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TOPIC: "From IAASTD and the WDR 2008 to the GCARD process: rethinking the role of Agricultural research for development"

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Forewords

The objective of this policy brief¹ is to explore the implications of the 2008 International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD) for the policies and investments in Agricultural Research for Development (ARD) of the European Commission and the European countries members of EIARD. The IAASTD conclusions (particularly the Global Summary for Decision Makers) are reconsidered in the context of other reports, such as the World Bank 2008 World Development Report or the more recent UK Foresight report on "The future of food and farming", and of the 2010 Global Conference on ARD and particularly its conclusions (the "Road Map") for transforming agricultural research for development. This brief is cross linked with other studies implemented by EIARD (on climate change, capacity development, impact assessment, and on how to make ARD "pro-poor") and concludes with nine key messages for action. By taking forward the proposed policy options and guidelines, ARD decision makers and in particular EIARD members will ensure that their policies are more effective and more coherent with the global and multistakeholder framework of the GCARD Road Map.

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This policy brief is intended to share knowledge and promote more efficient ARD policies. It does not necessarily reflect the official position of EIARD or of individual EIARD members.

1. IAASTD at a glance

The overall purpose of the IAASTD was 'to assess agricultural knowledge, science and technology in order to use it more effectively to reduce hunger and poverty, improve rural livelihoods, and facilitate equitable, environmentally, socially and economically sustainable development'. The final Intergovernmental Plenary in 2008 at Johannesburg, South Africa, saw the acceptance of the IAASTD Reports and the approval of the Summaries for Decision Makers by an overwhelming majority of governments (Box 1). Among them were all the EIARD members attending the conference: Finland, France, Ireland, Sweden, Switzerland and United Kingdom. The IAASTD Reports were also approved by numerous NGOs, such as Action Aid and Food First, and producer organizations such as Via Campesina.

Box 1 - Statement by Governments

All countries present at the final intergovernmental plenary session held in Johannesburg, South Africa in April 2008 welcome the work of the IAASTD and the uniqueness of this independent multistakeholder and multidisciplinary process, and the scale of the challenge of covering a broad range of complex issues. The Governments present recognize that the Global and Sub-Global Reports are the conclusions of studies by a wide range of scientific authors, experts and development specialists and while presenting an overall consensus on the importance of agricultural knowledge, science and technology for development they also provide a diversity of views on some issues. All countries see these reports as a valuable and important contribution to our understanding on agricultural knowledge, science and technology for development recognizing the need to further deepen our understanding of the challenges ahead. This Assessment is a constructive initiative and important contribution that all governments need to take forward to ensure that agricultural knowledge, science and technology fulfills its potential to meet the development and sustainability goals of the reduction of hunger and poverty, the improvement of rural livelihoods and human health, and facilitating equitable, socially, environmentally and economically sustainable development. In accordance with the above statement, the following governments approve the Global Summary for Decision Makers: *Armenia, Azerbaijan, Bahrain, Bangladesh, Belize, Benin, Bhutan, Botswana, Brazil, Cameroon, China (People's Republic of), Costa Rica, Cuba, Democratic Republic of Congo, Dominican Republic, El Salvador, Ethiopia, Finland, France, Gambia, Ghana, Honduras, India, Iran, Ireland, Kenya, Kyrgyzstan, Lao People's Democratic Republic, Lebanon, Libyan Arab Jamahiriya, Maldives, Republic of Moldova, Mozambique, Namibia, Nigeria, Pakistan, Panama, Paraguay, Philippines, Poland, Republic of Palau, Romania, Saudi Arabia, Senegal, Solomon Islands, Swaziland, Sweden, Switzerland, United Republic of Tanzania, Timor-Leste, Togo, Tunisia, Turkey, Uganda, United Kingdom of Great Britain, Uruguay, Viet-Nam, Zambia* (58 countries).

While approving the above statement the following governments did not fully approve the Global Summary for Decision Makers and their reservations are entered in Annex A. *Australia, Canada, and United States of America* (3 countries).

IAASTD key findings and messages can be summarized as follows:

- *Inclusiveness in decision-making*²: small-scale farmers are critical to food security and poverty alleviation; thus they must, along with other actors in the value-chain and food systems, and through multistakeholder processes, be involved in research priority setting and implementation through participatory research; women must be placed at the forefront;
- *More but refocused research*: considerable investment in research is needed merging traditional knowledge and new technologies and making best use of information and communication technologies (ICT) especially to assess and promote agro-ecological practices;
- *Going beyond technology development to consider governance, other issues, and other sectors*: the enabling environment is critical in terms of access of small farmers to information and knowledge, to land and to market and in terms of balanced and fair benefit-sharing in agricultural value chains, from local to global. Multi-sectoral processes are essential to better address development targets.

The IAASTD report was well received by most EIARD member countries³. For the first time an international assessment had acknowledged and highlighted the multi-functional nature of agriculture while making an important contribution to the food security and poverty reduction policy debates and actions. The reference to development politics and the emphasis on the development role of sustainable agriculture were well perceived. The report was considered as highly relevant because it gives a lot of arguments, why agriculture is still important to the poverty agenda and why more investment in this sector is needed, with its special focus on rural development and small scale farmers, orientating agriculture and agricultural research more to ecological and social sustainability using both local knowledge and new technologies.

But the IAASTD report was not well disseminated including in some EIARD member countries, due to delays in its publication, its length, with weak cross referencing between various reports (regional/global) and its closeness in time to other major events that were better publicized like the 2008 World Development Report (WDR 2008) of the World Bank or

² In its final configuration, the IAASTD process had become more inclusive and participatory than expected at the beginning. Therefore IAASTD differs significantly from previous assessments, which were much more top-down and driven by Northern countries in terms of expertise and decision-making. (10)

It expresses a pluralism of knowledge, views and claims in a global cosmopolitan context, providing a good example of a holistic assessment in an area rich in controversy and in an arena of public policy involving a wide range of stakeholders. (2, 3)

³ A questionnaire was sent to EIARD members by March 2011. A synthesis was made from replies received from following countries and institutions: European Commission (DEVCO), EIARD secretary, Switzerland, Germany, Spain, Norway, Belgium, Ireland, Netherlands,

the Inter-Academy Council study for Africa and more recently the regional and global studies done for the Global Conference on Agricultural Research for Development (GCARD). In this context, the perception of IAASTD was diverse, depending on the country and decision-maker. Thus it has not been used as an instrument of government policy coherence.

The controversies on its content did not help in this respect. The report attracted further bad publicity because of the walk-out of the private sector and because the discussion focussed erroneously on the GMO issue. The main messages of the Report were consequently not heard at face value and discussed as such, especially by decision-makers, in addition to the fact it is not sufficiently action orientated. Because of this unfavorable reception of the report, some countries recognize that IAASTD has had no implications on policies or investments in their country. It simply confirmed their existing views.

In those countries where IAASTD was considered more favourably, it is definitely considered as complementary to other similar reports and in particular to the WDR 2008 (see Box 2). Some of the most important messages are the same⁴. In this respect, some of these countries built on the insights of the IAASTD for their own strategy on food security and their own domestic agricultural policy supporting the view that agriculture and land policies, natural resources management and biodiversity have deep social, ecological and cultural dimensions. This is the case for the European Commission (EC). IAASTD was helpful in guiding EC approaches to agricultural research for development and the Policy Framework to assist developing countries address food security challenges. The EC has already taken some of the IAASTD conclusions into account in formulating its policies and programmes.

For the reasons mentioned above, the EIARD strategy for the period 2009-2013 -, which was elaborated at the same time as the finalization and publication of the IAASTD report -, does not refer explicitly to IAASTD. It was only in November 2009, at the EIARD 15th European Coordination Group meeting (in Eschborn, Germany) that the IAASTD report was presented (by Hans Herren) and discussed.

The shared view within EIARD is that the IAASTD process succeeded:

- i) To bring together a large number of scientists and other stakeholders, especially from the South, and *provide a platform for dialogue* and further study, education and training⁵; ii) *To point out important gaps* in the present structures of AR4D; iii) *To help sustain and pursue research on key issues*, as most of the content of the IAASTD is coherent with the research priorities fitting with partners' needs, as expressed during the GCARD; iv) *To contribute in furthering the capacity of developing countries* as many stakeholders from these countries were directly involved in the report,

but did not fully met the expectations as regards:

- i) *To give clear and coherent messages* because the different summaries are not fully consistent with the messages of the main reports⁶; ii) *To build bridges among various dissenting stakeholder groupings* which brought into question, to some extent, the credibility of the process; iii) *To enhance the nexus of politics and science.*

Box 2 - IAASTD and WDR2008

The 2008 World development report of the World Bank (WDR 2008) and the International Assessment of Agricultural Knowledge, Science, and Technology (IAASTD) have much in common. They also have fundamental differences that led some private sector companies to withdraw and Australia, Canada, and the USA not to endorse the IAASTD's final report. It has, however, been broadly approved in other circles with 58 governments agreeing with its conclusions as well as numerous NGOs (such as Action Aid and Food First) and producer organizations such as Via Campesina. The main points of contention between the two perspectives are about science, trade, and choice of crops: the IAASTD favors agroecology and traditional knowledge while the WDR proposes a broader array of scientific approaches including prudent use of GMOs; the IAASTD proposes access to food based on national food self-sufficiency and the right to food, while the WDR proposes reliance on comparative advantage and trade, though with food security concerns; and the IAASTD recommends focus on food crops for self-sufficiency, while the WDR suggests food and cash crops based on risk-discounted income generation potential. The WDR position is that feeding nine billion people by 2050 without major environmental damage will require precautionary mobilization of science on all fronts, trade to capitalize on comparative advantages and to manage local production shocks associated with climate change, and smallholder participation in value chains for low and high value commodities as an important pathway out of poverty. "It is urgent that useful bridges be built between these two positions (WDR and IAASTD) to jointly address the huge task of feeding the world while eradicating poverty and achieving environmental sustainability".

From: Derek Byerlee, Alain de Janvry, and Elisabeth Sadoulet, 2010 - Agriculture for Development—Revisited: Lessons learned from the University of California at Berkeley conference; October 1 and 2, 2010

2. Context

Three years after the delivery of the IAASTD reports, and especially after the food, energy and bank crises between 2007 and 2009, the context has changed dramatically. Interest for agriculture and AR4D has grown, along with a realization that

⁴ The importance of agriculture—in particular in the smallholder sector - for poverty reduction particularly in Less Developed Countries, the importance of agricultural research, the issue of past neglect of the agricultural sector and underinvestment in research and extension services in developing countries.

⁵ Nevertheless, the aim of a full stakeholder involvement was not successfully achieved, because of the withdrawal of the private sector contributing to the lack of impact of IAASTD, as investments in agriculture are mostly done by the private sector. However, the prospects of working with private sector stakeholders have not changed dramatically as a consequence of this.

⁶ This was probably the weakest aspect of the whole IAASTD process that was confusing for decision makers.

things must change in order to be able to anticipate such crises and to engage more effective and efficient actions for better impact. These changes have fed several studies, such as the UK Foresight (22) or the Berkeley Conference on Agriculture for Development (WDR Revisited) (6), and several reforms, in particular of the CGIAR and of the FAO. But the most important change of paradigm was brought by the Global Conference on Agricultural Research for development (GCARD), a process initiated in March 2010 by the first GCARD conference in Montpellier (GCARD 1). After the controversies that affected the IAASTD process and delivery, a shared objective of all these initiatives has been to bring together all stakeholders around a common vision.

2.1. A new perspective

Even if the situation of poverty and food security has not improved globally⁷, much has changed since the IAASTD report was published in October 2007, when food was becoming cheaper and average calorie availability on the rise.

The 2007-2009 food, energy and financial crises and the related widespread food riots in many parts of the world have strongly modified the world landscape and influenced attitudes. They demonstrated how such shocks can amplify food insecurity and vulnerability to poverty with a strong impact on peace, prosperity and stability in the world (7,10).

Like all the previous crises, these latter have triggered diverse reactions. Some were positive in the short term, such as large public and private commitments to increase investment in agriculture and the expansion of social security programs to protect the poor from price volatility and improve their access to food. A key example of such commitment is the G8 L'Aquila Statement on Global Food Security, in 2009, where member countries have pledged to invest \$ 22 billion in agriculture. Other reactions give cause for concern such as "land grabbing", the return to protectionist policies and large-scale subsidies to agriculture (7).

The impact of the global change is increasing, with very few measures for anticipating and mitigating its effects.

*People are getting more and more urbanized*⁸ (7). This demographic trend towards increased urbanization was under-considered by IAASTD. Ravallion (12) estimates that about one-quarter of the developing world's poor live in urban areas, and this percentage is expected to increase to 50 per cent by 2035. Well-targeted programs, including those involving urban agriculture, can play an important role in reducing this "urbanization of poverty" (14).

The current energy crisis is questioning the development of biofuels. IAASTD clearly pointed out biofuels production as a risk. Food production and the price of food may be affected by increased biofuels production due to competition for land and natural resources. The limited access to land by small scale farmers, in addition to a lack of investment, is likely to limit their ability to supply and benefit from this new market. Moreover the land pressure induced by biofuels production would reduce their ability to produce food and to compete with imported food, at the expense of local production. It would therefore amplify the current trends of expansion of a globalized food system affecting local food systems that support the livelihoods of the poor, and amplifying the nutrition transition⁹ with its negative effects on nutrition and health. [10]

2.2. A renewed interest in agriculture

Since the food and financial crises, agriculture has again been seen as an area of opportunity for income generation and social progress both in rural and urban areas.

- *Who may benefit?*

This renewed interest in agriculture could be a major driver of poverty reduction, taking into account that the GDP growth originating in agriculture can be up to four times more effective in increasing the incomes of extremely poor people than GDP growth originating outside the sector. (9)).

However, the persistence of hunger, the recurrent poverty, the failure of structural changes, the increased rural-urban migration, the stagnation in land productivity, the resource decrease and degradation and the inevitable effect of the climate change (22), show that agriculture promises are not realized (7).

The situation is most critical for those who have no access to land, who must seek livelihoods beyond the primary production (9) and thus who will not be able to benefit from this renewed interest in agriculture.

- *Urbanization: an opportunity for agriculture.*

⁷ According to the FAO and the World Bank, about one billion people still go hungry every day and 1.4 billion live in extreme poverty. Poverty in the world is still predominantly rural with 75% of the poor living in rural areas.

⁸ The world's urban population is expected to double from 3.3 billion in 2007 to 6.4 billion by 2050, and it is predicted that by 2030, 60 per cent of the world's population will live in cities.

⁹ The "Nutrition Transition" is referring to a substitution of the traditional diet by unhealthy foods compounds in middle-to-low-income countries. Nutrition transition is malnutrition ensuing not merely from a need for food, but the need for high-quality nourishment. Foods rich in vitamins, minerals, and micronutrients such as fruits, vegetables, and whole grains have been substituted by foods heavy in added sugar, saturated fat, and sodium. This trend, which began in developed, industrialized countries, has spread to developing countries. These developing countries still stressed and struggling with hunger are now dealing with health problems associated with chronic diseases including obesity. Malnutrition once identified by emaciated bodies, is now also associated with obesity.^[21]

Urban growth must be seen as an opportunity for agriculture, with the increasing demand to feed the cities calling for better access to food and more sustainable urban-focused agri-food systems based on small farmers in rural areas but also in urban and peri-urban areas as well (see Box 3) [17].

In addition, improving employment in the rural nonfarm economy (RNFE) is strongly correlated with growth in nearby urban centers [7]. Therefore the role of agriculture must be seen in this context of urban –rural dynamics and not only in a context of rural development as it is commonly the case.

Box 3- The role of urban and peri-urban agriculture: "For many cities, urban and peri-urban agriculture provides a major share of perishable products like leafy vegetables, poultry and dairy products. In addition it can play an important role in mitigating the impacts of climate change, and is also an effective tool for adaptation. Innovations include micro-gardens, which can provide an emergency food source in the context of disaster risk management; green rooftops, which represent a built environment adaptation to climate change impacts; planting of trees, which serve as green "lungs" contributing to improved air quality; and rainwater harvesting systems, which can help lessen the effects of flooding. Urban agriculture can keep environmentally sensitive and dangerous urban lands from being used for illegal residential development. It mitigates the adverse effects on the urban poor of financial and food crises through job creation; offers opportunities for small-scale income generation; increases food security and enables self-sufficiency; and improves nutrition and health. The World Meteorological Organization has suggested that more urban farming should take place as a response to the ongoing climate change and as a way to build more resilient cities." (WMO press release December 7, 2007).

2.3. What role of AR4D?

According to *the 2004 EC strategy on Agricultural Research for Development (AR4D)*¹⁰ [11], AR4D is 'research into any discipline (biological, technical, social, economic, policy) which can provide new knowledge, help identify appropriate solutions to agricultural problems faced by poor people, and enhance the agro-systems of poor farmers, to improve their livelihoods'.

In the EIARD Strategy 2009-2013, AR4D is considered as a key element of the "Agricultural Knowledge System", together with Education and Innovation to create the "Knowledge Triangle" in the area of agriculture and related sectors. A special emphasis is given to the need for interaction between traditional knowledge and scientific knowledge.[15]

The IAASTD reports refer to Agricultural Knowledge, Science and Technology (AKST) in place of AR4D. AKST is defined as "the intersection of knowledge, science and technology with agricultural systems" [10]. We will use, except in citations, the term AR4D.

- *An emerging recognition...*

AR4D has contributed to a substantial increase in agricultural production over time, helping to improve food security. Furthermore AR4D plays a fundamental role in guiding policy choices to increase sustainable food supply, reduce production costs, use more efficiently scarce natural resources and maintain the price of food at an affordable level, while providing higher incomes for farmers and protecting the environment worldwide. Thus AR4D is now recognized as a key profitable investment [4] that must be made now "to provide new solutions to novel problems" in the coming decades, taking into account the "significant tile lags in reaping the benefits of research" (22).

Returns on investments in agricultural research as a whole (in developed and developing countries) are high. A meta-analysis by IFPRI on over 290 studies [15] reports a rate of return estimates of 48% per year for research, 63% for extension, 37% for joint research-extension estimates, and 44% for all studies combined.

- *National and global investments are insufficient, ...*

In spite of such recognition, under-investment in agricultural research has been widely documented (7), particularly at national level in developing countries¹¹.

After decades of stagnation in funding for agriculture, AR4D systems in many developing countries are too inefficient and inadequately equipped to meet the enormous challenges of today and especially to properly develop the holistic approach required to effectively support agriculture in its multifunctional dimension.

- *But new actors have appeared ...*

By contrast, fast growing economy (FGEs) countries have experienced very rapid growth of their AR4D, with a significant improvement in their agricultural productivity and food production. China, India and Brazil now account for nearly half of all public investments in Agricultural Research in the developing and emerging countries (9). The increasing role of private foundations such as the Bill et Melinda Gates Foundation, has also been an important element of change.

- *Towards more inclusiveness...*

The Global Conference on Agriculture Research for Development (GCARD) repeats and reinforces the view of IAASTD in giving a voice to all stakeholders and thus enhancing the relevance of actions to specific contexts and needs and providing maximum value to the agriculture of tomorrow (9). GCARD1, the first GCARD conference in 2010, has marked the first step of a global commitment to "Transform the Agricultural Research for Development System for Greater Global Impacts", a process labelled the Montpellier Roadmap. An added-value of GCARD to IAASTD was that these new concepts that emerged, in the line of IAASTD, were endorsed by all the stakeholders, through the Montpellier Declaration, highlighting the

¹⁰ We will use AR4D for agricultural research for development, particularly in developing countries. For a more generic meaning, where the link with development is not so obvious, we will use "agricultural research".

¹¹ The average investment in agricultural research as a percentage of agricultural GDP is 0.58% in developing countries, against 2.4% in developed economies.

anticipated roles, accountabilities, behaviors and modalities required for agricultural research to become more effective in development and leading to the Montpellier Roadmap. It is essential that the new concepts introduced by IAASTD and reinforced by GCARD are constantly relayed and carried to all parties concerned, namely governments in developing countries, policy makers, the media and the agricultural community in general. It is only through such concerted efforts that real change can occur.

3. It is time for action

It is time to enhance the role of the AR4D to support agriculture as an engine for structural transformation of the economy in heterogeneous conditions.

3.1. Towards an enhanced role of agriculture for development

In line with IAASTD, the renewed interest in agriculture must first and foremost benefit the poor, provided they have the means and ability to become producers or even "entrepreneurs".

It is therefore essential to clarify the needs, in order to allocate investments to the most development-efficient targets¹².

- *New opportunities, new approaches...*

The 2008 World Development Report focused on the opportunities offered by the rapid growth of markets for high value-added products such as horticulture, fruits, cut flowers, poultry, milk and fish, for both the domestic and non-traditional export markets. If barriers to entry (knowledge, funding, market connections...) can be lowered, such opportunities are ideally suited to farmers with little land, and provide opportunities for higher incomes if they can withstand competition in the industries. Actions must be conducted to help small farmers benefit from such opportunities.

Since this report was published, innovative approaches to rural development have been developed. Two are worth mentioning and encouraging: the contracts between smallholders and commercial partners to create higher value added¹³ through more efficient supply chains¹⁴, and the use of ICT for Agricultural Extension (7)¹⁵.

- *How to deal with Markets and Price volatility?*

A stronger integration of farmers into the markets and the strengthening of small agribusinesses in rural areas will create opportunities for processing and marketing of agricultural products especially for resource-poor farmers (9). It would increase their resilience to price volatility and shocks and thus sustain their activity and livelihood. But it is becoming essential to ensure that small producers and rural laborers do receive their due share of the value added through processing of their products and improvement of market conditions. It is essential, in particular, that unfair competitive practices, that may have negative long term impact on poverty reduction, food security and the environment, are better controlled.

In this respect, appropriate measures in favor of national institutions and infrastructure must be reinforced to prevent the small-scale farm sector becoming a net loser of the liberalization as already stressed by IAASTD (10). It calls for differentiation in policy frameworks and public policies to provide safety nets, especially in the poorest developing countries. This is necessary to allow increased public investment in local value addition, improved access for small-scale farmers to credit and strengthened regional markets.

- *Progress in agricultural technology is necessary but not sufficient; enabling environment is important*

The state of world agriculture in 2011 demonstrates great market opportunities and significant technological advances, but also a tendency to limit the approach to mere technical progress (7). As already pointed out by IAASTD and WDR2008, it is necessary to go beyond agricultural technologies and to promote an enabling environment through proactive measures in domains such as governance, organizational capacities, socio-cultural factors, and institutional and policy environments. This will allow agriculture to play its multifunctional role and allow a broader and more even repartition of the benefits brought by innovations in the agricultural sector. (7).

Form part of this enabling environment many key contextual factors, such as small farmers' access to information and knowledge, access to land, market access conditions and balanced and fair distribution of the value added within the value-chains (10). It is essential that policy-makers address all areas at the same time (22)

- *New ways to better understand problems, find and implement solutions*

Making agriculture an engine for development is a complex undertaking. This requires, beyond the global level, a better definition of strategies at the national level, with periodic adjustments based on progress.

Such strategies must be based on a thorough assessment of the state of agriculture for development in each country, rigorous impact monitoring, and testing of new options (7). To implement such strategies, the recommendation of IAASTD is

¹² For instance no clear answer is available as to which approach would be most effective to spend the funds pledged at l'Aquila in 2009, so that agriculture can play its full role as an engine for development [7].

¹³ Interlinked contracts can help overcome the market failures in credit, insurance, technical assistance, and infrastructure that limit the competitiveness of smallholder farmers. The main challenges with such approach are in achieving discipline in collective action for the commercial partner and producers to fairly meet the terms of the contract and in securing sustainability of the contractual arrangements[18]. It could be a promising way to fairly reconcile the small farmers with the agri-business.

¹⁴ The private sector can play an important role, as shown by the example of the agricultural growth corridor concept promoted by Yara International SAS, a Norwegian fertilizer company with important operations in Sub-Saharan Africa. Building on past initiatives promoting a more competitive agricultural sector through more efficient supply chains, the agricultural growth corridor aims at investing in communications routes with existing infrastructure to achieve economies of scale, developing clusters and strengthening input-output markets.

¹⁵ See 3.1: Ways for better dissemination and adoption.

to shift away from a linear, analytic and research-driven approach to a holistic, integrated and inclusive approach bringing together all actors involved in the innovation process, breaking the walls between disciplines and looking beyond agriculture (see §2.2) (10). To do so, new ways must be explored to better understand the challenges and find and implement solutions, bearing in mind that the risks of failure are high because of lack of knowledge and of bad governance, (even if resource commitments are met.) (7).

3.2. Toward a renewed AR4D

- *The GCARD Roadmap.*

The GCARD1, in 2010, led to the endorsement of a "Montpellier Roadmap" strongly inspired by both IAASTD and WDR 2008. Drawing on convergent ways¹⁶

The GCARD Roadmap is policy-informing, not policy prescriptive and choices on production systems and institutional roles are made by sovereign governments. It provides a framework for urgent collective action to AR4D, setting out short and long term solutions that have an impact on development.

It has three main objectives: i) achieve a consensus on the important needs in the conduct of agricultural research for development leading to relevant solutions in the hands of sovereign governments; ii) provide an inclusive mechanism to look ahead and iii) provide a common framework for planning and coordinating actions with an impact on development (9). To enforce this Roadmap, Sovereign governments must be able to overcome the difficulty of establishing AR4D priorities at national level and to translate them into action and impact. National and regional AR4D institutions must put in place effective mechanisms and equitable partnerships to conduct relevant research to effectively address poverty, food security and environmental sustainability. (9).

- *"Business as usual" is not an option*

In the line of IAASTD, GCARD1 has achieved a remarkable consensus on the fact that "business as usual" is not an option for AR4D highlighting the need for new research areas and for promoting new frameworks of intervention.

➤ *New research areas*, particularly in the fields of i) climate change mitigation and adaptation, and related effects such as emergent pests and diseases, reinforcing the need for a better management of natural resources, water, soil and biodiversity in particular; ii) anticipation and management of crises; iii) ecological intensification and sustainable production, securing environmental services; iv) sustainable food systems and diets, linking agriculture, nutrition, health and well being.

➤ *An holistic approach bringing together new technology and traditional knowledge*: GCARD confirmed the IAASTD statement that "many of the challenges facing agriculture currently and in the future will require more innovative and integrated applications of existing knowledge, science and technology, as well as new approaches for agricultural and natural resource management ... and that some challenges will be resolved primarily by development and appropriate application of new and emerging AKST" (10). Adopting a holistic approach to AR4D is an essential condition for achieving the eight Millennium Development Goals, based on long-term considerations, social sustainability and the multiple needs of the small-scale farm sector assessing and promoting agro-ecological practices merging traditional knowledge and new technology, and promoting the concept of agro-ecological intensification¹⁷ (10).

➤ *Multisectoral approaches to address various context-specific issues*: AR4D needs differ across the world to address various context-specific issues. AR4D must acknowledge the multifunctional role of agriculture and promote multisectoral approaches in view of the strong interactions between various components such as poverty, food security and nutrition, health, communication, energy and environmental resilience. (9)¹⁸

This approach calls for an improved interaction between ministries (agriculture, water, environment, health, education,...) at government level, (10)

➤ *AR4D embedded in development*: To perform a useful transformation through AR4D, IAASTD and GCARD pointed out the need for clear links between the processes of research and the development agenda, calling for new approaches, taking into account risk options and choices of farmers (10) and including particularly the broader policy enabling environment, the investment and rural development mechanisms, as well as broader issues such as nutrition, health and markets (9).

- *Ways for better dissemination and adoption*

Relevant approaches to adoption and implementation of agricultural innovation are crucial for achieving development and sustainability goals (10).¹⁹

All AR4D projects need to have a clear dissemination strategy as from the planning stage.

A major effort must be made to assess the level of adoption of key technologies deemed to be lagging behind, such as fertilizers and seeds, and to establish key explanatory factors for innovation, such as agronomic conditions, prices, availability of information and the benefits expected from the adoption of information and learning, securing the physical (land) and intellectual (eg seeds) property, defects of credit and insurance. (9) (4).

¹⁶ Main focus on small farmers, inclusiveness, holistic multisectoral approach, mix traditional-new technologies with emphasis on sustainable practices, linking small farmers to market.

¹⁷ Ecological intensification means designing sustainable production systems that save on inputs and are less harmful to the environment. It also means developing varieties better suited to their environment, and inventing new pest and disease control techniques. Lastly, it means understanding how nature functions so as to exploit its resources without destroying it, and breaking with practices based on intensive, massive use of pesticides, chemical fertilizers, water and fossil fuels (CIRAD web page, 2011).

¹⁸ "By integrating expertise from other sectors there is more potential to develop solutions that increase productivity, protect natural resources and livelihoods and minimize agriculture's negative impact on the environment. Knowledge and technology from sectors such as communication, energy and health, as well as culture and arts can enhance the capacity of agriculture to contribute to reaching development" (10).

¹⁹ This includes, in the short term, a better adoption of the current backlog of available technologies that are unused or misused (9).

In the past, traditional extension followed a linear, top-down approach, linking research to farmers mainly through public extension services. This approach has changed and must continue to evolve in line with rapid changes in agriculture and the market environment, and with the conditions for ownership of innovations identified above.

GCARD, IAASTD and WDR recognized the key role of ICT with "Internet access and the spread of mobile phones already facilitating the exchange of scientific, technological and market information among farmers, scientists, commercial enterprises, advisory and extension workers and other stakeholders" (10), calling for "Growth of ICTs and new roles of advisory services hastening knowledge access even in remote areas" (9) (19)

- *All stakeholders have a vital role to play.*

Inclusiveness was a key finding of IAASTD, calling for significant changes from each of the major stakeholders groups who all have a vital role to play. To do so, a consistent stepwise approach must be followed over an extended period. Emphasis will be on innovations that are dictated by the needs of poor farmers and consumers. Their monitoring and evaluation should be objectively based on their perception by the end users and as well as on their actual impact (9).

As stressed by IAASTD, there is clearly a need to move towards a new research and dissemination paradigm, involving rural and agricultural innovation systems which bring together the public and private sectors including farmers, civil society organizations and the scientific community but also other actors and sectors in the value chain (traders, exporters, etc.) in order to foster stronger market opportunities for rural producers, to increase competitiveness and to improve rural and urban food systems and livelihoods.

Three clear "inclusiveness" messages were issued by IAASTD:

- Small farmers are central to food security. They must be involved in setting research priorities and in their implementation through participatory research.

- The role of women should be more highlighted

- Greater involvement of stakeholders is essential in decision making related to the dissemination of new technologies (10).

Like an echo, the GCARD Roadmap, in its conclusions, calls, beyond institutional divides and conventional boundaries of disciplines, for effective collaboration among diverse stakeholders to provide technological, socio-economic and policy solutions (9).

GCARD and IAASTD confirm that the private sector has a key role to play. They encourage public-private partnership with well-defined rules to avoid conflicts of interest and maintain focus on sustainability and development in AKST when private funding complements public sector funds (10).

- *Policy measures*

A strong political will is essential to invest in AR4D to quickly fill the huge gap between the capacity required in AR4D and the investment currently being made "(10).

Many governments have endorsed the conclusions of the IAASTD (Box1), but so far with no clear evidence of ownership nor evolution of national research strategies in response to these conclusions.

The GCARD process, and especially the preparation for the GCARD 2, in 2012, is certainly the best place to conduct useful exchange of policies, perspectives, values and interests based on the findings of IAASTD and other studies and involving all the stakeholders. It would be an efficient way for stimulating greater involvement of political actors and to develop new concepts and processes that can be even more effective, including in terms of governance, building heavily on the lessons learned from processes like the IAASTD (3).

- *The regional dimension*

IAASTD did not give much emphasis to the regional dimension. Even if the process started from regional reports used to build the global reports, regional mechanisms like interregional exchanges or regional policies were under-considered in the global reports.

Foster exchange of knowledge and experience: Many lessons can be learned from successes and failures in other regions. Such process of inter-regional exchange of experience should be better organized with relevant actions aimed at promoting cooperation between countries and regions to make better use of available resources and support capacity development in weaker national systems. In this context, an enhanced support to regional organizations and networks is necessary to create stronger ownership and participation across the full range of national AR4D stakeholders. A wider international political commitment is needed to support these regionally-developed actions and the organizations responsible for their achievement, and to better share technological innovations (7)).

Encourage integrated regional policies: Integrating actions at regional level is often difficult because of the complexity and diversity of social, cultural, and environmental policies among nations. To overcome these difficulties, integrated regional policies are needed to improve the broad framework for action, such as the Pillar IV of the Comprehensive Africa Agriculture Development Program (CAADP). Collective actions to address common challenges on a larger scale, such as the Rice-Wheat Consortium for the Indo-Gangetic Plain the African Center for Research on Banana and Plantain (CARBAP) should be supported. The multi-stakeholder Regional Fora (FARA in Africa, FORAGRO in Latin America, etc) whose role is to facilitate such action, must play a full part in such a process. (9)

- *The global dimension: a stronger commitment to collaborative actions on a global scale*

Commitment to collaborative action at the global scale is necessary to engage integrated and synergistic mobilization of international stakeholder networks and research and development initiatives (9).

There is now a political recognition of the role of a more smallholder and impact oriented AR4D, reflected in the reforms of international institutions such as CGIAR and FAO.

GFAR is now recognized as an open and inclusive mechanism for action among all stakeholders and the GCARD being the common instrument for achieving change (9)

Advanced research institutes (ARIs) from developed but also from the fast-growing economies must be considered as providers of technologies and learning opportunities for other regions. (9).

4. How EIARD can move towards better use of IAASTD for implementation and impact?

Taking stock of IAASTD in the light of other recent similar exercises, in particular the WDR 2008 and the GCARD process, and accounting for changes in context, nine key messages for action are relevant to EIARD members:

1. Put into use the GCARD Roadmap, as a consensual guideline for action and for spreading better R4D practices.
2. Recognize the need to invest in AR4D²⁰, to realize the potential of agriculture as an engine for development and to anticipate and change the food systems for the benefit of poor producers and consumers, while protecting them from crises and price volatility.
3. Encourage ARD to adopt a holistic and multisectoral approach, bringing together new technology and traditional knowledge, looking beyond agriculture at the global food system from “farm to fork”, and better connecting policy-making with agricultural technology.
4. Support any initiative aiming at making the AR4D process more inclusive and embedded in development for better dissemination and adoption, along with advisory services.
5. Promote the concept of agro-ecological intensification and sustainable production, using ecological processes to produce more to feed the world in a context of climate change, mobilizing more efficiently limited natural resources such as water, and avoiding environmental damages.
6. Consider urban - rural dynamics as a key external driver of agricultural development (income, jobs, livelihoods), with particular attention to food processing and waste management.
7. Put more emphasis on nutrition security through sustainable food systems, including access to safe and nutritious food, affordable food supply, reduction of post-harvest losses, changes of consumption patterns and environmental issues.
8. Encourage a thorough evaluation of needs at national level²¹, based on the evidence of current progress and new opportunities, taking into account that every situation is calling for specific policy, measures and solutions, without ignoring the regional and international dimensions which must be seen as opportunities rather than constraints.
9. Strengthen EFARD, the multistakeholder European ARD forum, to enable its interactions with similar ARD for a in other continents and especially in the developing world.

²⁰ Including research, education and capacity building

²¹ In the case of African countries, this could be achieved through support to the CAADP national processes.

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