

The challenge for the CGIAR here is to keep the focus on its position as research organization within the world community of science and development players, while at the same time increasing the engagement in the additional partnerships and roles necessary to turn research into deliverables with impact on the ethical goal.

For instance, the right incentives for the poor to use the knowledge are also necessary. The use of marginal lands by poor people which degrades important resources is an example at hand. There is research-based knowledge about what to do to prevent soil degradation. However dissemination of this knowledge by itself is not likely to solve the problem, because the land users may not have any obvious alternative available. The cost/benefit and risk assessment calculations of the poor must be met for adoption and impacts to accrue from research.

The CGIAR should increasingly engage in advocacy for the policies necessary to effect the poverty alleviation. In order to maintain its credibility, however, the CGIAR should only engage in advocacy in areas where it possesses science based knowledge on policy development. Also, it is necessary to strike a reasonable balance between advocacy activities and the core research activities. Thus there will continue to be a need to create a strategic long-term research agenda balanced with a) research approaches (often including substantial social science approaches) which will ensure the more immediate effects of prior research on poverty alleviation, and, b) advocacy to raise the contribution of others towards the CGIAR goal.

3.3 Maintaining the Focus on Agricultural and Natural Resources Management Research

In keeping the focus on research activities, a conflict has evolved between the long-term ethical goal that the CGIAR has set itself and the nature of research for development funding which is allocated for impact in shorter actual and political timeframes. The early Centers of the CGIAR were established under much less restrictive funding conditions in which long-term research budgets were awarded in the expectation of renewal over many years. The response to this challenge should be that CGIAR seeks out expert partnerships and perhaps the slow assimilation of new expertise (sufficient to maintain an effective brokerage role) but not the wholesale institutionalization of new skills. The response should *not* be to move away from the long-term ethical goal in order for the Centers simply to survive.

Research on natural resource management is by nature long term and therefore under particular risk. It requires sustained investment of effort and resources. While research and conservation efforts in biodiversity have managed to receive sustained effort and investment within the CGIAR, important elements of key agricultural and environmental resources such as water, nutrients as well as management of aggressive weeds have not always been held up on the radar. Neglect of research in this area is costly and of significant ramification as it exasperates losses of soil, water and natural resources and delays potential interventions for proper exploitation of these resources. The slow nature of research in NRM often forces scientists and administrators to put their efforts in this area on the back burner when decisions are made in priority setting based on use of meager financial resources.

As for capacity building, there may be areas of research such as 'basic biotechnology' or 'genomics' in which the CGIAR does not have sufficient human and infrastructural capacity to be a centre of excellence to lead a comprehensive research agenda that may produce a great impact. This should not imply that the CGIAR should close shop on 'biotechnology'; rather the CGIAR needs to strategize in developing a set of partnerships that would allow the most basic knowledge or research results to come from other centers of excellence, yet leaving an appropriate set of research agendas for the CGIAR to conduct. Also, a mechanism for the CGIAR to serve as a conduit for transfer or extension of the greater knowledge base to its other partners, the NARS of the developing countries that it serves, should be developed.

Another ethical issue raised by the tension between long term goals and short term funding are the promises made to donors. For instance, overstating the deliverables of a research project and their (direct or indirect) effects on poverty are sometimes done as part of "gaming" – winning the contest for project funding – but nevertheless present unrealistic assessments of what the CGIAR (Centers or programs) can deliver in the time frame of funding. This practice would seem to raise expectations, mislead other donors and create, subsequently, a sense of unfulfilled promises from the funding of the CGIAR which in turn becomes a constraint.

Moreover, the demand for visible results puts the CGIAR under pressure. To give an example, there has been an inevitable shift to defensive breeding. Thus, the same contribution to the CGIAR's ethical goal is made by a new variety that (a) raises yield by 5m tons a year, or (b) resists a pest that would cut yield by 5m tons a year. Donors see (a) but (b) is quasi-invisible. The shift from (a) to (b) has cut the visible yield impact of the CGIAR, but the returns to CGIAR plant breeding remain as high as ever.

This doesn't alter the fact that growing populations and workforces need *rising* yields for sustainable food and nutrition security; and the Green-Revolution path appears unable to deliver those alone. If the donors worry about this inconsistency between the CGIAR's main goal and the scientific means available, they need – ethically speaking – to consider enlarging the set of means by supporting new ways of meeting the goal of poverty reduction.

Hence, there seems much to be gained in entering into more honest debate with the donors on the true time frame and scheduling of research and its impacts. This could perhaps be enhanced by the public discussion of climate change which introduces a new mind-set and time frames necessary for having research impacts. These discussions should include the relative emphasis and investments to be placed in international vs. national vs. local research.

Annex 1: Overview of Ethical theories⁶⁴

In modern times, the dominant task for ethical theories has been to answer the question: Which act (or acts), out of a range of alternatives, is (or are) *morally right* in a given situation? An ethical theory is, accordingly, a systematic account of all the relevant ethical considerations and a determination of how these considerations combine to dictate an overall judgment as to which act is right.

Theories of the right act are often divided into *teleological* (consequentialist) theories and *deontological* (non-teleological, non-consequentialist) theories. There is some disagreement about how this distinction should be drawn, but we suggest the following rough division. Teleological theories claim that the right act is determined exclusively by considerations about the *good*, whereas deontological theories deny this claim. A teleological theory thus builds on or implies a theory of the good. A theory of the good tells us how to determine the relative value of outcomes (consequences) of an act.

Utilitarianism (found in classical sources such as Bentham, Mill, and Sidgwick) is the best-known teleological ethical theory. It claims that the right act is the act that maximizes total welfare. Thus its underlying theory of the good claims that the best outcome is the outcome providing the greatest total welfare. This theory of the good is *individualistic*, because it claims that the overall good is an increasing function of what is good for individuals (individual welfare) and nothing else. Other teleological theories would allow for non-individualistic values, i.e., values or ideals whose fulfillment is considered good even though nobody thereby gets a better life. Equality, cultural integrity, the nation, and autonomy are examples of such non-individualistic values. (Note, however, that these values could also be interpreted individualistically.)

Among individualistic theories, utilitarianism claims that it is *total* welfare that counts. Other individualistic teleological theories would claim that the *distribution* of welfare also counts. Thus, *prioritarians* claim that benefiting people matters more, the worse-off these people are, whereas (individualistic) *egalitarians* claim that certain basic resources, or all resources, or welfare should be distributed equally.

The extent to which the theories in practice will prescribe different policies depends on (1) how welfare (and the target of the egalitarian concern) is defined, see below; and (2) the weight the concern for the distribution of welfare is given relative to the concern for total welfare. Furthermore, it is an empirical question to what extent utilitarianism – because of the diminishing marginal value of resources – actually will promote equality in welfare.

Utilitarianism and other individualistic teleological theories must thus incorporate a theory of welfare: What makes one life better than another or ensures that it contains more welfare? Here several theories have been proposed. Most prominent are *perfectionism* (the good life consists in realizing the essential aspects of human nature), *hedonism* (the good life consists in the greatest balance of pleasure over pain), *preference satisfaction theory* (the good life is the life mostly

⁶⁴ This Annex recapitulates in part section 5 of the 2004 study, but with examples slanted to the context of the current discussion.

preferred by the individual) and various religious theories (in which, roughly speaking, the good life consists in living in accordance with one's religion).

Some influential add-ons to these classical theories of the good life are Amartya Sen's theory of 'entitlements' or 'capabilities,' according to which the good life is not defined by the outcome but by the ability to control one's own life; and John Rawls' theory according to which – in a similar vein – the good life is defined by possession of certain basic ("primary") goods.

Teleological theories set up a common goal for all of us: maximizing the good (however defined). Deontological theories claim that some ethical considerations work in another way. One can mention rule-based morality exemplified by the Ten Commandments in the Judeo-Christian tradition and the Eight-Fold Way in Buddhism. A more sophisticated example is side-constraint theory, which claims that certain specified acts are wrong. A side-constraint cannot be outweighed by considerations of the good. An example is the Kantian view that we should not use other persons exclusively as means in pursuit of our goals – not even in pursuit of the overall good, however defined. Side-constraints give a strong interpretation of the notion of a right.

An interesting case in point here is the successful fight against poverty in China and Vietnam at the cost of violations of political rights. According to influential deontological theories of the kind discussed here, these violations – despite their beneficial effects – are not justified. Others with a more utilitarian approach may point to the development of China and Vietnam as examples to be followed by others.

Another class of deontological theories is *contractualist* theories. They claim, roughly, that the right act in a given set of circumstances is the act that rational and equal agents can agree on under certain more or less idealized conditions. Contractualist theorists differ as to what the relevant conditions are. Some theories attach weight to the idea that ethics should appeal to self-interest only. Others emphasize the idea that agreement should be unbiased and unforced. All involve an attempt to define conditions of agreement that ensure the right kind of impartiality.

An important, and in some ways separate, question here concerns the way in which *States* ought to act. *Liberals* like Rawls and Nozick claim, roughly, that the State should be neutral between competing conceptions of the good life; it should not prescribe how citizens ought to live, as long as their way of life does not harm others. *Communitarians*, on the other hand, claim that the State ought to promote values inherent in the local, historically evolved community and its culture. The State, therefore, need not be neutral between competing conceptions of the good life.

A complication for ethical theories concerns uncertainty. If there is uncertainty about what exactly the outcome of an act will be, there will be a risk of unintended consequences. Ethical theories have disappointingly little to say about uncertainty. However, very roughly, the teleological tradition is concerned with evaluation of outcomes *ex post*. When it comes to decision making *ex ante*, the idea is roughly to take probabilities into account when valuing acts with uncertain outcomes; in doing this, there is the issue of determining the right level of risk aversion. The side-constraint tradition would like to maintain that a given *act* is either right or wrong, regardless of its possible unintended consequences; and the contractualist tradition would seek rational agreement about how to deal with the uncertainty in question.

Another task for ethical theories is to say which traits of character each of us ought to cultivate. These traits are often called *virtues*. Many ethical theorists consider this question a secondary one.

They believe that the answer should be derived from the answer to the primary question about the right act, and hence, in effect, that virtues are traits of character that lead a person to perform the right act in any circumstances. However, following classical and medieval traditions, a significant number of theorists argue that this puts the cart before the horse: Instead of exploring virtue by working back from right action, we should tackle virtue directly and *then* try to shed light on right action by asking, in any given situation, what the virtuous agent would do.

By focusing on the virtues, moreover, it is possible to tackle the thorny issue of motivation. Normally, when we accept that it would be (say) wrong to lie, we act accordingly (in this case, refrain from lying). But why? Virtue theory has a ready answer to this question, since to possess a virtue is by definition to be motivated in a certain way.

A final task is to answer the question: Who or what must be taken into account in ethical deliberation? Traditionally, ethical theories have been anthropocentric. They have concentrated on human needs and interests. However, even this claim raises difficult problems of demarcation. When does a human being come into being and when does it cease to exist? Are future generations entitled to be taken into account for their own sake or only to the extent they matter to the present generation?

Animal ethicists and environmental ethicists, however, have challenged the anthropocentric view. One line of argument, called *extensionism*, points out that features we would refer to, to explain our moral concern for humans – complexity, vitality, the capacity to feel pain, and so on – are shared by sentient animals. Some environmental ethicists have extended this argument to plants (focusing, obviously, on features other than pain). Another line of argument, often called *holism*, claims that both anthropocentric ethics and extensionism represent an individualistic conception of nature. But if we reflect on the value of nature, we see that we value ecosystems or landscapes as interdependent wholes. A third line of argument, *deep ecology*, claims that if we reflect on ourselves, and on the way in which we are intertwined with other life-forms, we shall eventually develop a new understanding of ‘self’ that involves recognizing other life-forms on equal terms as being part of our own flourishing.

Let us conclude this section by summarizing some important distinctions. Ethical considerations can be divided according to a two dimensional matrix. Along one dimension are the different answers to the question of *who or what is entitled to ethical concern in its own right*. Should we be anthropocentric or should we also be concerned for nature (in some way or other) for its own sake? Along the other dimension are different answers to *how we should be concerned*. Teleological theories define a theory of good (comprising one or more fundamental values) and claim that good, defined this way, should be maximized. Deontological theories claim that some concerns are not part of the good to be maximized.

The latter distinction also involves different models for how to deal with conflicting values. For teleological theories, weighing is typical (but other models are also possible). Weighing establishes the extent to which each value that makes up the good (as defined by the theory specified) counts towards the overall good. For instance, if the theory is egalitarian, it will specify how much different degrees of inequality count relative to different totals of welfare.

In weighing, a loss in one value can typically be compensated by a sufficient gain in another value. If deontological concerns take the form of constraints, this will not be the case. Violation of a constraint cannot be compensated by a gain in another value, however big. Hence,

*deontological concerns constrain the pursuit of the good by demanding that it is only pursued through acts that are acceptable in that they do not violate rights or other standards of conduct. Possible constraints include respect for persons and their right to autonomy, self-determination, and political participation.*⁶⁵

⁶⁵Note that a number of constraints of the Kantian type for the internal CGIAR procedures were identified in the previous report Ethics and CGIAR Research (study II). In the present study, on the other hand, we are concerned with the mission of the CGIAR.

Annex 2: What is the Implication of the Concern to Avoid Inequality among the Poor?

As the panel suggests, the increased concern for the ultra poor also implies a concern for inequality among the poor. This also raises challenges for the CGIAR. It is helpful to separate three groupings of poor people substantially affected by research that affects sustainable food and nutrition security:⁶⁶

- Poor small farmers
- Poor farm laborers
- Poor net staples consumers (i.e. poor people who eat more staples than they grow; this includes almost all the urban poor, and many rural poor)

Some poor people are in two or three classes, but many are in just one. The concern to avoid inequality among the poor thus imposes quite strict conditions on the CGIAR, since innovations that help one or more of the three main classes of poor (laborers, mini-farmers, net food buyers) should not unduly harm any of the remaining classes. The challenge is complicated by the fact that appropriate technology may move people from one class to another, or – since the classes are not mutually exclusive – from being, say, mainly a farm laborer to being mainly a small farmer in terms of income source.

The three main groups of poor families below the poverty-line depend for income mainly on small farms, hired farm labor, or non-farm (including urban) economic activity. To improve welfare for all three of the major dollar-poor groups, advances in applied farm science must satisfy two conditions:

1. The Price/Total-Productivity Tightrope: For new science to help poor farmers and poor food consumers, it must cut staples prices, but must also raise total factor productivity (TFP) on small farms even faster. New science usually raises farm supply of outputs and demand for inputs. That makes outputs cheaper and inputs more expensive; hence the ratio of farm output prices to input prices falls. Do small and poor farmers gain? If, and only if, this science-induced fall in their relative farm prices is slower than the science-induced rise in their conversion ratio of physical inputs into physical outputs (that is, TFP). Yet, unless the extra food brings the price of staples down, the non-farm poor, especially in towns, may not gain much from new crop science.

Walking this tightrope successfully means addressing two demand issues: (1) Is there enough demand for extra staples produced by agricultural research to avert price declines that would unduly cut research gains to small farmers? (2) How can the poor afford this extra food? It is easier to walk this tightrope if many of the research adopters are food-deficit small farmers. These, a substantial majority of the rural poor in most of Africa and Asia, spend significant portions of their extra income on more (and better) staples, eating much of the extra food themselves.

2. The Wage Rate/Labor–Land/Productivity Tightrope: In the early stages of development out of mass poverty, for new science to help poor farm laborers, it must not only raise output per labor-

⁶⁶ This annex draws in part on M. Lipton: 'The family farm in a globalizing world' (IFPRI 2020 Discussion Paper no. 40 of 2005).

hour but also to a greater extent output per hectare. In most farming situations in developing countries, there is hardly any 'spare' farmland worth cultivating. With A (area of cropland) fixed, L (use of farm labor) can rise only if output per unit of area (Q/A) grows faster than output per unit of farm labor (Q/L): hence the above condition for total demand for farm labor to rise, pulling up employment or the wage-rate.

The condition is tighter if supply of farm labor grows. The number of persons of prime working age (15–64 years old) is set to rise at around 2 percent per year in most of South Asia and Sub-Saharan Africa for the next 10–20 years, and by over 1 percent even in rural areas. For farming to help raise demand for labor faster than supply, with cropland scarce, scientific advances must raise output per hectare by at least, say, 1.5 percent per year faster than output per worker.

This is not to say that agricultural research in poor areas can disregard output per worker. It too must rise significantly. First, poverty heartlands are there partly because output per worker is so desperately low. Second, they are also kept poor by low labor productivity, which deters farmers and others from hiring more labor, thus retarding the poor's wages, employment, and bargaining power. Third, higher labor productivity is especially important in areas facing acute seasonal labor scarcity – most common in Africa, particularly when hoeing is needed; otherwise, severe yield losses can occur due to late planting. Fourth, HIV/AIDS severely depresses local labor supply in parts of Africa.

Research needs to raise labor productivity, especially in peaks, but it cannot help those afflicted by HIV/AIDS to cut the demand for poor people's labor! Agricultural research, with land and water limited, will seldom cut poverty much without raising their productivity faster than labor productivity. Otherwise, farm employment demand must fall. Only much further into the process of development and rural poverty reduction, when non-farm growth and emigration have pulled wage-rates up, should researchers – like farmers – seek to raise labor productivity faster than land productivity.

The lesson for future crop science policy is clear. When choosing among research paths, alternatives should be *evaluated by their impact on all three groups of poor*. A high employment share in extra science-induced farm income should normally be seen as a gain. For countries where the dollar-poor lose out if the demand for farm labor declines, aid-backed farm research should not support better combines, herbicides, mechanical transplanters – or varieties whose advantages depend on these – unless the results can be shown to be cost-effective ways to cut poverty.



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