



**Geneva Forum
Towards Global Access to Health
30 August – 1 September 2006**

**Can Research Make a Difference
in Global Access to Health?**

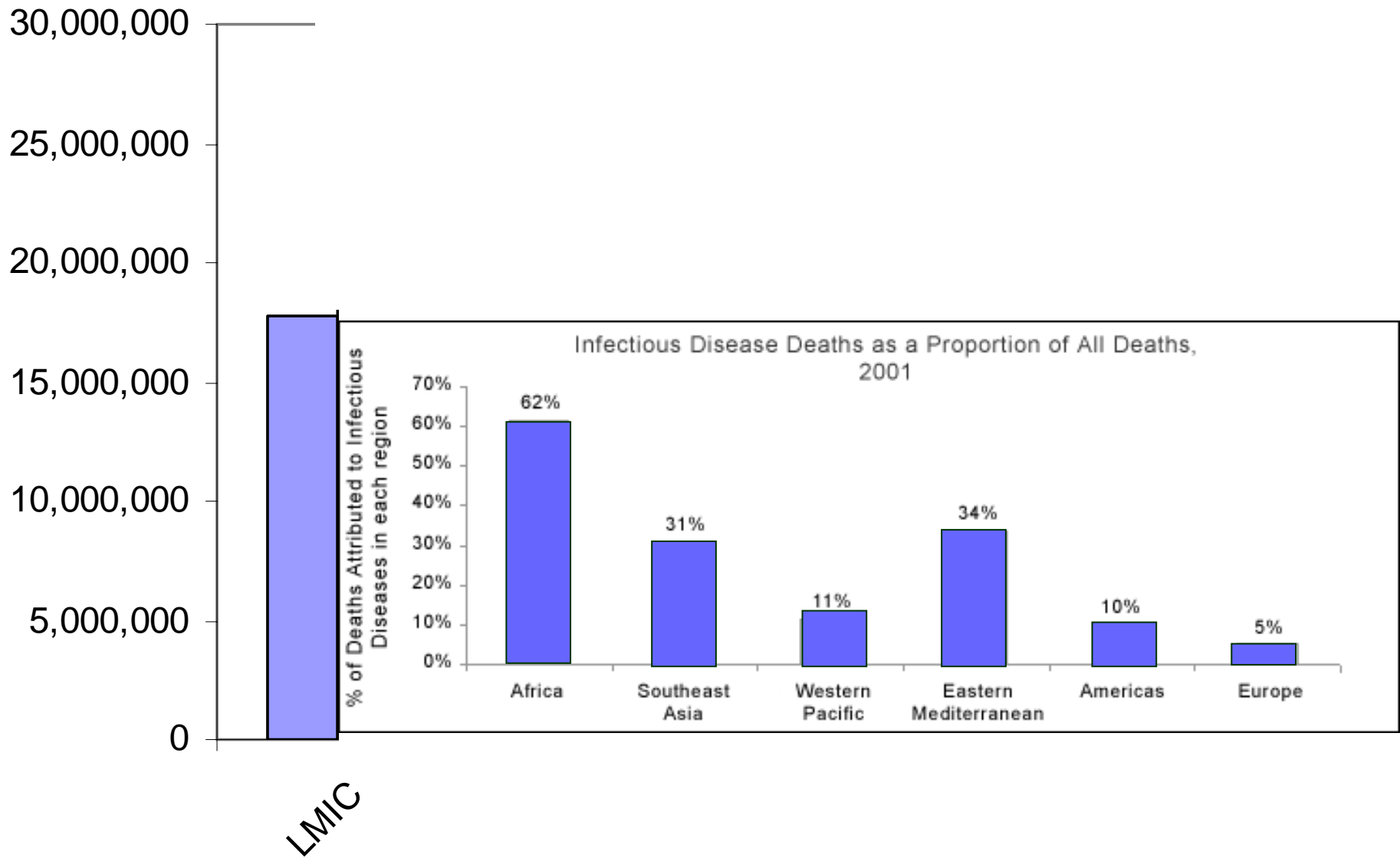
Stephen Matlin

Executive Director



The changing health scene

- **Health problems diverging among LMICs**
 - **NCDs increasing overall in developing countries: now the main burden of disease in LMICs other than in Africa**
 - **Africa still and increasingly dominated by infectious diseases and life expectancy decreasing**
 - **Injuries more prevalent in LMICs than HICs**

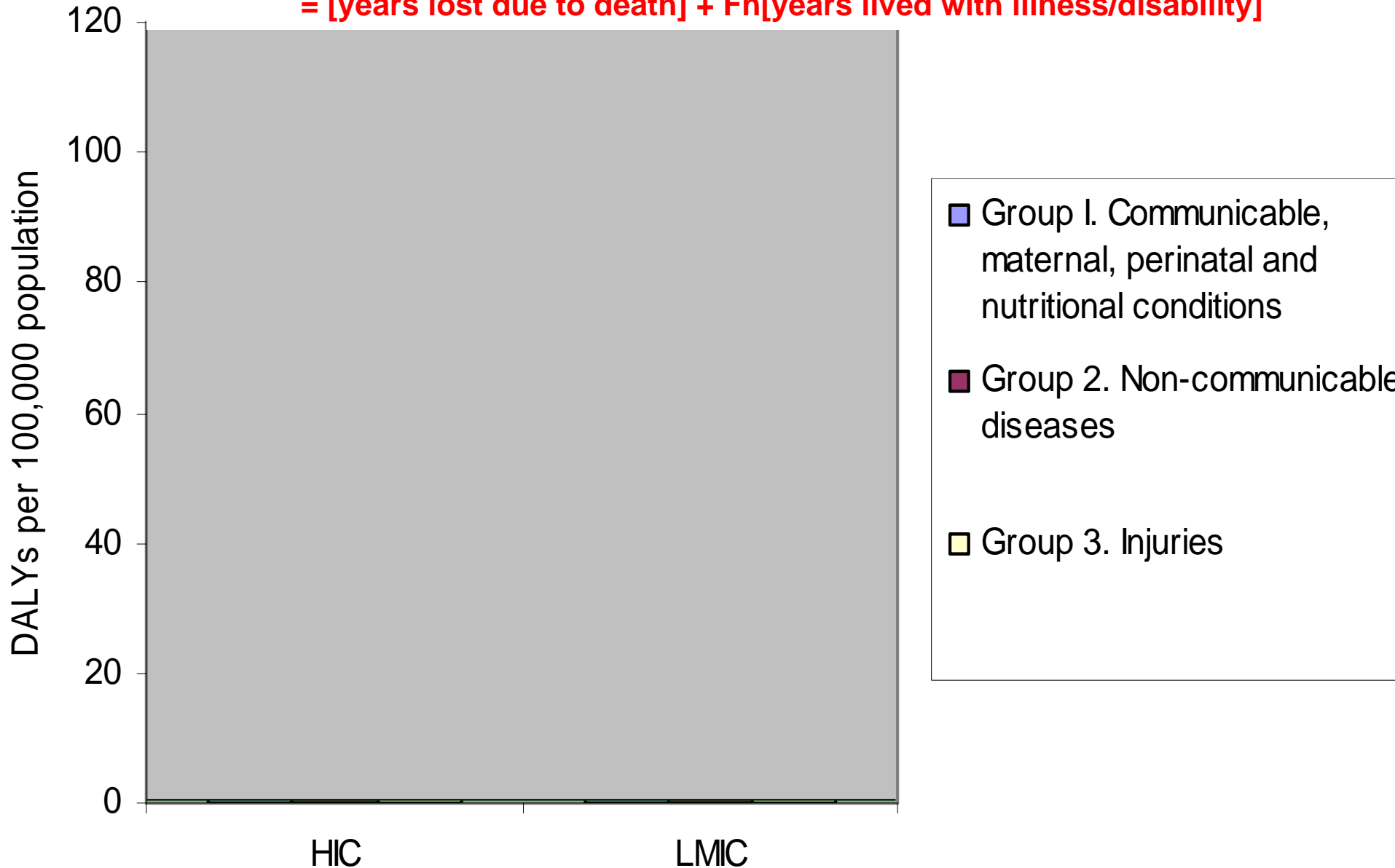


Source: WHO Burden of Dis

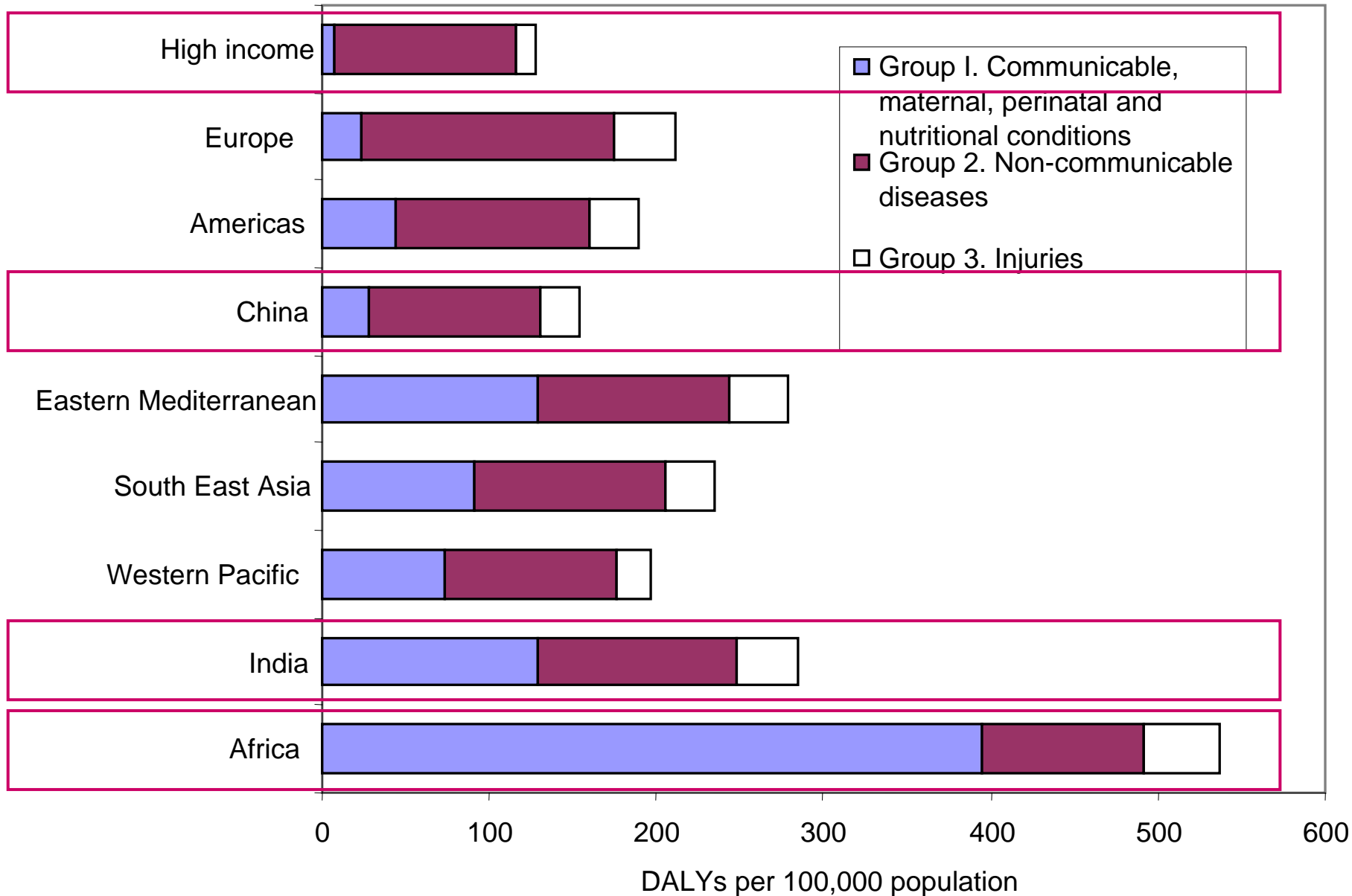
Burden of disease, by income and cause group

DALY = Disability-Adjusted Life Year

= [years lost due to death] + Fn[years lived with illness/disability]



Burden of disease by major cause groups and country groups, 2002





Unfinished and new agendas in LMICs

Global public goods

- **New products: especially for infectious diseases**

Strengthening health systems in LMICs

- **Challenges of meeting MDGs; coping with chronic diseases; vertical programmes;**

Widening scope of 'research for health'

- **Health equity**
- **Social/other determinants of health**
- **Other sectors**



Health research: for, in and by LMICs

Role of the public sector

HICs

- **Nationally: focus of research that generates leads**
- **Internationally: global public goods**
- **In LMICs: supporting country-based research and capacity building**

LMICs

- **Country-based research and capacity building**
- **Developing national health research system**
- **Fostering innovation**



Spectrum of Health Research

Research → new knowledge and technologies

- Biomedical
(drugs, vaccines, diagnostics, appliances)
- Health policy and systems research
- Social sciences and behavioural research
- Operational research

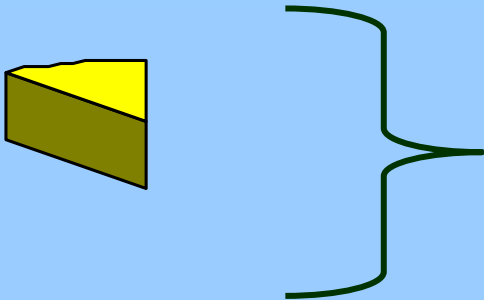
**Medicine: treating ill-health
in individuals**

**Public Health: promoting
health in populations**



Commission on Health Research for Development: 1990 Report

\$30 bn worldwide expenditure on health research (1986)
- \$1.6 bn (5%) for developing country needs



From developed countries 58%

From developing countries 42%

of which 3/4 from 7 countries:

Argentina

Brazil

China (including Taiwan)

India

Mexico

Saudi Arabia

South Korea

■ Health research for developed country needs

■ Health research for developing country needs

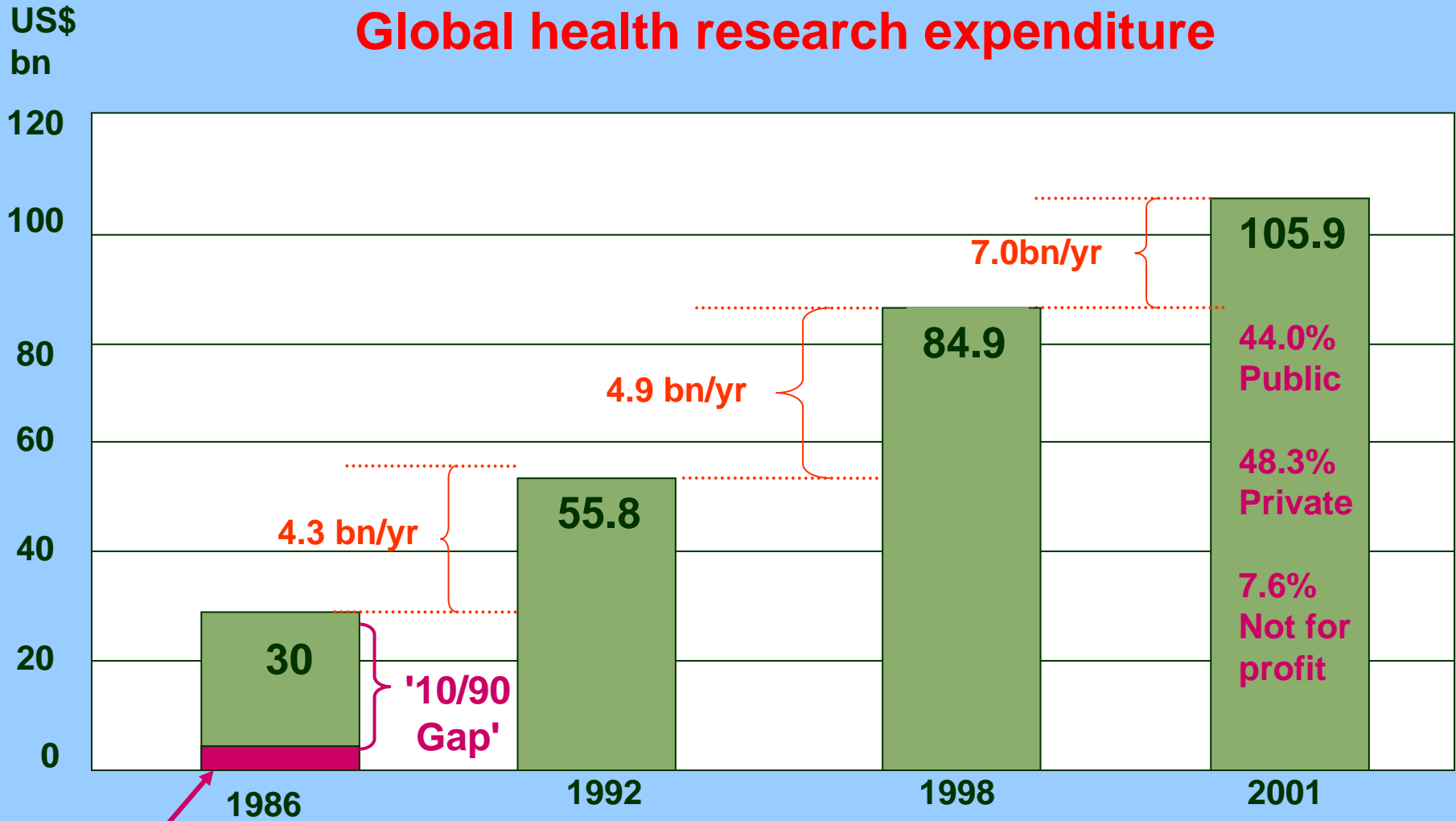


Commission on Health Research for Development: 1990 Report

- Not enough is spent on health research **for the needs of** developing countries
- Not enough is spent on health and health research **by** many developing countries
- Developing countries need a **greater capacity** to conduct health research relevant to their national needs



Global health research expenditure



US\$ 1.6 bn - 5% for LMIC health needs



Health research: for, in and by LMICs

Financing by the not-for profit and public sectors

Not-for-Profit

- **Philanthropic foundations**

Public sector: Governments

- **HIC, MIC, LIC**
- **National: MRCs and NIHS**
- **International: bilateral and multilateral channels**



50 most generous philanthropists, 1999-2003

Source: BusinessWeek Magazine 1 December 2003

The 50 Most Generous Philanthropists

| RANK/NAME DONORS NEW ON THE 2003 LIST | BACKGROUND | 1999-2003 GIVEN OR PLEDGED MILLIONS | CAUSES | ESTIMATED LIFETIME GIFTS* MILLIONS | CURRENT NET WORTH** MILLIONS | PERCENT OF WEALTH DONATED*** |
|--|------------------------------|---|---------------------------------|--|------------------------------------|------------------------------------|
| 1 Bill and Melinda Gates | Microsoft co-founder | \$22,906 | Health, education | \$24,976 | \$46,000 | 54% |
| 2 Gordon and Betty Moore | Intel co-founder | 7,010 | Conservation, education | 7,200 | 5,000 | 144 |
| 3 George Soros | Investor | 2,431 | Open and free societies | 4,741 | 7,000 | 68 |
| 4 Eli and Edythe Broad | SunAmerica founder | 1,463 | Public education, arts, science | 1,500 | 3,800 | 39 |
| 5 James and Virginia Stowers | American Century founder | 1,345 | Biomedical research | 1,559 | 575 | 271 |
| 6 Michael and Susan Dell | Dell founder | 1,215 | Children's health care | 1,230 | 13,000 | 9 |
| 7 The Walton Family | Family of Wal-Mart founder | 750 | Education | 1,000 | 108,400 | 1 |
| 8 Ted Turner | CNN founder | 664 | Health, environment | 1,300 | 2,300 | 57 |
| 9 Ruth Lilly | Eli Lilly heiress | 560 | Poetry, libraries, culture | 740 | 1,000 | 74 |
| 10 Donald Bren | Real estate | 402 | Education, environment | 412 | 4,000 | 10 |
| 11 Michael Bloomberg | Bloomberg founder, NYC mayor | 401 | Education, health care, arts | 401 | 4,900 | 8 |
| 12 H.F. (Gerry) and Marguerite Lenfest | Former Suburban Cable owner | 375 | Higher education, arts | 385 | 825 | 47 |
| 13 Patrick and Lore McGovern | IDG founder | 351 | Brain research | 371 | 2,000 | 19 |
| 14 Jeffrey Skoll | Ex-president of eBay | 347 | Social services | 357 | 2,300 | 16 |
| 15 Sidney Kimmel | Jones Apparel chairman | 340 | Health care, arts | 472 | 700 | 67 |

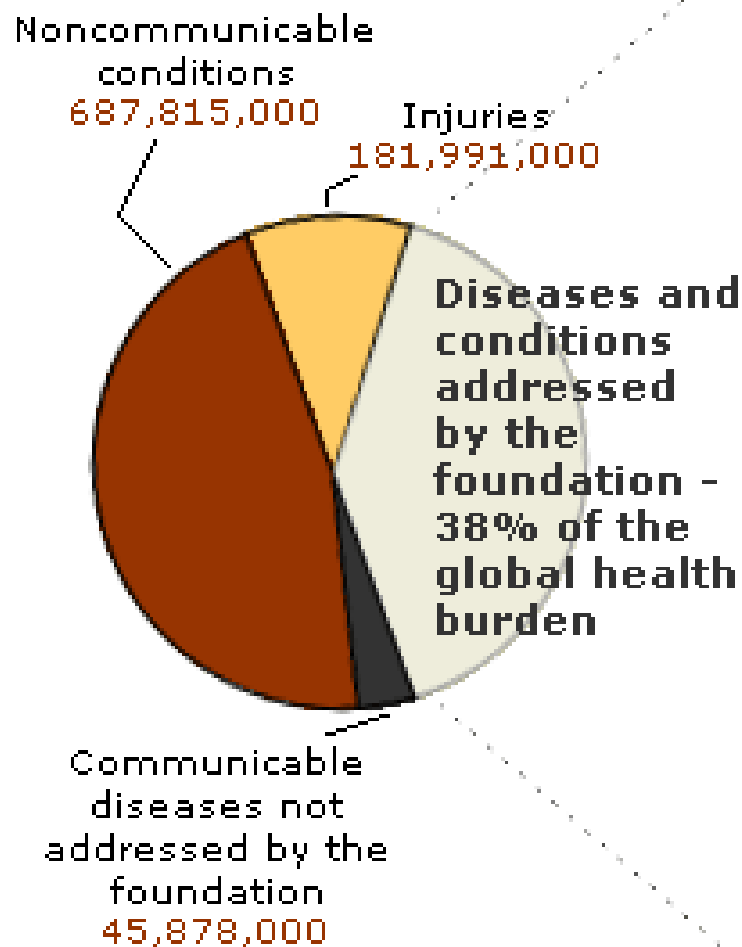


Philanthropy

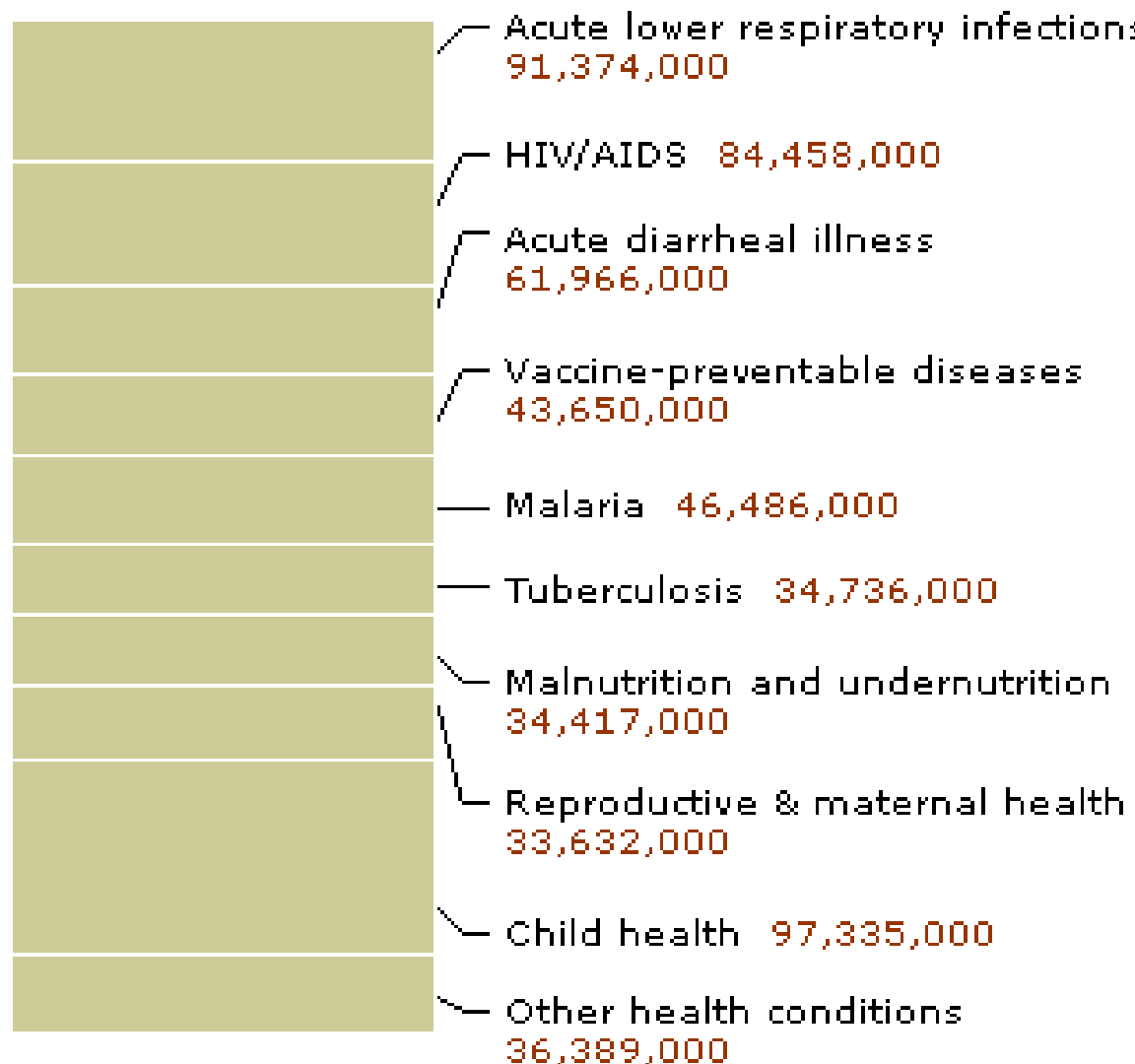
- **50 most generous philanthropists collectively donated over US\$ 50 billion, 1999-2003**
- **Bill and Melinda Gates Foundation**
 - **US\$29.2 billion endowment**
 - **Warren Buffett to add over US\$30 billion at 5%/year**

Diseases and Conditions addressed by the Foundation

Total Global Health Burden (DALYs*)



Foundation Focus (DALYs*)



*Disability-Adjusted Life-Years Lost



Philanthropy

- **Bill and Melinda Gates Foundation**
 - **US\$ 6.5 billion for global health by June 2006**

| | US\$ |
|--|----------------------|
| HIV, TB and Reproductive Health | 1,900,821,297 |
| Infectious Diseases | 1,592,621,889 |
| Global Health Strategies | 2,424,965,606 |
| Global Health Technologies | 443,286,269 |
| Global Health Research, Advocacy, Policy | 147,623,830 |
| Total | 6,509,318,891 |



Philanthropy

- **Bill and Melinda Gates Foundation**
 - **US\$ 6.5 billion for global health by June 2006**
 - **With Canadian Institutes of Health Research, US-NIH, Wellcome Trust:**
 - 14 Grand Challenges in Global Health**
 - By mid-2006, offered 43 grants totalling \$436.6 million to teams working in 33 countries**

Many 'Neglected Diseases'

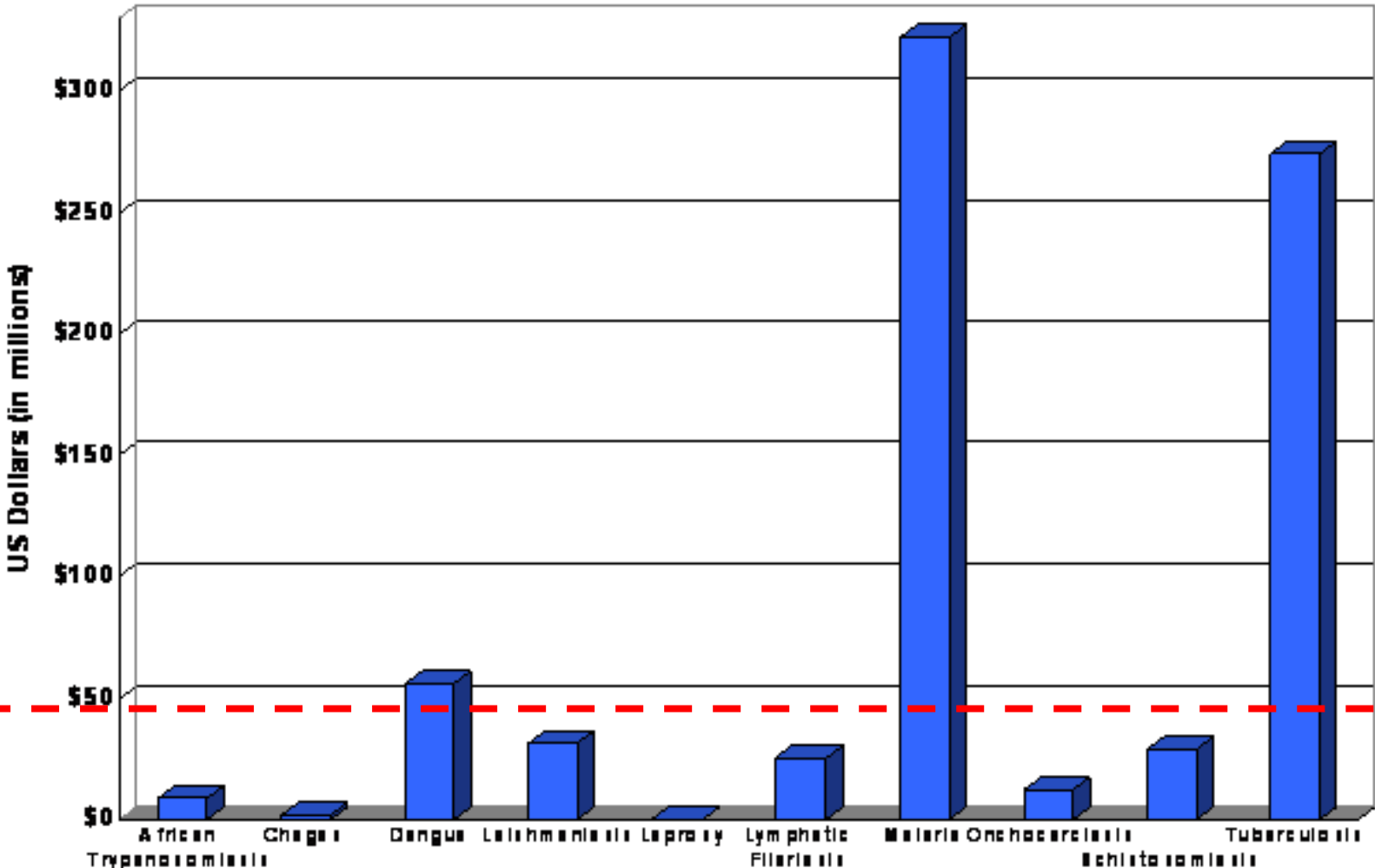
Mortality Estimates for 2002 (World Health Report 2004)

Infectious and Parasitic diseases 10 904 (000)

| | | |
|----------------------------|-------|----|
| •HIV/AIDS | 2 777 | .. |
| •Diarrhoeal diseases | 1 798 | .. |
| •Tuberculosis | 1 566 | .. |
| •Malaria | 1 272 | .. |
| •Childhood diseases | 1 124 | |
| •STI (excluding HIV) | 180 | .. |
| •Meningitis | 173 | .. |
| •(Other) Tropical Diseases | 129 | .. |
| •Hepatitis B | 103 | .. |
| •Hepatitis C | 54 | .. |
| •Dengue | 19 | .. |
| •Japanese encephalitis | 14 | .. |
| •Intestinal nematode | 12 | .. |
| •Leprosy | 6 | .. |



Total Gates Foundation Grants by Disease (to 2005)





Philanthropy

- **Rockefeller Foundation**
 - **US\$ 3.4 billion in assets (December 31, 2005)**
 - **Historical leadership role in health**
e.g. Yellow Fever vaccine
 - **Developing Better Health Products**
Especially: public-private partnerships - e.g.
IAVI
TB Alliance
International Partnership for Microbicides
Pediatric Dengue Vaccine Initiative



**EXECUTIVE SUMMARY FOR
THE NEW LANDSCAPE OF NEGLECTED DISEASE
DRUG DEVELOPMENT**

PHARMACEUTICAL R&D POLICY PROJECT

Pre-2000 landscape

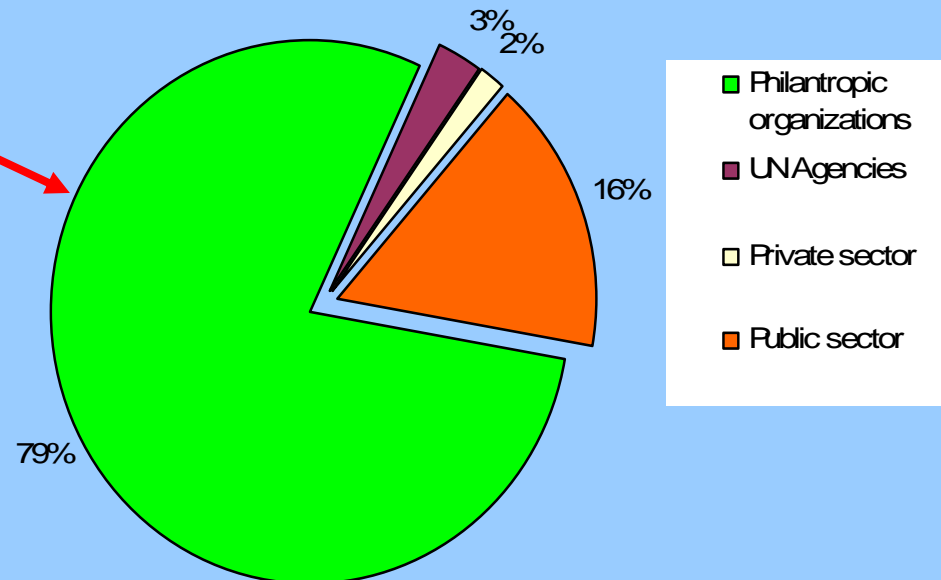
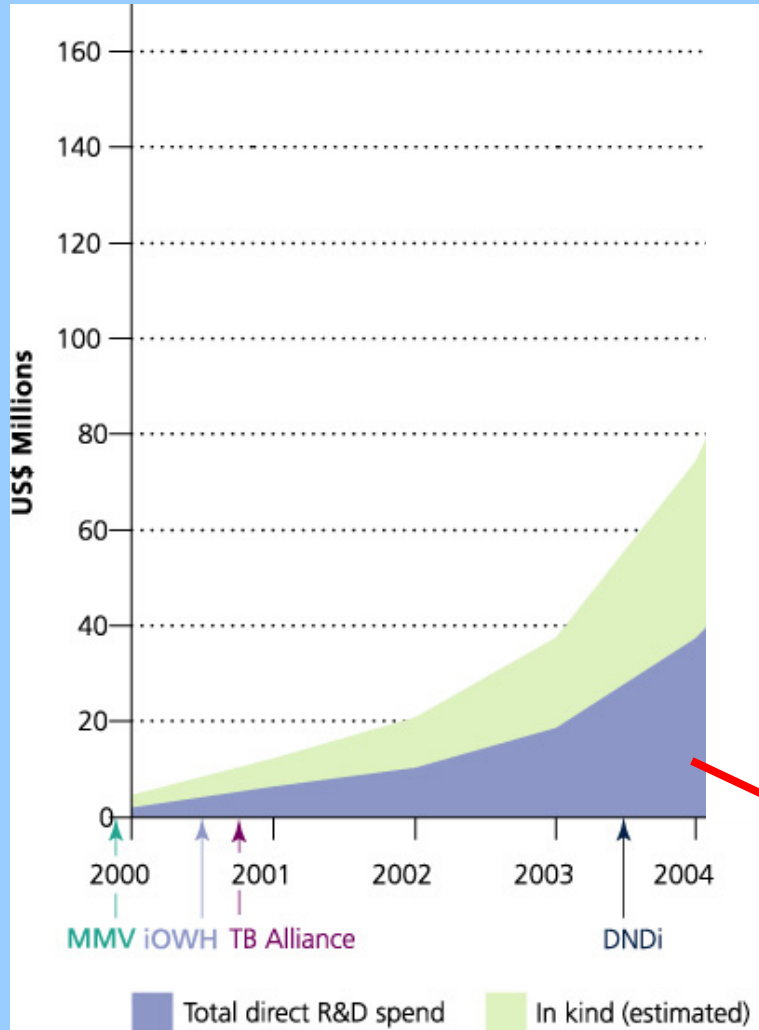
- **Prior to 2000:
13 drugs in nearly 25 years**

Today's landscape

- **63 neglected disease drug development projects in December 2004**
- **4 new Public-Private Partnerships (PPPs) for neglected disease drug development**
- **3 new industry R&D institutes for malaria, TB, dengue**

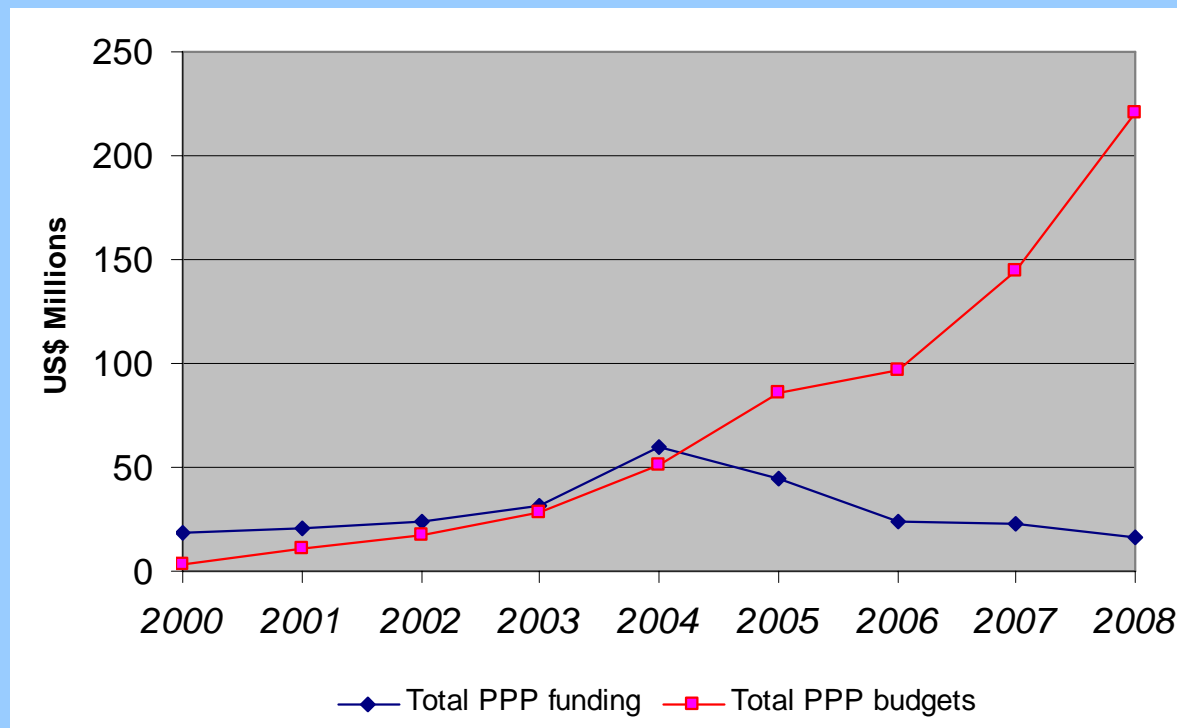
Public-Private Partnerships

- PPPs now conduct 75% of all neglected disease R&D projects (47 projects)
- PPP R&D expenditure has increased dramatically since their creation
 - direct R&D has doubled between 2003 and 2004

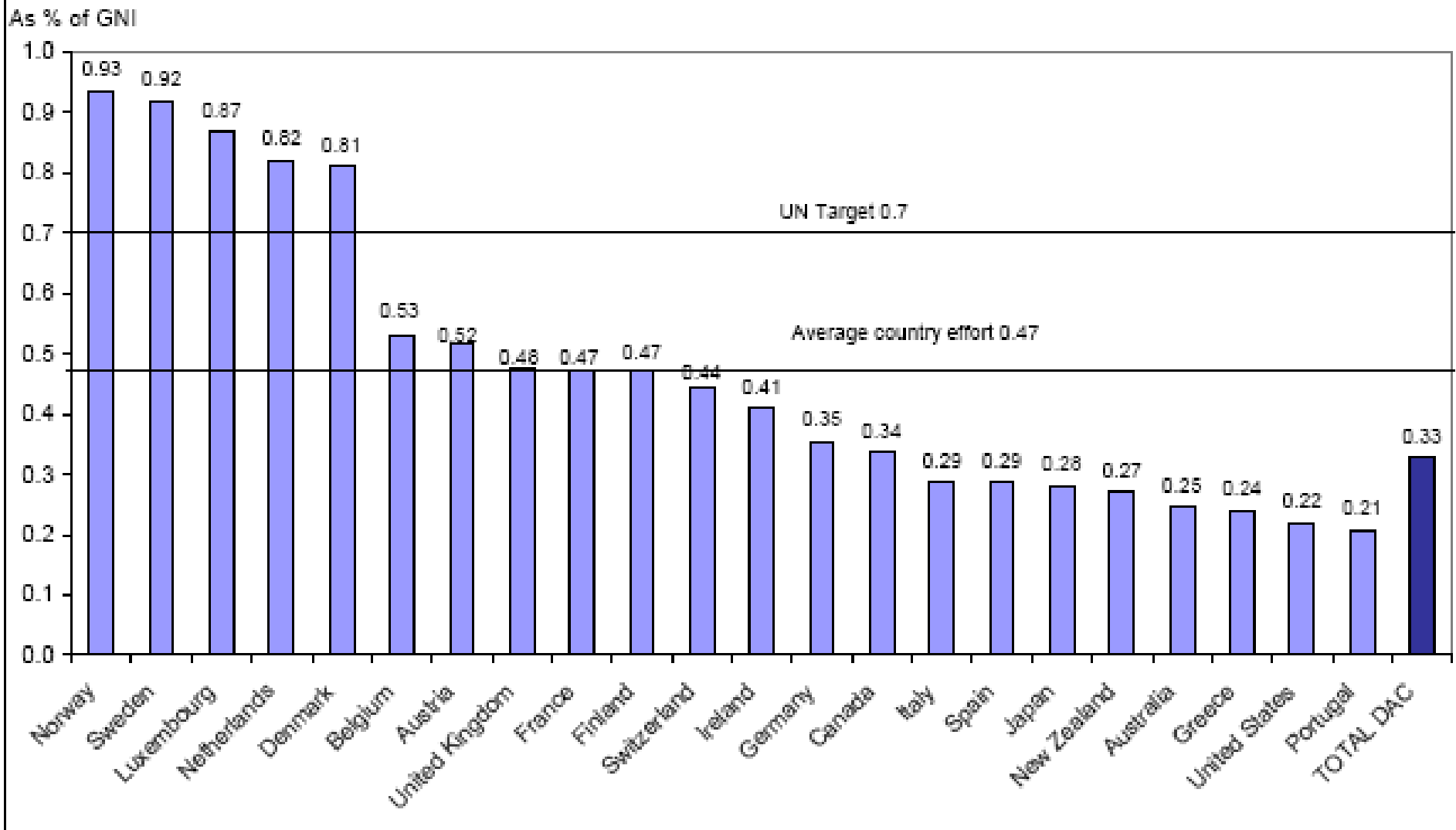


Financial PPP projections vs funding pledges

- PPP shortfall for 2005 is around 40%
- PPPs respond by:
 - Limiting the number of projects
 - Slowing down R&D
 - Delaying industry contracts
 - Pressuring industry for discounts/in-kind



Net ODA in 2005 - as a percentage of GNI

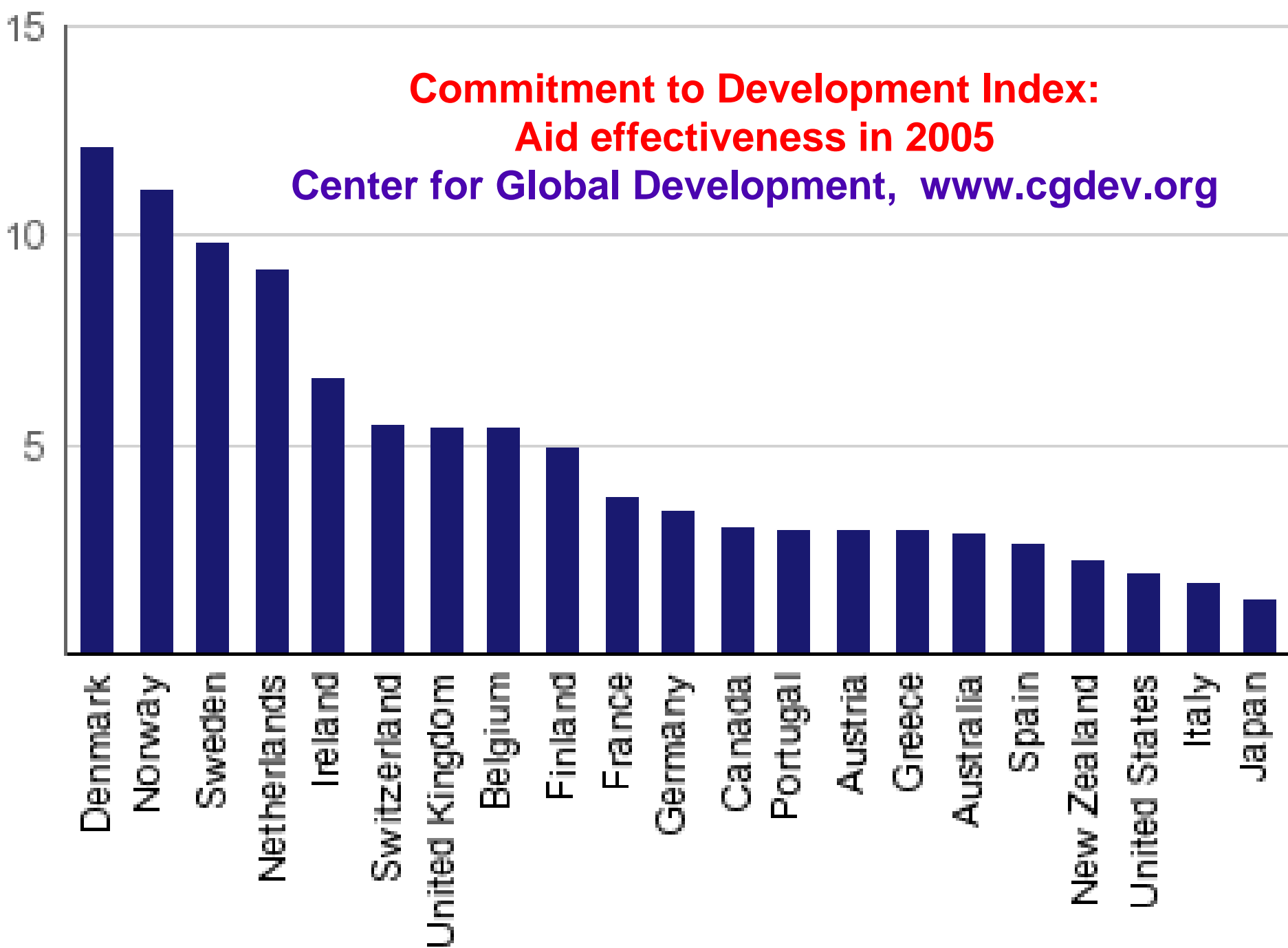


source: OECD 2005

www.oecd.org/dataoecd/34/26/36418606.pdf

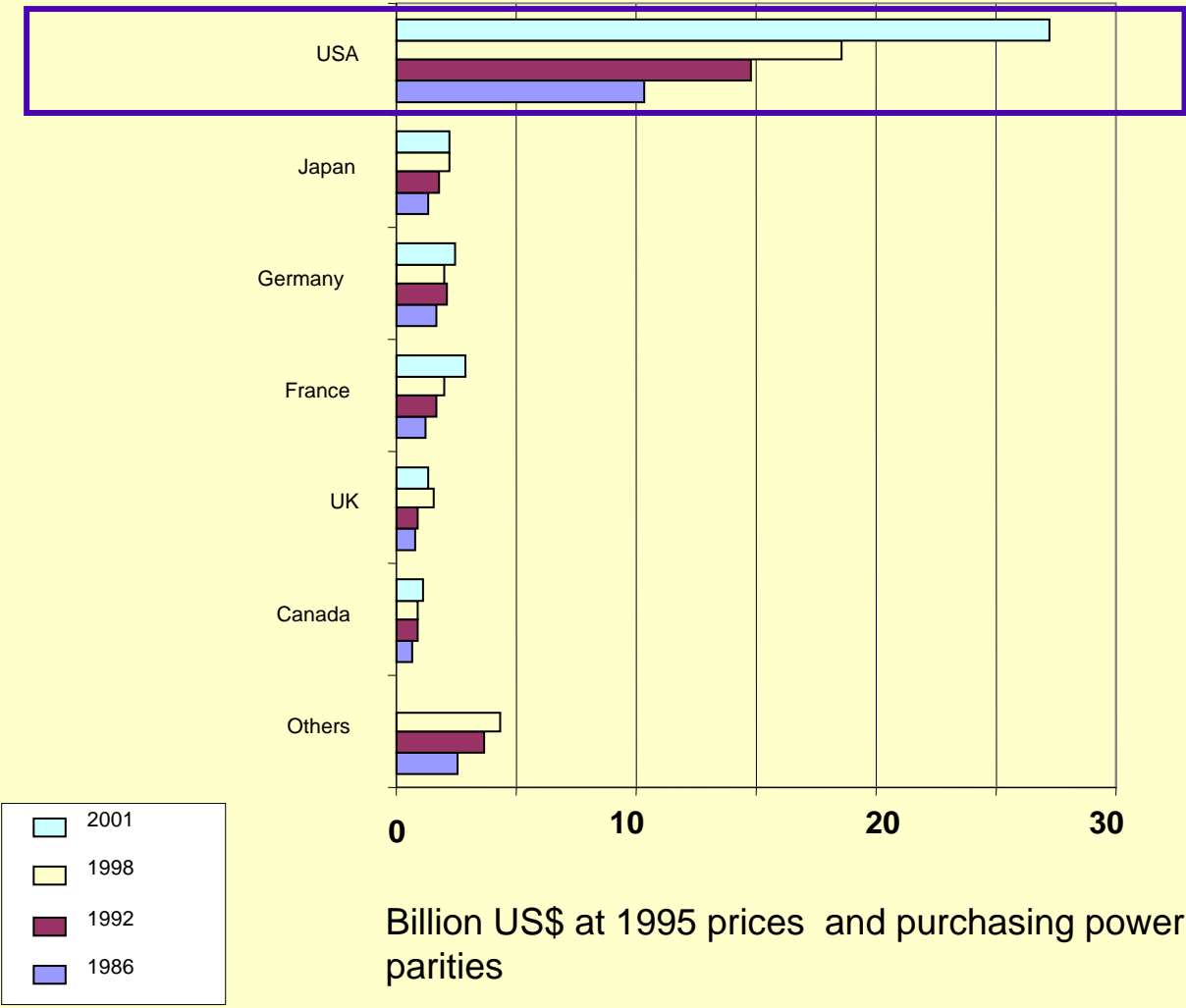
Commitment to Development Index: Aid effectiveness in 2005

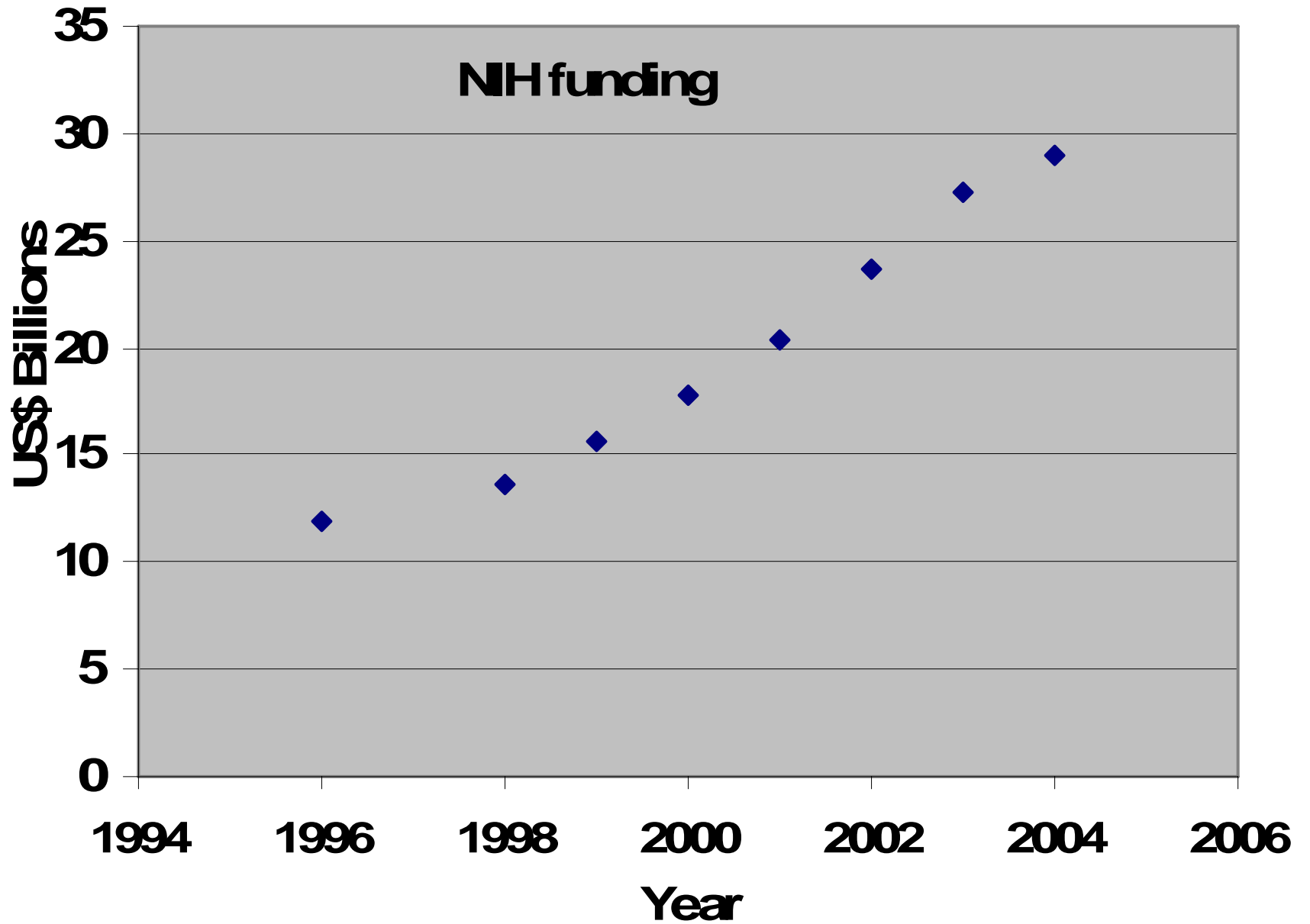
Center for Global Development, www.cgdev.org





Trend in public funding for health R&D 1986 to 2001 in HIC

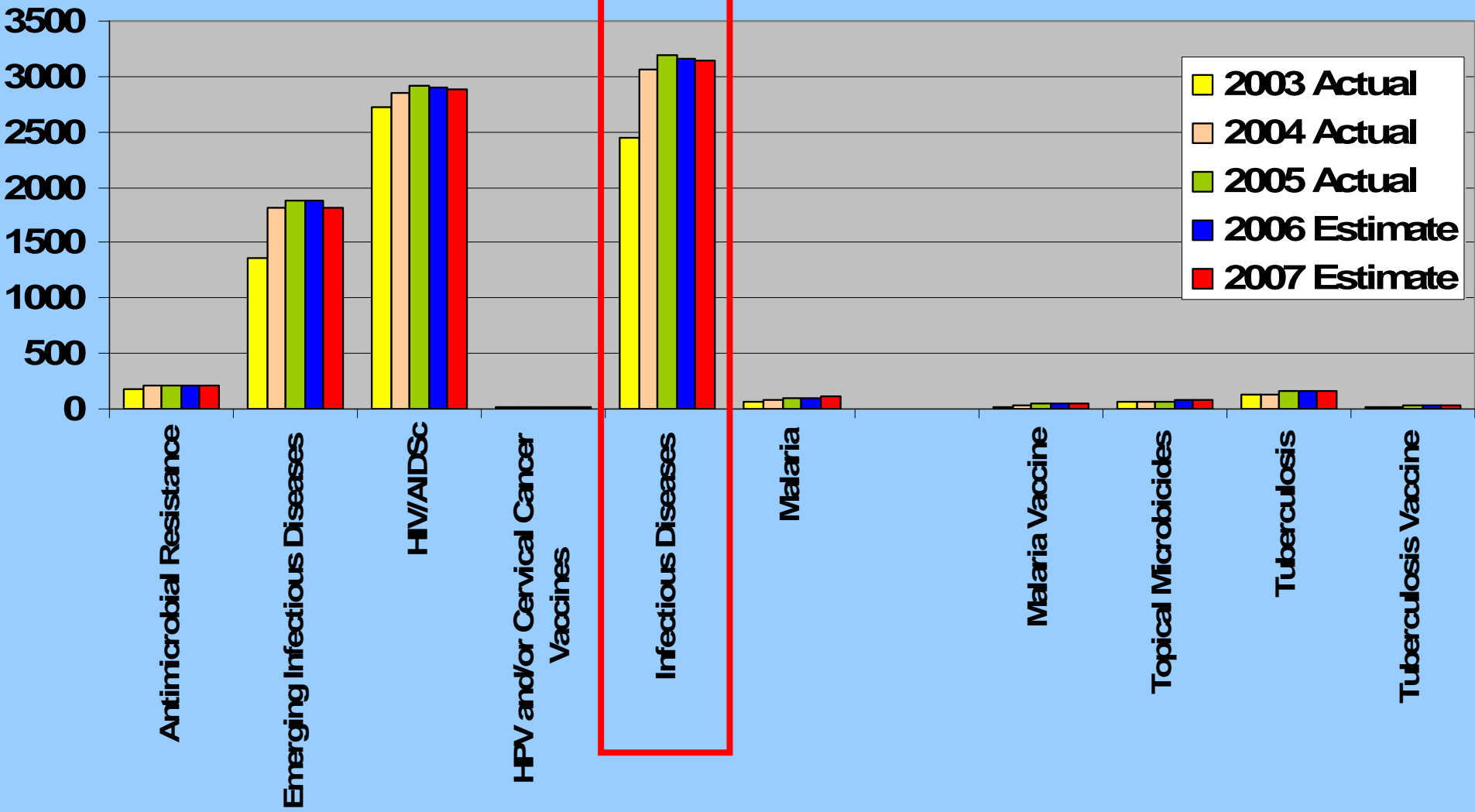






US-NIH Funding 2003-2007

US\$ millions





Health Research Expenditures: How much is 'enough'?

All Health Research

| | |
|--|--------------------------------|
| Total global expenditure 2001 | <i>US\$ 105.9 billion</i> |
| Total global Burden of Disease 2002 | <i>1.47 billion DALYs</i> |
| <hr/> | |
| Average global expenditure, all BoD | <i>US\$ 72 per DALY</i> |

HIV/AIDS, Malaria, Tuberculosis: 11.4% of global BoD in 2002

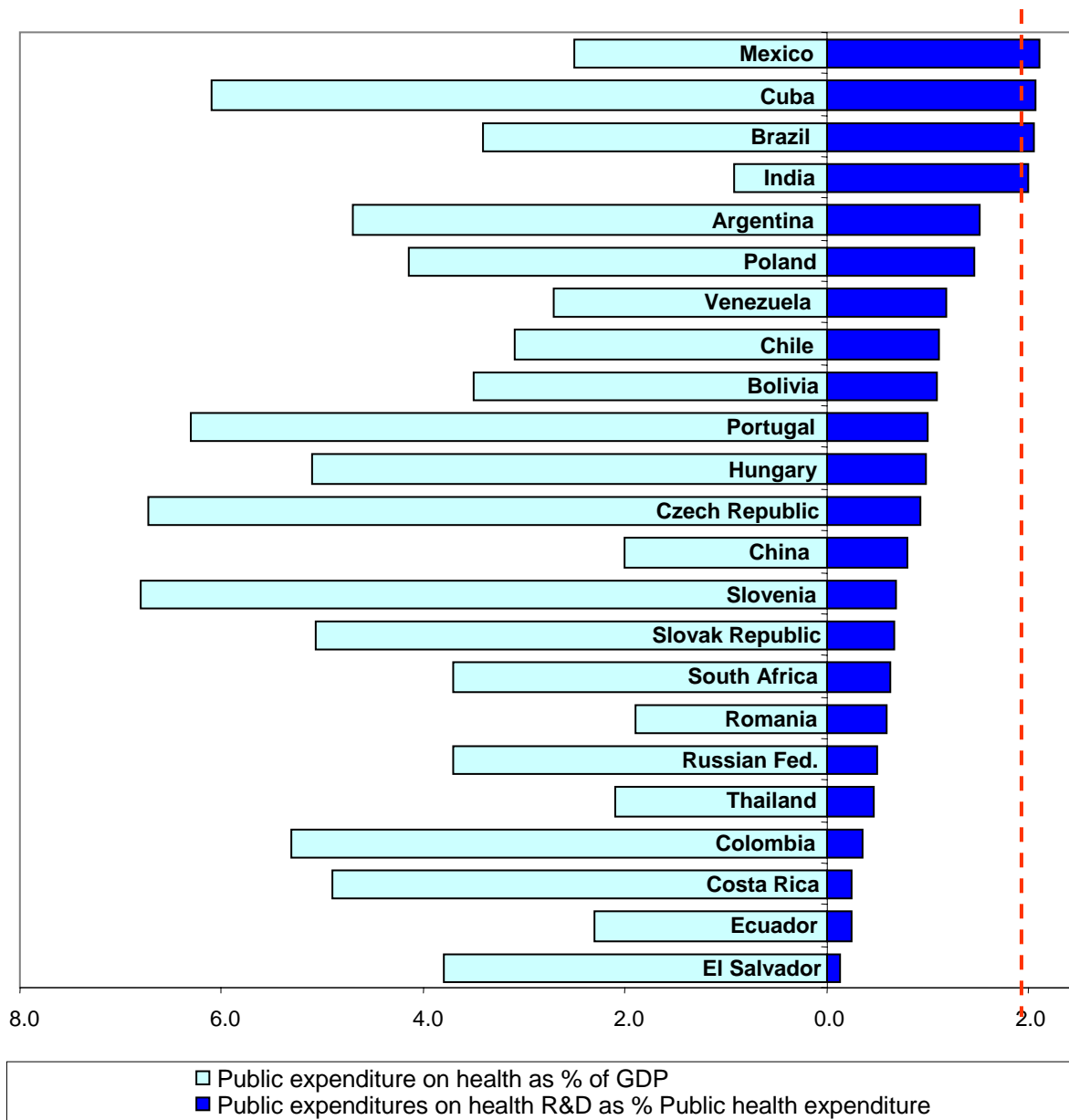
| | |
|-------------------------------------|---------------------------------|
| Combined global expenditure 2001 | <i>US\$ 1.4 billion</i> |
| Combined BoD | <i>167 million DALYs</i> |
| <hr/> | |
| Average combined expenditure | <i>US\$ 8.4 per DALY</i> |



Health Research in Developing Countries

- **1990 Commission on Health Research for Development**
 - **Developing countries should spend 2% of government health budget on essential health research**
 - **Complemented by 5% of donor health spending being allocated for health research and research capacity strengthening**

Public funding of health R&D as a % of public health expenditure: 2001





Resource Flows Data for Selected ODA Agencies, 2001

| | ODA US\$ millions | Institution | Health, Estimates US\$ millions | Health Research, Estimates US\$ millions | Health Research: % of Health |
|----------------|----------------------------------|--------------------|--|---|---|
| USA | 11,429 | USAID | 1,474 | 96 | 6.5 |
| UK | 4,579 | DFID | 316 | 23.5 | 7.4 |
| France | 4,198 | IRD | 210 | 5.7 | 2.7 |
| Norway | 1,346 | NORAD | 183 | 2.2 | 1.2 |
| Canada | 1,533 | CIDA/IDRC | 112 | 4.4 | 3.9 |
| Sweden | 1,666 | Sida/ SAREC | 63 | 12.3 | 19.5 |
| Denmark | 1,634 | DANIDA | 59 | 5.1 | 8.6 |



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Innovative Developing Countries



Morel C, 2005

<http://www.who.int/intellectualproperty/events/OpenForumCarlosMorel.pdf>



Innovative Developing Countries

- **Growing capacity to undertake ‘health innovation’ – includes:**
 - **development of new drugs, vaccines and diagnostics**
 - **new techniques in process engineering/ manufacturing**
 - **new approaches/policies in health systems and services**
 - **clinical trials capacity**
- **Spanning the spectrum from innovative research to product delivery**

Numerical and percent increases in the number of papers among the 1% most highly cited papers

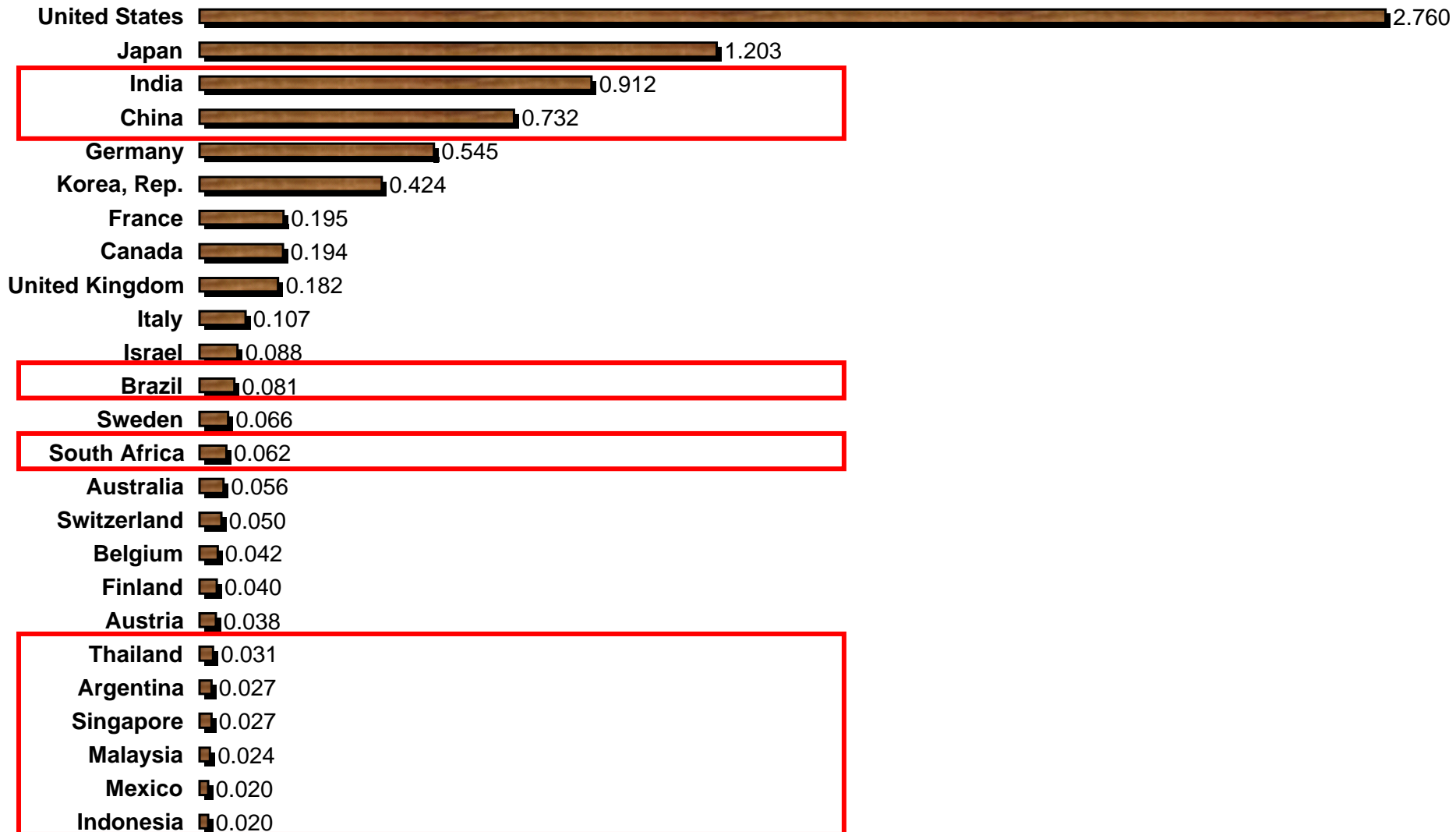
| Country | Numerical increase | Percent increase |
|---------------------------------|---------------------------|-------------------------|
| Brazil | 88 | 88 |
| China | 218 | 145 |
| India | 93 | 83 |
| South Africa | 30 | 59 |
| Top 30 countries average | 112 | 59 |

Comparing 1993-1997 and 1997-2001:

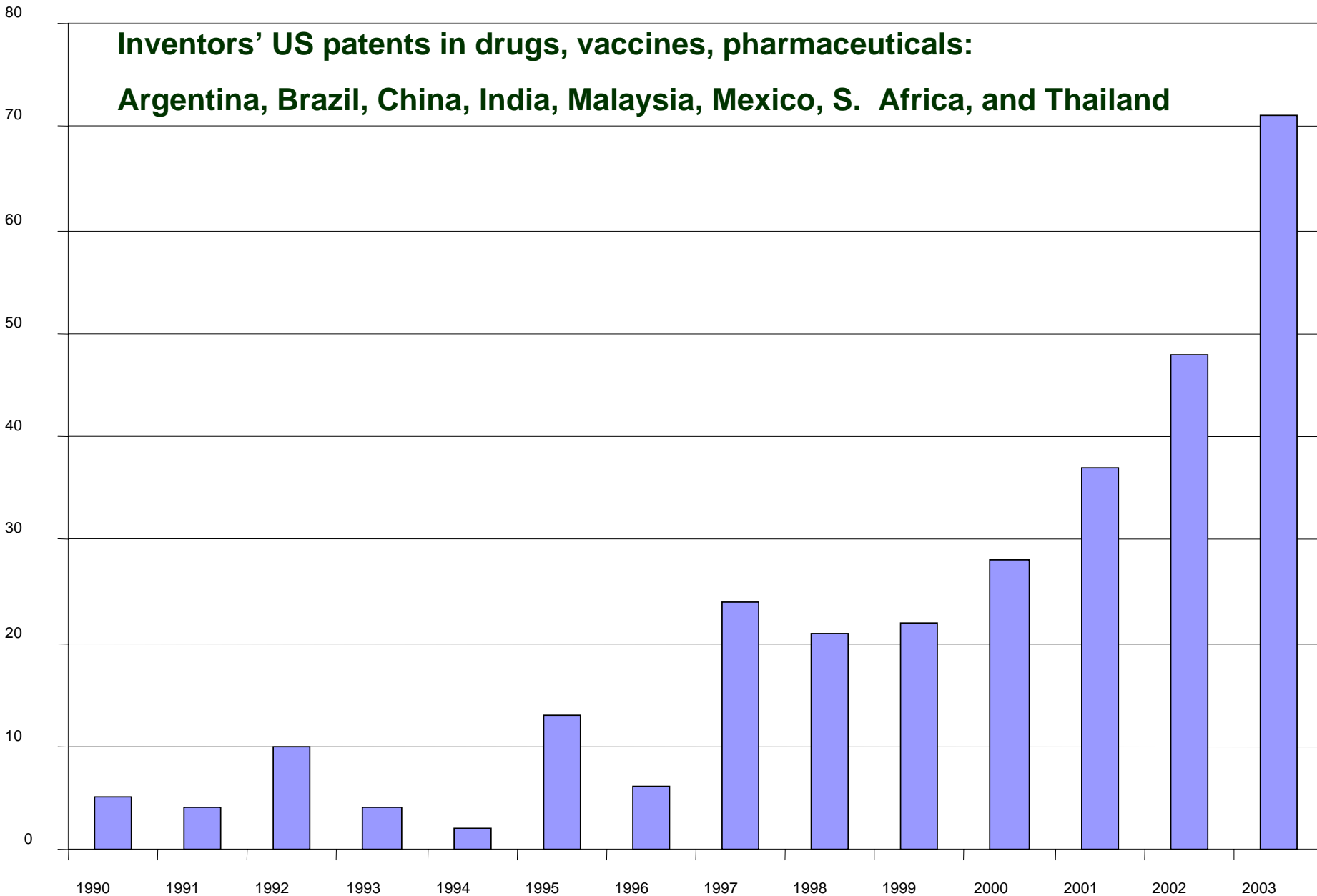
King DA. “The scientific impact of nations: What different countries get for their research spending.”

***Nature* 430, 311-316 (2004)**

Top 25 countries ranked by total patents issued in 2003 adjusted for GDP and per capita



**Inventors' US patents in drugs, vaccines, pharmaceuticals:
Argentina, Brazil, China, India, Malaysia, Mexico, S. Africa, and Thailand**



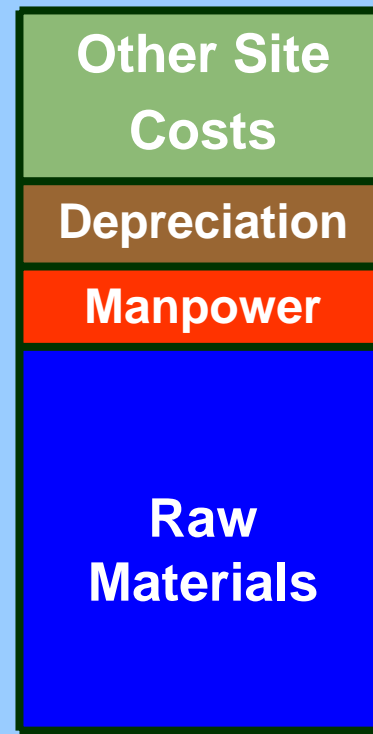
INDIA'S SIGNIFICANT COST ADVANTAGE

100 %



Illustrative Cost Estimates: The illustrative cost advantage does not include potential gains from lower overheads and process efficiencies

45-50 %



Depreciation
30-50% lower
Manpower
Cost
85-90% lower
Raw Materials
40-50% lower

Product
Cost per
Unit

US Manufacturer

Indian Manufacturer



Financing health research: how to reduce the '10/90 gap'

Government financing of health research for development:

- **HICs**
 - give greater priority in national research programmes
 - include more health research in bilateral and multilateral channels
- **LMICs**
 - give greater priority in national programmes
 - build capacity (funding and environment) for national health research systems; innovation



Global Forum for Health Research

Forum 10

Cairo

29 October – 2 November 2006

***Combating Disease and
Promoting Health***

www.globalforumhealth.org

