

# id21 insights

research findings for development policymakers and practitioners

## Towards pro-poor innovation

**Putting public value into science and technology**

**We live in a rapidly changing world. Technological advances are increasing productivity and income, quality of life and life expectancy... in the developed world, that is. The truth is that technological development is focused on meeting the wants of rich consumers. Scant attention is paid to the vital needs of people in the developing world.**

The arrival of new technologies often results in a wider gap between the rich and the poor. Yet some innovations fail to be applied in developing countries where there is a real need. As E.F. Schumacher observed, 'new technologies are developed only when people of power and wealth back the development'.

The International Council for Science argues, as do many other people, that developing countries lack an infrastructure base for exploiting technology and suggests increased investment in universities. Low income countries are not only poor in terms of measures of human wellbeing but also in terms of indicators of technology. They spend a small proportion of GDP on research and development: less than 1 percent, compared to high income countries that spend around 2.5 percent. The number of scientists in low income countries is less than 50 per 100,000 people, compared to over 3,000 per 100,000 in high income countries.

Jonathan Porritt argues that to enable sustainable development people need to work with the market system and not against it. This means understanding market mechanisms, understanding innovation processes, and then working with key stakeholders to enable business models that will deliver on human need rather than on consumer want. With existing technologies this is a challenge because the business models, including the supply chain logistics, are already well established. In the case of new technologies there is a window of opportunity, before products are released into the market, to negotiate new business models.

Many topical issues – for example sustainable development, climate change and democracy – are all influenced by the role of science and technology in society. A major challenge is to release public value from science and technology and to channel that public value into developing countries to help reduce poverty. The concept of public value used here refers to value generated by science and technology that is not solely reaped by the market. Releasing public value from science in a global context is one of the most significant and challenging issues facing societies worldwide.

The challenge might be re-framed as **'how do we enable new science-led technologies to deliver products which fulfil human needs rather than consumer wants?'** Each article in this issue of *id21 insights* provides some evidence, from recent research, which casts light on this challenge. It is presented below in relation to key questions that will continue to be a useful guide to research.

**How can new technologies deliver social and economic progress?** This is discussed

**Women collecting water near their homes in a poor neighbourhood in Bommasandra, a district of Bangalore, overshadowed by the modern corporate office buildings of Electronic City. This industrial park is a centre for IT and technological industries and houses branches of over one hundred global companies.**  
*Heldur Hetocny/Panos Pictures, 2006*



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in relation to China by **James Wilsdon**. Technology has failed to meet the needs of the poor, with 1.2 billion people living on less than one US dollar per day. At the centre of these deliberations is the essence pointed out by Jeffrey Sachs that 'the single most important reason why prosperity spread, and why it continues to spread is the transmission of technologies and the ideas underlying them'. But is the scale of economic growth implicit in this approach appropriate to a world challenged by climate change?

**How can science-led new technologies be made available to poor people?** There is often an assumption that benefits from growth will trickle down to the poor. **Ian Scoones**, however, concludes his study of biotechnology in Bangalore by saying that there is 'no substantial evidence of new products being developed for Indian settings and local needs'.

► **How can we develop new business models or processes that support the development of science-led new technologies that fulfill a real need?** **Andrew Adwerah** discusses the 'social entrepreneurship' model based on experience in Kenya and finds that by combining new technologies with a business package, income can be generated and poverty reduced. **Gordon Wilson** discusses the role of public private partnerships. He stresses the importance of incentives in both the public and private sectors, as well as the 'professional challenge' as a key motivator.

**To what extent can the provision of information and an accompanying model for work facilitate the adoption of new technologies in developing countries?** Gordon Wilson also draws attention to the importance of knowledge networks and the need to respect local knowledge whilst harnessing new knowledge.

**What inhibits the uptake of new technologies in developing countries?** **Sharad Rai** discusses participatory innovation development based on a case study in Nepal and focuses on the human,

social and economic factors that inhibit and promote pro-poor innovation.

**How do we move on from pilot projects?** Many science-led new technologies, especially those using Information Communication Technologies (ICTs), are tested using donor funding for limited time periods. The challenge is to capture the learning, adapt the business model and implement sustainable change. **Paul Matthews** discusses recent ODI research suggesting there is a need for content owners and other local stakeholders to form productive partnerships with technology providers.

The research discussed above all contributes to our understanding of a more fundamental question about the nature of the drivers of science. **Can we re-frame the drivers of science so that the ultimate outcome is public value?** (See the box on the next page on the nano-dialogues).

The key policy implications include:

- Collaborate rather than compete, ensuring the continued involvement of scientists and local communities.
- The assessment of the appropriateness of new technologies will need to

take account of the risks and costs in addition to the opportunities for real benefits to poor people.

- Alternative business models, such as social entrepreneur, should be encouraged.
- Local communities should choose the technologies they wish to adopt and participate in the process of innovation.
- Upstream dialogues between scientists and local communities should be encouraged as a way of engaging scientists in the provision of needs based development.

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**See also**

*The Role of New Technologies in Potable Water Provision, A Stakeholder Workshop Approach*, by David J Grimshaw, Jack Stilgoe, and Lawrence D Gudza, Practical Action, October 2006  
<http://practicalaction.org/docs/ia4/nano-dialogues-2006-report.pdf>

*The Public Value of Science: or how to ensure that science really matters*, by James Wilsdon, Jack Stilgoe, Brian Wynne, Demos: London, September 2005  
[www.demos.co.uk/files/publicvalueofscience.pdf](http://www.demos.co.uk/files/publicvalueofscience.pdf)

## Biotechnology in Bangalore

### The politics of innovation

**Bangalore in Karnataka, southern India, has become an iconic technology capital, fuelled by massively successful software and technology industries. Many people see it as a taste of Asia's future, where the old concerns of 'development' are banished by a high-growth knowledge economy.**

Despite the impressive growth of the technology sector and knowledge economy of Bangalore, rural areas are suffering an extended and painful agrarian crisis that is pushing thousands of poor, indebted farmers to commit suicide. In the city, inequality continues to worsen with rapid urban growth.

Biotechnology is seen as the obvious successor to information technology. This sector is growing and high-profile events and conferences in Bangalore have added to the biotechnology hype.

Three classic models are touted as critical for innovation. All apply to Bangalore:

- **The excellence model** – top quality academic institutions sit nearby industry, with benefits flowing between them. In Bangalore, the Indian Institute of Science and National Centre for Biological Sciences are world-class institutions. Bangalore's colleges of engineering and science produce highly trained students.
- **The hub and cluster model** – linking different components of an innovation

chain. Recent investment in transport highways, a new 'biotechnology corridor' and the establishment of a biotech park create a hi-tech cluster in Bangalore.

- **The public private partnership model** – links between the public and private sectors drive innovation. The Vision Group, which drove Karnataka's state policy on biotechnology, involved high-level public and private sector players. State funds backed infrastructure development, while private finance flowed to start-up companies.

Research from the Institute of Development Studies in the UK looked at eight Bangalore-based research and development establishments, asking how they matched up to innovation models and what agricultural biotechnologies they were actually producing. The findings included:

- Only one company, US-based multinational Monsanto, had a product available on the local market: genetically-modified cotton, produced elsewhere and adapted for the Indian market.
- Other companies were making money and a stock market launch generated millions. But their incomes came mostly from contract research for US and European clients, using the low-risk, fast-return out-sourcing model that companies knew and preferred.
- There was no substantial evidence of new products being developed for Indian settings and local needs.
- The extensive public research capacity in Bangalore was not being mobilised for development-oriented innovation. High quality science institutions

continue to seek publication in prestigious international journals rather than producing new technologies for mass use.

- While public-private partnership is the mantra, this is mostly one-way traffic: the private sector (often Monsanto) contracts under-funded university scientists to do company work in university labs.

Behind the hype about biotechnology, a more mundane story is unfolding: jobs for a few well-qualified professionals, a few new products and big gains from rising share prices for the lucky few.

Technology and innovation are equated with development. Anyone who questions this is dismissed as opposing progress. This policy lock-in benefits a science-business elite, who have become increasingly influential in political processes. Backlashes do occur. Rural farmers' organisations have challenged commitments to genetically-modified crops, for example. But such challenges are rare and easily dismissed.

As science and technology become ever more central to development, the politics of innovation pathways needs to be central to policy debate. With Bangalore seen as a model for the future, we must ask deep questions about the choices being made. These are choices about values, politics and outcomes – especially for poor people.

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**See also**

*Science, Agriculture and the Politics of Policy: The Case of Biotechnology in India*, India: Orient Longman, by Ian Scoones, 2006

## Nano-dialogues

### Helping scientists to meet poor people's needs

Researchers from Demos, Practical Action and the University of Lancaster collaborated on a project designed to engage Zimbabwean community groups and scientists, from both the North and South, in debates about new nanotechnologies. The dialogue was one of four experiments in public engagement with nanotechnologies, known as the nano-dialogues, funded by the Sciencewise programme of the UK Office of Science and Technology.

Providing clean water to rural and peri-urban communities in Zimbabwe is complex. The dialogues enabled a full understanding of this complex problem in relation to both economic and behavioural changes. The discussion and modeling of the problem situation helped to explain areas of concern in relation to water supply, technology, and culture.

The potential for nanotechnologies to help

improve the quality of water supply was not raised until there was a clear understanding of the problem in the local context by scientists and the local communities. The meetings focused on how nanotechnology could solve Zimbabwe's water problems. Among other things, participants discussed a recent trial in South Africa of a nanotechnology-based filter for decontaminating drinking water.

Participants expressed a desire to see the technology working in their communities. At the end of the second day the tentative conclusion that 'there is no real water quality issue that cannot be solved with existing technologies' was agreed; but by the end of the dialogues many felt that nanotechnologies might make a contribution to improving water quality. Participants called for poor communities to be involved in debates about whether nanotechnologies can contribute to social and economic development.

The way forward will need to take account of the risks and costs in addition to the opportunities for real benefits to poor people. This dialogue happened at a time before many products using nanotechnologies had entered the market. We hope that such early discussions

will enable scientists to take account of the needs of the poor. This might help deliver public value from science.

### Nanotechnology

**'Nanoscience and nanotechnology involve studying and working with matter on an ultrasmall scale. One nanometre is one-millionth of a millimetre and a single human hair is around 80,000 nanometres in width. Nanoscience and Nanotechnology encompass a range of techniques rather than a single discipline. The technology stretches across the whole spectrum of science, touching medicine, physics, engineering and chemistry.'**

(Royal Society, UK, 2003)

**Nanotechnology often aims to produce new or enhanced materials or products with unique properties.**

David J Grimshaw

## Supporting local innovation in Nepal

**For poor and vulnerable rural communities, innovating through local experimentation and adaptation in farming and other practices is an important means of survival. How can local innovation be fostered and valued alongside the wider development of high technology, which is commonly associated with globalisation?**

Advanced technologies are often not readily accepted in rural settings because they do not match communities' actual needs. Problems with ownership, user-friendliness and affordability can hinder adoption. If local innovations are tried and tested by community members they are more likely to be taken up and valued.

Krishna Bahadur Tamang is a 56-year old farmer in Nepal whose main source of livelihood is agriculture. Krishna developed a bee hive using local material after learning about a bee hive suitable for more commercial bees. He knew that his village had the potential to keep bees as nectar

**Krishna Bahadur Tamang designed and built this wasp trapper to protect his honey bees from their predators – wasps and hornets. Each trapper can be easily made from locally available materials at little cost and without the use of harmful pesticides.**

PROLINNOVA, 2006



trees are found in local forests, but the community had not yet been able to take advantage of this opportunity. Krishna now owns four hives that he made himself and has sold a few outside the village.

Krishna has used his local knowledge and available local resources and has made something that is easy to use, repair and maintain. His case shows how adapting simple technologies can provide alternative means of income generation in rural areas.

Krishna's innovation has prompted the community to try bee keeping and honey production as an alternative means of income generation. PROLINNOVA will help train Krishna and a few interested community members to initiate this. Krishna will also be able to meet bee keeping experts to test his bee hives, which could be replicated and promoted.

Krishna's experience is an example of the 'Participatory Innovation Development' (PID) approach, which aims to support and realise the potential for local farmer innovation.

PROLINNOVA is a global partnership programme promoting local innovation and PID, committed to helping farmers

play a decisive role in agricultural research and development worldwide. In Nepal, Practical Action works with LI-BIRD, the ECOS CENTRE, the Institute of Agriculture and Animal Sciences, and the Department of Agriculture.

The emerging benefits of the PID approach include:

- improved local and specialised knowledge due to joint experimentation combined with external expertise
- self-development of local innovators, who can provide benefits from local resources
- new avenues that link knowledge and skills for income generating activities across villages and communities
- better farmer-to-farmer information and communication systems that benefit innovators and their communities.

Experiences of PID suggest that projects should:

- recognise and celebrate the creativity of farmers and local people
- allow farmers and local people to set the agenda for research and development
- support farmers and local people to gain confidence and a voice
- facilitate pro-poor agricultural research and development
- facilitate food-secure farming communities which can sustain their livelihoods whilst safeguarding the environment.

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### See also

*Guidelines to Participatory Innovation Development*, PROLINNOVA Nepal Programme, by Sharad Rai and Pratap K. Shrestha, 2006  
[www.prolinnova.net/Nepal/PID\\_guideline\\_design.pdf](http://www.prolinnova.net/Nepal/PID_guideline_design.pdf)

# China: the next science superpower?

**China in 2007 is the world's largest technocracy: a country ruled by scientists and engineers who believe in the power of new technologies to deliver social and economic progress.**

The Chinese science and innovation system has its weaknesses but it excels at rapidly mobilising resources. The country is currently at an early stage in the most ambitious programme of research investment since President John F Kennedy's America embarked on the moon race.

Since 1999, China's spending on research and development (R&D) has increased by more than 20 per cent each year. In December 2006, the Organisation for Economic Cooperation and Development announced that China had moved ahead of Japan to become the world's second highest R&D investor after the United States.

Researchers at Demos, in the UK, have been working on The Atlas of Ideas – a study of science and innovation in China, India and South Korea, focusing on opportunities for collaboration with the UK and Europe. In a series of reports, published in early 2007, the project explores how these emerging 'science powers' are reshaping global science and innovation.

**Other countries need to strengthen both the political case and practical mechanisms for closer integration and beneficial collaboration with China**

While there are some signs of reform and openness within the Chinese innovation system, there is also a growing undercurrent of 'techno-nationalism'. This is expressed in trophy projects such as human spaceflight and in the desire for a Chinese scientist to win a Nobel Prize. As China's innovation capabilities grow, a central question is whether techno-nationalism will grow, or whether impulses towards global collaboration and exchange of new ideas will prove stronger.

Science and technology is one of many arenas in which China faces choices about how proactively to engage with international networks and institutions. Other countries need to strengthen both the political case and practical

mechanisms for closer integration and beneficial collaboration with China. They need to work with China to shape science's contribution to globalisation in ways that are not just about trade, markets and economic competitiveness, but also about using global knowledge to address shared environmental and social challenges:

- Approaches to climate change need to see China not just as a problematic source of emissions, but also as a potential developer of innovative low-cost solutions that will be essential to move all our economies onto a low-carbon path.
  - Strategies for poverty reduction need to recognise the role that innovation has played in achieving social change within China – a country that has lifted more people out of poverty in the past 15 years than any other.
  - Alliances between China and other emerging players should be supported; particularly in Africa, where China is now hugely active in terms of investment and resource extraction, but could still do much more to help build African science and technology innovation capacity.
- How all this is done – the policies, the support mechanisms, the incentives – will be complicated. But more brains, working on more ideas, in more places around the world, must be good news for innovation. The impulse to collaborate must



**A People's Liberation Army soldier closely guards the space suit that was worn by astronaut Yang Liwei during China's first manned space flight, on display at the Shanghai International Industry Fair. With the successful launch and return of the Shenzhou V space craft, Yang became a national hero.**

*Qilai Shen/Panos Pictures, 2003*

win out over the drive to compete if vital benefits are to be achieved for everyone.

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#### See also

*The Atlas of Ideas: How Asian Innovation Can Benefit Us All*, London: Demos, by Charles Leadbeater and James Wilsdon, January 2007  
*China: the Next Science Superpower*, London: Demos, by James Keeley and James Wilsdon, January 2007

## Useful web links

Science and Development Network  
[www.scidev.net](http://www.scidev.net)

InfoDev, Information for Development Program  
[www.infodev.org](http://www.infodev.org)

Centre for Science and Environment (CSE)  
[www.cseindia.org/](http://www.cseindia.org/)

Nanodialogues  
[www.demos.co.uk/projects/thenanodialogues/overview](http://www.demos.co.uk/projects/thenanodialogues/overview)

Science Corps  
[www.sciencecorps.info](http://www.sciencecorps.info)

Lemelson Foundation  
[www.lemelson.org](http://www.lemelson.org)

Science and Technology for Development  
<http://stdev.unctad.org>

STEPS Centre - Social, Technological and Environmental Pathways to Sustainability  
[www.steps-centre.org](http://www.steps-centre.org)

Prolinnova  
[www.prolinnova.net](http://www.prolinnova.net)

## What do you think?

**Please write and tell us your views about the issues raised in id21 insights. And what topics would you like to read about?**

**Email [insights@ids.ac.uk](mailto:insights@ids.ac.uk) with your ideas.**

# Enhancing rural livelihoods

## The role of ICTs

**Access, empowerment and individual champions are all essential ingredients for creating a local environment in which Information and Communication Technologies (ICTs) can contribute to rural livelihoods.**

The Overseas Development Institute in the UK recently carried out a study on ICT for rural livelihoods, commissioned by InfoDev. The study included a literature and donor review in collaboration with the Institute of Development Studies, and country studies carried out with partners in Argentina, Uruguay, Tanzania, South Africa, Bangladesh and Sri Lanka. ICT was defined broadly to include broadcast media as well as internet and wireless technologies.

In addition to clarifying general principles necessary for successfully harnessing ICT for livelihoods impact, the project highlighted important advances in our knowledge of how to create an enabling environment for innovation. The first principle is access and some country examples showed how access is being successfully stimulated through private enterprise and donor-funded programmes.

In Tanzania, for instance, *vibanda vya simu* – or rural telephone kiosks – provide a business package for local people to start up and expand. These are provided by the telecom companies and create opportunities for business communication and agricultural information exchange. In Uruguay, an Inter-American Development Bank-funded programme has brought connectivity as well as empowerment to a remote community in Bernabe Rivera. The formation of a mixed, community-elected commission to manage the project led to the infrastructure being put to diverse uses.

**The first principle is access and some country examples showed how access is being successfully stimulated through private enterprise and donor-funded programmes**

As well as access, individuals with specific skills and qualities are needed to help stimulate local technology appropriation. In Argentina, the non-government organisation, TEDEL, is seeking to site technology graduates from the city back in their home communities with the aim of them becoming local ICT entrepreneurs and strengthening local capacity through their own business model.

More generally, telecentre programmes are realising the importance of entrepreneurship and facilitation skills in their centre managers, who can connect people and provide backup for livelihood projects requiring information support. This

## Case Study

### Social entrepreneurship in Kenya

**Technological innovation and entrepreneurship are crucial to development. A new entrepreneurial approach to development is emerging. This involves designing new technologies and adapting existing ones to suit the specific requirements of poor people. These are then bought by poor people to form the basis of small businesses or used to help people meet their basic human needs.**

One example of this approach is KickStart – a non-profit organization based in Kenya that develops, adapts and markets technologies in Africa. Low-cost technologies are bought by local entrepreneurs (often farming families) and used to establish small businesses. They create new jobs and income for poor people. Examples of products include a brick press, oil press, treadle pump and hip pump (a manual water pump).

KickStart uses the following steps, which parallel many existing innovation approaches:

1. Identify high potential small-scale business opportunities that could be established by local people with limited capital investment.
2. Develop technologies and business packages - the tools, equipment, manuals, and business plans required to establish small enterprises.
3. Train manufacturers to produce the new technologies, for example new machines and tools.
4. Develop the market among small-scale businesses, ensuring that the new technologies are available for purchase by businesses.

KickStart monitors the number of new businesses and jobs created and the amount of profits and wages earned by the new entrepreneurs and their employees. It

has found that its innovations have had a significant impact towards improving livelihoods in their countries of work in Africa, which include Kenya, Tanzania and many others. KickStart estimates that \$52 million per year of profits and wages is generated by the new businesses with which it has been involved across Africa.

The experience of KickStart highlights some key actions that can help foster pro-poor innovation through social entrepreneurship in Africa:

- Developing demand driven products is vital for social entrepreneurs. Product performance in the market and the desired impact on intended beneficiaries must inform product development.
- Encourage social entrepreneurs to develop simple business plans and marketing strategies to guide their business.
- Encourage social enterprises to focus firmly on achieving poverty reduction, particularly through income generation and quick returns on investment.
- Direct more investment to local research and development to produce products for local markets and needs.
- Private sector organisations should be encouraged to fund pro-poor research by offering them incentives such as tax concessions.
- Better links between the public and private sectors should be encouraged, including research partnerships between universities and the private sector.

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#### See also

*From Idea to Impact: Funding Invention for Sustainability*, Innovations: Technology, Governance, Globalization, 1(1), pages 31-42, by Julie Novy-Hildesley, 2006

is an important feature of new-generation telecentres such as those being set up by Grameen in Bangladesh.

Concerning innovation, the study noted:

- Many existing local institutions can be technology-enabled and are likely to be better trusted and understood by communities than new ones (community centres in Tanzania are one example)
- There is a need for content owners to form more productive partnerships with technology providers and funders. Often the less technically adept agencies (central government ministries, for example) have access to valuable information that can be unlocked with technology.
- Mass media remain an excellent means for disseminating livelihoods-related innovation, for example, the use of television in Bangladesh to spread seed technology knowledge.

Policy-related recommendations include :

- Policy needs to be backed up by good communication, so that local people understand and act on new opportunities.
- Universal access programmes need to make it easy for small and medium sized enterprises to access funds for local connectivity projects – often these companies are the most enthusiastic about entering rural markets.
- Deregulation and the formal acknowledgement of local languages and information access rights will help to stimulate rural technology uptake.

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#### See also

www.ict4rl.info

# Threats, opportunities and incentives for pro-poor innovation

**Many advocates of pro-poor innovation fear a globalised world that is exploited by large corporate enterprises and powerful countries, now including China and India. Perceived threats include loss of local knowledge and powerlessness of low income economies and their enterprises in the face of cheap goods produced elsewhere. Pro-poor innovations, such as drought- or disease-resistant crops or effective and cheap drugs are often not prioritised.**

One response has been to turn the perceived threat into a challenge – to harness the power of big business through public-private partnerships (PPPs). The International AIDS Vaccine Initiative is one example - a global not-for-profit PPP working to speed up the development of a vaccine to prevent HIV infection and AIDS.

But poor people have the weakest voice in defining understandings of public need, from which pro-poor policies are formed. Public policy to support growth and innovation thus largely ignores employment generation and the scope for technological paths that support 'pro-poor' growth. This shows the importance not just of the public sector holding the private sector to account, but of the public sector itself being accountable to poor people.

The globalised world can offer opportunities for pro-poor innovation – fair trade and ethical goods markets, for example, offer opportunities for pro-poor innovation without having to compete directly with corporate giants or the new Asian powers.

## Local knowledge

Rather than tending towards a uniform knowledge, the world holds many types of

knowledge. Local knowledge is crucial for survival, but for poor people to be agents of their own development, it is not enough. Innovation concerns the production and application of knowledge. The production of knowledge is achieved by exposing what we know to what we do not know. In this sense two kinds of knowledge network are potentially important inputs to pro-poor innovation:

- Networks (local, national or international) where people in the same sector, such as farming, can share and compare their knowledge.
- Networks where people in different knowledge domains share and compare their understandings of problems or challenges they have in common.

## Motivation

For the potential of pro-poor innovation to be realised, motivation is required. Volunteered motivation is not enough: institutionalised incentives are also needed.

- In the public sector, the incentive for pro-poor innovation is linked ultimately to some form of democratic accountability. This is important if PPPs are put forward. Governments are unlikely to make serious demands on the private sector if they are not committed themselves.
- Innovation is an essential element of the capitalist economy, where market competitiveness and profit-seeking are the incentives. But corporate business will engage in pro-poor practices if they are seen, for example, to enhance brand image locally or amongst well informed consumers globally.
- Employees motivated by the 'professional challenge' of contributing

## Forthcoming issues

- **Mobile phones**
- **Climate change and cities**
- **Island economies**
- **Livestock in developing countries**

to a better world can be found in the private and public sectors:

- Pride in doing a good job and the contribution to a greater social good is important for organisations like UK-based group Engineers Against Poverty, or firms conscious of their corporate responsibility such as design consulting engineers, Arup.
- UK municipal authority engineers working with counterparts in Uganda found themselves inspired, and reminded of how the great public works in the UK in the 19th century defined their profession and built its status.

Our unequal, globalised world poses major challenges for pro-poor innovation, for which the mechanism of PPPs is not necessarily the answer. There are opportunities, however, because of our ability to communicate globally. Our different types of knowledge are a potential source of joint learning: a good start would be to leave behind old knowledge divides, such as local versus global, and scientific versus lay. We need instead to build on key incentives for pro-poor innovation.

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## See also

*The International AIDS Vaccine Initiative (IAVI): Is it Getting New Science and Technology to the World's Neglected Majority?*, World Development, 34(1), pages 16-30, by Joanna Chataway and James Smith, 2006  
*Promoting Innovation, Productivity and Industrial Growth and Reducing Poverty: Bridging the Policy Gap*, European Journal of Development Research, 19(1), pages 1-12, by Maureen Macintosh, Joanna Chataway and Marcel Wuylts, 2007  
*Knowledge, Learning and Practice in North-South Municipal Partnerships*, Local Government Studies, 33(2), pages 253-69, by Gordon Wilson and Hazel Johnson, 2007

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