EUROPEAN COMMISSION

Brussels, 31.3.2010
SEC (2010) 379 final

COMMISSION STAFF WORKING DOCUMENT

Accompanying document to the

COMMUNICATION FROM THE COMMISSION TO THE COUNCIL AND THE EUROPEAN PARLIAMENT

An EU policy framework to assist developing countries in addressing food security challenges

{COM(2010) 127 final}

1. INTRODUCTION

This Staff Working Document (SWD) accompanies the Communication 'An EU policy framework to assist developing countries in addressing food security challenges'[1]. It provides a brief comment on the public consultation on the related Issues Paper (section 2) and further elaborates on a number of issues raised in the Communication, some of which were also subject to specific discussions with the Member States' Heads of Agriculture and Rural Development in February 2010. The specific issues covered in section 3 of this SWP are: right to food, nutrition, global governance for food security, price volatility, land acquisition, bioenergy and research and innovation.

2. PUBLIC CONSULTATION ON THE ISSUES PAPER RELATING TO FOOD SECURITY

The issues paper 'Towards an EU policy framework to assist developing countries addressing agriculture and food security challenges' was the subject of an online public consultation[2], open to all stakeholders from 16th November 2009 until late January 2010. The aim of the consultation was to obtain comments and responses which could feed into the drafting of a Communication on Food Security.

Overall, forty-nine responses were received. Responses mainly came in the form of answers to the specific questions but general comments were also received on food security challenges and policy approaches. Many responses came from NGOs and Member States' cooperation agencies, supplemented by feedback from United Nations (UN) organisations, the UN Rapporteur on the Right to Food, one partner country, trade unions, research centres, private individuals and two multinational corporations.

A report summarising the comments received has been published online.[3]

3. CURRENT ISSUES WITH AN IMPACT ON FOOD SECURITY

Seven current issues related to food security, most of which were discussed in a meeting with the EU Member States' Heads of Agriculture and Rural Development, are elaborated below in greater detail. The seven issues were identified as having significant links with food security and are covered throughout the Communication, particularly in section 2, on the four pillars of food security. These issues are considered high on the international agenda towards tackling food insecurity and the achievement of MDG 1 on poverty and hunger. These issues are: the right to food, nutrition, the global governance system for food security, price volatility, land acquisition, bioenergy and research and innovation.

3.1. Right to Food

The right to adequate food is realised when every man, woman and child have physical and economic access at all times to adequate food or means for its procurement. The rights-based

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1 COM(2010) 127 of 31.03.2010

2 http://ec.europa.eu/development/how/consultation/index.cfm?action=viewcons&id=4785

3 Ibidem.

approach to food security is based on the recognition that poverty, social exclusion and a lack of participation in political decision-making processes are the main causes of food insecurity. Economic development does not necessarily lead to a reduction of hunger, and can even increase problems of access to food due to greater inequalities. Starting from this recognition, the right to food approach requests governments (who are the main duty bearers as signatories to human rights conventions[4]) to respect and protect existing access to food, to take action focused on the most vulnerable and to address pro-actively the underlying structural causes of hunger. A first step in this regard is the identification of causes, as well as the most vulnerable groups in society. In a second step, governments, at the national level, are requested to design a strategy for the realisation of the right to food with clear objectives, benchmarks, responsibilities, multi-sectoral coordination and stakeholder participation.

While the objective of fully realising the right to adequate food cannot be achieved immediately (as it is not understood as right to be fed, but the right to produce sufficient food or gain sufficient income), the right to food approach spells out what states, civil society and donors in development cooperation ought to do in order to progressively move towards this goal. In this process, vulnerable groups (and their representatives) should be empowered to participate in the formulation and evaluation of policies and strategies. The effective implementation of assistance programmes requires some form of public control and monitoring. Moreover, access to complaint and redress mechanisms helps food insecure groups to raise claims vis-à-vis their governments. In line with the human rights approach, measures set up by the government and stakeholders rely on principles of accountability, transparency, participation, non-discrimination and empowerment.

Since (women) farmers are in many cases among the most marginalised in society[5], targeted assistance programmes supporting smallholder agriculture are in line with the Right-to-Food approach. Activities would involve support to access to credit, agricultural inputs, extension services, land registration systems and protection of land tenure, effective land redistribution programmes, and strengthening of cooperatives. Urban poor, landless or disabled people will have to be targeted by employment generation and/or social/food safety nets. By procuring food for public distribution through social protection programmes, for example, incentives for agricultural production could be created (twin-track approach).

Donor policies need to be further accompanied by an impact monitoring which investigates success in targeting the most vulnerable, the improvement of a people's nutritional status and the enhancement of people's capacities and resilience. In order to advance the realisation of the right to food, the development of a country-led food security strategy and the prioritisation of food security in poverty reduction strategies are crucial.

Building an ambitious legal and institutional framework (through framework laws, integration of the right to food into the Constitution and institution building) is a long-term process and faces, in some country contexts, huge challenges. Therefore, a starting point would be the formulation of political commitment to food security, the implementation of targeted assistance programmes and empowerment of the most vulnerable. The Voluntary Guidelines[6] give useful guidance on the necessary steps to achieve access to food at local levels.

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4 The Right to Food is laid down in the Universal Declaration of Human Rights (1948), as well as in Article No. 11 of the Covenant on Economic, Social and Cultural Rights (1966/1976).

5 See also SEC(2010) 265

6 Voluntary Guidelines to support the progressive realisation of the Right to Food in the context of national food security, adopted in 2004 by the Food and Agricultural Organisation (FAO) Council

3.2. Nutritional adequacy of food intake

The consequences of under-nutrition undermine progress towards several Millennium Development Goals (MDGs), including those on health and education. 3.5 million mother and child deaths per year and around 35 percent of the disease burden of children under 5 can be attributed to nutritional deficiencies (in iodine, iron, vitamin A and zinc, etc.). Nutrition has an impact on the health status in adulthood; and in turn the poor health status of a mother affects the development of her children, allowing under-nutrition to be passed on to the next generation. Nutritional deficiencies in early childhood can again cause irreversible consequences for physical and cognitive development. In this way, under-nutrition and poverty risk being perpetuated.

Manifestations of under-nutrition include stunting (chronic restriction of growth in height), underweight (low weight for age), and wasting (weight for height, a measure of acute exposure). The number of underweight children is estimated at 112 million and the number of children under five who suffer from stunting is estimated at 178 million. 160 million of the stunted children live in 36 countries[7]. An estimated 55 million children suffer from wasting; out of these 19 million children are affected by severe acute malnutrition (SAM).

Malnutrition has immediate, underlying and basic causes. Immediate causes are related to the dietary intake and the health status of people (incidence of HIV/AIDS, diarrhoeal diseases, malaria, and measles, etc.). Underlying causes operate at household and community levels: household food insecurity, care for children and women, and quality of environment/health services. Basic causes operate at higher levels and range from access to natural resources to social, political and economic environments.

Due to the complex nature of nutrition, a multi-sectoral response is needed, requiring political leadership and appropriate institutional arrangements. Coordination mechanisms should bring together all relevant stakeholders and adequate financial resources need to be available to underpin the political commitments. A significant evidence base provided by well functioning and timely nutrition information systems is indispensable, as well as appropriately trained human resources in the various sectors.

A package of (community-based) direct interventions targeting pregnant women and children has been identified to be efficient in preventing acute malnutrition and micronutrient deficiencies, involving breastfeeding promotion, and food supplementation or fortification with vitamin A, zinc, iodised salt or iron-folic acid. Adequate food consumption may, however, not in itself ensure good nutrition. Poor health may inhibit the digestion and absorption of nutrients leading to malnutrition. Therefore, interventions addressing access to potable water, sensitisation to adequate caring practices and hygiene should accompany direct interventions. Activities to prevent and treat malnutrition need to be integrated in national health systems.

Indirect actions that improve households' access to food (employment generation, agricultural production, social safety nets) are needed to prevent people from getting malnourished and to

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[7] The 36 countries in which 90% of stunted children under 5 live are the following: Afghanistan, Angola, Bangladesh, Burkina Faso, Burundi, Cambodia, Cameroon, Cote d` Ivoire, DRC, Egypt, Ethiopia, Ghana, Guatemala, India, Indonesia, Iraq, Kenya, Madagascar, Malawi, Mali, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Peru, Philippines, South Africa, Sudan, Tanzania, Turkey, Uganda, Vietnam, Yemen, Zambia, .

make nutrition interventions effective. Agricultural programmes and research need to integrate nutrition objectives and targets. Extension services are needed to train smallholders on cultivation of diverse and nutrient rich food. Local production of fortified food and micronutrients should be encouraged to ensure a better intake of nutritious food.

At the international level, a large number of initiatives and agencies exist in the field of nutrition. Examples are the REACH – Renewed effort against child hunger - initiative, the Global Alliance for Improving Nutrition (GAIN) and the World Bank Global Action Plan to scale-up nutrition interventions. However, an effective global forum is missing. The Standing Committee on Nutrition (SCN), a committee that involves relevant UN agencies, bilateral agencies, NGOs and academia, has not been able to perform this role satisfactorily. Any global forum on nutrition should be effectively integrated with the Committee on Food Security (CFS, see below).

3.3. The global governance system for food security

The crisis response in 2008-2009 has given rise to a number of cooperative initiatives and arrangements. The UN High Level Task Force (UNHLTF) on food security prepared a Comprehensive Framework for Action (CFA), which provides a framework on actions aiming at short term measures to respond to immediate needs and longer term investments for sustainable impacts. It is in this context that the EU Food Facility was established as a medium-term instrument, which also supported the enhanced cooperation among UN agencies and the World Bank, members of the UNHLTF, in joint assessments, and coordinated prioritisation, implementation and review. This major political and financial initiative has also put the EU at the centre of discussions on world food security. Other initiatives were taken at FAO Summits and at the G8 meetings in 2008 and 2009, including proposals for the establishment of a Global Partnership on Agriculture, Food Security and Nutrition (GPAFSN), as well as the l' Aquila Food Security Initiative (AFSI).

The various initiatives and the current food security architecture pose a risk of lack of coordination, or, in any case, considerable costs involved in achieving it. Furthermore, there is a risk that the recent coordination efforts will be reversed (e.g. within the UN system), that global responses will be spread too thinly and that partner countries will have difficulties in relating effectively to different processes.

The reforms of the Committee on World Food Security (CFS) aim to make this Committee the foremost inclusive intergovernmental platform for food security and nutrition, comprising governments as "members" and organisations and institutions as "participants". Based in a UN-body it has, in principle, the credibility and neutrality needed to attract all partners. It benefits from the support of an existing secretariat with established relations to most institutions and countries, relevant for global food security. Nevertheless, its links with the (reformed) Food Aid Convention (FAC) and the Standing Committee on Nutrition (SCN) still need to be decided upon.

With an aim to streamline the food security architecture and improve effectiveness, the CFS should aim to obtain an oversight role in other specific domains with implications for food security, including food aid and nutrition. Furthermore, the relationship with the Consultative Group on International Agricultural Research (CGIAR) and the International Food Policy Research Institute (IFPRI), will require further clarification, particularly regarding the relation between these and the High Level Panel of Experts (HLPE) of the CFS.

At the same time, the aid effectiveness agenda has progressed and become the fundamental "contract" between donors and partner countries. In Africa, there is now a stronger political and institutional basis to support food security, both continental and regional, through the African Union and the Comprehensive Africa Agriculture Development Programme (CAADP) as well as regional institutions. It is, therefore, becoming necessary that the global governance system is closely linked to and supportive of regional and national coordination and implementation initiatives.

Improving global food security – meaning both reducing the number of food insecure at the global level as well as improving food security in countries with a high degree of food insecurity – requires greater coherence and coordination both horizontally (among policies, countries, organisations, stakeholders, etc.) and vertically (between local, national, regional and global levels). For this to be achieved, an effective and streamlined global institutional set-up is required, with strong links to regional and national levels. This is one area where the EU could potentially use its political and financial leverage to move towards a well coordinated global food security architecture with effectively functioning institutions, cooperating closely and operating on the basis of respective comparative advantages.

3.4. Price volatility

In 2007-08 prices of the main food commodities (among others, rice, wheat, and maize) rose sharply on the world market. Commodity prices doubled or tripled to reach their highest level in more than 30 years in nominal terms. In the second half of 2008, prices declined again and have remained relatively stable at around 40% below the peak on the global market since. Since then, global grain harvests have been good: the 2008-09 harvest was the best in history and the 2009-10 harvest is likely to be the second largest. However, the current price level is still well above that of the years preceding price hikes. Food prices depend on commodity prices, the degree of processing, and the structure of the supply chain. Moreover, in many developing countries the decline of prices did not keep pace with that of international commodity prices pointing to potential price transmission issues. In December 2009, the FAO Food Price Index[8] stood at 172, compared to the 2008 average high of 191. Similarly, the Cereals Price Index[9] was 171 at the end of 2009, compared to the 2008 (average) high of 239.[10] In general, prices have shown more fluctuation in the past three years than in the years before, at the global level, as well as at the national level.[11]

Because of the serious effects of highly fluctuating agricultural and food prices on poverty and hunger, as well as on agricultural and social development and political stability, it is important to examine possibilities to deal with price volatility, including private initiatives. Food price levels and related volatility are the result of many interrelated factors[12], including:

- harvest levels and crop failures, particularly in food exporting countries;
- the capacity for a swift supply response;

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8 Average of six commodity groups indices, weighted (for the average export shares of each of the groups) with base 2002-2004 = 100.

9 Compiled by using the grains and rice price indices weighted by their average trade share for 2002-2004.

10 For data and updates, see: http://www.fao.org/worldfoodsituation/FoodPricesIndex/en/

11 See data for various countries at: http://www.fao.org/giews/pricetool/

12 On the complexity and the various factors at play during the 2007-08 price spike, also see Commission Staff Working Paper on the Issues Paper on high food prices: http://ec.europa.eu/agriculture/analysis/tradepol/foodprices_en.pdf

- the sudden introduction of trade distorting measures (mainly export bans or levies);
- market psychology, such as hoarding behaviour among governments, traders and consumers (which played an important role in the sudden price spike of 2007-08 for rice[13]);
- exchange rate fluctuations, particularly involving the US dollar;
- the stock-to-use ratio for the main food commodities, which when low implies a 'thin buffer';
- uncertainty about stock levels in a number of countries;
- sharp increases in consumption of certain feedstocks (like maize) for the production of biofuels due to high oil prices;
- emergence of alternative market outlets, in particular the biofuels market with noticeable impacts on the US maize market though with relatively moderate impact in general;[14] and
- other demand-side changes (e.g. changing dietary preferences in emerging economies).

Price volatility signals adjustment to new market circumstances. However, lack of predictability and the uncertainty associated with it may influence both producers and consumers. Volatility cannot be avoided fully. Policies can address extreme volatility and the risks associated with it; e.g. by increasing the stock-to-use ratio of food products, and by creating conditions for adequate stock levels to be kept, particularly at national and local levels. Moreover, short- and medium-term food price volatility can also be influenced by improving food market functioning at global, regional and national levels, and by reducing food losses in the chain from producer to consumer. This implies attention to several aspects of market functioning, such as reducing trade barriers, including export restrictions, improving market transparency (information on production, reserves, prices etc.), and reducing post-harvest losses. The impacts of price volatility can be mitigated by using a range of measures, including the establishment of scalable safety nets, food security information systems, use of (weather, index) insurance, and an enhanced capacity to use price risk management instruments.

3.5. Land acquisition

Large-scale land acquisition and long-term leases of land in developing countries have recently gained policy attention. A range of factors[15] has prompted investments in agricultural land. This development has led to increased competition between various land use interests and raises pressure on land and its related natural resources (e.g. water). These 'land investments' entail far reaching risks but also offer opportunities for sustainable rural development. The risks are especially high where land tenure and user rights are inadequately documented and/or have no formal legal basis. This can result in conflicts over land, relocation or displacement of local farmers losing the basis for their livelihood. On the other hand, the investments can be justified if they provide adequate returns to the nation, equivalent access to food for affected people, new opportunities for out-grower involvement

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13 See: C.P. Timmer, Reflections on food crises past. In: Food Policy, Vol. 35, February 2010.

14 COM (2008) 321

15 Driving factors include continuing population growth and urbanization, climate change, increased demand for agricultural raw materials for biofuels and other industrial purposes, speculation in anticipation of future land price increases and securing food supply in rich food importing countries.

and off-farm employment for local populations, enhance strategies to prevent food shortages and reduce risks, and contribute to improved local and national food security.

Sound and effective national land policies and laws and democratic governance in these areas are the basis for securing land tenure and land use rights for vulnerable groups – in particular women and indigenous groups - for food production. Democratic governance at local level is a significant stake: potentially affected actors must be involved in the decision-making process related to national and international investments in agriculture and agricultural land. It is equally important that large-scale land acquisition and long-term leases of land will be linked to national food policies, strategies for food security and poverty reduction strategies. In addition to national land policies, internationally agreed principles for large-scale land acquisition and long-term leases of land are needed to guide investors, host countries and intermediaries, such as banks, international and development organisations, towards investments in agriculture that respect (human) rights, livelihoods and resources.

Several international initiatives are currently working towards sets of principles for "responsible agricultural investments": i) a joint initiative of the World Bank, the International Fund for Agricultural Development (IFAD), the Food and Agricultural Organisation (FAO) and the United Nations Conference on Trade and Development (UNCTAD), which was a follow-up to a G8 initiative in L'Aquila related to responsible agricultural investments associated with land acquisitions; ii) an initiative of the United Nations Special Rapporteur on the right to food; and iii) the FAO proposed Voluntary guidelines on responsible governance of tenure of land and other natural resources.

The current international initiatives to set up principles and voluntary guidelines for responsible investments should be based upon broad multi-stakeholder consultations ensuring transparency and respecting democratic principles. The thrusts of different initiatives should be linked to other land policy frameworks such as the African Union Land Policy Guidelines[16] and the EU Land Policy Guidelines[17]. Principles and guidelines should comply with the international Charter on Human Rights (especially the International Covenant on Economic, Social and Cultural Rights (Article 11)[18], the United Nations Declaration on Rights of Indigenous People[19], The Ten Principles of Global Compact[20] and should respect international standards of Corporate Social Responsibility adopted by intergovernmental bodies.

In order to both stem the dangers and risks of the negative form of land 'grabbing', and also make optimum use of the possible opportunities and potential of development-oriented direct investment in land and rural development, forward-looking political guidance and action at the following levels is required[21]:

- international policy dialogue;

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16 http://www.pambazuka.org/aumonitor/images/uploads/Framework.pdf (draft)

17 Guidelines for support to land policy design and land policy reform processes in developing countries http://ec.europa.eu/development/icenter/repository/EU_Land_Guidelines_Final_12_2004_en.pdf

18 Adopted and opened for signature, ratification and accession by General Assembly resolution 2200A (XXI) of 16 December 1966, entry into force 3 January 1976, in accordance with article 27

19 Adopted by General Assembly Resolution 61/295 on 13 September 2007

20 http://www.unglobalcompact.org/aboutTheGC/TheTenPrinciples/index.html

21 Federal Ministry for Economic Cooperation and Development (BMZ): Discourse 015 “Development policy stance on the topic of Land grabbing – the purchase and leasing of large areas of land in developing countries”: www.bmz.de

- participation and civil society control;
- establishing a solid information base and transparency in the contract negotiations;
- strengthening and supporting national land policies and pertinent legislation, including institution building;
- international guidelines for sustainable and responsible investments in land;
- making more consistent use of existing international law.

Best practices and principles for responsible investments in agricultural land will need to be integrated in national legislation and in negotiations of investment contracts, as well as in monitoring and evaluation of contracts, relevant global, regional and national food security, agriculture, land and governance policy frameworks as well as in standards and codes of conduct for foreign direct investment. Moreover, the impact of large scale land acquisition and long term leases of land on food security and poverty reduction (including on income generation, labour conditions and livelihoods of the affected population) and on the local environment (including on biodiversity) will need to be assessed to evaluate the social and economic desirability and the sustainability of the investments.

3.6. Bioenergies (including biofuels)

There has been a significant growth in the global production and use of liquid biofuels over the last 5-10 years (multiplication by four between 2000 and 2008, of which a large part of the increase in the US). The renewed interest in biofuels can be attributed to the rising and volatile price of oil, climate change mitigation, energy security and efforts to revitalise rural areas and technological development in renewable energies. Incentives for bioenergy[22] production in developing countries are created by policies in developing and developed countries and are likely to lead to an increase of international trade in biomass. It is expected that the EU Renewable Energy Directive with its 20% target for the overall share of energy from renewable sources and a 10% target in transport will encourage the production of bioenergy in third countries.

The cultivation of bioenergy crops and plants in developing countries can offer a number of opportunities for rural development through the diversification of livelihoods and sources of income for farmers, enhanced agricultural productivity and use of agricultural residues and waste, increased investment in rural infrastructure, increased employment opportunities in agriculture, industry and infrastructure, improved access to safe and sustainable energy services, increased energy supply security, a reduced national oil importation bill, new trade opportunities and reduced emission of pollutants, including greenhouse gases. On the other hand, the expansion of biofuels consumption also bears some concerns regarding the impact on natural resources and food security.

At the local level a problem of access of smallholder farmers, pastoralist or forest-dependent people to land and other natural resources may arise. An increased interest in land by national and foreign investors may involve displacement of farmers and destruction of local livelihoods. Large-scale production can affect farming communities by the excessive use of

[22] Bioenergy refer to energy extracted from any kind of biomass such as plants, wood, forest and agricultural residues and waste. Bioenergy comprise the traditional biomass for cooking, energy uses of biomass (solid and gaseous fuels in electricity, heating and cooling) or first generation biofuels made from vegetable or animal oils or sugars and starches. Second generation biofuels can be produced from wastes, residues and ligno-cellulosic material / woody sources.

water, fertilisers and pesticides. Environmental degradation, and shortages and contamination of water have the potential to seriously affect a community's food security, with possible negative impacts on livelihoods. The risks related to land acquisitions (see section 3.5. above) and environmental degradation are linked to agricultural investments more generally, not solely to biofuels.

National strategies should be developed in tune with the local context in a way so as to maximise the opportunities offered by bioenergy production while limiting negative disturbances. National policies should facilitate addressing concerns over food security and environmental sustainability, allocation of farm land, and placing further emphasis on domestic consumption of renewable energy. Advice and support should be provided to governments on issues related to biofuel strategy development, as well as and acquisition and planning processes. Such a strategy should be based on studies identifying the potential in the country to grow energy crops, including the identification of suitable land and the selection of feed stocks suitable to local environmental conditions.

Furthermore, business models that maximise benefits for rural populations should be encouraged. For example, projects in food insecure areas could integrate small producers in the value chain and/or contain a food component, while the local production and consumption of certain biofuels (e.g bio-energy based on cotton-oil or cassava based ethanol) can enhance energy use in rural communities. The strengthening of farmer associations, cooperatives and other interest groups could be pursued to defend small producers' interests over access to natural resources to improve their bargaining power vis-à-vis processing companies and to build networks of knowledge exchange.

The sustainability criteria and other elements aimed at sustainable bioenergy production set out in the EU renewable energy directive should constitute guidance for these local strategies.

3.7. Research and Innovation

Agricultural Research for Development (ARD) drives the innovation required for agriculture to respond to the growing challenges of food security, climate change and sustainable development in developing countries. The European Commission supports ARD for the generation of national, regional and international public goods, including knowledge, technologies and capacity which enable poor smallholder farmers to improve their incomes and better manage natural resources. Approximately €55 million is committed annually through the Food Security Thematic Programme, with complementary projects supported by the 10th EDF and the Seventh Framework Programme of the Directorate General of Research and Technology Development.

The approach to ARD adopted by the European Commission recognises that it is most effective if it is demand driven and is part of an innovation system, integrating access to inputs, services and markets and extension. This approach both builds on traditional knowledge and practice, and on the integration of appropriate new technologies into smallholder farming systems. It supports existing global and regional institutions, such as CGIAR, GFAR and FARA[23], and builds capacity, while promoting reform and seeking a wider engagement with farmers, particularly smallholders, and civil society.

[23] Consultative Group on International Agricultural Research, Global Forum on Agricultural Research and Forum on Agricultural Research in Africa.

European policies on ARD (Member States, plus Norway and Switzerland) are coordinated through the European Initiative on Agricultural Research for Development (EIARD).

The recent food crisis and mounting evidence of the impact of climate change on agriculture have drawn attention to the potential role of agricultural biotechnology in helping the developing world achieve sustainable food security. An AU/NEPAD review of biotechnology in Africa's development[24] highlights priority applications in crops and forestry and the need to develop capacities, infrastructure, and a continent-wide regulatory framework.

Some promising applications that are already being supported by Commission research initiatives are the development of food crop varieties that are more resistant to abiotic stresses, such as drought or floods, or can perform better in conditions of soil nutrient deficiency or excess. This research is based on identification of relevant genes through molecular mapping and involves only conventional breeding.

It is important that new technological initiatives should engage the public sector, address IPR concerns, and focus on capacity strengthening, building and enforcement of regulatory frameworks, and management of environmental risks.

Some concrete areas for support through instruments of cooperation could be:

- Research and innovation, geared specifically to new technologies that are most relevant to the objectives of sustainable food security and adaptation to climate change;
- Analysis of benefits and risks of new technologies and provision of unbiased information so that developing countries can make informed choices;
- Support to agricultural support services benefiting smallholder farmers, such as seed systems, extension, micro-credit and market information; and
- Capacity building and assistance in the development of appropriate regulatory frameworks at national and regional levels taking into account international commitments.

[24] C. Juma and I. Serageldin (2007). Freedom to Innovate: Biotechnology in Africa's Development. AU/NEPAD.