

Brainstorming session to Help Formulate Priorities for DFID's Research, 2008-2013

Final Report

**Submitted by
Shumon Jahan, D.Net**

**Submitted to
DFID**

October, 2007



Development Research Network
6/8 Humayun Road, Block: B, Mohammadpur
Dhaka-1207, Bangladesh
Phone: 880 2 8156772, 880 2 9131424
Fax: 880 2 814 2021
Email: info@dnet.org.bd
URL: www.dnet.org.bd

Table of Contents

1	Background	3
2	Summation from the Brainstorming session	4
2.1	How should DFID support work on sustainable agriculture and develop its work on economic opportunities and growth?.....	4
2.2	How can DFID support research on "killer diseases" and healthcare and develop its work on building the capabilities of individuals and families for a better life?.....	5
2.3	How can DFID support research into the impact of climate change on poverty and environmental change more broadly?	5
2.4	How can DFID support research into good governance , including social and policy design areas?	6
2.5	What other emerging global trends should DFID research address?	6
2.6	How can DFID improve the way research responds to user demand ?.....	7
2.7	How can DFID best support cutting-edge science that benefits poor people?.....	8
2.8	How can DFID best help developing countries increase their research capacity ?	8
2.9	How can we make sure that people in developing countries can access and use research ?	9
2.10	How should DFID position its research in the future?	9
2.11	How far should DFID take a more regional approach to some research questions?.....	10
2.12	How should DFID work with other funders of development research?.....	11
3	Email Responses	12
4	Participant Directory	23
4.1	Brainstorming Session Attendees	23
4.2	Email Correspondents	26

1 Background

The UK Department for International Development (DFID) is preparing a new research strategy for 2008-2013. The budget for research of DFID will double from GBP 110 million in 2005/06 to GBP 220 million in 2010. This means that around GBP 650 million will be available to fund new research programmes in the forthcoming strategy period (2008–2013). The new strategy is an opportunity for DFID to refocus on the most pressing research challenges, work in innovative ways and make new research partnerships.

DFID sought inputs, especially from the South and from specialist groups, on a number of questions. To guide its strategic planning, 12 questions were identified where it needed expert contributions. Development Research Network (D.Net) of Bangladesh was requested to promote and help collect responses in a targeted way from communities likely to have some significant contributions and expertise that may be so far untapped.

D.Net hosted a brainstorming session, on October 2, 2007, to collect responses from Government and non-Government research organizations in Bangladesh. Many attended personally and a few corresponded via email. This report is a summation of all their inputs.

D.Net is thankful to all participants for contributing their valuable insights.

2 Summation from the Brainstorming session

2.1 How should DFID support work on sustainable agriculture and develop its work on economic opportunities and growth?

The nature of the agriculture in Bangladesh has changed from subsistence to cash agriculture. So, now more than ever, even small farmers have a chance to develop economic opportunities through production. But agricultural research that produces valuable knowledge for all producers does not reach the poor farmers. The poor farmers usually get second or third hand information which may not be accurate or by the time they get it, it's too late to benefit them. Most technological advances in productivity and production benefits industrial farmers. Sometimes this technology (or even knowledge) is not appropriate for small farmers.

So, mechanism to transfer the knowledge and technology to small farmers and marginal farmers should be developed. And research should be oriented to develop technologies and knowledge suitable and appropriate for this group and not just industrial/large farmers.

There are a lot of indigenous agricultural technologies that people have initiated, specially the poor. And we have to **base research on those indigenous technologies.**

Research needs to be done on **whether it is possible to have an agro-based industry and an agro-support industry in the rural sector**, which is very important for the development of the country.

In the recent past, there has been emphasis on production of cereals only. Even oil seeds which were self-sufficient a few years back, we now have to depend on import in very big way. **So, crop diversification should be emphasized to attain certain level of self-sufficiency.**

In the case of agriculture liberalization and also the food security issues, the inflationary pressure is severely attacking the poor and one of the fundamental regards is that structure change of rural economy particularly their loss of subsistence agriculture and they are immediately effected by this sort of price change.

Aquaculture - Fisheries

Aquaculture also suffers from the same problems of access to knowledge and technology, as in agriculture, despite the large scale developments that happened so far, particularly in Fishery development and the production of 2.2 million metric tons of fish. A very few have gone to the poor because of institutional problems of access to information and inappropriate technologies developed to benefit the poor. The Fishery research developed the extension methodologies did not inform the poor of the situation, so they weren't able to conform to the requirements.

A major understanding and conceptualization among the development partners, among the researchers, as well as the private sector is that sustainable fisheries means open water fisheries of captured fishes. But **for sustainable aquaculture, we have to think in terms of managing water**, which the fisheries scientists and managers fail to understand. A rational,

integrated management of the water resources will provide the ecological support to the fisheries so that natural propagation of fish occurs rather than hamper it.

Water resources developments along the embankments for flood protection, for irrigation facility development are commendable, but a broader perspective must be taken to see it's losses on others systems, like disruption of the life cycle of Hilsha and other migratory fishes. There are some ways that we can still harness our resources, we can net physical husbandry of these fishery resources.

2.2 How can DFID support research on "killer diseases" and healthcare and develop its work on building the capabilities of individuals and families for a better life?

DFID should focus on the healthcare systems and the institutional management of healthcare. There was very good philanthropy in the past, when the Rockefeller Foundation developed public health schools in China and other parts of the world. So, there is a possibility to rethinking about public health management as an institutional capacity development that might be useful here especially for countries such as Bangladesh where it is lacking. We recommend to DFID that they **develop public health management capacity**.

Health sector financing is very important area and DFID has made a lot of contributions in mechanisms for the Government. **Research should be undertaken for successful implementation of maternal health development schemes and identify the gaps in the extant schemes** to provide care.

Research should also be undertaken for some mechanism of health financing that could be something like health insurance. Because these maternal schemes are donor funding dependant and Bangladesh cannot continue on that for long. So we need to **find some alternative strategy for health financing particularly for the poor.**

The poor countries usually face the problems of communicable diseases due to demographic conditions, but **there seems to be an epidemiological transition from communicable diseases to non-communicable diseases (NCD)** in the developing countries. Major NCDs are cardiovascular diseases, diabetes, cancer and chronic respiratory conditions. Tertiary level hospital data indicate that cardiovascular diseases have already appeared as one of the leading causes of mortality in Bangladesh but unfortunately **there is no national surveillance system for NCDs**. This will be a huge challenge in the next 15 to 20 years. **DFID can assist healthcare practitioners and the Government to design and implement a surveillance system that can capture this vital data.**

2.3 How can DFID support research into the impact of climate change on poverty and environmental change more broadly?

Climate change has broad ramification and relates to aquaculture, agriculture, coastal flooding, labor and healthcare.

The coastal fishermen are the first victims of climate change. Small farmers are also effected. Bangladesh is not vulnerable in the sense that the water level has reached highest here compared to the rest of World but because the poor, lacking any coping mechanisms or

capacity, cannot recover from the changes in the climate. So we have to **assess what is going to happen in next 50 years.**

DFID should fund research to **develop coping mechanisms for coastal fishermen and small farmers.** Additionally, **development of a reliable flood warning system** will save a lot of lives.

2.4 How can DFID support research into good governance, including social and policy design areas?

A very important area that effects poverty and agriculture in Bangladesh is land distribution. Large scale land reform is probably not possible but the “Chor” (river islands) lands and the “Khash” (government) lands can be distributed amongst the landless labor for better productivity. Ideally, land management is a governance issue and DFID can help with **large scale independent research on land reform.**

To arrive at reliable data, one strategy can be that the Government provides data on various aspects (population, econometrics, geographic, etc.) and civil society organizations provide alternative data looking at things from another perspective. That will create an opportunity to enhance the efficiency of the governance system of the country. For example, for the health sector, ICDDRDB could be one of the credible organization; for economic development, CPD could be one of the credible organization; for educational sector, CAMPE could be one of the credible organization. So this kind of organization can be identified for strengthening their capacity to provide alternative status for advocacy purpose for enhances the efficiency of governance. DFID can **achieve two goals of good governance and research capacity building by networking and supporting organizations to produce alternative data.**

What should be the role of government? And what should be the role of the private sector? And as a regulator, what the government should do in the health sector or in education or in any other sectors. This part of research is not there. Although there is research on the role of government moving away from regulator, more research is needs to be done on that in Bangladesh.

2.5 What other emerging global trends should DFID research address?

Gender issues is an ongoing important issue for the countries in the South. **Maternal mortality** is of vital importance. **Trafficking** is a very important as a gender issue and also as a cross-national issue.

Bangladesh is next to couple of important countries and the World Trade Organization (WTO) will play an important role to ensure market access. Although WTO, as an issue, is not new, but its implications is yet to come. Just what sort of a hand will be dealt to the countries of the South in terms of making trade free and it's implication on the country is yet to be seen. **DFID should follow WTO's impact on developing countries especially when it comes to food security.**

DFID has a mandate to support a MDG and EFA, and most of the MDG goals are covered in the questions asked. But among the four thematic areas considered, **education is missing.** As the speed of information increases through technological development, the ability to critically assess and filter these information at the consumer level becomes more and more

important. Surely, **education reform has to take place in order to deal these emerging information technologies.**

Migration is a very crucial issue for a country like Bangladesh, not only the **international migration** but also the **internal migration**. For example, people from the Monga (seasonal famine) prone districts migrate to other districts.

There is **rapid urbanization** (or “slumalization”) especially for countries in South. It has been predicted that Dhaka population will multiply many times. Nearly 16% in 2008 even in the slums. So this is an emerging issue which falls under migration but specific to urban areas and living in the pre-urban areas. This will pose real challenges, not only socially, but also health-wise and many other things we never have experienced. This is an area worth investigating and investing money on for DFID.

Globalization is a broad category that effects agriculture, good governance, climate change, climate change, health, labour, gender issues, regional trends, etc. So **DFID should follow the effects of global economy in the developing countries and regions.**

Labour is not a separate issue, it should be integrated into other issues like climate change or Globalization. Labour is the first victim of climate change and loosing jobs in the Global marketplace. Every day they are loosing actual real wage and there is no research on that in Bangladesh. How actually the next year food market for shopping will be? Without any social safety-net support for the country from the Government, labour is vulnerable. **Labour also faces health hazards due to a migration of toxic industrial processes and machineries from the developed countries** as their local environmental policies become more stringent. So, labour issue should be one of the prominent issues considered by DFID.

We don't know how the Globalized market for shrimp cultivation has effected the whole ecosystem of the South-West of Bangladesh and how it effects especially women. Small and middle income farmers were self-cultivating and hence owned their lands but now with the advent of Global economies we are now dependant not on crops but on cash. And that is creating **turbulent change within household economies, within gender relations** which is going unnoticed and un-researched. This **also effects good governance and regional trends**. Because much of what happened in the Sundarban areas, the Sundarban ecosystem also happened in West Bengal across the border as well as other areas.

A lot of donor organizations emphasize SMEs (Small and Medium Enterprises) without really knowing what the situation is in terms of its potential in Bangladesh. Yes, SMEs is very a fashionable term in South-East Asia and the new Tiger countries but in Bangladesh, what are it's actual potentials? Are Bank loans enough? Are other strategies needed to develop SMEs?

As it is evident in the daily news, there is major conflicts surrounding faith. So it seems we need to understand better how faith interacts with development curriculum. **DFID has Global reach to study and understand broader implications of faith and development.** This kind of work should be continued to better understand the World and position development initiatives most effectively.

2.6 How can DFID improve the way research responds to user demand?

There is a disconnection between research and programme. The two grants are mutually exclusive. Researchers get the grant through independent bidding irrelevance to the

programme and programmes get their money to ensure some activity. And operationally, they are not binding to each other. User demand is not just information but action or perhaps solving a problem rather than just having the solution. To respond to this, **DFID should have action/programme as a part and parcel of any research initiative**. For example, DFID can earmark a part of the programme money for research and do it in the manner that that research has to give feedback to that programme. So in fact the grant is a single grant but with a different earmark component with the binding for each other.

For an extant research findings to be continually relevant and fulfill the initial demand, there has to be **follow-ups** some time after the research period.

In the mid/late 80s in Bangladesh, there was an institution developed by DFID to work directly with the Government to do research but it failed. **There are some valuable lessons to be learned from why it didn't work**. If DFID can do some self-assessment of past programs, it will be helpful to avoid those reasons for the next trial.

2.7 How can DFID best support cutting-edge science that benefits poor people?

With the increase in Global population, especially in the developing countries, **micro level technology development should be prioritized**. This can have effect on clean water, sanitation, arsenic poisoning, appropriate technology for marginal groups, development of indigenous technology and indigenous knowledge.

To benefit the poor, **the cutting-edge science that is much needed is in the energy sector**. Bangladesh recently went through a transition from oil to natural gas. The technologies that were developed to harness this domestic resource was simple and easy to integrate into the current infrastructure. It reduced costs dramatically as well as helped economic development in many sectors. We need a similar development in **solar energy**.

2.8 How can DFID best help developing countries increase their research capacity?

The secondary data our research constitutes are not dependable or not very accurate. In this regard, **DFID can make a long term arrangement with certain institutions in the country for developing, or collecting, compiling reliable data**.

Most of the research institutions working in Bangladesh get support for conducting research but the institution as a whole is not supported. As a result, institutions are struggling in trying to conduct research in it's full capacity and quality and also to keep the institution alive. Research involves human resources, buildings, equipments and infrastructure, which are often forgotten in the funding process. So **DFID can make more provisions for supporting the development and capacity of the local researchers for capital expenses**. Information, communication and management tools including developing management capacities are also relevant. Essentially production of world class research cannot be expected in an environment where the building is outdated and on secondary equipment.

There are a lot of Bangladeshis working abroad, in UK, in US and others. But **we need to understand through research why these people cannot produce when they are put in Bangladesh**. There are some institutional issues that has to be researched out.

Research funding is much needed on contemporary issues. Some of the issues emerge but institutions don't have resources to conduct study immediately. Current issues, as a result, are not being addressed appropriately by policymakers. So as we propose institutional support, **some of the selected institutions can get block allocations which can be used to address some ongoing emergency issues.**

Nowadays, printed and electronic media focus on various social and economic issues. There are lot of research conducted at the researcher's individual capacity which also should be focused on. But the media are more interested on institutional research. And in this context, **DFID should have some allocation of resources for research dissemination specially through the printed media for individual researchers.**

Local institutions can be identified by DFID to specialize on different topics. This helps the institution to focus and grow into a niche in the development sector as well as gain credibility and expertise for that particular topic.

2.9 How can we make sure that people in developing countries can access and use research?

If research findings are not properly and timely disseminated, it's as if no research was done. The Internet is a very useful tool for giving access but it is very costly for Bangladesh. Additionally, there can be some technical expertise barriers. **DFID should fund print and especially electronic publishing of research whether institutional or individual.**

As discussed under the question of user demand, **proper utilization of research should be part of the research** via programmes, within the research period.

There is a wide gap between research and policy. The policy people do not have time to read hundreds of pages to use it. Large documentation also makes information less accessible. So **research summaries have to be created.** Perhaps some **consultation is needed as well for policymakers to understand a particular research.**

Access also leads to Intellectual Property Rights (IPR) issues. Researchers want their findings widely distributed, but at the same time, if there is no commercial return from dissemination, costs are impossible to maintain. **Only large donors, like DFID, can help this dilemma by purchasing the much needed researches and making it free for all.** This way, both the researchers and the users benefit.

2.10 How should DFID position its research in the future?

When a grant is given to a research institution, there are already objectives, backgrounds and expected outcomes. There is a logical framework and also columns for risks and assumptions. But when a research effort falls short of expectations, it should be given some heed. This is the institutional barrier for development. And we need to overcome and also identify what are the bottlenecks which could not be vetted, fulfilled or completed. **Research grants does not automatically mean coming up with all the solutions.** And there has to be room to say that we could not complete this for such and such reasons.

2.11 How far should DFID take a more regional approach to some research questions?

The issue of regional cross-learning is very important. One mechanism which DFID used in the past and has stopped, which was very useful, was actually bringing government officials together cross-borders. It was funded by the **Asia Poverty Reduction Fund**. Officials were able to speak to each other in a very different way than the researchers could. They queried each other as to why they are doing such and such when the evidence presented is strongly opposed to it. And then they would get into a dialogue about what operational steps within the implementation programs they have tried in different areas, in different countries and what could be done here. That was far more effective than a researcher presenting his/her understanding of how, say, Tamil Nadu works to the Bangladesh government official. That fund no longer exists. So **DFID is recommend to revive this kind of regional research where there can be this cross-border dialogue of officials.**

We have not discussed much about the partnership between South-South, South-North, this and that in terms of research and programs under DFID grant. **DFID had a model in last 5 years on research-program consortium which actually brought in many countries Worldwide together to work on a theme.** They wouldn't be completely restrict on partners in various research program consortium. **This was a novel idea.** But it is constrained for not having enough investment in those consortium. Those program consortium allowed to interact between South-South, South-North. That was really a composition of partners from developed, developing, Africa, South Asia, Asia. It really helped to convey and translate ideas and funding from others more effectively. But it is not well funded. So **that model should not be abandoned. It should be given a chance with sufficient funding in the future.**

There are a lot of people's initiative in Bangladesh that are organized by themselves. They are not taking any help from outside. They are even self-funded. Their resource is self-managed, sometimes they are using also their own indigenous knowledge. Research Initiative Bangladesh (RIB), have identified about two hundred such people's initiatives around the country. They are running well and **DFID should learn how these people's initiatives are getting implemented**, how they are solving their own problems without any outside help or support. So we should look into the matter these people's initiatives and identify the internal dynamics and the internal driving forces that are contributing to the success of these people's initiatives and replicate through other peoples, to other organizations. For example, in Monga (seasonal famine) areas there are a lot of people that are overcoming Monga. They have shifted from food insecurity to food security. What are the contributing factors that helped shift these people from food insecurity to food security?

China is planning to build a dam on the Eastern end of Brahmaputra River, where it comes through Tibbet before it turns South into Bangladesh, after the Olympic Games in 2009. **India may implement the Interlinking River Project**, which has been on the books for many years but not really implemented, that might divert the Ganges into West Bengal. And they are talking about damming up the Meghna in Asam also. **Bangladesh is more vulnerable to these political actions of other countries, to these kind of political actions than to rising sea levels and salinity effecting agricultural land in Barishal.** Bangladesh has yet to sign the UN Convention on the non-navigation use of international rivers. We could be devastated if China and India implement those damming projects and agriculture here could be seriously effected. So this is an example of where there are political issues that Bangladesh needs to consider and sign that UN Convention for it's own protection, just like Egypt has signed the convention on the use of the Nile River, Vietnam has signed the convention on the use of the Mycong River which comes from China also. So there are so many aspects of this which are not just scientific and geological, or agricultural,

so there are many issues in the future. **DFID may highlight such issues that is beyond conventional research and are regional political crises to get it addressed by policymakers.**

2.12 How should DFID work with other funders of development research?

In terms of the collaboration between DFID and other donors, **the consortium approach was mentioned which was proved to be very effective and could also avoid duplication of similar kind of works of many institutions.**

Capacity building and cross country knowledge sharing is important. If we talk about the governance issue, **we need to think about the governance issue of development partners as well.** How much they are investing in this country and how much cost are they incurring, and how much long-term investment which will generate employment and some other facilities long-term. For example, some infrastructure development or utility development.

One recent development is that the Care-Taker Government has taken strong measures against the corrupt. Questions are being raised about the usefulness of foreign aid. Some even claim that it's allowing opportunities for corruption. It is in the interest of all donors to find out how corruption can be prevented? Or even how it can be minimized? **DFID can work with other donors to assess the situation and share long-term outcomes of each other's projects to get a better understanding of aid effectiveness and how to identify and deal with possibilities for corruption.**

3 Email Responses

3.1 Professor M.A. Sattar Mandal (Bangladesh Agricultural University)

on DFID Question No. 1

RESEARCH THEMES ON SUSTAINABLE AGRICULTURE

Bangladesh agriculture has reached a stage where massive investment in research and development is required. Growth so far achieved has mainly come from crop sector with very little contribution from non-crop sectors i.e. livestock, poultry and fisheries. The main source of crop sector growth has been the expansion of areas under high yielding varieties of rice grown under irrigated conditions during the dry season but the average yield of HYV rice has stagnated at a level lower than in other countries in south Asia. There are significant yield gaps in not only rice and other crops but also for livestock and fisheries sub-sectors. Links between farm and non-farm sector needs strengthening for acceleration of growth but the nature and dynamics of these linkages have to be well understood for devising appropriate policy options. Despite rising food grain prices in recent years, the secular increase in cost of production inputs i.e. labour, fertilizer, pesticides and diesel for pump irrigation has squeezed farmers' profit margins. This has particularly affected the small holders livelihoods. Some of the emerging research themes are as follows:

1. Biological research for sustainable agriculture:

- i. Development and adoption of improved varieties of rice, jute, potato and pulses, especially for unfavourable ecosystem i.e. salinity, drought and flood prone areas, hill agriculture and flush flood areas.
- ii. Research on biotechnology, genetic engineering, tissue culture and genetically modified food system.
- iii. Development of bovine and poultry breeds suitable for small- holder and resource poor farmers.
- iv. Development of artificial insemination technology for small- scale dairy industry.
- v. Development of fish breeding technology for private sector hatchery.

2. Research for productivity gains:

- i. Research for reducing yield gap through use of quality seeds, fertilizers, improving on-farm irrigation efficiency and soil health improvement.
- ii. Research for reducing yield gap in animal and aquaculture production through rearing of improved breeds, use of quality feeds and feeding practice, diagnosis of animal diseases and development of animal health services.

3. Research for profitability gains:

- i. Empirical research on farm economics i.e. farmers' cost and returns from enterprises, impact of inputs subsidy and output price support, input delivery mechanism, identification of constraints to and opportunities for free market distribution of inputs, gains from product processing and value addition, and development of agribusiness and marketing.

- ii. Policy research to protect the interest of the small holders in the face of trade liberalization.
- iii. Supply chain/ value chain research to integrate small farmers with growing domestic and international market.
- iv. Research for development of new form of production organization e.g. contract farming in the face of rapidly declining average farm size and fragmentation of holdings.

4. Natural resource management:

- i. Participatory research to devise and demonstrate appropriate form of land and water use, soil testing in the private sector, conserving surface and ground water for safe irrigation.
- ii. Research or mitigation of arsenic contamination in groundwater.

5. Farm and non-farm linkage:

- i. Research to estimate and characterize backward and forward linkages between agriculture (crop and non-crops) and rural non-farm activities (rural construction, manufacturing and services).
- ii. Research to promote rural non-farm sector as a boost to strengthen production, consumption and employment linkages.

Some comments on how to do research better (Relating to Q. 5-12)

Q 5. One global trend is for reduction of subsidies on agriculture and removal of tariff and non-tariff barriers of trade under WTO rules. This is likely to make food production in the developed countries more expensive, meaning that food producers/ suppliers in developing countries will have comparative advantage in gearing up food production and entering into developed countries markets. Indeed, this will require the traditional agriculture dependent countries to meet SPS compliance. Therefore, DFID should support research to enhance capacity of the food producing countries to achieve productivity and profitability gains and to deliver safe and nutritious food for the developed countries.

Q 6. The main users of research should be the farmers, government and development partners. Farmers' needs for technology and policies should be assessed through location specific participatory research of various types. Government as well as the development partners, DFID, should themselves use as much as possible local research findings in framing domestic policies (in case of government) and designing development projects. Especially, what impact will the prospective projects will have on poor should be objectively evaluated ex-ante and ex-post using focused research results.

Q 7. DFID should support development of cutting-edge science such as ICT, institutions and governance studies, gender studies, food and nutrition science through collaboration with academics and universities.

Q 8. DFID should help increase research capacities through sponsoring higher training of young staff of teaching and research communities. DFID can also indirectly influence recruitment of bright professionals in teaching and research institutions. DFID should also support exchange of professionals through collaborative teaching and research programmes between universities in developing countries and UK.

Q 9. The best way that people in developing countries can access and use research is through developing market for research results and through developing supportive rules and ICT infrastructure enabling the poor to access research based knowledge.

Q 10. DFID should posit its research agenda in future keeping in mind both economic growth and poverty reduction as the overarching objective.

Q 11. DFID can facilitate exchange of crop and animal breeding lines and seed adaptation trials at the regional level. IT can also help develop capacity of the national governments in the region to disease diagnosis and control programmes (e.g. avian influenza).

Q 12. DFID should work with other funders in research considering the common objectives of developing capacity building of the national institutions, not just spending money on hiring national and international consultancy. DFID should also lead research with emphasis on improving natural resource management and human resource development perspective and collaborate with those who are equally interested in these aspects.

3.2 Professor Anisul Haque (Institute of Water and Flood Management, BUET)

1. How should DFID support work on sustainable agriculture and develop its work on economic opportunities and growth ?

When agriculture is sustainable, it should be able to contribute persistently to the economic activities of a particular country. This is only possible when input and output to the agriculture is compatible to the countries overall goals and objectives. In this particular aspect, DFID should extend its research area to the very grass-root level of agriculture of a particular community. Human resource development can be a special tool in this perspective.

2. How can DFID support research on “killer diseases” and healthcare and develop its work on building the capabilities of individuals and families for a better life ?

No comments.

3. How can DFID support research into the impact of climate change on poverty and environmental change more broadly ?

For Bangladesh, climate change is a special issue. There is hardly any research, specially in climate modeling in Bangladesh. The country has to depend on the forecast by models outside the region, the region that is very special in the fact that it is a low lying delta. So, if any research has to be done on the impact of climate change on poverty or environment or so in this particular region, Bangladesh has to develop its own modeling capabilities in this particular area. DFID should focus to support the research in this specific area.

4. How can DFID support research into good governance, including social and policy design areas ?

No comments.

5. What other emerging global trends should DFID research address ?

An emerging global trend in water sector is the concept of Integrated Water Resources Management (IWRM). DFID can address research in this particular field by promoting human resource development.

6. How can DFID improve the way research responds to user demand ?

In terms of monetary value, sometimes users' demand is low. DFID should focus more on the small scale users' demand measured in terms of monetary value, but not necessarily in terms of implications.

7. How can DFID best support cutting-edge science that benefits poor people ?

The answer is simple. DFID should try to reach the people, not necessarily poor. This is another way of reaching the poor.

8. How can DFID best help developing countries increase their research capacity ?

There is no other way of developing human resources to increase research capacity. DFID should increase its wing more to the educational and research Institutes for this purpose.

9. How can we make sure that people in developing countries can access and use research?

The easiest way to make it sure is to invest more and more in human resource development, specially to develop resources in specific fields.

10. How should DFID position its research in the future ?

In Bangladesh, the higher educational institutes like universities lacks a severe shortage of funds for research. DFID should position its research in future to the universities.

11. How far should DFID take a more regional approach to some research questions?

In fact, in order to make a research applicable in true sense, there is no other alternatives, but to focus on regionality, or even, on local issues.

12. How should DFID work with other funders of development research?

There should not be any rigid boundary to work with other funders of development research. The boundary can be moveable and variable.

3.3 Mr. Alan Brooks (World Fish Centre)

From mainly the perspective and Fisheries and Aquaculture

Before addressing the 12 questions (not all are relevant to us) the following fisheries and aquaculture scene setter is offered for optional reading.

A. Small Scale Fisheries (SSF)

Small scale fisheries in the developing world are diverse, numerous, geographically dispersed, vulnerable to forces external to the sector, and in crisis. Historically, development interventions for this sector have sought to reduce poverty through accelerated economic growth, improvements in technology and infrastructure, and market-led economic policy reform. The limited success of these interventions has led to a re-examination of the causes of poverty, the recognition of the significance of vulnerability and the need for new strategies for poverty reduction.

A key challenge facing SSF is the indifference or neglect of governments. In a recent global review of 281 national policy papers, including 50 poverty reduction strategy papers, only a

small number of countries included fishing communities among the target groups, or accorded the fisheries sector an explicit role in poverty reduction and food security. A FAO review of national strategies in West African countries showed that small-scale fisheries were rarely or poorly taken into account, even though they produce over one million tonnes in annual catch and provide livelihoods for over seven million fishers in the region.

The dynamic institutional and policy environment typical of many developing countries is in itself a source of uncertainty and potential threat. Manipulation by elites, lack of transparency and dialogue about policy objectives, as well as the weakness of civil society obstruct coherent policy and management of fisheries. Because SSF have a mostly weak political constituency, the political and institutional costs of improved management will often be great. The momentum and political capital for change will most likely come from outside the fisheries sector, and examples of policy reforms opening new avenues for managing SSF are growing.

Trends in national and regional supply, demand and trade of fish and fish products are not adequately integrated into development policy and investment. Demand for fish for human consumption and fishmeal as feed for animals (including aquaculture) is growing fast. Understanding the interdependencies in opportunities and threats to national and local economies will be critical in developing policy. Changes in trade regimes, including globalization, technical barriers to trade and eco-labeling will add further layers of uncertainty.

The central challenge for SSF is to engage in a pro-development narrative based on sound scientific evidence that will provide a compelling argument for how investment in SSF will generate tangible livelihood improvements, economic returns for national economies, and contribute to meeting national development objectives and MDGs. This narrative is needed to counter the fact that, when fisheries are mentioned, it is usually in the context of slowing degradation and/or moving people out of the sector.

Meeting these challenges will require responses at several scales; address issues from the perspective of management interventions from within the sector, and the science needed to inform and guide that process. WE will need to look at fisheries from outside, from the perspective of national governments and the knowledge needed to invest in the sector more broadly. Fundamental to this perspective is an understanding of the value of SSF to poverty alleviation, food security, and national development.

B. Aquaculture

Over the last two decades, aquaculture has been one of the world's most innovative and rapidly growing food sectors. It has had significant and positive effects on rural and urban food supplies and on incomes and employment in many developing economies, especially in Asia. Based on current per capita consumption targets and population growth trends, and with limits to growth in most capture fisheries, aquaculture is being fêted as the means of satisfying the world's growing demand for aquatic food products. Though the means may exist to do so, however, the expansion and growing internationalisation of aquaculture has been accompanied by increasing concern over environmental impacts, inequity and social exclusion.

The key drivers for the sector have been technical development, market opportunity, and investment. A pattern is emerging of expanding output, increasing competition, greater efficiency, lower production costs and stable or falling real prices. Such trends must continue if food needs are to be met, particularly in poorer countries, but they must do so while minimising social and environmental costs.

Poor people can directly benefit from aquaculture through:

- adopting fish or shellfish farming as part of their livelihood strategy, either by starting an SME, such as a hatchery or feed producer or, or by producing aquaculture products as a cash crop on their farm, raising incomes and improving food security;
- becoming employed as an aquaculture worker on a hatchery, feed mill or commercial farm;
- gaining access to improved supplies of fish at affordable prices.

Poor people can also benefit through increased economic activity generated by the adoption and spread of aquaculture.

Aquaculture as an engine for rural economic development. There are many barriers, however, to the adoption of aquaculture by poor people, including poor education and health, access to and costs of resources, credit, access to markets, technological knowledge and management skills, good technical support, weak policies and poor infrastructure, political and social constraints. We now know that while it is possible to generalize, constraints are locale-specific but must be tackled at a range of scales – local, national and regional. Little is known about employment in the aquaculture sector: however, like aquaculture in developed countries, commercial aquaculture is likely to involve a few high paid, technical jobs and many low-skill, low-paid jobs, the latter declining as businesses mature and market forces force reductions in operating costs. Increases in aquaculture production theoretically increase fish supplies, reduce or stabilize prices and increase the availability of nutritious food. However, it depends on the market sector being targeted: much of the recently implemented large-scale aquaculture production in sub-Saharan Africa, for example, is exported. And what impact does this have on small-scale fisheries? There is also growing evidence from a number of locations world-wide that aquaculture can act as an engine for economic growth in rural and peri-urban areas. However, there is much still to understand about how aquaculture performs in comparison with other economic activities, the conditions under which this is likely to happen, who benefits and the range of policies that are needed to foster such initiatives. There is also little understanding of how global factors, such as trade restrictions, traceability and markets impinge on the sector.

Question 1

How can DFID build on its work on sustainable agriculture and develop its work on economic opportunities and growth? (Please give your response at Box 1 below)

This question covers both the research approach, the mechanism for research working for the poor and the thematic areas for the research initiatives.

The ways to do research better will be through using a number of funding streams underpinned by a dedicated and focused third party team responsible for monitoring impact pathways and networks. The funding streams might be:

- i. Supporting international bodies such as the CGIAR but bring it more closely under the third party monitoring framework. Decentralise part of the funding to DFID country offices for same country CG center offices to complement on-going development dominant programmes and pipeline initiatives.
- ii. Initiate and support multi-stakeholder 'foundations' or similar bodies particularly existing well-established and functional councils, fora, foundations etc.
- iii. Develop a broader programmatic approach to build capacity and strategic focus for pro-development and pro-poor research within existing research institutions and with strong links to private sector i.e. build the linkages for private sector to link with research institutions to conduct research which will impact upon poor through increased sustainable economic growth. The REFPI and SUFER projects in

Bangladesh were successful in doing this but only to a limited degree. The projects were limited to Departments and thus unable to impact upon institutional change. These may be regarded as pilots or models to build upon.

Thematic focus may be too broad and all encompassing to cover here but 15 key areas should be considered for the priority formulation:

- i. The development trends in aquaculture need to be considered in the wider context of other sectors, notably agriculture, water use and watershed management. Growth of the sector must be taken in the more holistic context of land use patterns, pollution, changes in energy consumption and food production patterns.
- ii. Embedded within the land and water use planning context will be further research to develop integrated aquaculture agriculture technologies at appropriate levels of intensification for different user groups.
- iii. Innovative research can improve water and land productivity by considering use of byproducts, water reuse (e.g. industrial irrigated crop farming), recycling of nutrients etc. The research may consider new dimensions of environmental issues, greenhouse emissions and carbon sequestering.
- iv. At all levels the aquaculture industry is dependent on seed and feed. As aquaculture continues to expand rapidly urgent attention needs to be given to further research into seed quality and feed and feeding technology.
- v. Greater effort is required broodstock and genetic resources management in aquaculture, information systems for genetic resources, tracking international movements of seedstock underpinned by research into current impacts.
- vi. Research into use of transgenics in aquaculture, ecological impacts and genetic improvement methods.
- vii. Externally induced changes are evolving rapidly at the land water interface of brackish water delta areas home to millions of people many of whom are poor and derive a livelihood from agriculture, aquaculture and fisheries. Harnessing these changes to maximize sustainable productivity for growing populations will be a key area for researchable activities.
- viii. More has to be done to understand the opportunities that exist in peri-urban environments to utilize resources for poor people with hungry markets on the door-step.
- ix. Making aquaculture work for the extreme poor is a researchable area; often overlooked due to the misperception that aquaculture is for the better off since they own requisite resources.
- x. Floodplain aquaculture represents promising opportunities but a number of questions require attention of research; issues around ecological sustainability, biodiversity, equitable benefits, marketing instruments, hydrological impacts to name but a few.
- xi. Coastal aquaculture and links to small scale fisheries represent opportunities for livelihood and product diversification.
- xii. Millions of people rely on small scale fisheries. A broad range of issues from the development of resilience for SSF, policy development and governance for these resources.
- xiii. Support to inland fisheries through integrated management options using community based and co-management approaches.
- xiv. Marketing systems and market related information services and distribution systems will be essential to sustain a growing industry of aquatic products.
- xv. Promotion of south-south trade, understanding consumer trends and projections, supply and value chain structures for key commodities and making the links with the farming communities.

Question 2

How can DFID improve research on “killer diseases” and healthcare and develop its work on building the capabilities of individuals and families for a better life? (Please give your response at Box 2 below)

Take broader perspective when considering healthcare beyond the facilities and medicines. Current research in Africa shows that targeting people for a particular kind of small scale aquaculture for people with HIV and AIDS can result in dramatic benefits in health and coping with the disease. Much more needs to be done in this area

Fish play a very important role in nutrition especially for the young and vulnerable. Research can develop this further by understanding its nutritional benefits in the context of poor people's dietary regimes, seasonality and species having special dietary importance e.g. in Bangladesh one species of fish previously of little value has found to be extremely important for the provision of much needed Vitamin A.

Question 3

How can DFID improve research into good governance, including social and policy design areas? (Please give your response in Box 3 below)

In striving towards an improved policy environment further work is needed to identify and understand policy related causal effects and institutional constraints but also ways to identify and optimize windows of opportunity.

To complement the third main area (policy design research) identified in 3.11 there is a need to co-ordinate policy orientated projects to the sector based policy development projects. For example, DFID can do more to link the policy development projects embedded in the 'team' (e.g. Governance team) responsible for this type of project to sector based (e.g. agriculture, fisheries or more recently livelihoods or growth) because the projects themselves do not have the capacity as vehicles of change to influence policy change.

Key policy related themes important to the fisheries and aquaculture industry are mentioned in thematic areas listed in question 1 i.e. trade of aquatic products, marketing policy, supplies and consumer demand, resource management (marine, coastal and inland wetlands), genetic resource management, gender and the role of women, feed and seed technology and supply etc.

Question 4

How can DFID improve research into the impact of climate change on poverty and environmental change more broadly? (Please give your response at Box 4)

There are two key areas; i) research into the policy support and institutional development process for climate change and ii) how can rural and urban communities develop both preparedness and adaptive capacity to both harness the positive aspects of climate change and mitigate the negative ones. This is already well documented. However, for fisheries and aquaculture.....

Any rise in sea level and changes in water chemistry will have major impacts on f and a particularly on coastal fisheries nursery grounds, coastal aquaculture and deltaic integrated and seasonal farming systems that often alternate between fresh water and brackish water dominant seasons.

Linked to the issue of water productivity will be the impact on extremes in water availability (e.g. floods) and drought but also changes in periodicity between these extremes which affects the poor's vulnerability and their ability to cope. Coupled to the likely reduction in frequency between extreme conditions will also be changes in the lengths of seasons which will have massive impact on growing periods for agricultural and aquatic commodities.

Research into developing new technologies which accommodate these changes will be paramount.

Question 5

What emerging global trends that DFID research needs to address?

Relating to fisheries and aquaculture only.

1. Advisory systems, governance and policy for the management of marine and inland fisheries with particular focus on how to develop resilient small scale fisheries to meet the needs of millions of coastal poor people.
2. The role of fisheries and aquaculture in increasing water productivity e.g. new rice-fish systems, integrated aquaculture and agriculture
3. Effects on climate change on aquatic systems
4. Growth in aquaculture places heavier demands on feed and its ingredients. Research into the development of efficient farm-made and industrial feeds with low pollution potential

Question 6

How can DFID improve way research responds to user demand?

Forge better links with end-users. At the micro-level DFID should improve links with development projects which can provide valuable information to contribute to its research strategies and if research is designed as an integral part of the project research will improve delivery of programme or project targets. Incorporating research components into development initiatives (similar to M+E, gender and communications components which are commonly embedded into development programmes) will be the most responsive way to respond to user demand at the grass roots level.

The current practice of research and development projects being almost two completely separate entities is a waste of valuable resources and missed opportunities.

Question 7

How can DFID best support cutting edge science that benefits poor people?

There are two aspects to this, i) the mechanism by which cutting edge science is delivered and ii) the monitoring process to ensure delivery is to the poor and to what extent. The impact pathway process must be much more explicit and measurable. It is essential for DFID to support its research funding with a separate independent monitoring unit so that impact may be assessed accurately. For cutting edge science organisations should have long experience and proven track record in conducting research for development solutions. In comparison with many universities and poorly funded institutes international research organizations such as those in CGIAR are more attuned to delivering solutions directly to the poor. The Economies of scale will be important. Larger organizations also have an extensive network of partners who may be able to assist in the research process and the feedback loop to providing solutions.

Question 8

How can DFID be more systematic in helping developing countries to increase their research capacity?

Work with institutional reform of central planning bodies (e.g. in Bangladesh, University Grants Commission and Bangladesh Agriculture research Council) supported by building capacity in research management for ARIs (Advanced research Institutes). Work has been done in this area before but through small sector based projects that cannot deliver on sustainable and permanent change. Once the institutional mechanisms for effective delivery are in place, work with research institutions themselves through competitive research grants. Also train researchers to be better managers of research and more exposure to the broader issues of development e.g. understanding of livelihood issues and socio-cultural/economic dimensions causing poverty.

Question 9

Communicating research: How can we make sure people in developing countries can access and use research?

Point 4.10 refers to 'research-into-use'. Whilst this initiative provides an excellent opportunity to consolidate and scale up what works the funding to do this (GBP 400,000) per project is far too little. Such funding of good ideas needs to be realistic and commensurate with the objective.

As mentioned research should become an integral part of development initiatives and in this context communicating research findings would be an inexpensive component of the project, improve project delivery and reach to a much wider audience. Research managed out of DFID-UK through small projects (that even country offices are not aware of or staff on their projects) are an expensive and isolated form of research.

Currently research findings tend to be well communicated by implementing international organizations but very poorly by national institutions (e.g. NARS).

Question 10.

How should DFID position its research in the future?

The question of research positioning is less of an issue as the framework aims to cover a broader research agenda from the grassroots to policy. The areas it does need to improve is the coordination of its research both globally, nationally and within DFID itself. It needs to link research more to its development dominant projects and make use of the resources and facilities available rather than separate research initiatives that may be even implemented without the knowledge of projects and country offices. DFID needs to improve its monitoring of research (in fact all DFID's work) so that intended impact is realised or otherwise (current use of impact pathways and networks will be important). More could be done to invest in ex-post assessments, for which the information could be fed into future programme design. DFID should take care not to continue its current trend of passing on higher and higher transaction costs to agencies implementing research by engaging them in lower overall budget, no overhead, highly competitive (by restricting funds from elsewhere), high contributions and too many partners in multi-stakeholder projects. This will affect overall output quality and eventually result in some agencies collapsing.

Question 11

How far should we take a more regional approach to some research questions?

Regional research themes extend across a wide range of issues; gender, disease, migration, resource management, environmental issues etc.. The list is long.

Specifically for fisheries and aquaculture; main research questions have to focus on role of fish and aquaculture in water productivity, environmental sustainability & natural resource management, ecosystem preservation, climate change, genetics and feeds.

Question 12.

How should DFID work with other funders of international development research?

The multi-agency approach works if a single agency is leading on implementation i.e. funders are pooling their funds into an agreed management group, foundation or govt. department. It doesn't work when different agencies in the multi-agency funding arrangement have differing roles to play (which are supposedly complementary).

Research will be best implemented by professional international research institutions that have a presence in target countries and regions, and have a long history of partnering with local institutions.

4 Participant Directory

Researchers gave feedback in two modes. First, by attending a brainstorming session hosted by D.Net on October 2, 2007. And second, by email correspondence. The participant's name, affiliation and contact details are listed below.

4.1 Brainstorming Session Attendees

Mr. M. Sanaul Haque

Joint Chief, Planning Division
Bangladesh Agricultural Development Corporation (BADC)
Krishi Bhaban, 49-51 Dilkusha C/A
Dhaka 1000, Bangladesh
Phone 1: 9552345

Mr. Khandaker Majidul Hossain

PSO
Bangladesh Agricultural Research Institute (BARI)
Joydevpur
Gazipur 1701, Bangladesh
Phone 1: 9256298

Dr. M. Akram Hossain

Member (Science & Technology)
Bangladesh Council of Scientific & Industrial Research (BCSIR)
Dr. Qudrat-I-Khuda Road, Dhanmondi
Dhaka 1205, Bangladesh
Phone 1: 8620021 (off)
Phone 2: 8118730 (res)
Fax: 8613022
Email: drakrambcsir@yahoo.com

Mr. M. Nazmul Hoque

Research Associate
Bangladesh Institute of Development Studies (BIDS)
E-17 Agargaon, Sher-e-Bangla Nagar, GPO Box 3854
Dhaka 1207, Bangladesh
Phone 1: 01552442448 (m)
Email: nazmuldueco@yahoo.com

Dr. Salma Chaudhuri Zahir

Research Fellow
Bangladesh Institute of Development Studies (BIDS)
E-17 Agargaon, Sher-e-Bangla Nagar, GPO Box 3854
Dhaka 1207, Bangladesh
Phone 1: 9117829, 9116959, 9114790
Phone 2: 8113623 (d?)
Email: sczohir@sdbnd.org

Mr. Syed Sultan Uddin Ahmed

Assistant Executive Director
Bangladesh Institute of Labor Studies (BILS)
House 20, Road 11 (New), Dhanmondi R/A
Dhaka 1209, Bangladesh
Phone 1: 8123870
Email: bils@citech.net

Mr. K. M. Enamul Hoque

Program Manager, RMED Unit (Research Monitoring Evaluation & Documentation)
Campaign for Popular Education (CAMPE)
5/14 Humayun Road, Mohammadpur
Dhaka 1207, Bangladesh
Phone 1: 9130427, 8115769, 8155031-2
Fax: 8118342
Email: enam@campebd.org, h.enamul@gmail.com

Dr. Khondaker Golam Moazzem

Research Fellow
Centre for Policy Dialogue (CPD)
House 40/C, Road 11 (New), Dhanmondi R/A, GPO Box 2129
Dhaka 1205, Bangladesh
Phone 1: 9141734, 9141703, 8124770, ext 147
Fax: 8130951
Email: moazzem@cpd-bangladesh.org

Dr. Ananya Raihan

Executive Director
Development Research Network (D.Net)
6/8 Humayun Road, Block B, Mohammadpur
Dhaka 1207, Bangladesh
Phone 1: 8124976, 8156772, 9131424, ext 137-8
Fax: 8142021
Email: ananya@dnet.org.bd

Mr. M. Taheruddin

Senior Consultant
Human Development Research Centre (HDRC)
House 5, Road 8, Mohammadia Housing Society, Mohammadpur
Dhaka 1207, Bangladesh
Phone 1: 8157621, 8116972
Phone 2: 0171596666(M)
Fax: (+88 02) 8157620
Email: hsrc.bd@gmail.com, info@hsrc-bd.com

Dr. Abbas Bhuyia

Senior Social Scientist
International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B)
GPO Box 128
Dhaka 1000, Bangladesh
Phone 1: 8812914
Email: abbas@icddr.org

Ms. Ann Gauvin Walton

Director, Human Resources
International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B)
GPO Box 128
Dhaka 1000, Bangladesh
Phone 1: 9882407(d)
Fax: 8823116
Email: awalton@icddrb.org

Dr. Kim Streatfield

International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B)
GPO Box 128
Dhaka 1000, Bangladesh

Dr. Mahbub Elahi Chowdhury

Associate Scientist & Acting Unit Head
Reproductive Health Unit, Public Health Sciences Division
International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B)
GPO Box 128
Dhaka 1000, Bangladesh
Phone 1: 01713093869 (m)
Email: melahi@icddrb.org

Dr. Marge Koblinsky

Director, Public Health
International Centre for Diarrhoeal Diseases and Research, Bangladesh (ICDDR,B)
GPO Box 128
Dhaka 1000, Bangladesh
Phone 1: 9887612
Email: margek@icddrb.org

Mr. Md. Azmal Kabir

Deputy Director, IERD
PROSHIKA
I/1 Ga, Section 2, Mirpur
Dhaka 1216, Bangladesh
Phone 1: 01713141381 (m)
Email: azmal_2000@yahoo.com

Dr. M. Korban Ali

Director, Research & Program
Research Initiatives, Bangladesh (RIB)
House 104, Road 25, Block A, Banani
Dhaka 1213, Bangladesh
Phone 1: 880-2-8860830-1
Fax: 880-28811962
Email: rib@citech-bd.com

Dr. Meghna Guhathakurta

Executive Director
Research Initiatives, Bangladesh (RIB)
House 104, Road 25, Block A, Banani
Dhaka 1213, Bangladesh
Phone 1: 880-2-8860830-1
Fax: 880-28811962
Email: rib@citech-bd.com

Mr. M. Iqbal Ahmed

Research Associate
Unnayan Onneshan - The Innovators
House 40/A , Road 10/A, Dhanmondi
Dhaka 1209, Bangladesh
Phone 1: 01199090064 (m)
Email: tuhin_mi@yahoo.com

Dr. Md. Giasuddin Khan

Senior Fisheries Scientist
World Fish Centre
House 22B, Road 7, Block F, Banani
Dhaka 1213, Bangladesh
Phone 1: 01711392292 (m)
Email: g.khan@cgiar.org, khangias@dhaka.net

4.2 Email Correspondents

Dr. M. A. Sattar Mandal

Professor, Department of Agricultural Economics
Bangladesh Agricultural University (BAU)
Mymensingh 2202, Bangladesh
Phone 1: 9152275
Email: asmandal@sdnbd.org

Professor Anisul Haque

Postgraduate Programme Coordinator
Institute of Water and Flood Management (IWFM)
Bangladesh University of Engineering & Technology (BUET)
Dhaka 1000, Bangladesh
Phone 1: 9665650 ext 7655
Email: anisul@iwfm.buet.ac.bd

Mr. Alan Brooks

Regional Director
World Fish Centre
House 22B, Road 7, Block F, Banani
Dhaka 1213, Bangladesh
Phone 1: 8813250
Phone 2: 8814620
Fax: 8811151
Email: a.brooks@cgiar.org