Solutions to social problems such as conflict, climate change, public health issues, poverty and crime will require fresh thinking and the combined use of technological, cultural, social and economic expertise. As described in the two examples above, innovation is a shared activity which takes place within a broad setting. This success of this activity requires co-operation between government, universities, third sector organisations, businesses and consumers, because innovation flourishes within a culture of tolerance that embraces novelty and a diversity of ideas.

A well-functioning innovation system is always changing and relies on networks built on trust, repeat engagement and 'social capital'. It is also subject to uncertainty and risk, where the application of new ideas may lead to unintended consequences, but these risks have to be accepted if innovation is to thrive. Researchers also have the critical and analytical skills to challenge assumptions and entrenched ways of working, while providing a sense of the historical context, traditions and culture in which society and the economy function.

Arts and humanities research has a strong affiliation with the creative industries, which arts and humanities research help to fuel. Creative industries, in turn, stimulate and support innovation in the UK. The AHRC is involved in bridging activities between the Department for Innovation, Universities and Skills the Department for Culture, Media and Sport and the Technology Strategy Board, and policymakers increasingly understand how arts and humanities research feeds into the innovation system. The AHRC will build on this understanding by continuing to articulate and demonstrate how public funding for arts and humanities research supports advances in innovation, society and the economy in the UK.

1 http://www.ahrc.ac.uk/News/Events/Documents/AHRI.pdf

2 http://www.ahrc.ac.uk/FundingOpportunities/Pages/GlobalUncertainties.aspx

3 http://www.designagainstcrime.com/index.php?q=taxonomy/term/2

4 Department for Innovation, Universities and Skills (2008) *Innovation Nation*. London: DIUS.

A 'SIN' TO ACHIEVE THE MILLENNIUM DEVELOPMENT GOALS?

In this article Sam Myers briefly highlights contributions which have been made by the Government's global Science & Innovation Network (SIN) towards achieving the Millennium Development Goals, and the potential for a more sustained global partnership.

The Science & Innovation Network (SIN) comprises 90 officers in 39 cities around the world and is a partnership between the Department for Innovation, Universities and Skills, and the Foreign & Commonwealth Office. It works on behalf of a range of internal and external customers including Research Councils and the Department for International Development, and has a unique capability to deliver policy advice and action on the ground.

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The Millennium Development Goals (MDGs) were agreed by world leaders in 2000 to improve the quality of life for the 3 billion people living on less than $2.15 a day. To be achieved by 2015, they include:

MDG 1) Eradicate extreme poverty and hunger
MDG 2) Achieve universal primary education
MDG 3) Promote gender equality and empower women
MDG 4) Reduce child mortality
MDG 5) Improve maternal health
MDG 6) Combat HIV and AIDS, malaria and other diseases
MDG 7) Ensure environmental sustainability
MDG 8) Develop a global partnership for development

The House of Commons Science and Technology Committee reported in 2004 that "it is impossible to make sustainable progress towards the Goals without harnessing the potential of science and technology, which as part of a vibrant innovation system can provide a route out of poverty for developing countries." Indeed science, technology and innovation are an intrinsic part of the solution for providing clean water, sustainable food supplies, renewable energy, improved infrastructure and basic healthcare in developing countries. Equally importantly they are generators of economic wealth, and are vital in preparing and responding to natural and man-made disasters.

RECENT EXAMPLES OF SIN'S CONTRIBUTION TO THE MILLENNIUM DEVELOPMENT GOALS:

Case Study 1: Combat Malaria (MDG 6)

Some 3.2 billion people live at risk of malaria transmission and there are between 350-500 million clinical episodes of the disease every year, which leads to a million deaths. The disease kills a child every 30 seconds, and only 1 in 5 malaria deaths was reported in 2006 (WHO).

In 2008 the Science and Innovation Team in Southeast Asia focused on improving UK-regional collaboration and enhancing co-ordination in tackling malaria and infectious diseases. We held five scientific workshops bringing together over 900 experts from the UK, Southeast Asia, China and beyond, to share their latest research and agree joint projects. Two policy roundtables involving the UK and Indonesian Science Ministers, World Health Organization, and public and private researchers identified the need for better detection devices in rural settings and action against antimalarial resistance. As a result, the UK's Medical Research Council and Singapore's Agency for Science, Technology and Research announced a joint £6m fund for collaborative research to be launched by mid 2009. Information exchange networks for scientists, clinicians and policymakers have also been set up.

Case Study 2: Ensure environmental sustainability (MDG 7)
Amazonian rainforest depletion is taking place at double the rate previously estimated; an area 40 times the size of Singapore is being destroyed annually by selective logging which was previously undetected by satellite (Science, 2005).

The Science & Innovation Team in Brazil recently brokered agreement for a British high definition camera to be launched on the Brazilian Earth observation satellite Amazonia-1 in 2010. The camera will monitor deforestation, the management of natural resources, pollution and natural disasters in both the Amazon and Congo River basins. Detailed satellite imagery is crucial in the fight against illegal logging activities which cause the loss of livelihoods for millions of local people. The camera is to be manufactured at the UK's Rutherford Appleton Laboratories with £1m funding from the Department for International Development, and will also assess the impacts of climate change.

FUTURE SINNING

Since 2004, the SIN Team in Southeast Asia has organised a series of 38 scientific workshops enabling some 260 UK experts to share their cutting edge research and generate collaborations with an audience of 7,000 local scientists. To date our work outside Singapore has focused on emerging economies such as Thailand, Indonesia and Malaysia. We have a further opportunity to support scientists in less economically developed countries such as Cambodia, Laos and Vietnam.

In 2009 and beyond, the Science and Innovation Network will continue to work with UK and overseas organisations to strengthen the global partnership between the scientific and development communities. Strengthening the science infrastructure and capacity of developing countries "helps nations to help themselves", and home-grown scientists can offer practical and insightful solutions to the challenges on their doorstep. Whilst long-term vision and investment is needed, the returns provide a sustainable self-reinforcing solution to both scientific problems and international development.

Science is therefore a key contributor to the MDGs and more could and should be done to increase co-ordination and accelerate activities. In this way we will maximise our efforts to improve the lives of the world's poorest people and share the economic and social rewards of science and innovation.

FOOD VERSUS FUEL - IS THERE A VIABLE SOLUTION?


Dr Jeremy Tomkinson, CEO, National Non-Food Crops Centre

The National Non-Food Crops Centre (NNFCC) is the UK's National Centre for renewable materials and technologies, providing independent advice and information to industry, Government and the general public. The NNFCC develop and assess the scientific evidence on renewable materials and help to build supply chains for renewable materials, which could be made from non-food crops, by-products from edible crop production or organic material that would currently be specified as 'waste'. Defining a non-food crop is not necessarily straight forward; a non-food crop can be something perfectly edible, so we define non-food crops more by their application than actual plant species. However, the recent so-called 'food vs fuel' situation has driven the need for a sharper focus on biomass, by-products and renewable wastes streams than ever before. Clarifying this feedstock question will form a major part of our work programme in the coming years.

The NNFCC understands the technologies, markets and feedstocks and how to get them working together. Equally importantly, we understand how to identify the supply chains that will be sustainable both economically and environmentally and how to connect the players in these supply chains to realise the benefits. Our team of 17 based in York come from the relevant industry backgrounds eg petrochemical refining, plastics, high value chemicals, materials,