

WHERE ARE THE POOR IN INNOVATION STUDIES?

The poor hardly feature in innovation studies, yet could really benefit from a new look at how their innovation systems work, write JO LORENTZEN and RAHMA MOHAMED.

Innovation is *en vogue*, and as a field of scientific enquiry, innovation studies are now being pursued by researchers all over the world. Indeed, 'innovation' has replaced 'competitiveness' as one of the more faddish terms on the planet. It's about achieving one happy planet through creating the global knowledge economy. But there's a conundrum in that the poor hardly feature in innovation studies. The large majority of innovation research focuses on how to make high-income economies keep their place in the sun. Very little work is dedicated to the catch-up, let alone take-off, of low income countries (LICs), those regions that need these insights most.

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POORER COUNTRIES NOT ON THE RADAR

Almost a billion people live in LICs. Four out of five inhabitants survive (or not) on less than \$1.25 (R8.99) a day and make up the world's poorest people (World Bank 2008). In fact, about half the world's population lives on less than \$2 (R14.40) a



day. So the poor are a sizeable constituency.

International organisations like NEPAD, UNCTAD and the World Bank exhort the transformational role that science, technology and innovation can and must play in changing their fate for the better by graduating into a global knowledge economy, but who out there studies how innovation, whether technological or otherwise, can lift the bottom billion out of misery? By and large, not the innovation research community.

WHY NOT?

Literature in the field marginalises LICs. One

possibility is that there is simply no innovation in LICs and hence nothing to research. It's been postulated, for example, that it makes no sense to conceive of innovation in developing countries as all they are doing is adopting existing foreign technologies in the interest of upgrading. Implicit in this view is that innovation is the icing on the cake that takes place exclusively in advanced economies.

A second possibility is that there is innovation in LICs but everybody is too busy studying innovation in 'sexier countries'. Researchers have incentives to devote themselves to Brazilian biofuel, Indian IT, Chinese genetic engineering or South African

telescopes, but the same is decidedly not the case for, say, irrigation systems in Eritrea or sheep husbandry in Tajikistan or healthcare service provision in Papua New Guinea.

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The third possibility is that there is innovation, but that researchers don't know how to approach it in LICs. New-to-world products from big firms are quite different to the more informal innovations of smaller firms, for instance, but the analytical tools to understand these are inappropriate. The fourth possibility is that there is innovation, but we don't recognise it in informal economies, as they may be happening in social contexts and not in tangible technologies or products.

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THERE'S A NEED

Innovation in health systems is enormously important for development in Africa and South Asia, yet that is just one of the needs in poor countries that innovation studies have ignored or failed. At best, the research is piecemeal and messy. Innovation is of course also a collective endeavour by people to better their lot. What should happen is that these many small tales should combine into a compelling story that spells out how catch-up in LICs can work. More adequate models would then emerge, and research on how innovation affects the poor would certainly benefit. In the end, maybe even the poor would.

This is an extract from a paper prepared for the NickFest, Science and Technology Policy Research (SPRU), University of Sussex.

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GHANA'S INNOVATION SYSTEM ON 'LIFE SUPPORT'

Science, technology and innovation (STI) are expected to play a key role in lifting Ghana to middle-income status by 2020. Yet after extensive fieldwork in Ghana, JO LORENTZEN found that the Ghanaian national innovation system – in particular the role of public research institutes and the three largest universities – is severely hampered by lack of funding, and is underperforming as a result.

LITTLE BANG FOR SMALL BUCK

The funding inputs to Ghana's research system leave much to be desired. Ghana's Council for Scientific and Industrial Research, for one, is a top-heavy organisation that employs its staff without giving them the means to do research. The annual reports of the 13 individual institutions constituting the CSIR highlight inadequate funding, especially to equip laboratories and workshops, inadequate and late release of government funds and unsatisfactory resources for infrastructure and farm machinery, to name just a few constraints.

Individual institutes suffer noticeably from lack of resources. For instance, the Centre for Scientific Research into Plant Medicine has no laboratory facilities to isolate active ingredients or marker compounds. Not surprisingly, biotechnology and pharmaceuticals exports based on Ghana's abundant biological diversity have not materialised.

MEAGRE OUTPUTS

In 2007, all Ghanaian universities graduated less than one percent of their students with a PhD in all science and engineering subjects. They contribute barely a handful of highly trained junior scientists or engineers to the country in a given year, including for the replenishment of their own faculty. Academics blame a huge teaching load for their low research output, reflected in the lack of published research.

In essence the whole system is on life support. For the most part things work badly, and without external and international partners they would not work at all. And despite the lip service it pays to science and technology, the government seems to regard the research system primarily as an expense, rather than a potential asset.

IS THERE A SOLUTION?

The government must increase its budgetary allocation to science and technology. Knowledge workers need to be well paid. They also need quality equipment and facilities. Such investments only make sense in the context of long-term commitments that necessarily

transcend electoral cycles. An increase in spending for a few years, followed by another funding drought, is futile.

Secondly, the government should consider bringing the entire science and technology system under one ministerial roof. It would be easier then to identify and address co-ordination and other failures, as opposed to several departments battling to overcome silo mentalities and bureaucratic obstacles.

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Thirdly, the research system must become more efficient. The CSIR must take a hard look at its entire business model in each institute and in the organisation as a whole. In particular, it cannot shy away from assessing the costs of employing people in non-productive positions.

Fourthly, external income needs to increase, via incentives to encourage academics to win international research tenders to commercialise technological innovation.

And finally, the entire system must increase its self-reflexivity. Annual reports must be taken more seriously, and reviews undertaken at regular intervals, including through external panels, in order to monitor whether the system is on track.

The alternative is tantamount to bidding the knowledge economy farewell.

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