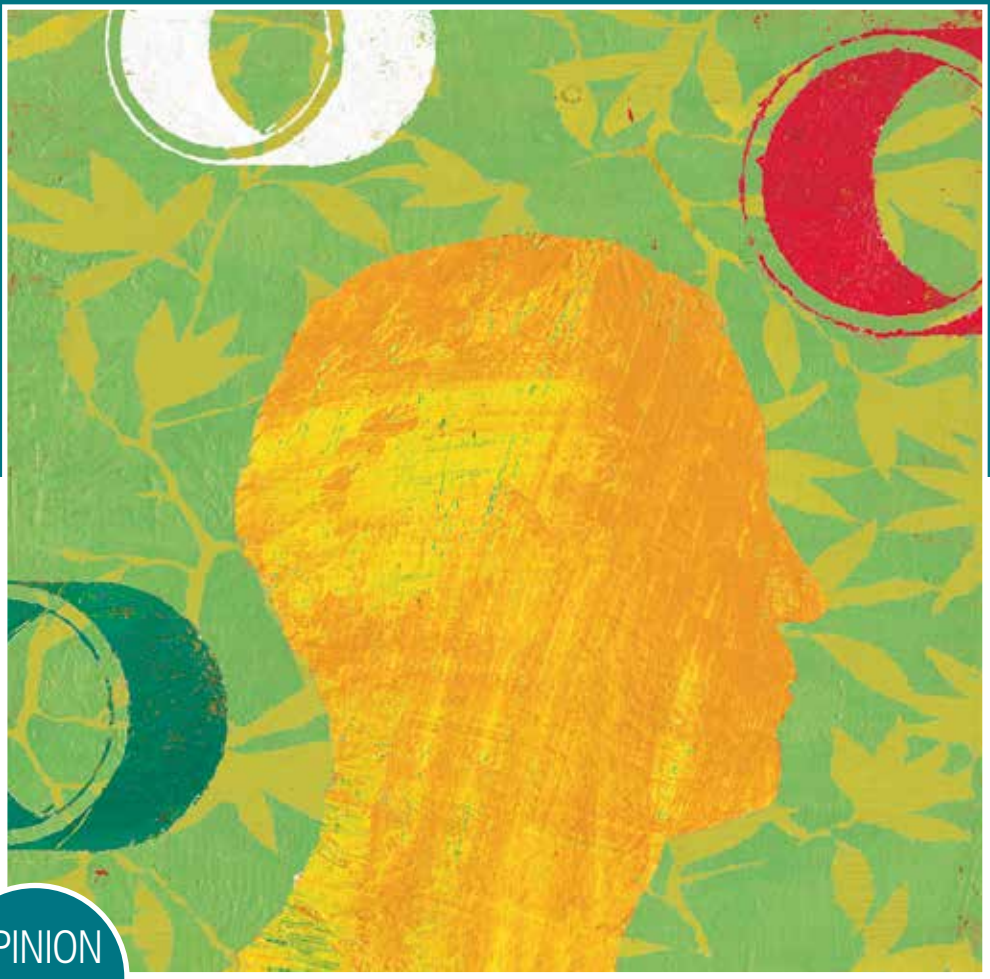
Joint INRA–CIRAD–IFREMER
Ethics Advisory Committee



OPINION
10

ON the ethical aspects of major international agreements (Sustainable Development Goals, Paris Agreement on climate change)

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OPINION 10

ON the ethical aspects of major international agreements (Sustainable Development Goals, Paris Agreement on climate change)

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President of INRA
President of CIRAD
President of IFREMER

For the attention of:

The President of the Joint INRA–CIRAD–IFREMER Ethics Advisory Committee

Paris, 4 November 2016

Subject: *Referral to the Joint Ethics Advisory Committee for the three organisations, regarding the UN's 2030 Agenda for Sustainable Development and the Paris Agreement on climate change.*

Dear Committee President,

Two extremely important international agreements which have an impact on our organisations were concluded in 2015: the UN's 2030 Agenda for Sustainable Development[1], which sets out 17 "Sustainable Development Goals" (SDGs) and 169 "targets", and the Paris Agreement,[2] which follows on from the COP 21 held as part of the United Nations Climate Change Conference.

These texts are relevant to all countries, which have "common but differentiated responsibilities", unlike for the Kyoto Protocol on climate change, which only included commitments for developed countries, as well as to other previous international agreements with a smaller territorial reach. Their scope is extremely broad, touching on all economic, social and environmental areas, from "sustained, inclusive and sustainable economic growth" to "inclusive and equitable" development of human societies and the preservation of global ecology on all geographical and temporal scales, among others. These aims are in line with previous international agreements, especially the "climate" and "biological diversity" conventions concluded in Rio in 1992, whose scope they broaden or clarify.

As a signatory country, France has committed to the goals; as such, it is up to the French government to set the guidelines for our three organisations, placed under its authority, with regard to priority actions to undertake. We are available to inform you of any decisions and provide any guidance documents that have been drawn up for this purpose. This process, which falls under the institutional management of our organisations, does not raise any particular ethical issues on our part.

However, within the institutional framework already established or to be established by the French government for our organisations to implement these agreements, we would like your committee to shed light on the principles that will help research teams deal with the ethical questions that are raised, especially with respect to the following two areas:

1 https://sdgs.un.org/2030agenda
2 https://unfccc.int/sites/default/files/english_paris_agreement.pdf

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1) **What are the ethical standards that can be used to guide researchers' activities, with regard to the two aims of improving the well-being of the population and protecting the biosphere, and especially the functional and evolutionary aspects of biodiversity?**

Indeed, these two aims determine a large part of the provisions in the agreements. They are interrelated, since improving the well-being of populations, particularly the most disadvantaged, often depends on the organised exploitation of the biosphere's renewable and non-renewable resources.

However, they differ significantly in terms of their founding ethical principles:

– The 2030 Agenda for Sustainable Development explicitly cites the principles related to improving societal well-being: human dignity, equity, justice, non-discrimination etc. Beyond simply mentioning them, it would be useful to integrate these principles into applicable guidelines as much as possible in the relevant fields of action.
– That said, the principles that could underpin actions to maintain or restore the biosphere are not explicitly outlined. Can actionable principles of environmental ethics to support the achievement of these goals be identified and examined to determine their consistency with previous principles?

The role of time and space scales involved in conducting local research should be examined to improve the well-being of societies as well as to protect the biosphere; there are many ethical considerations to take into account when choosing between near- or long-term goals and local or global approaches. Such choices relate to two particular aspects that warrant further study by the committee:

– How can themes that concern the community on a large scale or in the long term, when they are not supported by clearly identified actors in the short term, be taken into account by targeted research organisations, whose research activities are often funded on the basis of calls for projects and require the involvement of "stakeholders"?

– What ethical considerations are necessary to justify the choice of tools for comparing the near and distant consequences of the activities undertaken, and especially with regard to choosing a relevant discount rate (see, for example, the debates following the Stern Review[3] on the economic consequences of climate change).

2) **How can cultural or practice-based criteria related to specific societies or different social groups be included in research when implementing principles expressed using "universal" language?**

The 2015 international conventions are expressed using universal language, and only briefly touch on cultural, social or regional differences. However, local contexts, cultures and practices are extremely diverse, at all territorial levels: the way well-being and individual rights are viewed, or what is considered the good state and proper use of natural resources, for example, differ greatly from one society or social group to another.

These differences between social groups, professions, institutions and generations concern remote territories, partner institutions in foreign countries, and even French society, where they sometimes lead to serious misunderstandings or conflicts of use or objectives.

3 Stern Review Report on the Economics of Climate Change, written by economist Nicholas Stern for the Government of the United Kingdom, 30 October 2006.

We ask the Committee to examine how, and on the basis of what principles, research teams should seek to take these different approaches into account when implementing research initiatives related to the relevant conventions. Meanwhile, identifying principles with universal value for a range of situations could help determine possible changes to a variety of approaches that could support achieving the Sustainable Development Goals.

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A preliminary review with teams of researchers from our organisations could enable us to specify the scope of the reflection on the issues thus raised, so that your opinion best meets the aim of ensuring that researchers take ownership of the content of these international agreements.

Please do not hesitate to contact us if you need any further information.

INRA President and CEO	CIRAD President and CEO	IFREMER President and CEO
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Reconciling human well-being and environmental preservation

When adopting the 2030 Agenda for Sustainable Development in September 2015, the United Nations Member countries affirmed in the Agenda's preamble that they were "resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet." The vast agenda set out a framework for the 17 "Sustainable Development Goals" (SDGs) to be achieved by 2030. The Paris Agreement, signed in December 2015 at the end of the 21st Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change, is based on the same priorities.

Within their respective fields of action, INRA, CIRAD and IFREMER are pursuing the same goals: to improve the well-being of the populations who benefit from their research, while ensuring environmental preservation.

As soon as their new Joint Ethics Committee was set up in 2016, the three president-directors general of these three institutes felt it was important to ask the Committee to delve into the ethical dimensions of the international agreements concluded in 2015. The Committee was also asked to suggest ways for research teams to take ownership of these agreements and address their implications.

The expectation was that the insights gleaned could help identify the ethical principles likely to guide researchers' actions while taking into account the differences in culture and social practices between the relevant actors. Indeed, the reference texts are the result of complex negotiations aimed at seeking consensus – remarkable in itself – among the representatives of a very large number of signatory countries with different concerns. In its opinion, the Committee sought to return to the original meaning of the agreements, which was sometimes masked by the results of the drafting process. This was an essential condition for determining how, when dealing with local realities, the operational action of the research teams could or should be affected.

The Committee began by noting that the United Nations' vision of progress and development for the peoples of the world has evolved over the past 70 years: In the immediate post-war years, the main concern was a return to peace, followed by the fight against hunger, particularly with the "green revolution" in the 1960s. The year 1972, with the Stockholm Conference and the Meadows Report, marked a new awareness of environmental issues. The concept of sustainable development finally came to the fore in 1992 with the Brundtland Report and the Rio Conference. The "Millennium Development Goals" in 2000, followed by the "Sustainable Development Goals" in 2015, clarified this concept, which was initially defined only by the combined consideration of economic, ecological and social issues in the short and long term.

As a result of these developments, it is possible to set out the principles on what is good for both humankind and the environment.

The ethical dimension is obvious. These principles appear to be underpinned by multiple approaches. The concept of social, economic and human development depends on improving human rights, individual well-being and social justice. As for environmental preservation, it presupposes respect for nature's value in every sense: social utility, intrinsic value and heritage value for the community, across various temporal and spatial scales. All these approaches are found in the 17 SDGs from 2015.

The issue of cultural differences is about striking a balance among the environment's many values – this balance varies from country to country and, within each country, from one social group to another, depending on the history and priorities of each place and time.

Such a broadening of the ethical field in which researchers operate has led the Committee to make recommendations to the organisations and their research teams.

These recommendations apply to scientific integrity; the level of proximity to be established and maintained between researchers, citizens and policymakers; transdisciplinarity; diverse partnerships and funding sources; and finally, controversy management.

Although they may seem general in scope, similar recommendations deserve special attention here because they touch on the raison d'être and actions of the three institutions that initiated this referral.

Axel Kahn, President

Michel Badré, Vice-President

Preamble

The purpose of this opinion is to identify and explain the ethical implications of the 2015 agreements: the 2030 Agenda for Sustainable Development (and its 17 Sustainable Development Goals, or SDGs) and the Paris Agreement. The aim is to help the teams from the three research institutions identify the principles involved and bring them in line with the day-to-day work of conducting and managing research.

Some background information regarding the new context in which these agreements were signed should first be given. Between 1945 and 2015, the international community shifted its focus from preventing war to fighting poverty. Feeding the world's rapidly growing population has become a new priority.

Additionally, the environment began receiving greater attention, intensifying from the 1970s due to growing concerns about global change (climate, biodiversity). "Feeding the population" and "protecting the environment" are two undeniably essential yet sometimes conflicting objectives. When decision-makers attempt to limit human intervention (greenhouse gas emissions, use of land and natural resources, and even population limits) in order to address these concerns, questions of equity and fairness between rich and poor countries, or between rich and poor populations, soon arise. These questions therefore go straight to the heart of our three organisations' activities, which provide the link between well-being (including food, poverty etc.) and environmental preservation.

The 17 SDGs cannot be separated from each other; they are synergistic, but sometimes also antagonistic, or at least not entirely compatible with each other in every circumstance and place. This creates difficulties in their implementation that are closely tied to every aspect of research. Moreover, the dense language of the final SDGs – the result of lengthy international negotiations – can be confusing for researchers, and to clarify it we need to focus on how the underlying values affect how research is conducted. This opinion is therefore also addressed to the management of our three organisations, since objectives, guidelines and recommendations must be prioritised. This falls under their purview and will involve identifying the relevant governance bodies to discuss priorities and manage controversies. Research governance is well within the scope of this opinion: we had to take it into account in the course of the interviews we held, because researchers do not determine the purpose of their work alone. Laboratory committees were mentioned as a way to include citizens and their points of view in research, as was the need to report results back to society.

This opinion first analyses the theoretical foundations of the relevant international agreements, which relate to both sustainable development and environmental preservation. It then addresses the question of multiple temporal and spatial scales that have an impact on priorities, such as when decision-makers must choose between favouring actions in support of the poorest countries, or the poorest populations in all countries, and thus approach the SDGs differently in each context. Questions then arise regarding practical applications when dealing with local realities, whether there are specific professional conduct guidelines for researchers to follow, or how to acknowledge cultural differences. Finally, this opinion analyses and makes recommendations on research practices, interdisciplinary cooperation, top-down and bottom-up approaches by field of study and by territory, and the need to create governance bodies to manage controversies and consider the impacts of research, the integration of local and scientific knowledge, multiple viewpoints and partnerships.

1 ■ The objectives of the 2030 Agenda for Sustainable Development and the Paris Agreement

The 2015 international agreements refer to two overall objectives, set out in the preamble of the 2030 Agenda for Sustainable Development: "to free the human race from the tyranny of poverty" and "to heal and secure our planet". The text goes on to provide more specific details about what these objectives entail. It mentions that the signatories are determined:

- "*to end poverty and hunger*",
- "*to ensure that all human beings can fulfil their potential in dignity and equality and in a healthy environment*",
- "*to protect the planet from degradation, including through sustainable consumption and production, sustainably managing its natural resources and taking urgent action on climate change*",
- "*to ensure that all human beings can enjoy prosperous and fulfilling lives and that economic, social and technological progress occurs in harmony with nature*", and
- "*to foster peaceful, just and inclusive societies which are free from fear and violence*".

The very vast programme thus outlined is broken down into 17 Sustainable Development Goals (SDGs) and 169 specific targets. The introduction specifies that their implementation will require "a revitalised Global Partnership for Sustainable Development, based on a spirit of strengthened global solidarity," and notes that the "interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realised".

The Paris Agreement specifies that measures taken by the signatories to address climate change must "respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity". This is because climate change "represents an urgent and potentially irreversible threat to human societies and the planet".

The excerpts chosen from these polished, seemingly uncontroversial texts shed some light on their conceptual foundations in terms of social, economic and human development as well as environmental preservation.

1•1 Social, economic and human development

Development is sought through goals that fall within the scope of two different yet complementary approaches:

- a **human rights**-oriented approach, as outlined very broadly in the quote from the Paris Agreement above. They appear in very similar terms in the 2030 Agenda for Sustainable Development.
- a goal-oriented approach. The aim is to seek **well-being for the world's peoples** and the societies they make up, through specific actions cited in the text: eradicating poverty and hunger, ensuring that all human beings enjoy a prosperous and fulfilling life, etc.

Justice is a key idea that plays a role in supporting these approaches: "inclusive societies which are free from fear and violence" must be created by being "focussed in particular on the needs of the poorest and most vulnerable". This focus on those most in need, whether the poorest people or the poorest countries, is echoed in various spiritual and religious beliefs. It is also a value promoted by many philosophers and economists, from Kant to John Rawls and Amartya Sen.

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The ability to earn a "decent living" – an ethical benchmark – is what makes it possible "*to build a better future for all people, including the millions who have been denied the chance to lead decent, dignified and rewarding lives and to achieve their full human potential*" (2030 Agenda for Sustainable Development §50). A better future is one in which basic human rights are respected and people's basic needs are met.

It should be noted that ensuring "that all human beings can enjoy prosperous and fulfilling lives" goes beyond simply meeting basic needs, which are incontrovertible: well-being is entirely unattainable if a person consumes fewer than 1,000 calories a day. We must ensure that everyone has access to more than 1,200 calories and water every day. Restraint is a key part of the solution to this requirement. This takes our response beyond the realm of basic needs and into one that includes well-being and, as Amartya Sen indicates, freedom. Defining the "needs of human societies" is not a straightforward task; it depends on who determines the needs and the prism through which they see the world when doing so. It is a matter, as Gandhi once said, of satisfying "everyone's needs, but not everyone's greed".

At this point in our analysis, an ethical approach to economic, social and human well-being appears to require three things: respect for human rights, the meeting of societal needs, and a focus on the world's poorest. However, we must not overlook differences in cultural approaches which lead each society to have a different view of its own needs and those of others.

1•2 Environmental preservation

The texts cited above specifically mention several aims:

- the right to live in "*a healthy environment*", which is considered of equally importance as the principles of dignity and equality for all,
- access to "*sustainable consumption and production*",
- "*sustainably managing [the planet's] natural resources*",
- measures to take "*urgent action on climate change*", and
- ensuring that "*economic, social and technological progress occurs in harmony with nature*".

Sustainability, whether it applies to resource production, consumption or management, initially appears to be a utilitarian concept, linked to the purpose of the actions to be taken, in accordance with the definition of sustainable development given in the 1987 Brundtland Report[1]: it is about meeting society's current and future needs. Although it is not explicitly stated here, the fight against climate change is also primarily an action determined by its objectives: fighting climate change is only justified in view of the needs of human societies. However, the texts also mention "a healthy environment" and progress that is "in harmony with nature", which refer to a more general, less fixed idea of nature that is considered for its own sake and not only based on humanity's needs.

This duality in the way we view nature – as a producer of services for humanity or as a value in and of itself – has marked the history of reflection on the ethics of nature since at least modern times in the Western world.

Among the proponents of a utilitarian approach to nature conservation are the eighteenth-century physiocrats, for whom the bulk of economic wealth comes from good use of nature, and the nineteenth-century foresters,[2] who developed the "restoration of mountain land" to limit the damage caused by torrential floods. Today, this would be associated with the development of extensive research on "ecosystem services" provided by biodiversity, from agricultural and forest production to pollination, carbon sequestration and landscape quality.

However, humans also feel a strong attachment to nature that is independent of, and sometimes even the opposite of, any utilitarian approach. Examples include the nineteenth-century transcendentalist movement in the United States, with Emerson and Thoreau and later John Muir, and various currents in Europe in the wake of Romanticism that were the precursors of environmental movements, with an admiring approach devoid of any idea of mastery or exploitation. Figures such as George Sand and Tolstoy took an artistic or

1 According to the Brundtland Report, "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It contains within it two key concepts: the concept of 'needs', in particular the essential needs of the world's poor, to which overriding priority should be given; and the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs."

2 Long after Pliny the Younger (61 or 63 A.D. – 113 or 115 A.D.) worried about the consequences of deforestation on torrent control..

literary approach, while Elisée Reclus adopted a more descriptive and scientific approach. The development of "artistic reserves" in the Fontainebleau Forest in 1861 – a first step in creating protected areas specially dedicated to protecting nature – was one of the first operational applications of these approaches.

Conflicts over nature protection since the end of the nineteenth century have often pitted these two schools of thought against one another. The Hetch Hetchy dam proposal in the United States in the early 1900s was one controversy that stirred up public opinion and reflected nearly all the main considerations involved in such conflicts.

Conflict over the Hetch Hetchy dam

This lengthy conflict in the United States in the early 1900s was the first to be widely publicised in the media. It concerned a proposal to build the Hetch Hetchy dam on the Tuolumne River in the newly created Yosemite Park, and pitted "preservationists" in favour of full protection against "conservationists" who wanted to build a reservoir to supply water to the city of San Francisco. John Muir believed that flooding the area was akin to submerging a cathedral under water, while the mayor of San Francisco felt that his city needed water more than ever. This conflict, which ended with President Wilson approving construction of the dam in 1913, was a precursor of today's major environmental battles. Translated into contemporary language, it would be described as an opposition between proponents of green growth that integrates sustainable water use for the well-being of California's urban populations, and defenders of terrestrial ecosystems and the hydraulic continuity of rivers in a protected area made up of habitats of exceptional interest. Today, an attempt would be made to carry out an economic assessment, which would probably, as always, come up against the incommensurability of the values involved: the value of the ecosystem service of producing clean water for consumption, and the intrinsic value of the landscapes and biodiversity in the Hetch Hetchy Valley. In order to be comprehensive, and fully appreciate how long these debates have been going on, we will add that in 2017 the local debate on the Hetch Hetchy site is about whether or not to dismantle the dam. Among the issues under discussion is the future of the currently flooded areas: advocates of active restoration (to what the area was like prior to the construction of the dam? or another environmental state considered optimal?) must contend with those supporting a laissez-faire approach that favours natural dynamics.

However, a more thorough analysis of the environmental conflicts of the past century would reveal an additional dimension that is not especially obvious in this example: in addition to instrumental value (here, that of water supply to San Francisco) and intrinsic value (here, that of an exceptional landscape), there is often a third value: that of heritage which can be managed jointly by the population of a territory to be delineated. The population becomes one of the components of the heritage in question. This heritage value applies to some recent conflicts regarding use, such as those linked to the reintroduction of large predators in areas of mainland France. The importance that each human group assigns each of these values, whether instrumental, intrinsic or heritage, will depend on its own culture. This type of heritage approach encourages discussion. It avoids the sharp opposition between instrumental and intrinsic value and allows comparison between different attitudes, whether Western or not, since heritage value is integrated in different ways by different cultures. This last observation leads us to consider the idea of nature as a component to be protected, restored, or simply allowed to exist, in harmony with economic, social and technological progress as described above.

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New Zealand and India grant legal personhood to rivers

"The Whanganui, a river in New Zealand, now has the same rights as a person. Parliament has granted legal personhood to the 290-kilometre long river, which flows across the North Island. Dozens of Maoris attended the vote on the law on Wednesday, 15 March [...]. These indigenous New Zealanders had been fighting for this legal text since the 1870s. Following the vote, Chris Finlayson, Minister of Justice, said 'This marks the end of the longest dispute in the country's history. This legislation is a recognition of the deeply spiritual connection between the iwi [Tribe] Whanganui and its ancestral river. […]'. The text argues that the river, whose Maori name is Te Awa Tupua, is a living being 'from the mountains to the sea, incorporating its tributaries and all its physical and metaphysical elements'.

The rights and interests of the Whanganui can now be defended in court. The river will be represented by two people: one from the tribe and one from the government – in the same way that an adult speaks on behalf of a child before a judge. The river is now better protected, and complaints can even be lodged on its behalf. The tribe is not the owner of the river, but its guardian, responsible for protecting it for current and future generations. The tribe received NZ$80 million (€52.2 million) in financial compensation and NZ$30 million to improve the condition of the river.

Some might find this recognition of a river's rights strange, acknowledged Labour MP Adrian Rurawhe, himself a Maori. But for indigenous people, this is normal, he told New Zealand journalists, before quoting a Maori proverb: 'I am the river, the river is me'. 'Our land is personified,' says Jacinta Ruru, co-director of the Māori Research Centre at the University of Otago in Dunedin, South Island. "We think of ourselves as part of the environment. Our well-being and our health depend on the health and well-being our environment and vice versa. The law has embraced the Maori relationship to the land and reversed the idea of human sovereignty,' she said.

According to international lawyer Valérie Cabanes, author of Un nouveau droit pour la Terre (Seuil, 2016), this law, presented as a world first by the government, has its precedents. 'Recognition of the rights of nature is evolving around the world,' she says, citing examples from Ecuador and Bolivia, as well as counties in the United States and Mexico City, which have enshrined the rights of nature in local legislation.

The belief of the First Peoples, who do not distinguish between humanity and nature, underpins this affirmation of the rights of nature. But 'more and more Westerners are getting involved in this approach,' says Cabanes, who highlights 'the climate and environmental crisis' to explain this evolution. 'Since Judeo-Christianity and the supremacy of the West over the world, humankind has assumed a dominant position. But it is only one vision of the world, which has clearly reached its limits.' [3]

Only a few days after this decision, two rivers considered sacred in India were given a new legal status. The Ganges and Yamuna, where Hindus regularly perform ablutions, have been designated as 'living entities having the status of a legal person' by the High Court of the Himalayan State of Uttarakhand. These new statutes will enable citizens to take legal action on behalf of these rivers in India, which are heavily polluted with industrial waste."[4]

Shifts in scientific thinking over the last two centuries are well known. Our view of species, their evolution and their relationships to each other and their environments have completely changed: what began with Linnaeus as mainly descriptive and analytical approaches to identify, describe and classify animal and plant species have been upended by Darwin, genetics and functional ecology. These successive or simultaneous revolutions have led to the abandonment of any idealised view of nature in equilibrium, which should be preserved when it exists and restored when it has disappeared.

Thus the Odumian theory of ecology[5] – which was based on natural equilibria and the regulatory mechanisms that make it possible to return to them when disturbances cause deviations, and which dominated the field until the 1970s to 1980s – has since given way to a new perspective. Natural and anthropogenic disturbances are now considered to give structure to nature, which is in constant flux through a situation of dynamic equilibrium that is always temporary. This shift in scientific thinking obviously influences preservation and conservation policies: the idea of maintaining at any cost or restoring a state of nature considered ideal becomes illusory. On the other hand, the degree of intervention in the dynamics of natural evolution is logical: the choice in any human intervention on natural processes, according to Raphaël Larrère[6], is between "doing something" and "making do" with natural dynamics, or "doing nothing".

3 Source: http://www.lemonde.fr/planete/article/2017/03/20/la-nouvelle-zelande-dote-un-fleuve-d-une-personnalite-juridique_5097268_3244.html
Caroline Taïx, *Le Monde*, 20 March 2017.

4 Source: https://www.franceculture.fr/environnement/en-inde-et-en-nouvelle-zelande-le-fleuve-reconnu-comme-un-etre-vivant

5 Named after the American ecologist Howard T. Odum, who contributed to defining the concepts.

6 Presentation at the conference "*Quelles éthiques pour les relations humains-biodiversité ?*" (The ethics of relations between humans and biodiversity), Paris 1 Panthéon Sorbonne University and Association Humanité et Biodiversité, 9 and 10 December 2016.

A dual philosophical and epistemological view of the relationship between humans and nature in actions to achieve the SDGs (including actions for climate change mitigation and adaptation) leads us to highlight two objectives:

- **to strike a fair balance with regard to the utilitarian value of the services provided by nature and its intrinsic value which cannot be monetised, along with a heritage approach, which integrates the joint management of nature by local populations.**
- **understand how to situate the consequences of anthropogenic actions in relation to the natural dynamics at work in ecosystem evolution.**

2 ■ Multiple scales: time and space, global and local

The referral document states that "The role of time and space scales involved in conducting local research should be examined to improve the well-being of societies as well as to protect the biosphere; there are many ethical considerations to take into account when choosing between near- or long-term goals and local or global approaches".

2•1 Time scale

In addition to the different spatial scales, certain ethical considerations must be taken into account in order to justify the choice of tools used to compare the near or distant consequences of any actions undertaken. This is all the more necessary since the aspect of time is inherent in "sustainable" development. It should be noted, however, that time is considered differently depending on whether societies view time as linear or cyclical.

Irreversibility is an obvious fact in our cultures and one of the touchstones for judging the value of the SDGs and the Paris Agreement (which aims to avoid irreversible climate change). This is not necessarily true for other cultures with a cyclical or regenerative conception of time. In these cultures, the fear of failure is less serious than in our linear cultures of compulsory and continuous progress.

Furthermore, even from the perspective of the international agreements that are the subject of this referral, irreversibility should not be automatically considered dangerous. Irreversibility can be extremely favourable, such as when smallpox was eradicated. Irreversibility does not only lead to negative effects. A concept may indeed be proven, but it is important to differentiate the areas to which it applies.

Beyond the issue of irreversibility, it should be noted that there are differences in the conception and management of time, according to cultural traditions.

The committee also invites consideration of whether priority should be given to research activities with short-term or longer-term benefits. This brings up the issue of a relevant discount rate, which was raised in the debates following the Stern Review on the economic consequences of climate change.

The Stern Review

The key issue in the Stern Review was whether it was reasonable to act now to mitigate climate change and avoid significant future damage, or whether it was better to wait for it to happen and adapt when it did. Cost-benefit analysis involves comparing immediate or near-term mitigation expenditure with distant future damage. To compare them, a discount rate must be applied that compares the value of the same monetary quantity now or in the future: adopting a discount rate of i% means having €1 today and (1+ i/100) to the power n in n years. (These calculations are based on real terms: inflation is a different, totally unrelated subject.) We can compare this to a bank lending rate: we could invest money now, at rate i, to recover it in n years' time and pay the cost of the damage at that time. The discount rate commonly used, and required by the French government in its own analyses, is around 4%, which means that all expenses beyond 20 or 30 years are considered negligible. Stern made his calculations using a rate of around 1.2%, which he justifies by the importance given to the living conditions of our descendants. Indeed, this results in placing much more importance on future damage, and therefore on the interest in mitigating it now instead of waiting (similarly, by investing savings at 1% instead of 4% to finance future expenditure rather than mitigation expenditure now, less future expenditure will be covered, thus increasing the interest in mitigating now). Here, we are indeed faced with a moral dilemma, hidden behind a choice of tool that is a matter of an economic

The choice – or rather, picking a point somewhere – between the short term and the long term partly overlaps with the emphasis on social and environmental objectives, which tend to be prioritised in that order. The two types of objectives ("a decent life"/well-being of populations on the one hand and environmental preservation on the other) is largely an opposition between the short term (directly perceptible approaches and preferences) and the long term (approaches requiring scientific reasoning or modelling). From this point of view, researchers and technicians of the different disciplines that fall under the umbrella of our three organisations are, due to their training and culture, rather inclined towards one time scale or another. Those in the social sciences tend to opt for the first, while those in the natural sciences for the second. Many researchers in applied sciences take a short-term approach, because their activities are based on profitability or performance. These divergences underscore the need for multidisciplinary approaches to concrete situations on the ground.

For one of our consultants, GRET/Professionals for Fair Development[7], the SDGs are long-term goals, and GRET has always taken a long-term approach to its projects. This does not mean a medium term of two or three years, but rather about 15 years, with attempts to see global dynamics from a comprehensive angle. It therefore welcomes the willingness expressed by the SDGs and the COP to address the issues in a broad and long-term way.

2•2 Spatial scales

Taking spatial scales into account means contextualising the very general recommendations of the SDGs to apply them to each territory. The main issue for researchers and technicians is how to deal with themes that concern the community on and with which they work on a larger scale (and in the longer term), when such themes are not managed within that community by clearly identified actors, who do still affect those themes directly or indirectly. For example, a CIRAD researcher mentioned a development project on the Volta River, where the quantity of water available, and therefore the local production capacity, depends on actions and decisions taken at the national level. Analyses at the local level will not suffice if the fate of the relevant communities depends on what happens upstream in the same country, or perhaps even in international river basins in a neighbouring country.

2•2-1 *The poorest countries, or the poorest people in all countries?*

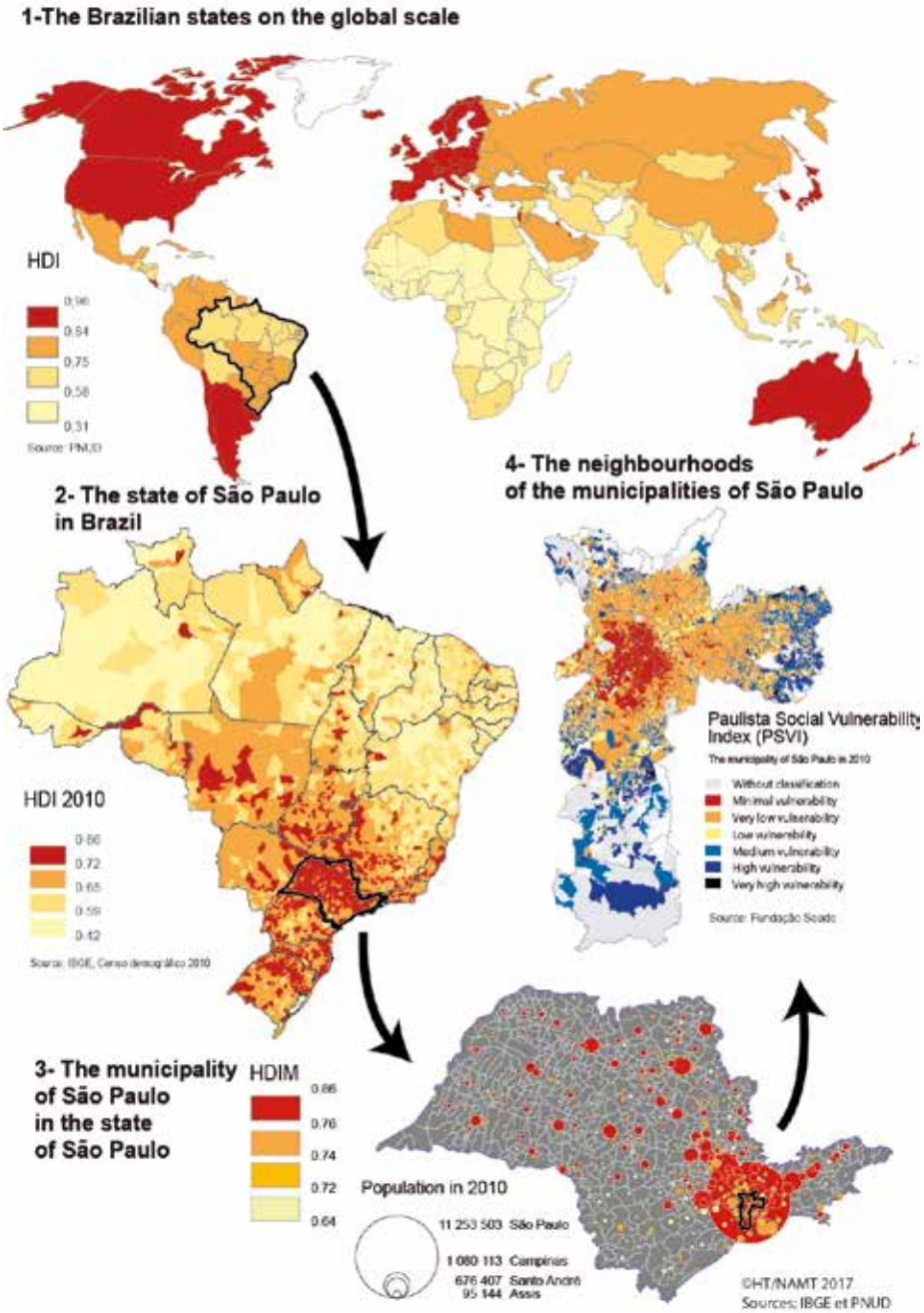
The referral refers to CIRAD's considerations regarding its activities, such as when it wonders, with regard to the SDGs and their contribution to fighting poverty, about an alternative: should the focus be on the poorest countries, on the poorest people in each of these countries, or on the world's poor in any country?

[7] An international development NGO, subject to French law, which operates in the field and through political advocacy actions to fight poverty and inequality.

Should economic, social and environmental inequality be considered between countries (Global North and South, emerging countries, etc.), within each country, or both?

This choice implies consequences for all stakeholders, at INRA as well as at CIRAD and IFREMER, and must be taken into account both in bilateral and multilateral negotiations between countries and in all of their domestic policies, including France. What do the stakeholders (politicians, scientists etc.) and, above all, what do the people concerned think?

To illustrate this point, we can take the example of Brazil, where the Human Development Index (HDI), originally calculated by the United Nations Development Programme (UNDP) to rank the countries of the world more fairly than by GDP per capita alone, was calculated at the level of the federal states and municipalities.



The figure above shows, even on the global scale (1), that while the country's southern states have development levels that are comparable to those of Eastern Europe, those of the northern states are closer to African levels. At the national level (2), the state of São Paulo stands out clearly from the rest of the country; the three southern states show even greater contrast, and are starkly different to the north-east and the Amazon, where the HDI is much lower.

In the state of São Paulo (3) the situation of the cities (indicated by the size of the circle proportional to the population of the municipality) is more favourable than that of the rural municipalities (especially in the south-west of the state) and the peripheral municipalities of the metropolitan region of the capital. Finally, at the level of the central municipality, São Paulo (4), another index calculated at the finest level of the neighbourhoods reveals even more major disparities: the Paulista Social Vulnerability Index (PSVI) distinguishes areas where vulnerability is minimal, in the centre, then successive rings where it is very low, low, medium, high and very high. The situation of the latter category is worrying in the northern and southern parts of the municipality, but especially in the east, in the Zona Leste, which has a population of 4.5 million, the vast majority of whom are poor and very poor, and a marked deficit in infrastructure and public services.

Under these conditions, where should the effort needed to achieve the SDGs be prioritised? In the Nordeste affected by drought and desertification? In the Amazon, where deforestation is still attracting international attention? Or in the outskirts of the central states and cities, where the number of people in difficulty is infinitely greater? Similar questions could be posed for many countries in the Global South (provided that data as complete as in Brazil is available), or even in so-called developed countries, where situations of distress persist in their peripheral regions (in France, according to information provided by INRA, farmers have resorted to going to soup kitchens) and even in central regions.

2•2-2 *How can the SDGs be implemented in each territory?*

The issue that leaders of research organisations, their researchers and technicians must contend with is therefore how to implement the SDGs in each territory. Since this mainly applies to agricultural and fisheries research, the "social performance" of farmers and fishermen in each geographical area must be considered more closely.

Indeed, local situations are very diverse. The weight that "produce more" carries is very different from one country to another, ranging from the need to avoid famine to raising questions about the choice between "organic farming" and "precision agriculture". There are many different agricultural models, even in mainland France, which can be illustrated by two cases at opposite ends of the spectrum. Pomacle, a commune in north-eastern France, is home to the "Biorefinery Research and Innovation" (BRI) platform, which brings together all the major players necessary for the development of plant fractionation, biotechnology and plant chemistry processes, from basic research to pre-production prototypes. Meanwhile, livestock farmers in the Creuse region (central France) must deal with isolation and rural flight along with the progressive loss of public and private services.

Compared to researchers and technicians in other scientific fields, those at INRA, CIRAD and IFREMER have an advantage, however, because agriculture is often defined as a "science of locality", and is therefore well suited to taking diversity into account. But they must still adapt to different contexts, without automatically transposing solutions from one context to another, as has too often been the case with the "green revolution". They will therefore have to adapt to different scales, from the micro scale of the plot and the terroir to the macro scale of the rural territory and the country, and above all make – or inform – choices. But which criteria should be used for such choices? Which values are relevant? What is to be lost or gained and for whom/what depending on whether one scale is favoured over another?

3 ■ Taking local realities into account

The ethical conduct of researchers working on issues that are as deeply linked to the life of human societies as the SDGs raises several questions. The discussion obviously goes beyond the SDGs themselves, but ethics can be a tool to help research teams achieve the aims described in Part 1 while taking into account the ethical considerations discussed in Part 2. This is in line with the international debate on scientific integrity

(see also the opinion from the INRA-CIRAD Joint Ethics Committee on the ethical and professional conduct issues related to sharing and managing research data[8]). Using the French National Charter for Research Integrity and the French National Charter on Expert Studies, the three research organisations have each drafted their own ethics charters or professional conduct and expertise codes.[9]

3•1 Ethical conduct among researchers

The first consideration is the degree of proximity that researchers must maintain with respect to policymakers and citizens. Several of the researchers consulted for this opinion stressed a strong desire within the scientific community to be involved in the political decision-making process on issues related to sustainable development. The institutionalisation of the Intergovernmental Panel on Climate Change (IPCC) since 1988 is a demonstration of the global integration between research efforts by the climate science community and the political decision-making processes negotiated within the framework of the United Nations.

This remarkable achievement should not make us forget the need for the scientific community and policymakers to remain independent, so as to avoid any instrumentalisation of one or the other, and to maintain the critical eye without which science cannot progress nor be truly useful to society.

With regard to participating in political decision-making processes, there are four main considerations when it comes to researchers' ethical conduct:

- **Prioritise their duty to scientific integrity, regardless of political demands or guidelines:** nothing can justify distorting or biasing the results of ongoing scientific work or approaches to support an argument in a more general debate.
  As an example of the institutional feasibility of this principle, all professors who are hired (even temporarily) by the Université Libre de Bruxelles must, in the name of the principle of free inquiry as outlined in Article 1 of its statutes,[10] sign the following statement: "I, the undersigned, declare on my honour that I adhere to the principle of free inquiry and therefore undertake to conform my assertions and my actions to what I hold to be true after objective and disinterested personal inquiry and to reject any principle of authority in intellectual, philosophical and moral matters even if I must oppose the assertions or prescriptions of an authority, whatever the basis or nature thereof".

- Make the results of their work known as widely as possible, in particular by publishing them and agreeing to participate in expert studies and disseminating knowledge. The Committee is aware of the obstacles arising from the career development criteria for researchers, which do not favour these activities that follow the research itself. We invite the bodies responsible for the evaluation of research and the research teams to give greater consideration to this important issue.

- Do not encroach on policymakers' responsibilities, even when they are tempted to delegate decisions to experts and ask scientists to make the decisions for them instead of providing information, without making a clear distinction between legitimate political authority and scientific expertise. Scientists have a duty to enlighten policy decisions in their specialty fields. It will be up to policymakers to make their decisions by integrating such expertise, in addition to relevant sociocultural, ethical, symbolic, economic and other considerations.

- Do not encroach on citizens' responsibilities , by expressing themselves in public or before political authorities as if they represented, through their in-depth scientific knowledge, the collective will. The democratic principle does not give researchers the right to speak on behalf of their fellow citizens: this function is ensured by the electoral processes of representative democracy, or by the consultation mechanisms of participatory democracy. The role of researchers is to provide citizens with the information they need to be fully informed, and not to speak for them in consultation processes. Of course, scientists are also citizens, and can intervene in the public debate as such.

The role of researchers with regard to policymakers and citizens is not only a matter of principles: it also depends on the tools put in place to ensure proper conduct. Accordingly, **the Committee recommends the development or generalised use of declarations of interest by researchers**: beyond the oft-cited aspect of financial links, which are significant in certain areas of scientific knowledge but marginal in

8 https://www.inrae.fr/actualites/avis-partage-gestion-donnees-issues-recherche

9 French National Charter On Expert Studies (2010), INRA institutional charter on scientific expertise (2011), IFREMER charter on expertise and opinions (May 2017), Guide to good consulting and expertise practices (CIRAD), French National Charter For Research Integrity (2015), INRA Ethics Charter (2013), IFREMER Charter for ethics in research (April 2017), CIRAD draft charter of ethics (currently being adopted).

10 http://www.ulb.ac.be/ulb/presentation/librex.html

others, this issue is also about making known how the scientific expertise of those involved in a political decision-making process was developed or maintained. By directly tackling the image of scientists hidden behind a mask and peddling conspiracy theories that are purportedly for the benefit of society, being transparent about researchers' ties will enable all citizens to better understand the connections and interactions of the scientific community when it communicates with the public.

The issue of the relationship between researchers and policymakers cannot be dissociated from that of research funding, in the areas examined here. Whether public or private funds are involved, research funding is increasingly organised by programmes, in specialised fields that are logically linked to the funder's concerns.

In order to maintain continuity in research themes over the medium and long terms, each scientific community should have two main considerations when dealing with this situation:

- ensuring the sustainability of research infrastructures (laboratories, instrumented sites, measurement networks that are monitored over time, databases etc.) to support continuity in scientific approaches,
- actively participating, within the framework of research programming and funding bodies, in the proper definition of these programmes, in particular by integrating into those with public funding the long-term approaches that are essential for scientific progress.

An examination of advisability should also lead to a **refusal to participate in calls for projects whose aims do not correspond to the objectives analysed above** in terms of social and human development as well as biosphere preservation.

That said, many calls for projects, especially in Europe, include the SDGs and sustainable development issues in their specifications; it is precisely because of this that the spirit of international texts "percolates" in research laboratories. This percolation is certainly due to efforts of management in the organisations to influence them by defining research programmes, encouraging dialogue between departments, promoting positions etc. But it is also, and perhaps even more so, due to the need to take into account the content of the specifications of international calls for projects: this is also the way in which the researchers are led to achieve the objectives of the agreements.

Taking into account what makes each situation different, whether related to culture, context or any other reason, is also an ethical obligation, given the general nature of the international agreements examined here. When speaking about citizen-oriented policy action,[11] Pierre Rosanvallon mentioned "**the need to acknowledge specific differences**" when dealing with how to apply general principles, which tend to "override separate distinctions". He recommends moving away from the "undiscerning generality" that often results from harsh market forces, or from indifferent rules that are automatically applied. These recommendations seem to be applicable to the conduct of researchers confronted with the complexity of real-life situations, where a more perceptive, compassionate approach must be adopted to achieve the Sustainable Development Goals.

3•2 Including differences in practices and cultural traditions

Because of the type of research that CIRAD, INRA and IFREMER conduct, the referral asked for consideration to be given on "how cultural or practice-based criteria related to specific societies or different social groups can be included in research when implementing principles expressed using 'universal' language". The 2015 international conventions are expressed using universal language, and only briefly touch on cultural, social or regional differences. However, local contexts, cultures and practices are extremely diverse, at all territorial levels: the way well-being and individual rights are viewed, or what is considered the good state and proper use of natural resources, for example, differ greatly from one society or social group to another.

The Committee has been asked to examine how, and on the basis of what principles, research teams should seek to take these different approaches into account when implementing research initiatives related to the relevant conventions.

These differences between social groups, professions, institutions and generations concern remote territories, partner institutions in foreign countries, and even French society, where they sometimes lead to serious misunderstandings or conflicts of use or objectives.

11 Pierre Rosanvallon, *"La légitimité démocratique"*, Seuil Paris 2008: 290-292.

The UN resolution of 25 September 2015 on the SDGs mentions this point: "We acknowledge the natural and cultural diversity of the world and recognize that all cultures and civilizations can contribute to, and are crucial enablers of, sustainable development" (p. 36). Through less obvious language, the Paris Agreement following the COP 21 acknowledges the importance of "ensuring the integrity of all ecosystems, including oceans, and the preservation of biodiversity, recognized by some cultures as Mother Earth". Its preamble also implies that cultural considerations should be taken into account when it agrees "to uphold and promote regional and international cooperation in order to mobilize stronger and more ambitious climate action by all Parties and non-Party stakeholders, including civil society, the private sector, financial institutions, cities and other subnational authorities, local communities and indigenous peoples".

It should also be noted that taking into account, on a scientific level, the many approaches and cultural representations of nature in the different regions of the world is one of the items in the terms of reference for the IPCC when it was created in 1988. The IPCC's missions included the task of reporting on these different cultural points of view, while seeking to identify what can be agreed upon in the scientific community.

In his anthology of the founding texts of man's relationship with nature[12], the Burkinabe historian Joseph Ki-Zerbo argued that, despite their plurality, human societies have adopted two major attitudes towards their natural environment: "The first consists in apprehending, grasping, by hand or tool, taking and understanding nature as a utilitarian or pleasant object used by man as a means to an end. The second approach rejects separation from nature, to which one considers oneself linked, or even an integral part of, as a microcosm in symbiosis within a macrocosm. Human beings then appear as subjects among many other subjects with which humans must negotiate coexistence and alliances through appropriate procedures (religious, ethical, symbolic etc.)."

Cultural differences are undoubtedly fading rapidly as a result of a twofold evolution:

- many areas that were initially marked by holistic cultures are seeing changes in world views because of globalisation, and
- the Western world is beginning to accept the idea of unlimited drawing rights on natural resources as a result of global awareness of global warming and other environmental dangers.

However, this aligning of viewpoints does not mean that very different ways of considering humans' relationships to certain elements such as land and water simply disappear; these are differences that neither the economy nor research can consider as negligible factors.[13]

As expressed in the referral, the issue of cultural differences means that researchers and technicians must take into account differences in local or national cultures, in the cultures of professions (researchers, engineers, farmers, fishermen, sociologists, logistics experts etc.), and in institutional cultures (research organisations, United Nations agencies, NGOs, diplomatic posts etc.). Cultural gaps may arise in conceptions of time and space; in the relationship to what is considered sacred, to nature and to the environment; in the relationship to the individual/collective; and in the relationship to such things as knowledge and social status, heritage values, work, money, norms and authority.

3•3 Research practices

How do these general considerations apply to the specific practice of research and the daily life of managers, researchers and technicians of the three organisations?

Broadly speaking, there are three possible attitudes towards the SDGs and the conclusions of COP 21 that have been observed:

- these are very general texts without practical relevance, and thus research can continue to be conducted as before;
- these texts are full of internal contradictions, and as such are not realistic, and so research can continue to be conducted as before;
- these are multilateral agreements that indeed have limitations, but they are a symbol of a willingness to compromise, and we must therefore move forward in this direction and take action.

12 Marie-Josée Beaud-Gambier and Joseph Ki-Zerbo (1991) *Compagnons du Soleil, anthologie des textes fondateurs des rapports Homme-nature*, La Découverte/UNESCO/ECLM, Paris.

13 These ideas are mostly drawn from Michel Sauquet's book, *L'intelligence interculturelle*, published in 2014 with Martin Vielajus (Charles Léopold Mayer, ed.).

While renowned organisations such as the IPCC[14] can easily attract young researchers, enthusiasm does not necessarily run as high across all disciplines. However, on the whole, scientists welcome requests from the public authorities and wish to be involved in the decisions to be taken.

For example, CIRAD has, as an institution, adopted the third attitude and developed an intellectual framework comprised of five transitions that cover productive systems, food systems, the climate, rural development and energy. CIRAD is therefore seeking to define its role as a research organisation in these transformational agendas, which are truly global and not just applicable to the Global South. The institution has undertaken various initiatives and included the SDGs in setting its scientific priorities. INRA also refers to the SDGs in the document that updates its strategic priorities through 2025.

More specifically, several actions need to be considered to achieve these objectives.

3•3-1 *Interdisciplinarity, multidisciplinarity, transdisciplinarity*

A cross-disciplinary approach is clearly necessary to take into account the multiple and sometimes contradictory objectives set out in the SDGs and the Paris Agreement. Such an approach is certainly appropriate in the pursuit of the objectives outlined out in Part 1, even if it offers less support than professional conduct guidelines in addressing the ethical issues raised in Part 2.

The differences between the three concepts should be clarified. Multidisciplinarity is a juxtaposition of fields, such as the humanities and biological sciences (this is a "weak" concept). Interdisciplinarity consists in working together to define research questions (this is a "moderately strong" concept). Transdisciplinarity implies a change of approach (this is a "strong" concept). It goes much further and crosses disciplinary boundaries. Cross-cutting issues call for the questioning of disciplines, knowledge and traditions by forging of a common and shared framework of thought.

This is one of the most promising ways to successfully address the issue of cultural diversity. Transdisciplinary research is in itself intercultural as it involves learning the language of others, without renouncing one's own culture in any way. This lays thegroundwork for understanding the points of view of those with whom we may work in the field – and helps to avoid many misunderstandings and miscalculations. Just as one does not need to know how genes work to make a plant grow, one does not need to be an anthropologist to acknowledge the many world views that exist.

The SDGs also call for consideration of interdisciplinarity among research communities. As noted in the preamble to the 2030 Agenda for Sustainable Development, "The interlinkages and integrated nature of the Sustainable Development Goals are of crucial importance in ensuring that the purpose of the new Agenda is realized". This clearly stated connection between economic, ecological and social goals is a significant step forward compared to the Millennium Development Goals (MDGs) published in 2000, which are set out by sector and not well connected.

Although the scientific community is organised by discipline – justified by the highly specialised nature of the most advanced knowledge and research work – this should not be an obstacle to bringing together teams of researchers from different disciplines to address cross-cutting issues. The scientific community, like any institution, can only answer the questions that its internal organisation allows it to deal with: **cross-cutting issues such as those relating to the Sustainable Development Goals will therefore only obtain satisfactory answers if the scientific community is able to organise itself to deal with inter- and transdisciplinary issues on an institutional and permanent basis (and not just respond to specific calls for projects)**. This is already happening in various forms through groupings of researchers or laboratories.[15] Such efforts must be further encouraged. This is also an ethical obligation, in order to be able to meet society's expectations.

3•3-2 *Top-down and bottom-up approaches among sectors and territories*

By design, the SDGs are part of a top-down approach. How, then, are the corresponding bottom-up actions to be determined? What scale should apply? Which indicators should be used to monitor them? This brings us back to the question of territories and relevant scales. The territorial approach, which takes precedence over the production sector approach, generally makes it possible to better

14 The Intergovernmental Panel on Climate Change, created in 1988 to provide detailed assessments of the state of scientific, technical and socio-economic knowledge on climate change, its causes, potential impacts and response strategies.

15 For example, metaprogrammes at INRA (https://www.inrae.fr/en/about-us/metaprogrammes), including a joint INRA-CIRAD metaprogramme on transitions for global food security.

consider all the issues: reconciliation of economic, social and ecological priorities, coordination between short- and long-term goals, equity etc.
CIRAD is currently focusing on the territorial approach (this is the theme of a collective publication called *Living Territories to Transform the World*, Quae, 2017). This "meso" approach means that micro and macro approaches can be used together. It raises all the questions of governance, is more inclusive (like the SDGs themselves) and is increasingly favoured over the traditional sector-based approach.

3•3-3 *Considering the impacts of research*

At INRA and CIRAD, significant efforts have been made to assess the impacts of public agricultural research. The previous INRA-CIRAD Joint Ethics Committee issued an opinion on the ethical issues involved in assessing the impacts of public agricultural research.[16]

At CIRAD, work has been carried out on indicators to identify the impacts of research on the achievement of the 17 SDGs and their specific targets. The goal is to increase the "culture of impact" (whether positive or negative) and awareness of the variety of contexts and cultural views. An effort has been made to classify these impacts in relation to CIRAD's priorities and half a dozen selected SDGs (1, 2, 12, 17 etc.), so as not to reinvent a new analytical framework. The aim is to see whether a research result, such as the adoption of a new technology, has an effect on the well-being of populations or on biosphere preservation, according to the analysis grid provided by the list of 17 SDGs.

3•3-4 *Choosing the right governance bodies to manage controversies at different levels*

Asked how to mobilise researchers and research governance bodies, GRET – for whom this is a key issue – noted that the debate on the SDGs (in the summer of 2015, with the importance of the Global North-South issue in terms of governance) led the group to reorient some of its activities, especially in terms of decentralising its operations and supporting capacity-building for local teams. With regard to the same theme, several of the researchers this Committee interviewed suggested implementing a right of withdrawal (which would be the ultimate step, and which does not imply a sanction), and creating forums for debate that are not currently available.

3•3-5 *Local and scientific knowledge*

In order to meet the challenges set by the SDGs, "local knowledge" (that held by the populations on and with whom research teams work) must be combined with so-called "scientific" or "modern" knowledge (that of the organisations and the scientific community to which the researchers and technicians belong) as effectively as possible. This is especially necessary to ensure the legitimacy of research "from elsewhere" to the fullest extent possible: The Committee recommends **holding sessions aimed at teaching foreign workers taking up a position abroad about differences in thinking, reaction and modes of expression**. GRET specifically noted that when French employees take up employment in different countries, they need to take the time to understand the local culture, the ways in which people express themselves, how their colleagues think, their relationship with foreign stakeholders etc., before beginning their work. Many studies on climate change in Africa have been carried out by European teams, who certainly try to work with local teams, although they do not have the same funding facilities.

The differences are often much more profound: communities have very different ways of appropriating resources and regulating their use and of making group or individual decisions. How can the well-being of populations be achieved without asking them how they define the concept itself? For instance, how can plant varieties be improved in a participatory way when there are multiple varieties grown at plot, farm and regional level? There are about 40 "named types" of sorghum (a variety that bears a name given by local villagers), and farmers will use seven or eight of them in each plot. Locally, these varieties, distinguished by name, are grown as a mixture, and their interest lies in being brought together, so researchers should study the metapopulation. Very often, interests differ and can be contradictory; this was demonstrated by the debate on the synthesis of Artemisinin (the active substance in sweet

16 https://www.inrae.fr/actualites/avis-contexte-multipartenarial-recherches

wormwood), a very important product in the fight against malaria. It is stressed that synthesising this drug in Europe would lead to a loss of jobs for many Vietnamese farmers.

3•3-6 *Diversity of views and partnership*

Cultural differences should also be taken into account when analysing environmental issues such as climate and biodiversity, as well as in the resulting guidelines and decisions. Climate phenomena and certain other environmental issues, such as maintaining biodiversity, can be analysed on a global scale, but impacts are local and analysing them depends on the context and local cultures.

To ensure a diversity of views, it is emphasised that a coalition of indigenous peoples which is represented as such should be included in the group of non-state actors (NSAs) participating in climate negotiations. This addresses a real need, because there are indeed cultural differences: at COP 22, it became obvious that climate problems differ depending on whether a person is part of a nomadic or sedentary group, whether a person feels a sense of belonging to the community, to the land, to that which is sacred etc. Latin Americans, for example, strongly emphasised a genuine connection to Mother Earth (*Pachamama*). With their cultural differences, these indigenous peoples are participating in the negotiations and are increasingly being acknowledged, because although the very phenomenon of global warming is universal, the impacts are not. They are highly localised and dependent on culture.

For GRET, exploring observable differences in working methods within multicultural field teams was the subject of several very specific studies, such as one in Vietnam.[17] These studies highlighted the different ways people express ideas, manage disagreement etc.
Beyond observing differences in approaches, it seems necessary to address "partnership production" in research (including programming). This involves taking ethical rules into account. SDG 17 aims to "strengthen the means of implementation and revitalize the global partnership for sustainable development". By way of example, CIRAD, given its history and the nature of its activities, has long been obliged to deal with this issue of partnership. The previous INRA-CIRAD Joint Ethics Committee issued an opinion in 2012 on the multi-partner research context.[18] There has been a shift in mindset, from "research for development" to "development through research". This explains the importance of building scientific capacities in the partner countries and creating multiple partnership arrangements, such as coalitions and organisations with different statutes depending on the country. This is essential for sustainable development.

4 ■ Summary of recommendations

- A cross-cutting approach is needed to take into account the many and sometimes contradictory objectives set out in the SDGs and the Paris Agreement.
- Such an approach should allow the impacts of the research to be effectively taken into consideration.
- The "right" degree of proximity must be maintained between researchers, policymakers and citizens. This means that researchers must respect an ethical standard with four dimensions:
  - to prioritise their duty to scientific integrity, regardless of political demands or guidelines,
  - to make the results of research known, share their expertise and participate in dissemination efforts,
  - to not encroach on the scope of responsibility of policymakers,
  - to not encroach on citizens' responsibilities.

As such, the Committee recommends the development, and even generalised use, of declarations of interest by researchers.

- The issue of the relationship between researchers and policymakers cannot be dissociated from that

17 Case study by Sylvie Chevrier on intercultural management in GRET teams.

18 https://www.inrae.fr/actualites/avis-contexte-multipartenarial-recherches

of research funding. The Committee recommends an examination of advisability that may lead to a refusal to participate in projects whose aims do not correspond to the above in terms of social and human development or biosphere preservation.

• Taking into account what makes each situation different, whether related to culture, context or any other reason, is also an ethical obligation, given the general nature of the international agreements. The territorial approach, which takes precedence over the production sector approach, generally makes it possible to better consider all the issues: reconciliation of economic, social and ecological priorities, coordination between short- and long-term goals, equity.

• Cultural differences should be taken into account when analysing environmental issues such as climate and biodiversity as well as in the resulting guidelines and decisions.

• The committee recommends holding sessions aimed at teaching foreign workers taking up a position abroad about how locals think, react and express themselves. They should be encouraged to acknowledge these differences in their work activities.

• Collaborations with researchers and research governance bodies make certain institutional shifts desirable, particularly in terms of decentralisation, capacity-building for local teams and creating forums for debate.

5 ■ Examples

5•1 The Earth, the land and land ownership

Coming from countries where the agricultural population accounts for a very small fraction of the working population and where the memory of land as a sacred value has been partly lost, we can sometimes find it difficult to appreciate the importance of traditional representations of land and the value land has in many societies. The theme of relationships to the land is linked to many other themes: religion, cosmogonies, and relationships to space and the community, identity, money, wealth, etc. It is only natural then that negotiations at the local, national and international levels on the management and protection of land, plant cover and agrarian systems are complex and that misunderstandings between stakeholders are frequent.

> • For example, in New Caledonia, the idea of land means much more to the Kanaks than just delimited plots of earth that people own. "The land defines individuals' social identity by reference to a founding mound and the route that led their ancestors from this place of origin to where they now live.[19]" For Jean-Marie Tjibaou (former leader of the Kanak independence movement), "the landscapes, village borders, society, the dead, and mythical beings form a whole that is not only indivisible, but also practically undifferentiated. This means that the space here is not very interesting in terms of its objective reality. It cannot therefore be mortgaged, sold or violated by construction works that disrupt its physiognomy, as this would undermine various aspects of the embodiment of the myth.[20]"
>
> • With regard to forest resources, Joseph Esoh Elame, who advocates for making "intercultural responsibility" one of the pillars of sustainable development, notes that in sub-Saharan Africa, "Some forests are the home of deities. Others are cemeteries of traditional chiefs, high dignitaries, notable figures [...]. To go and cut down trees in such a place is a sacrilege. [...] Some forests in sub-Saharan Africa are home to important sacred groves and are shrines with the same cultural importance as the Notre-Dame de Paris Cathedral [...]. The view that others should have regarding our forest should not be limited to its natural wealth and its role as the lung of humanity. Our forests must be considered first and foremost as cultural assets with a strong historical and commemorative dimension. They are our monuments, our sites, our museums.[21]"

Many people in Africa and the Amazon are torn between the offence they feel when their forest is besieged by commercial interests, and the necessities of survival, which often lead them to participate in deforestation movements.

19 Isabelle Leblic (1991), *IIIes journées scientifiques de la Société d'Écologie humaine*, Aix-en-Provence.

20 Jean-Marie Tjibaou, '*Recherche d'identité mélanésienne et société traditionnelle*', in *Journal de la Société des océanistes*, issue no. 53, vol. XXXII, Musée de l'Homme, Paris, December (1976): 281-292.

21 www.francophonie-durable.org/documents/colloque-ouaga-a1-esoh.pdf

In India, where the Earth was celebrated in the first sacred texts as a goddess (Prthivi), humans' powers over the land are limited: "The Earth, the cow, the woman and the goddess are four manifestations on four levels of the same reality. Hinduism reveres them, accepts them and yet does not consider them as objects of human action, but as a reality that allows humans to act." In other words, it is not humans that enrich the Earth, but the opposite: "It is from the Earth that man seeks his enrichment.[22]"

• Looking at the deep cultural sources of representations of the land from this angle allows us to better understand the major consequences of the massive movement of land purchases in countries such as Ethiopia, Argentina, Madagascar and many others by multinational agrifood corporations, private investors or States, in a system that the Le Monde diplomatique characterised a few years ago as "cut-to-length sales[23]". Such purchases, which are not only made by Western companies or States (India and Saudi Arabia are among the leading buyers), result in more than the expulsion or marginalisation of small farmers; they also desecrate sacred places, burial grounds and ancestral history, and traffic routes.

• In the field of international agricultural cooperation, differences in the representation of relationships to the land have for several decades been the cause of clashes or misunderstandings between local populations and foreign agricultural and animal scientists involved in development projects. French public cooperation agencies and associations such as CIRAD, GRET and Iram[24] have drawn lessons from the failures and disparities of these projects and begun proposing new approaches: an emphasis on performing a social and cultural diagnosis before starting a project, a "research and development" approach that includes consideration of local agrarian systems and cultural representations, affirmation of the link between agriculture and the environment etc. Several publications report on these issues[25] and have contributed to shifting practices.

5•2 Water

For centuries, water has been at the centre of bitter battles over its availability, quality and appropriation. These battles become international when river basins are shared by two countries (e.g. water sharing between India and Bangladesh), when one country controls the water supply of another for strategic purposes (e.g. the Arab-Israeli conflict), or when rivers are diverted or dams and pipes destroyed for military reasons. There are also national battles, such as the famous Cochabamba Water War in Bolivia in 2000 or popular revolts against the privatisation of water in South Africa, Indonesia and elsewhere.[26] But while the stakes of water control are first and foremost economic and geostrategic, they are also symbolic (in French, the words rivière (river) and rivalité (rivalry) share the same root) and there are many examples of serious consequences when cultural and sacred representations of the value of water are not acknowledged.
Water is indeed sacred in most civilisations: rivers are the manifestations of divinity in Egyptian (the Nile) and Mesopotamian (the Tigris and Euphrates) cosmogonies. In the Aztec genesis, the world was created in natural springs and Lake Titicaca; Dogon mythology celebrates the god of water; the Ganges is a sacred river and rain is a god (Hindra) in the founding texts of Hinduism; water (for baptism) is an essential element in the gospel, etc.

Today, this cultural heritage is emerging in the confrontation between the commercial views of water and the traditional ideas found in Africa, the Andes or in the Arab-Muslim world. Thus the Cochabamba Water War (which brought thousands of Bolivians into the streets to demonstrate against the privatisation of a share of the water management) stemmed from more than simply economic factors. For the Native Bolivians living at high altitudes and worshipping their lakes and rivers in a ritualistic way, it was inconceivable to negotiate water as a privatised resource and unbearable to see their mountains pierced – wounded – by countless pipes.

Similarly, in the Arab-Muslim world, the relationship between multinational water companies and populations is aggravated by the vitality of sacred representations of water in the region. Larbi Bouguerra recalls that the term sharia, which originally meant the law of water, is "proof of a very ancient codification of the resource among Muslims"[27]. In Islam, which, he says, was born in the Arabian desert, water cannot be a matter of simple trade: "Giving water has always been a recognition

22 *Ibid*

23 https://www.monde-diplomatique.fr/2010/01/BAXTER/18713

24 Institute for research and application of development methods (Iram)

25 For example, Pierre De Zutter (1992) *Le paysan, l'expert et la nature*, ECLM; François Greslou (1995) *Le Coopérant, missionnaire ou médiateur*, ECLM.

26 See Mohamed Larbi Bouguerra (2003) *Les batailles de l'eau*, Éditions de l'Atelier; and Olivier Hoedeman and Sakoto Kishimoto (dir.) (2012) *L'eau, un bien public. Alternatives à la privatisation de l'eau dans le monde entier*, Paris, ECLM.

27 Mohamed Larbi Bouguerra (2003), *Les batailles de l'eau*, Éditions de l'Atelier.

of social ties and a mark of non-exclusion. (...) This act of charity recommended by Islam becomes a duty for all those who are responsible for the fate of a city and first and foremost the emir and, by extension, the State, which is not without problems for politicians. In Saudi Arabia, water is practically free... but its price at cost is a state secret!"

Another example in India is the massive exploitation of water and its pollution in Mumbai by the Coca Cola company, which is considered by part of the Indian population to be not just very serious economic and environmental damage, but also the defilement of a sacred natural element.

Paradoxically, wastewater issues receive very little coverage in Indian academic research, a phenomenon that Anil Agarwal[28] attributes to a cultural phenomenon: traditionally, the treatment of wastewater and maintenance of sanitation facilities are assigned to the lowest castes, and therefore, he says, are not popular in academic circles.

References of consulted individuals

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Marie-Anne Cambon-Bonavita, IFREMER, UMR LM2E, Laboratory of Microbiology of Extreme Environments

Patrick Caron, CIRAD, veterinarian and geographer, specialist in territorial dynamics, previously Deputy Director General at CIRAD, currently Chair of a UN High Level Panel of Experts (HLPE) on Food Security, responsible for informing political debate

François Enten, Head of GRET's scientific coordination unit

Étienne Hainzelin, Advisor to the president of CIRAD and invited professor at the University of Ottawa (social sciences). Coordinates a project on the impact of research at CIRAD called "ImpresS"

Bertrand Hervieu, Former president of INRA and vice-president of the French Academy of Agriculture

Hélène Joly, CIRAD, UMR AGAP

Jean Jouzel, Climatologist, former Vice-Chair of the IPCC, has been strongly involved in recent years in liaising between the scientific community and COP 21. He is a member of the European Economic and Social Committee (EESC) environment-nature working group and chairs the Universal Movement for Scientific Responsibility (MURS).

Jean-Luc Khalfaoui, Geneticist, former Deputy Director General of CIRAD, worked for more than a decade at the European Commission-DG Research on support to Member States, responsible at CIRAD for the revision of strategic, general and operational guidelines

Olivier Le Gall, former Deputy Director General for Scientific Affairs at INRA

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José Zambonino, IFREMER, Fish Adaptation, Reproduction and Nutrition Laboratory (PDG-RBE-PFOM-ARN)

[28] Centre of Science for Environment.

Appendix 1

Committee members

Current members:

- **Axel KAHN**, President of the Committee. Doctor of Medicine and Doctor of Science, Research Director at Inserm.
- **Michel BADRÉ**, Vice-President of the Ethics Committee. Graduate engineer of École Polytechnique – École nationale du Génie rural, des Eaux et des Forêts. Member of the Economic, Social and Environmental Council, in the group of environmental associations.
- **Madeleine AKRICH**, Research director at MINES ParisTech (Center for the Sociology of Innovation – CSI), graduate engineer of MINES ParisTech and Doctor of Socioeconomics of Innovation.
- **Bernadette BENSAUDE-VINCENT**, Professor emeritus at the University of Paris 1 Panthéon-Sorbonne, Associate Professor of Philosophy and Doctor of Arts and Humanities.
- **Jean-Louis BRESSON**, Nutritionist-Physician, University Professor, founder of the centre for clinical investigation Necker-Cochin, currently Deputy Director.
- **Paul CLAVIER**, , Graduate of the French École normale supérieure, Associate Professor and Doctor of Philosophy, Lecturer in Philosophy at the École normale supérieure in Paris until June 2017. Currently Professor at the Université de Lorraine. , Graduate of the French École normale supérieure, Associate Professor and Doctor of Philosophy, Lecturer in Philosophy at the École normale supérieure in Paris until June 2017. Currently Professor at the Université de Lorraine.
- **Françoise GAILL**, Research director emeritus at the French National Centre for Scientific Research (CNRS), executive officer at the CNRS, former head of the French Institute of Ecology and Environment (INEE) Biologist, specialist in deep-sea ecosystems.
- **Sandra LAUGIER**, Professor of Philosophy at the University Paris 1 Panthéon-Sorbonne, Director of the Sorbonne Centre for Contemporary Philosophy.
- **Lyne LÉTOURNEAU**, Professor at the Department of Animal Sciences at Laval University in Quebec. Doctoral degree in law; Létourneau's teaching focuses on ethical issues of contemporary agriculture and research integrity.
- **Joséphine OUEDRAOGO - GUISSOU**, Sociologist, attached to the ARC (support-research-action-counsel) research office in Ouagadougou, of which she is a founding member.
- **Pere PUIGDOMENECH**, Research Professor at the Spanish National Research Council (CSIC) at the Molecular Biology Institute of Barcelona, a specialist in the molecular biology of plants, Doctor in Biological Sciences.
- **Michel SAUQUET**, Graduate of the Institute of Political Studies in Paris, Doctor in Applied Economics. Teacher specialised in intercultural issues.
- **Hervé THÉRY**, Geographer, Associate Professor at the University of Sao Paulo (Brazil), Research Director Emeritus at the CNRS.
- **Catherine LARRÈRE**, Professor Emeritus of Philosophy at the University of Paris 1, specialist in environmental philosophy and applied ethics [end of term mid-2017].

Former members who left the committee during the 2016/17 term (end of two successive terms):

- **Patrick DU JARDIN**, Agronomist, specialist in plant biology, professor at Gembloux Agro-Bio Tech (Belgium).
- **Jeanne-Marie PARLY**, Honorary University Professor of Economics, former State Councillor.

Appendix 2

Secretariat of the Joint INRAE-CIRAD-IFREMER-IRD Ethics Advisory Committee

The secretariat of the Committee is provided jointly by INRAE, CIRAD and IFREMER. Administrative and financial support of the committee is provided by INRAE.

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and with the support of
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Appendix 3

Principles and values of the Joint INRA-CIRAD-IFREMER Ethics Advisory Committee:

•1 The Committee holds as a central tenet that human life has intrinsic dignity. When making recommendations, the Committee seeks to concretely reinforce human dignity by upholding the rights set out in the 1948 Universal Declaration of Human Rights.

•2 More generally, the Committee also strongly adheres to the values that have been expressed over the past several decades in the declarations and agreements established by the United Nations and other specialised organisations, including UNESCO. Chief among these values are the protection and promotion of biodiversity and cultural expression. The principles affirmed in these texts are implemented via international normative agreements.

•3 We must be stewards of the environment to ensure the well-being of future generations. We must also take care to not deplete natural resources or disrupt natural equilibria, as doing so could permanently jeopardise the planet's future. This commitment to sustainable development requires the Committee to consider not just the short term, but also the long term and the ultra-long term. At the same time, subscribing to a principle of total reversibility is utopian and impractical.

•4 The world is a system. An action that affects one system component will also have an impact on other components. It is thus necessary to explore the secondary effects of actions, any subsequent dynamics, and the strategic responses that emerge. While we must prioritise solutions at the global scale, global measures must be compatible with local measures, accounting for real-life conditions.

•5 The Committee views robustness and adaptability as two positive system attributes. Thus, even in an open society, a certain degree of autonomy in production systems is desirable at the national and regional levels.

•6 Progress occurs in societies that are open to technical and social innovations. It is nonetheless crucial to analyse and anticipate the effects of such innovations on human lifestyles and development. The benefits that arise must be shared equitably.

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