

Response of Professor Charles Spillane, Director of Plant & AgriBiosciences Research Centre, NUI Galway, Ireland.

Introduction:

If respondents wish to include an introduction, setting out any background information to their organisation / activities undertaken to prepare their response / other relevant information, this should be kept as brief as possible.

The Plant and Agricultural Biosciences Centre (PABC), is an open-ended inter-disciplinary research cluster of researchers and institutions sharing a common interest in fostering and promoting plant and agricultural biosciences innovation for sustainable development. A unifying theme of the PABC is the promotion of plant, algal and agricultural biosciences for sustainable development to meet social and economic needs in Ireland, the EU and internationally (including poorer social groups in developing countries). The activities of the PABC are inter-connected via a number of cross-cutting themes, namely the promotion of:

Sustainability: The research and innovation activities of the PABC aim to promote or enhance sustainability (economic, social and environmental).

Diversity: The research and innovation activities of the PABC aim to promote forms and applications of diversity that can enhance human wellbeing.

Discovery: The research and innovation activities of the PABC are strongly driven by a discovery quest for new knowledge, particularly forms of knowledge that can contribute to sustainable development.

Innovation: The activities of the cluster aim to facilitate innovations in the broadest sense (i.e. that provide renewed options or approaches for problem solving), particularly the promotion of disruptive or "game-changing" innovations that can offer new opportunities for addressing emerging challenges to sustainable development.

A major purpose of the PABC is to facilitate the development of a "Community of Practice" in relation to plant, algal and agricultural biosciences where research and innovation practitioners can work together to generate novel knowledge, products and services that can facilitate sustainable development. Overall, the PABC aims to promote social, commercial and economic entrepreneurship that can contribute to human wellbeing and sustainable development.

Progress Made:

Has the Irish Government been successful in implementing the commitments contained in the White Paper on Irish Aid?

The following (in italics) are some of the decisions (including page numbers PXX:) indicated in the White Paper. A comment/recommendation on progress made and key needs is made after each stated decision in the White Paper.

P12: We will develop regional programmes in Southern Africa and in West Africa, to address challenges which do not respect national borders, such as the spread of disease and food insecurity.

Recommendation:

Regional programmes focused on limiting the spread of disease and food insecurity have not yet been effectively established in Southern Africa and in West Africa. Any such regional programmes (established by Irish Aid or funded by Irish Aid) should be aligned with existing regional programmes and policies (eg. CAADP etc).

P13: In the period since the White Paper the Hunger Task Force was established, which drew together some public and private sector expertise, to examine the particular contribution Ireland can make to tackling the root causes of food insecurity, particularly in Africa.

Recommendation:

To date, the implementation of the Hunger Task Force's key priority recommendations remains somewhat ad hoc and a la carte. A clear and coherent body of focused activities to facilitate the three key priority areas is not yet evident. All existing Irish Aid activities which are directly addressing the three priority areas should be collated, and a gap analysis conducted to inform what activities to support the three priority areas remain to be supported/facilitated by Irish Aid. In particular, Irish Aid should develop pro-poor impact evaluation metrics to measure what tangible progress all current and future planned Irish Aid activities are making (or plan to make) towards improving the three Hunger Task Force Priorities in Sub-Saharan Africa.

Priority 1) Increasing the productivity of smallholder, mainly women, farmers in Africa;

Priority 2) Implementing programmes focused on maternal and infant undernutrition; and

Priority 3) Ensuring real political commitment, at national and international levels, to give hunger the absolute priority it deserves.

In relation to priority 1) Irish Aid needs to focus its efforts on supporting initiatives to improve productivity (i.e. yield of staple crops per hectare; income

per unit hectare) of smallholder women farmers. This will require that Irish Aid places a much greater emphasis on agricultural research, extension and programmes/supports that are explicitly focused on improving productivity of smallholder women farmers.

Given the rapidly growing demand for food (and other plant-derived resources) internationally as the global population heads to 9 billion, the sustainable intensification of smallholder agriculture will be essential for reducing poverty, food insecurity and undernutrition in Irish Aid partner countries. In essence, Irish Aid will need to support agricultural initiatives for smallholder farmers that increase crop yields, income and nutritional wellbeing without expansion of cultivated land areas. In particular, Irish Aid should intensify its work with the relevant CGIAR, NARs and other agricultural research partners on the development (i.e. breeding) and deployment (via farmer participatory extension approaches) of improved crop varieties (and cropping systems) that can allow smallholders to grow more food to be grown on less land with less resources (e.g. water-use efficient and nitrogen use-efficient crops, greater use of legumes).

The UK Royal Society and many others (G8 Aquila Declaration, World Food Summit etc) have highlighted the sustainable intensification of agriculture and food production as one of the key development challenges for the decades ahead. It is highlighted that *“Producing enough food for the increasing global population must be done in the face of changing consumption patterns, the impacts of climate change and the growing scarcity of water and land. Crop production methods must also sustain the environment, preserve natural resources and support livelihoods of farmers and rural populations around the world. ...the need for a sustainable intensification' of global agriculture in which yields are increased without adverse environmental impact and without the cultivation of more land.”*

Irish Aid should also work with the CGIAR, NARs and other research partners on assessing the impacts on labour (especially women, children, elderly), educational attainment (especially of girl child), and household member income of different types of sustainable intensification agricultural interventions.

P14: We will increase our financial support for initiatives which promote fair and ethical trade, including support for efforts in Ireland to raise awareness of these issues.

Recommendation:

To avoid perverse effects of Irish Aid interventions in the complex arena of fair and ethical trading, Irish Aid should require that all Irish Aid funding for fair and ethical trading (including Traidlinks) requires evidence on an ongoing basis that the trading practices promoted are having a positive impact on the intended beneficiaries in developing countries and is not having any displacement effects in relation to other trading practices. In particular, to distinguish rhetoric from reality, Irish Aid should determine whether the impact

of supported fair-trading practices are mainly benefitting Northern consumers rather than poorer strata of society in partner developing countries. All awareness campaigns by Irish Aid in this arena should avoid simplistic narratives and seek to present evidence that supports any claims being made regarding ethics and fairness.

P15: We are committed to developing programmes that address the key causes of illness and poor health among the poorest and most vulnerable people and to strengthening health systems in the poorest countries.

Recommendation:

Lack of food security and undernutrition are key factors that aggravate the public health burden faced by developing countries due to illness and communicable diseases. Irish Aid should strengthen its resolve to implement the three priority recommendations of the Hunger Task Force as a key mechanism for addressing the key causes of illness and poor health among the poorest and most vulnerable people, and to strengthening health systems in the poorest countries. A key area for focus of Irish Aid should be on the linkages and development synergies that can be achieved between the health, agriculture and food/nutrition sectors.

P16: We will fund health research by Irish, international and developing country research institutions focussed on the specific health needs of the poorest countries.

Recommendation:

Taking into account the priorities of the Hunger Task Force and the food security / undernutrition challenges facing the poorest in Irish Aid partner countries, the above recommendation should be broadened or an additional recommendation added along following lines:

We will fund agriculture and food security research by Irish, international and developing country research institutions focussed on improving the specific food security needs of the poorest countries. (See p.47)

P16: Irish Aid currently provides fellowships to more than 100 students a year from developing countries to enable them to study in Ireland or in institutions in their home regions. We will conduct a major review of the fellowship programme to ensure that it continues to serve as a capacity-building tool for our partner countries.

Recommendation:

Irish Aid should expand its fellowship program for developing country nationals from partner country institutions where such fellows are likely to return to their institutions (to avoid a brain drain). The major review of such a programme should aim to foster twinning partnerships between Irish educational/research institutions/centres and counterpart institutions in

partner developing countries (or mandated to work on behalf of partner countries e.g. CGIAR agricultural research institutes). Irish Aid should support Masters and PhD (by research) Fellowships for developing country nationals working in partner country institutions for conducting research and training on topics of priority for development. Such funding schemes should avoid a brain drain and require the students to work as much as possible “in country” and also provide re-entry financing for the PhD/Masters graduates to implement their research in their home institutions for 2-3 years after graduation so that development research is not separated from development practice.

P17: Four issues cut across and inform all of the work of Irish Aid: Gender, Environment, HIV/AIDS and Governance. These issues will be mainstreamed into the work of Irish Aid. This means that they will be taken into account in the planning, implementation and evaluation of all of our interventions. This integration, or mainstreaming, is complementary to specific actions we take in each of the four areas.

Recommendation:

An additional fifth issue should be added to cut across and inform all of the work of Irish Aid, namely Impact and Evidence. Evidence of development impact from existing/prior Irish Aid-funded development initiatives, and future use of development impact metrics should be mainstreamed across all work of Irish Aid to allow for more effective use of the ODA budget whereby development impact (both short term and longer term strategic impact) per unit costs can be maximized over time for the benefit of the poorest in partner countries. All such impact data should be made public and open to external scrutiny and peer-analysis.

P17: We will establish a new Inter-Departmental Committee on Development, to be chaired by the Minister for Foreign Affairs or, in his absence, by the Minister of State responsible for Irish Aid, to strengthen coherence in the Government’s approach to development and to make best use of the expertise and skills available across the public service.

Recommendation:

The Inter-Departmental Committee on Development should have a dedicated website indicating who the representatives on the Committee are and their relative roles and responsibilities. The minutes and reports of the Inter-Departmental Committee on Development should be made available on the dedicated website.

P17: We will develop a programme for more strategic engagement between Irish Aid and higher education and research institutes in Ireland. Rollout of the programme will begin in 2007.

While the HEA/Irish Aid PSC has been rolled out, overall the programme has not yet effectively harnessed the development-relevant expertise within the higher education and research institutes (HERIs), both across HERIs in

Ireland, and also within HERIs in Ireland. In particular, Irish Aid has not yet effectively levered the expertise of the many development-relevant disciplines (e.g. economics, agriculture, nutrition, health, science & technology, engineering, ICT, social sciences etc) in the HERIs towards supporting Irish Aid and ODA objectives. At present, Irish Aid's links to the Irish HERI sector remain somewhat ad hoc and quite limited in terms of leverage.

***P55:** Ireland already provides support for pro-poor agricultural research to benefit developing countries, for example through the Consultative Group on International Agricultural Research. We will increase such funding, in particular that focussed on increasing crop yields through sustainable improvements. As part of a more coherent approach to development policy, the Department of Agriculture and Food, in cooperation with the Department of Foreign Affairs, will contribute further to efforts in agricultural research for development through enhanced cooperation with a range of global, regional and Irish research centres. Irish Aid is committed to providing increased assistance to rural development and agriculture, including to agricultural research and extension services through effective partnerships.*

P64: We are committed to reducing poverty through environmentally sustainable development. We recognise the role of the environment in assuring the livelihoods and well being of the majority of the world's poor people.

Recommendation:

Irish Aid should recognize that environmentally sustainable development means different things to different people. A key issue for Irish Aid will be to ensure that the promotion of environmental sustainability initiatives (that are borrowed from developed countries) in developing countries does not aggravate poverty and vulnerability of the poor. The length of the route out of poverty for the poor in developing countries should not be extended through Irish Aid supporting of Western-driven environmental sustainability initiatives which limit the options and capabilities of the rural and urban poor to move out of poverty traps.

Changing context:

What are the implications of the changes in the global and domestic context for the Government's aid programme in the future and how will these affect current priorities?

Recommendation:

Irish Aid should recognize the key drivers that will impact on efforts for reduction of poverty, food insecurity and undernutrition in developing countries and assess to what extent its current activities are addressing some (or all) of these grand challenges. In this context, plant and agricultural sciences have a critical role to play in ensuring future food security and sustainable development. Such a role is as critical to developing countries,

particularly partner countries in Sub-Saharan Africa.

The bio-derived resource demands of humans will continue to increase over the coming decades posing “mega-challenges” for sustainable development. Facilitated by agri-research innovations (i.e predominantly in plant & animal sciences) and fossil-fuel energy derived from biomass generated from past photosynthesis, human population on the planet has increased from ~ 20 million two thousand years ago (AD1) to 3 billion people by 1960. In 2011, the human population reached 7 billion (7000 million) people all of whom have requirements for food, feed, fuel (energy), fibre, fuel, chemicals and medicines to sustain their health and livelihoods. Human population is expected to plateau at 9 billion people around 2045. As incomes and purchasing power rises, resource requirements rise also. Where food and energy supply does not keep pace with demand, this leads to price rises that disproportionately affect the poor and poorest in all societies, but particularly in Irish Aid partner countries.

The food security challenge is immense and urgent - according to the most recent FAO report on the ‘State of Food Insecurity in the World’, there are already over 1 billion under-nourished people in developing countries, suffering from the interlinked problems of hunger and poverty (FAO, 2009). The vast majority of the world’s hungry people live and work in rural areas, as do 76% of the 2.1 billion people living on less than \$2 per day.

There are a number of factors that are now rapidly converging to aggravate the state of food insecurity, including population increases, changing consumption patterns, increasing incomes, growing demand for meat and dairy (especially grain-fed), growing demand for biofuels, scarcity of land and water, slowing of agricultural productivity (yield per hectare) and adverse impacts of climate change. The growing number of future food and livelihood security mega-challenges now includes:

- Feeding and meeting the expanding resource demands of the human population, which will reach 9000 million people in 2050.
- Strengthening the food and livelihood security of the ~ 1000 million people who suffer from food and livelihood insecurity.
- Doubling food production by 2050 while using less energy, fertilisers and water. This can only be achieved through increased productivity (i.e. yield per hectare).
- Meeting a doubling of demand for animal products (meat, dairy) between 2000 and 2030.
- World primary energy demand increasing by 40% between 2007 and 2030 to 16800 million tonnes of oil equivalent (Mtoe) (IEA, 2009).
- Harnessing clean energy sources to meet increases in global energy demand (from ~13 terawatts demand today to 22 terawatts by 2025).
- Reducing greenhouse gas emissions from industry and agriculture to stay within the 450 parts per million of CO2 equivalent (to limit global temperature increase to 2oC).

- “Climate-proofing” of farming systems (i.e. crops, animals) as a mitigation measure against predicted negative effects of climate change.
- Improving the health and nutritional status of ~1000 million people who are malnourished and the other ~1000 million overweight people who are prone to chronic diseases associated with obesity.
- Reducing the burden of disease on human and animal health (e.g. malaria, TB, food and mouth disease, swine fever).
- Improving food safety to reduce the incidence of food-borne illnesses (e.g. reducing effects of diarrhoeal diseases and food toxins).
- Limiting agricultural expansion into environmentally fragile or biodiverse areas.
- Developing sustainable bioenergy and renewable energy systems that do not negatively impact on the food and livelihood security of the poor.
- Developing low-carbon energy-efficient models of economic and sustainable development that can increase agricultural yields, while strengthening food and livelihood security for the poor.

In this context, one of the greatest development challenges is to accelerate the development and introduction of productivity-increasing bio-based technologies (for crops, animals, algae, fish, forestry and food) that can rapidly improve the livelihoods of the poor, yet are sustainable in the sense that they inflict less damage on the soil, water and ecological resources, as well as on the atmospheric conditions, on which future food output depends. This is one of the major challenges that Irish Aid should recognize in its prioritization efforts if its development initiatives with partner countries are to be effective and sustainable over the longer term (i.e. have long term and more sustainable impacts per unit ODA).

Key Issues:

How should the Government respond to the key issues of hunger, fragility, climate change, basic needs, governance & human rights, and gender equality? Are there other issues?

Recommendation:

The following are some key development issues/challenges/priorities that are currently not well developed in relation to Irish Aid’s development aims and which are recommended to be included in the future.

- Agriculture, Food Security (& Sustainable Diets)
- Plant-derived Foods, Nutrition & Public Health
- Rural Youth Employment
- Water Use & Rural Livelihoods
- Sustainable Energy Production/Supply/Access

Given the limited resources and the need to focus these, which issues should the Government prioritise in its future aid programming?

Recommendation:

Impacts from development require long-term sustained initiatives, that are not prone to project cycle dynamics. Rather than flipping from one priority to another over time, Irish Aid should maintain and increase their focus on the three priority areas identified by the Hunger Task Force, namely:

Priority 1) Increasing the productivity of smallholder, mainly women, farmers in Africa;

Priority 2) Implementing programmes focused on maternal and infant undernutrition; and

Priority 3) Ensuring real political commitment, at national and international levels, to give hunger the absolute priority it deserves.

In relation to Priority 1) Irish Aid should deepen its relationship and support for the CGIAR, regional agricultural research forums and policies (CAADP) and with National Agricultural Research Centers (NARS) and HERIs in partner countries in order to coherently support ongoing efforts to increase smallholder productivity of women farmers in Africa. The CGIAR's mandate and objectives are particularly relevant and aligned with Irish Aid Hunger Task Force objectives, thereby offering major opportunities for impact-focused initiatives.

The Consultative Group on International Agricultural Research (CGIAR) is a global partnership that unites organizations engaged in research for sustainable development with the funders of this work. The funders include developing and industrialized country governments, foundations, and international and regional organizations. The work they support is carried out by 15 members of the Consortium of International Agricultural Research Centers, in close collaboration with hundreds of partner organizations, including national and regional research institutes, civil society organizations, academia, and the private sector.

The CGIAR's vision is to reduce poverty and hunger, improve human health and nutrition, and enhance ecosystem resilience through high-quality international agricultural research, partnership and leadership. The CGIAR's three objectives are (1) Food for People: Create and accelerate sustainable increases in the productivity and production of healthy food by and for the poor. (2) Environment for People: Conserve, enhance and sustainably use natural resources and biodiversity to improve the livelihoods of the poor in response to climate change and other factors; and (3) Policies for People: Promote policy and institutional change that will stimulate agricultural growth and equity to benefit the poor, especially rural women and other disadvantaged groups

Ways of Working:

How can the Government further strengthen its ways of working in delivering

an effective aid programme, with a view to delivering real results in poverty reduction?

Recommendation:

Irish Aid could develop a stronger partnership approach with the Irish university & HERI sector where different Irish HERIs develop twinning relationships with HERIs in Irish Aid partner countries in order to build partnership education and research (across all Disciplines) for development that operate over a longer term (decades) rather than the current approach which is subject to project cycle type funding support from the HEA/Irish Aid.

The €30m spend on research by Irish Aid is a fraction of overall Irish state funding on research, and while most of the exchequer-funded research is nationally focused, (even more so now due to the current economic climate) there are some research activities underway funded by other Irish government research funding agencies which have a development focus.

Irish Aid should establish stronger links with other other research funding agencies in other Ministries in order to lever (e.g. towards a 0.7% aspiration for research funding?) of the research funding within each stream towards development objectives (i.e. to meet criteria/metrics identified by Irish Aid). If 0.7% of the research funding spend of each of the following Irish research funding agencies was committed to research to support development in Irish Aid partner countries, this would in effect be a mainstreaming approach to research for development and would mean that the existing resources of funding bodies to monitor, peer-review and evaluate research proposals and projects (to ensure only high quality and relevant research is funded) could be more effectively levered.

Irish Aid should seek a co-funding arrangement with the following agencies to support high-quality externally peer-reviewed international development-oriented research which is focused on metrics/indicators of success and/or priority topics defined by Irish Aid. i.e. each of following agencies set-aside a proportion of their funding for an international development window which is poverty focused.

Health Research Board [www.hrb.ie]: Following the signing of a Memorandum of Understanding between Irish Aid and the HRB in 2005, Irish Aid provided funding to the HRB for a Global Health Research Awards scheme. This type of funding alliance can be usefully expanded to the other funding agencies across all the Ministries in Ireland (each of which has its own research funding streams with existing mechanisms for proposal evaluation, peer-review, project progress monitoring and evaluation etc). The most relevant research funding agencies for Irish Aid to establish partnerships with are:

Irish Research Councils
IRCHSS www.irchss.ie
IRCSET www.ircset.ie

Science Foundation Ireland [www.sfi.ie] - SFI have co-funding alliances with a wide range of international partners and there may be opportunities for these to be expanded to facilitating development relevant alliances. For instance, SFI have entered into a funding alliance with the Wellcome Trust but without any specific development orientation within the funding windows.

Department of Agriculture, Food and the Marine (DAFM) [www.agriculture.gov.ie] - DAFM fund agriculture and food research via the Stimulus and FIRM research mechanisms.

Environmental Protection Agency (EPA) [www.epa.ie] - The EPA funds significant body of environmental research programmes, projects and fellowships - all with a focus on Ireland.

As criteria for all Irish Aid research funding, poverty screens for research proposals could be developed which would force applicants to focus on impact-oriented research with relevant partners in DCs. Developing a poverty screen for development-oriented research proposals should allow room for different types of research (enabling, inclusive, strategic, applied/adaptive) and explicitly recognize why all these forms of development-oriented research are important i.e. a balance of each of these types of research is valid.

Other comments:

If the respondent seeks to address other issues – of direct relevance to the White Paper on Irish Aid – they should do so in this section.

Recommendation:

Irish Aid Expert Advisory Group: At present the Irish Aid Expert Advisory Group is constituted based on a nomination process. The Irish Aid Expert Advisory Board composition should be selected based on a competitive externally-peer reviewed process that takes into account the wide(r) range of different expertise that Irish Aid needs to tap into for the future in order to maximize its impact.

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