



Health innovation networks

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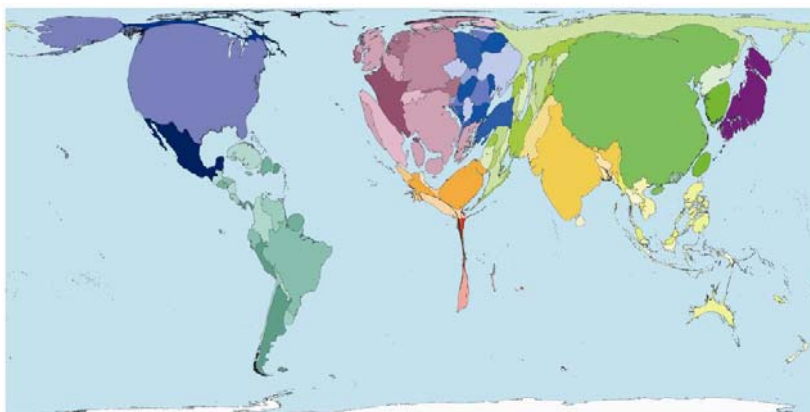
Health and development

- *“Improving the health and longevity of the poor is an end in itself, a fundamental goal of economic development. But it is also a means to achieving the other development goals relating to poverty reduction. The linkages of health to poverty reduction and to long-term economic growth are powerful, much stronger than is generally understood...”*

Commission on Macroeconomics and Health, 2000



'Worldmapper' map: Area of countries proportional to number of doctors

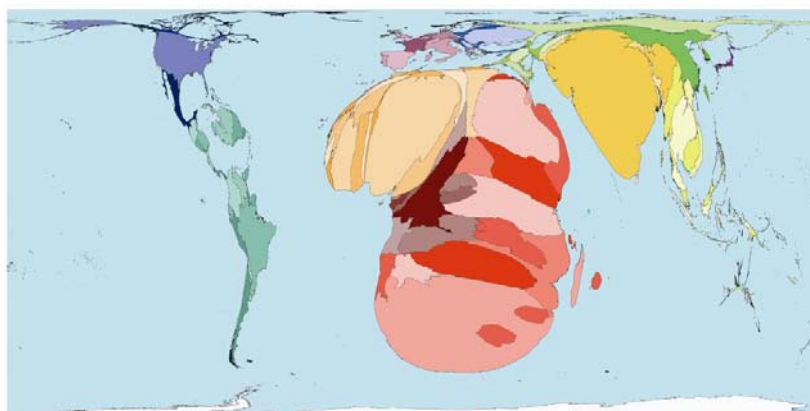


doi:10.1371/journal.pmed.0040001.g003

Figure 3. Physicians Working: Worldmapper Poster 219

Source of data used to create map: World Health Organization, 2004, Human Resources for Health, Basic data.

'Worldmapper' map: Area of countries proportional to HIV/AIDS prevalence



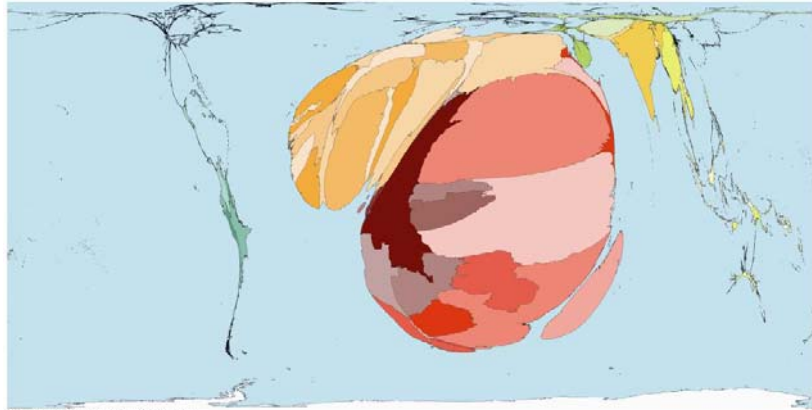
doi:10.1371/journal.pmed.0040001.g005

Figure 5. HIV/AIDS Prevalence: Worldmapper Poster 227

Source of data used to create map: United Nations Development Programme, Human Development Report 2004.



'Worldmapper' map: Area of countries proportional to malaria cases



doi:10.1371/journal.pmed.0040001.g006

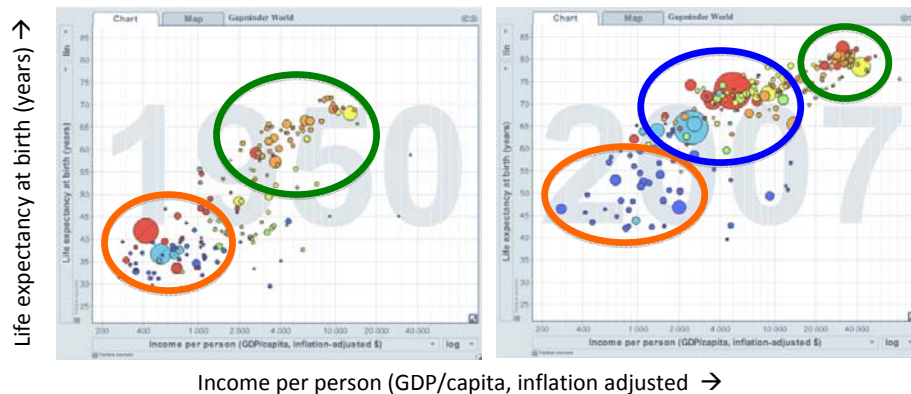
Figure 6. Malaria Cases: Worldmapper Poster 229

Source of data used to create map: World Health Organization and UNICEF, World Malaria Report 2005.

The world is no longer bipolar

The world of the 1950s':
The "North" and the "South"

The world today: The "North", the
"South" and countries in transition

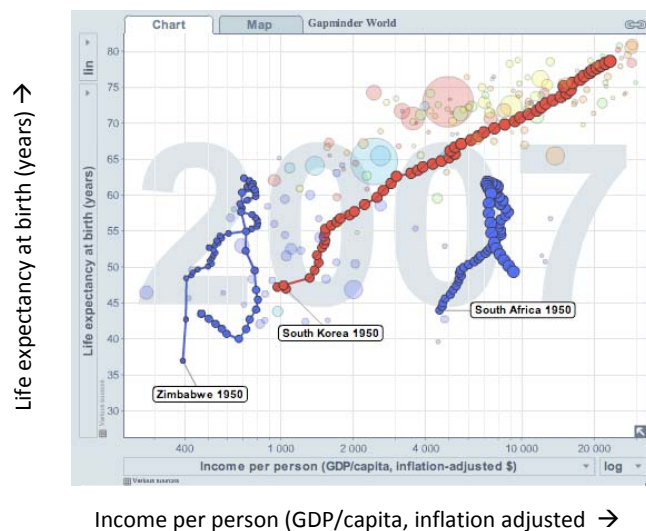


Income per person (GDP/capita, inflation adjusted) →

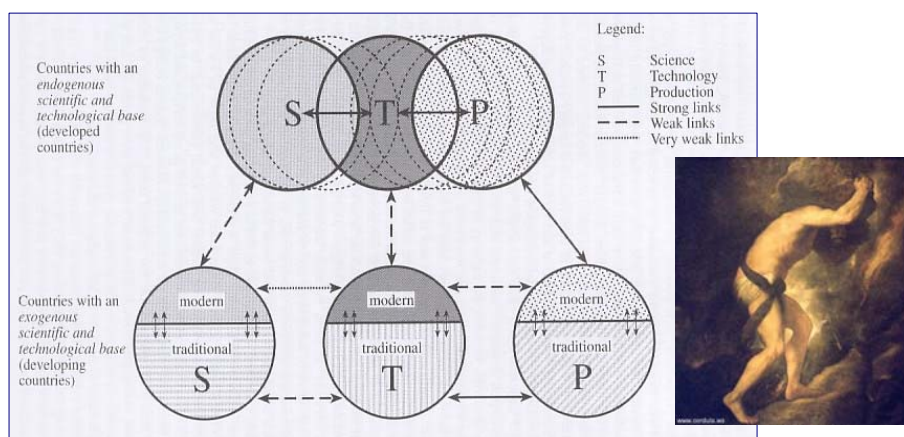
<http://www.gapminder.org/>



Health and development: Zimbabwe, South Korea, South Africa



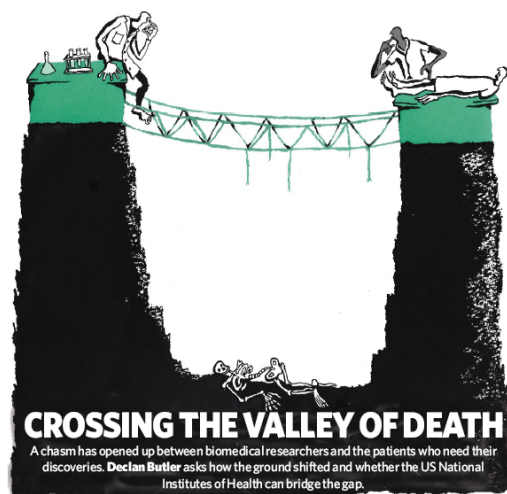
The Sisyphus challenge of the 21st century



Francisco Sagasti. *Knowledge and innovation for development. The Sisyphus challenge of the 21st century*, Cheltenham, UK; Northampton, USA:Edward Elgar, 2004. 151 pages



Translational research: Crossing the Valley of Death



Tapping the power of networks



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Health Innovation Networks to Help Developing Countries Address Neglected Diseases

Carlos M. Morel,^{1*} Tara Acharya,² Denis Broun,³ Ajit Dangi,⁴ Christopher Elias,⁵ N. K. Ganguly,⁶ Charles A. Gardner,⁷ R. K. Gupta,⁸ Jane Haycock,⁹ Anthony D. Heher,¹⁰ Peter J. Hotez,¹¹ Hannah E. Kettler,¹² Gerald T. Keusch,¹³ Anatole F. Krattiger,¹⁴ Fernando T. Kreutz,¹⁵ Sanjaya Lali,¹⁶ Keun Lee,¹⁷ Richard Mahoney,¹⁴ Adolfo Martinez-Palomo,¹⁸ R. A. Mashelkar,¹⁹ Stephen A. Matlin,²⁰ Mandi Mzimba,²¹ Joachim Oehler,²² Robert G. Ridley,²³ Pramilla Senanayake,²⁴ Peter Singer,²⁵ Mikyung Yun²⁶

Gross inequities in disease burden between developed and developing countries are now the subject of intense global attention. Public and private donors have marshaled resources and created organizational structures to accelerate the development of new health products and to procure and distribute drugs and vaccines for the poor. Despite these encouraging efforts directed primarily from and funded by industrialized countries, sufficiency and sustainability remain enormous challenges because of the sheer magnitude of the problem. Here we highlight a complementary and increasingly important means to improve health equity: the growing ability of some developing countries to undertake health innovation.

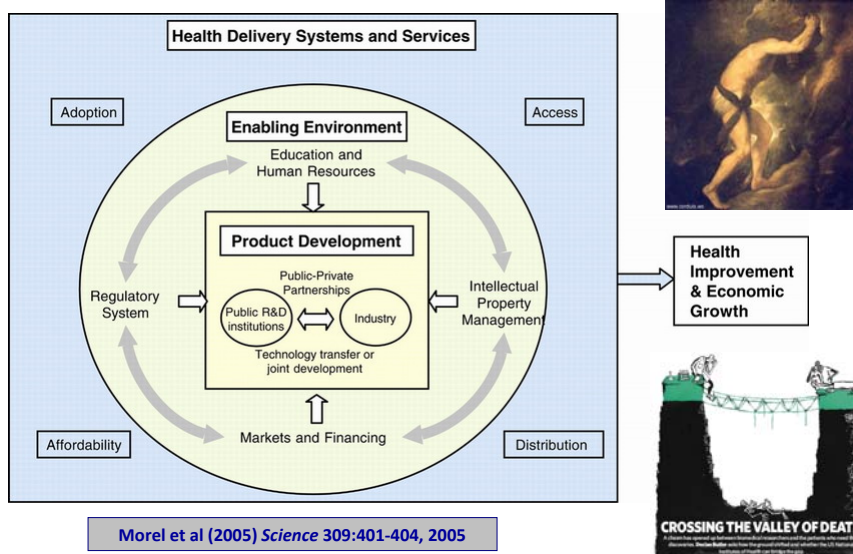
sources amounts to more than all that was spent in 2004 by the above-mentioned PDPs engaged in the development of drugs, vaccines, and diagnostics for diseases of the poor (8, 9).

Patents and well-cited publications indicate the productivity of research investments, and in this light, IDCs have made major progress. The number of U.S. patents per capita is a common proxy used to measure the relative innovation

- “Here we highlight a complementary and increasingly important means to improve health equity: the growing ability of some developing countries to undertake health innovation”

Morel et al (2005) *Science* 309:401-404, 2005

National Health Innovation Systems

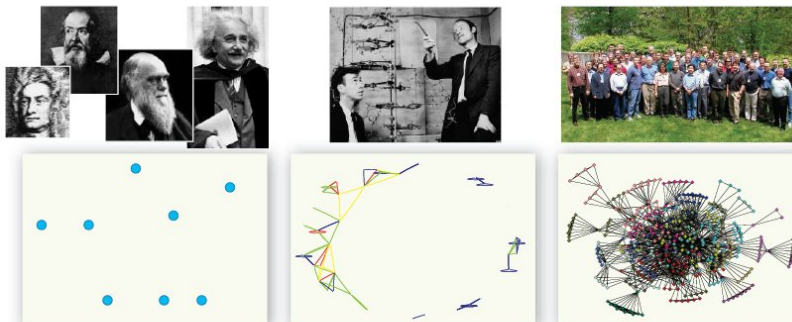


Morel et al (2005) *Science* 309:401-404, 2005



Evolution of the scientific enterprise (Barabási AL (2005) *Science* 308:639-641)

PERSPECTIVES



Evolution of the scientific enterprise. (Left) For centuries, creative individuals were embedded in an invisible college, that is, a community of scholars whose exchange of ideas represented the basis for scientific advances. Although intellectuals built on each other's work and communicated with each other, they published alone. Most great ideas were attributed to a few influential thinkers: Galileo, Newton, Darwin, and Einstein. Thus, the traditional scientific enterprise is best described by many isolated nodes (blue circles). **(Middle)** In the 20th century, science became an increasingly collaborative enterprise, resulting in such iconic pairs as the physicist Crick and the biologist Watson (left),

who were responsible for unraveling DNA's structure. The joint publications documenting these collaborations shed light on the invisible college, replacing the hidden links with published coauthorships. **(Right)** Although it is unlikely that large collaborations—such as the D0 team in particle physics or the International Human Genome Sequencing Consortium pictured here—will come to dominate science, most fields need such collaborations. Indeed, the size of collaborative teams is increasing, turning the scientific enterprise into a densely interconnected network whose evolution is driven by simple universal laws.

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Examples of DNDi networks: LEAP

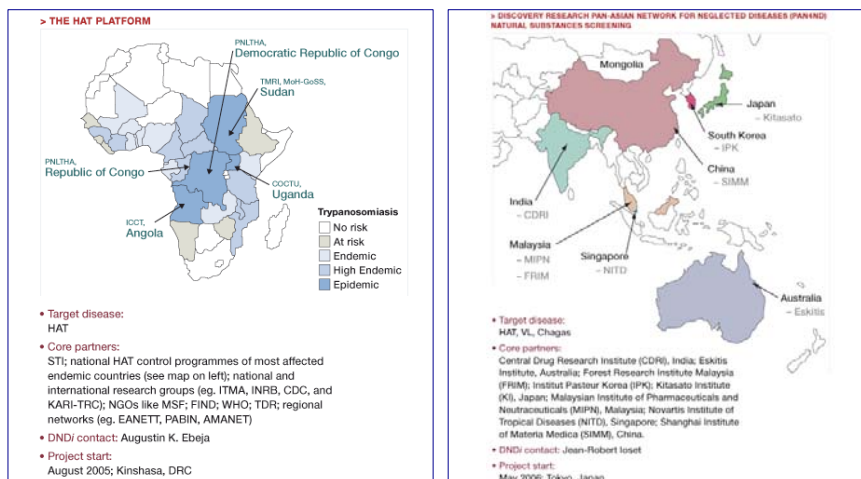
> LEISHMANIASIS EAST AFRICA PLATFORM (LEAP)



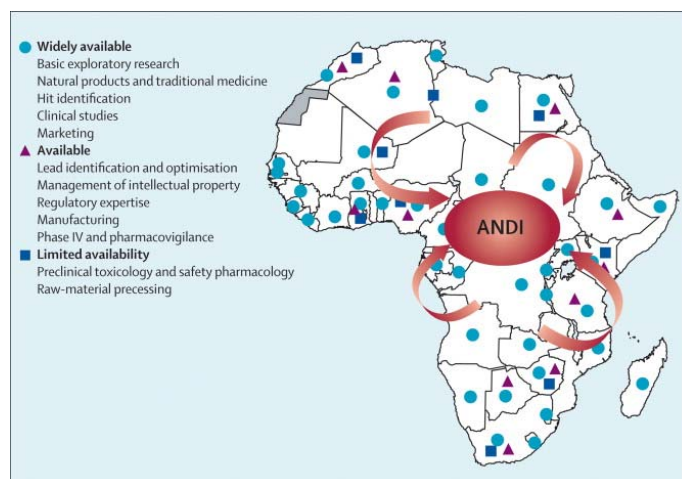
- **Target disease:** VL
- **Core partners:** KEMRI, Kenya; Addis Ababa University, Ethiopia; Gondar University, Ethiopia; Drug Administration & Control Authority, Ethiopia; Institute of Endemic Diseases, University of Khartoum, Sudan; Makerere University, Uganda; MSF; WHO; TDR; Ministries of Health in Kenya, Ethiopia, Sudan, and Uganda.
- **DNDi contact:** Monique Wasunna
- **Project start:** August, 2003; Khartoum, Sudan



DNDi networks: HAT; PAN4ND



African Network for Drugs and Diagnostics Innovation



Mboya-Okeyo, Ridley and Nwaka (2009) *The Lancet* **373**:1507-1508



DNDi's
2nd Stakeholders' Meeting
and 3rd African Meeting

Nairobi, Kenya,
June 23, 2009

DNDi
Drugs for Neglected Diseases initiative

Thank you

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