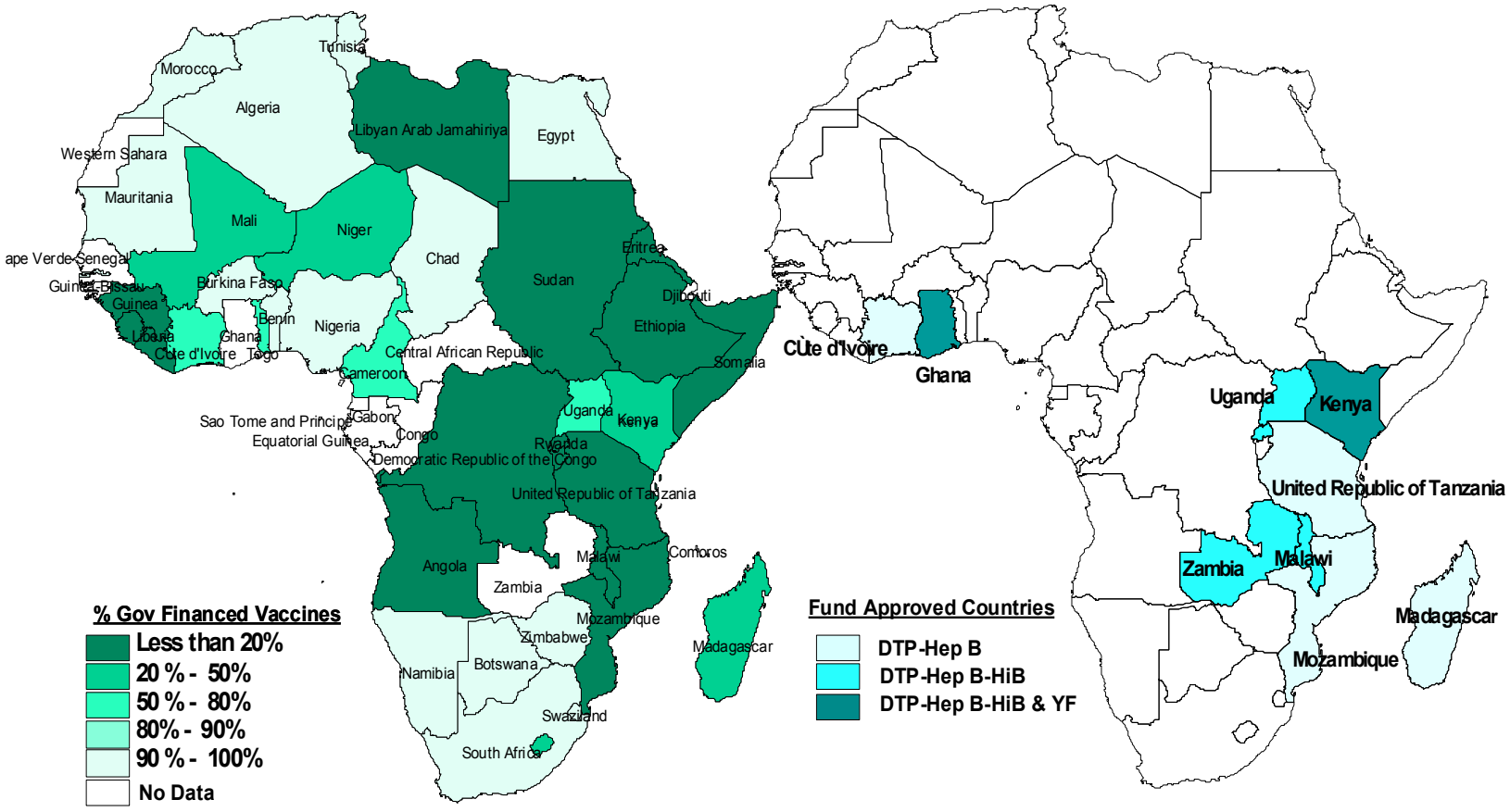
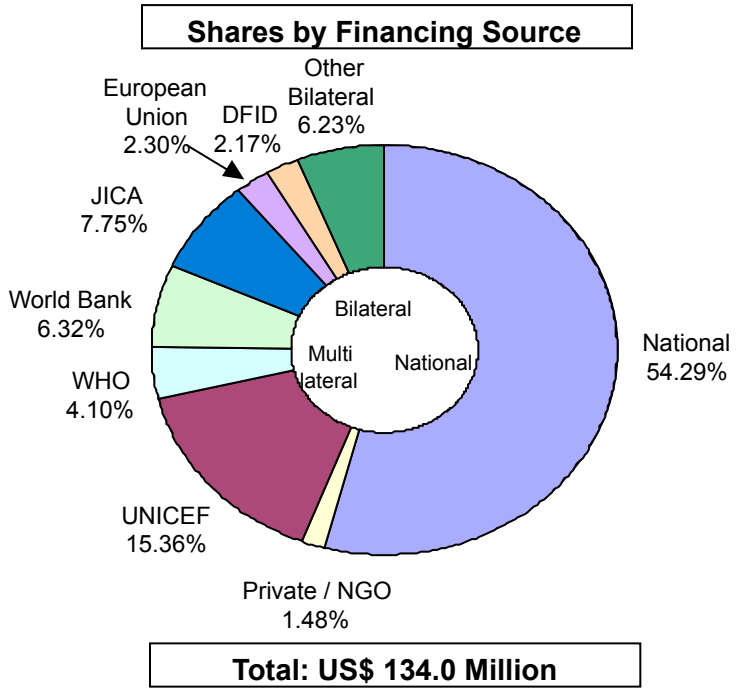
WHO PAID FOR VACCINES? GAVI EARLY DAYS

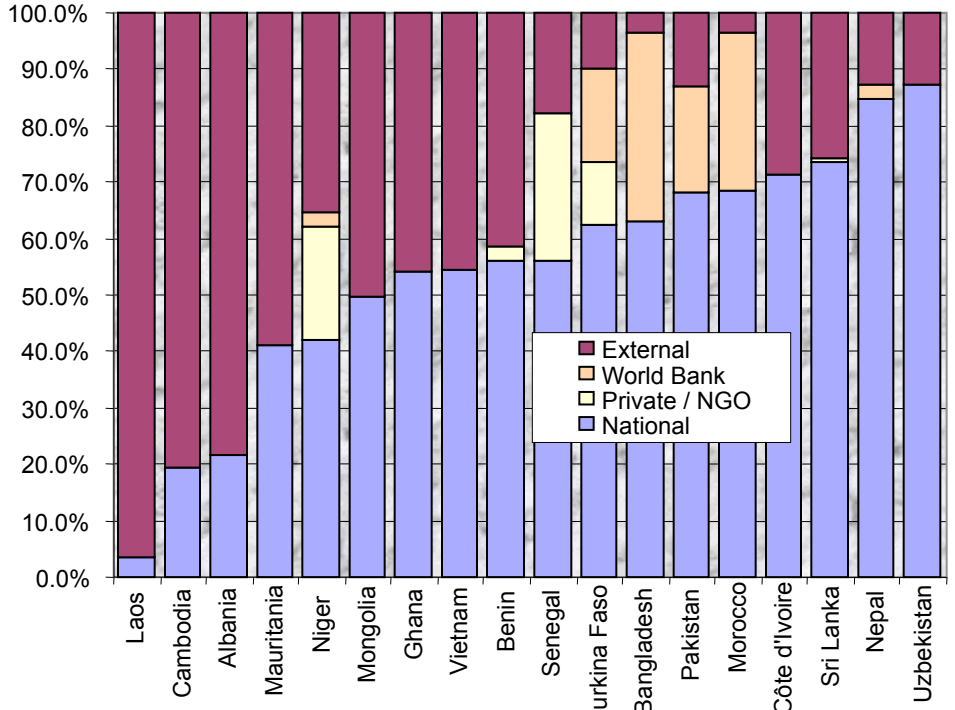
Government financing of vaccines and Vaccine Fund recipient countries in Africa



For Illustration only. Do not quote From 2002

Financing of routine immunization services by source



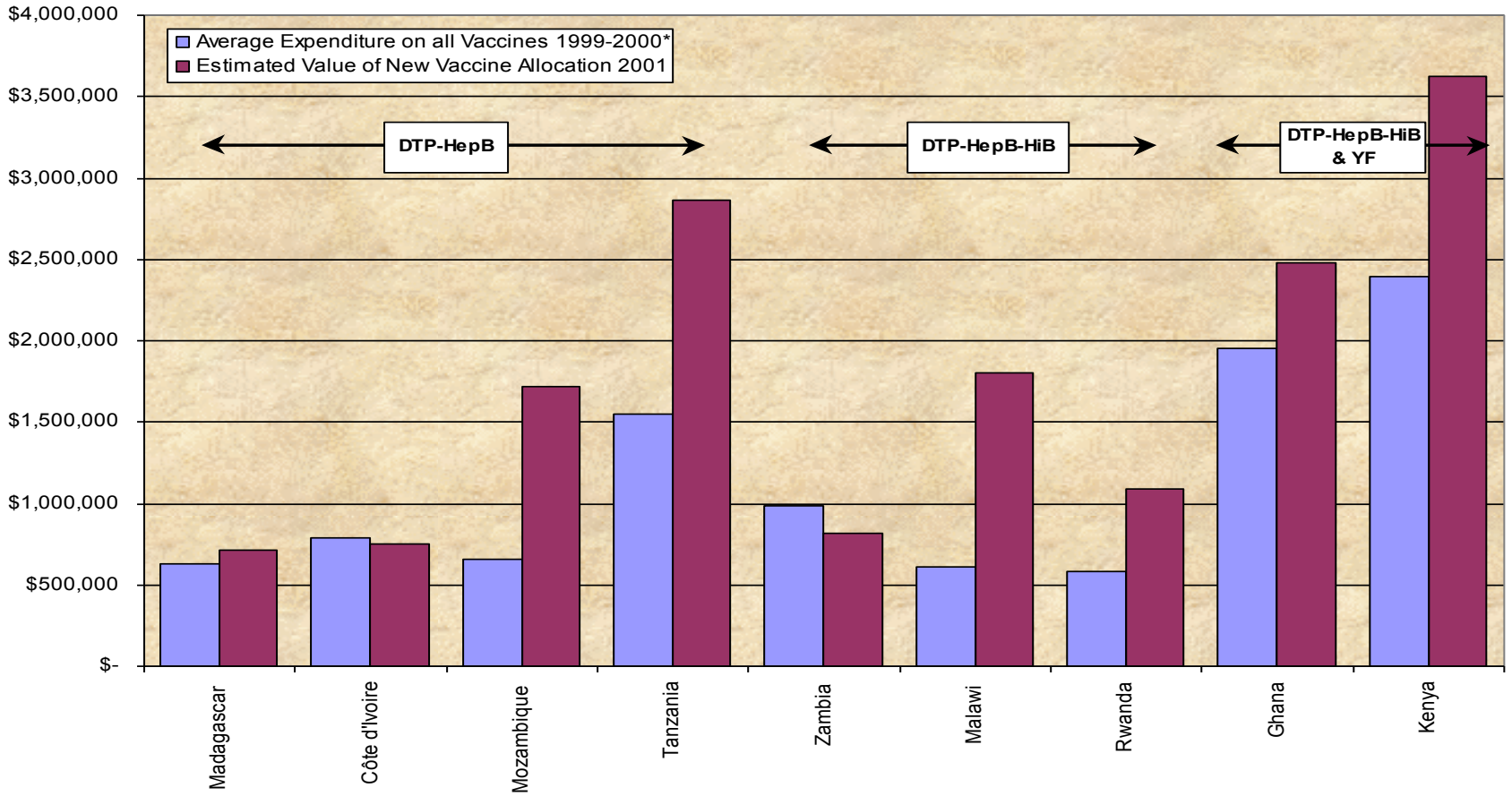


Based on 18 recent in-depth costing studies and financing assessments

Source: Abt-Associates, PHR, ARIVAS-CATR, World Bank and WHO.

For Illustration only. Do not quote

Average vaccine expenditure & estimated fund allocation of vaccines

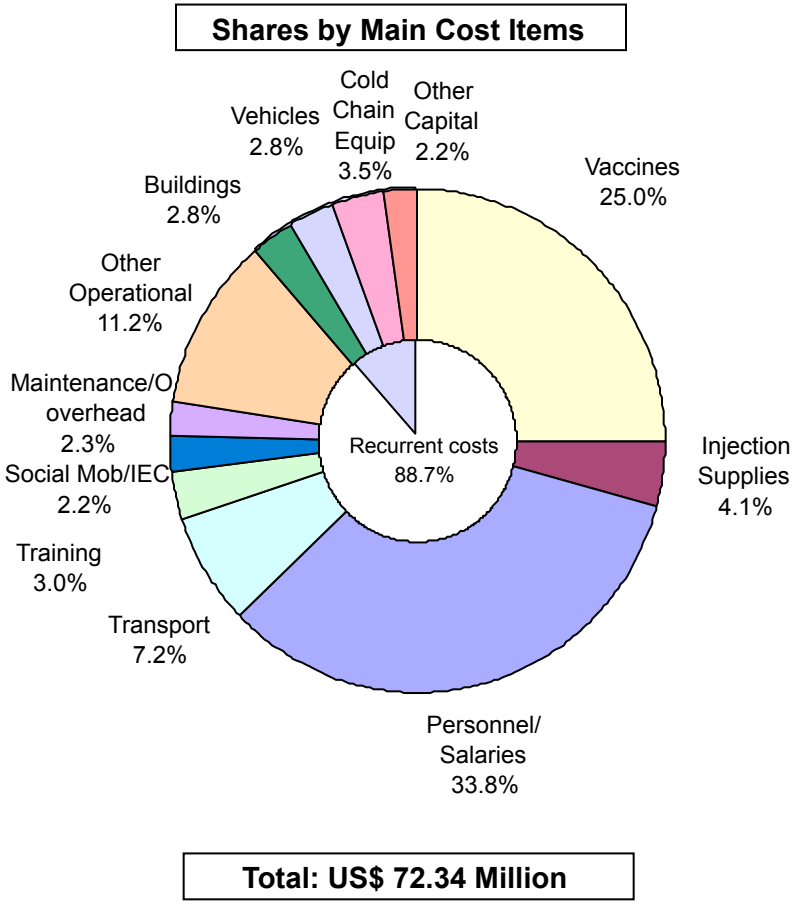


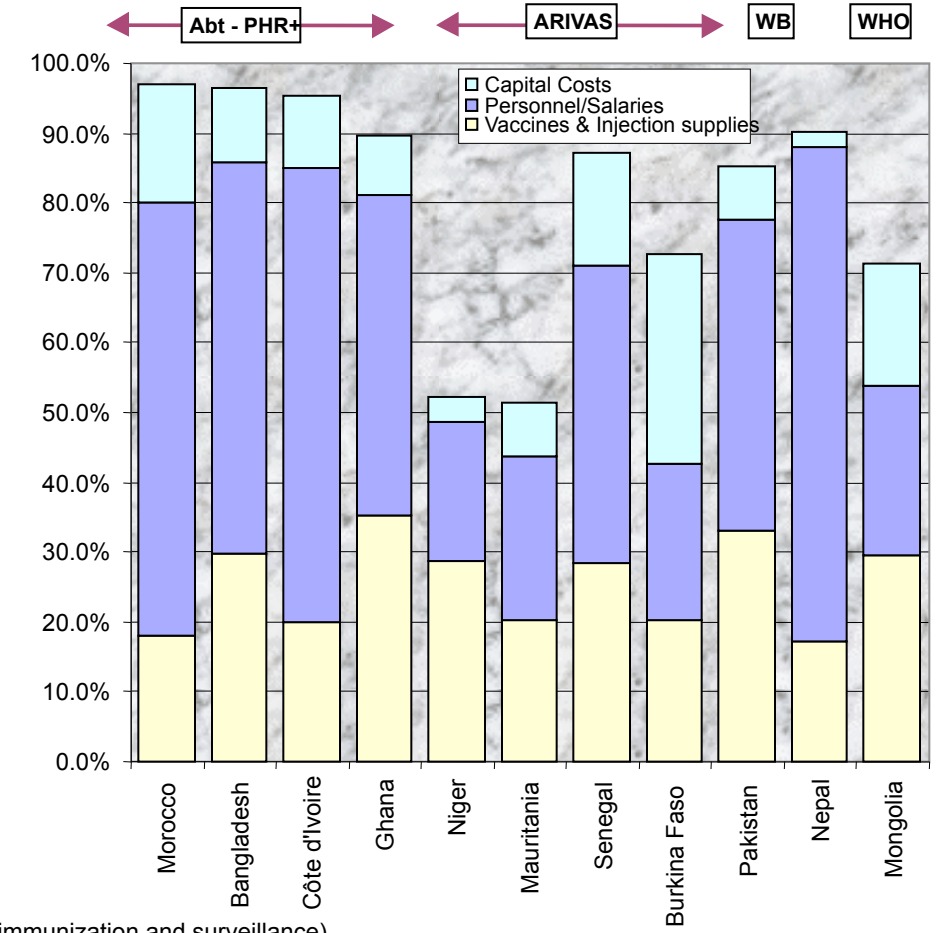
* Based on WHO-UNICEF Joint Reporting Form and UNICEF Vaccine Prices

** Based on data from the GAVI Secretariat

For Illustration only. Do not quote

Shares of main cost items in routine immunization services



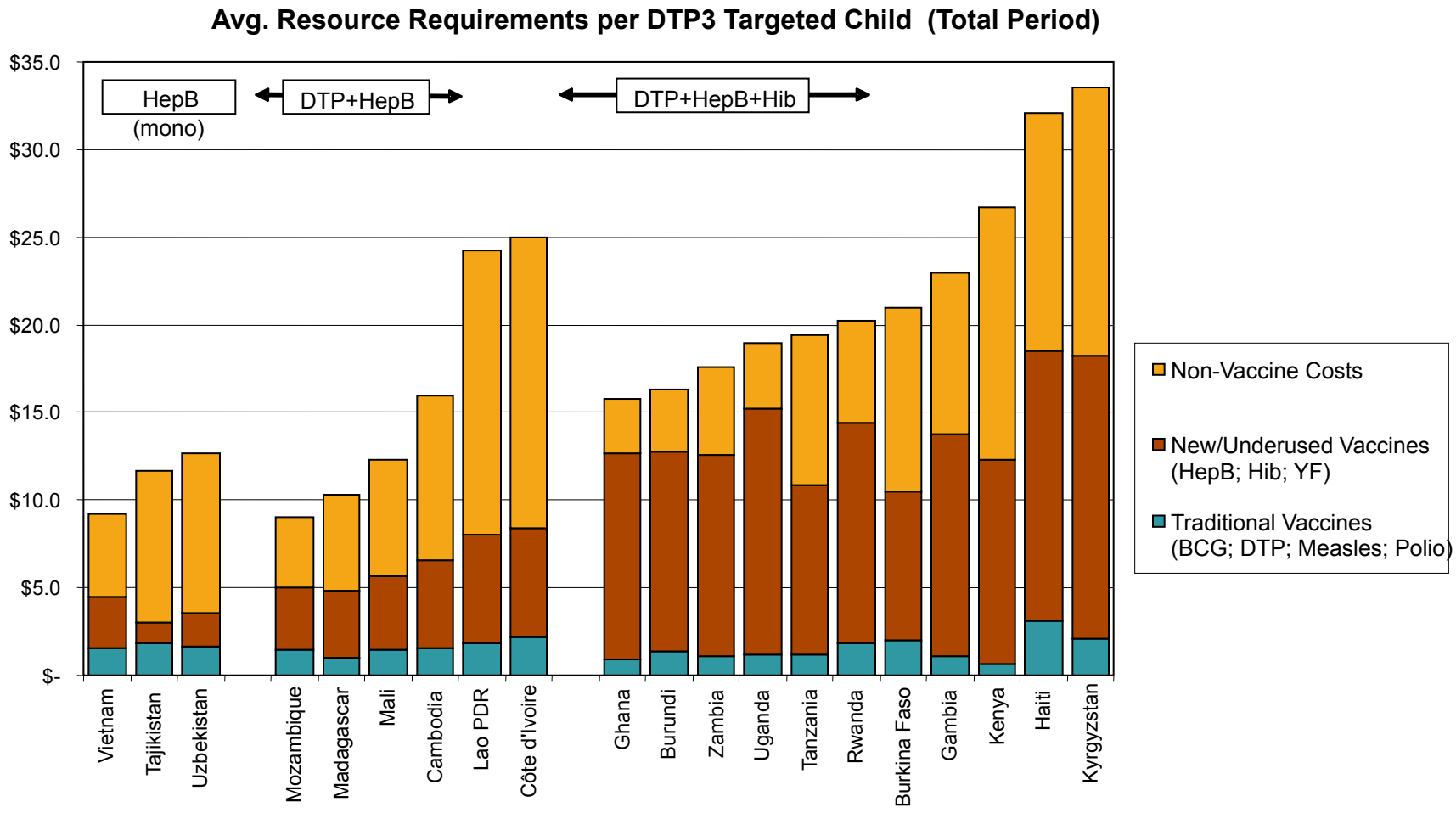


Based on 10-11 recent in-depth costing and financing studies (excl. supply. immunization and surveillance).

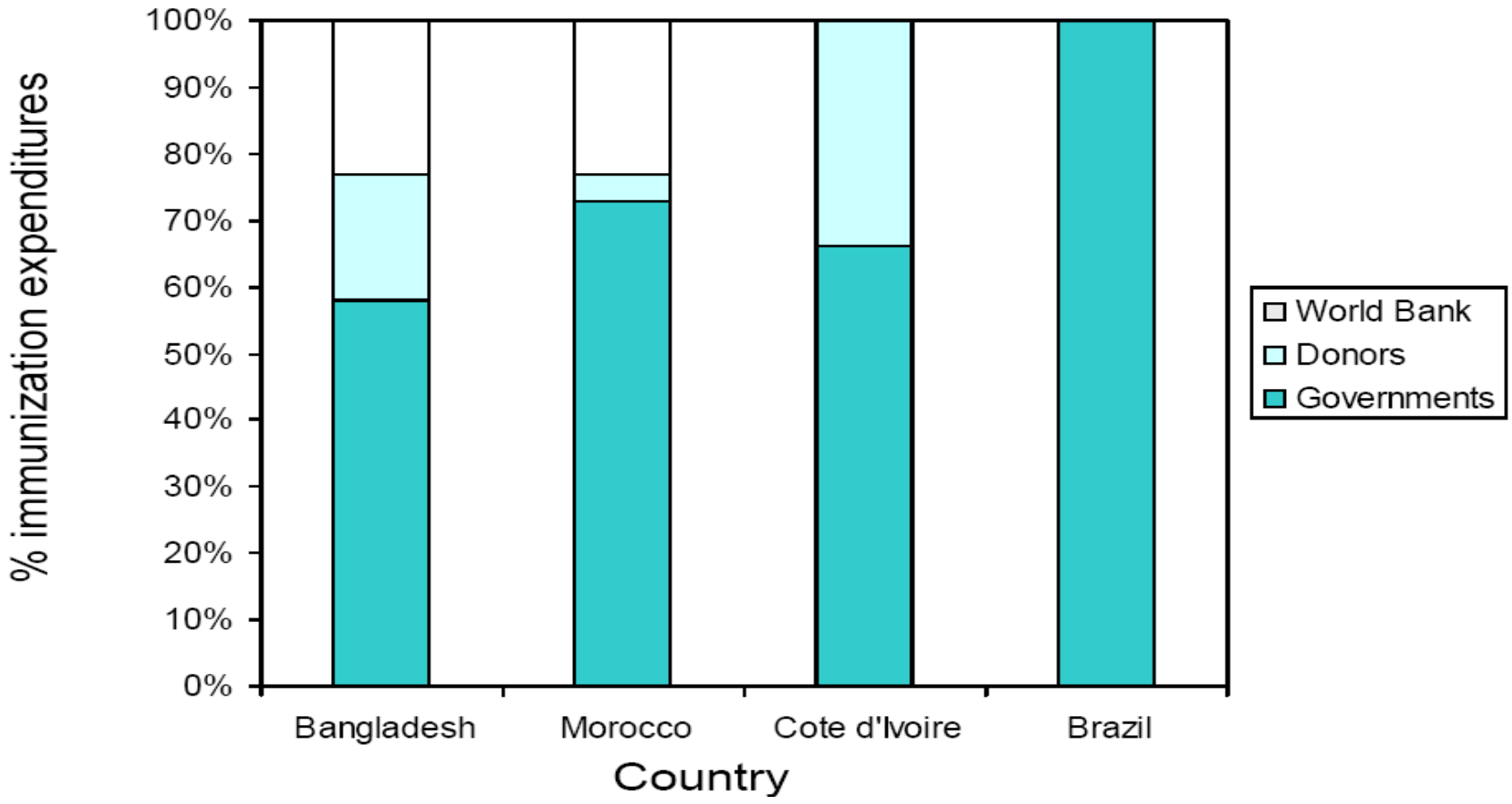
Source: WHO-VAM based on Abt-Associates, ADB, PHR, ARIVAS-CATR, World Bank and WHO.

For Illustration only. Do not quote

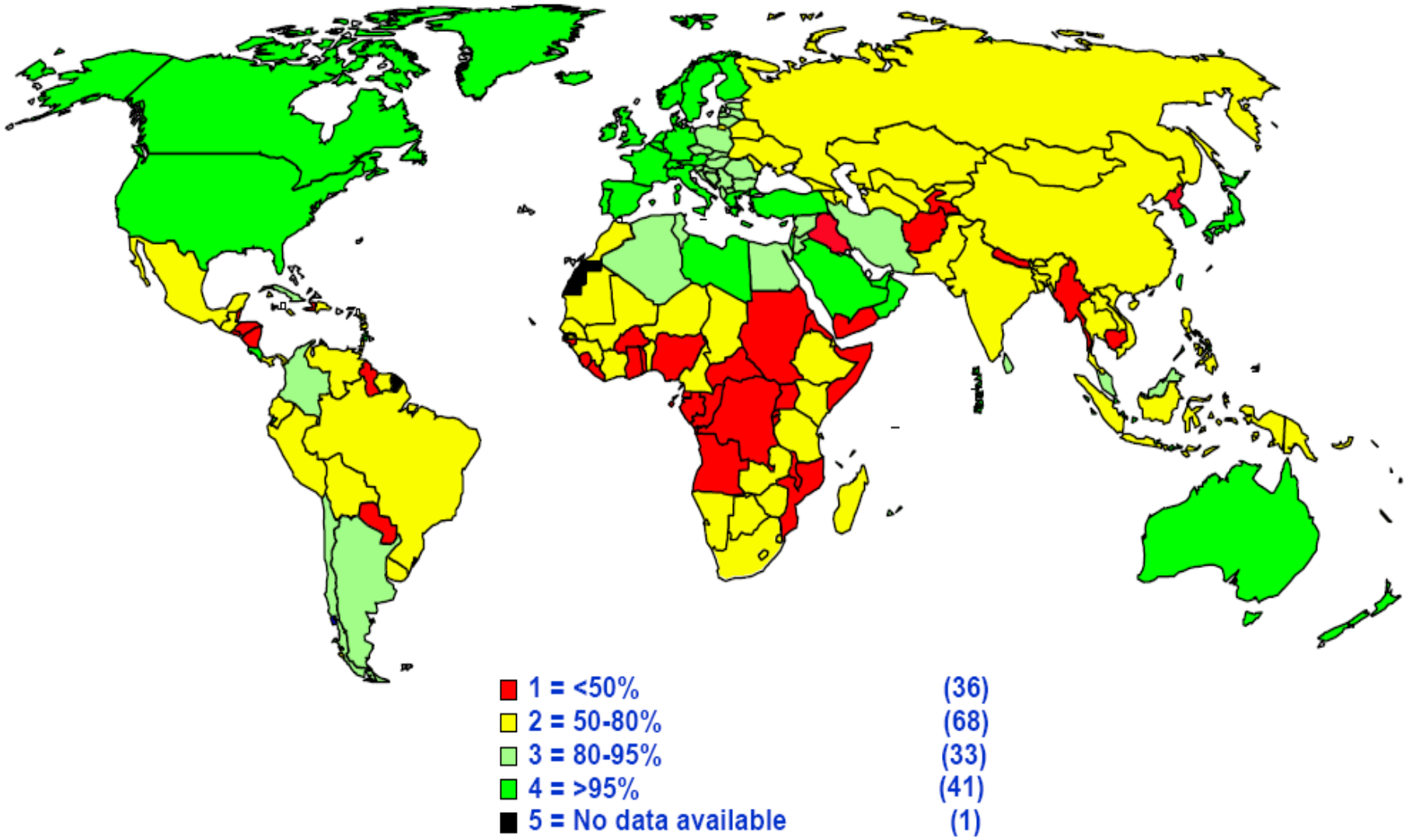
Cost per fully-immunized child varies



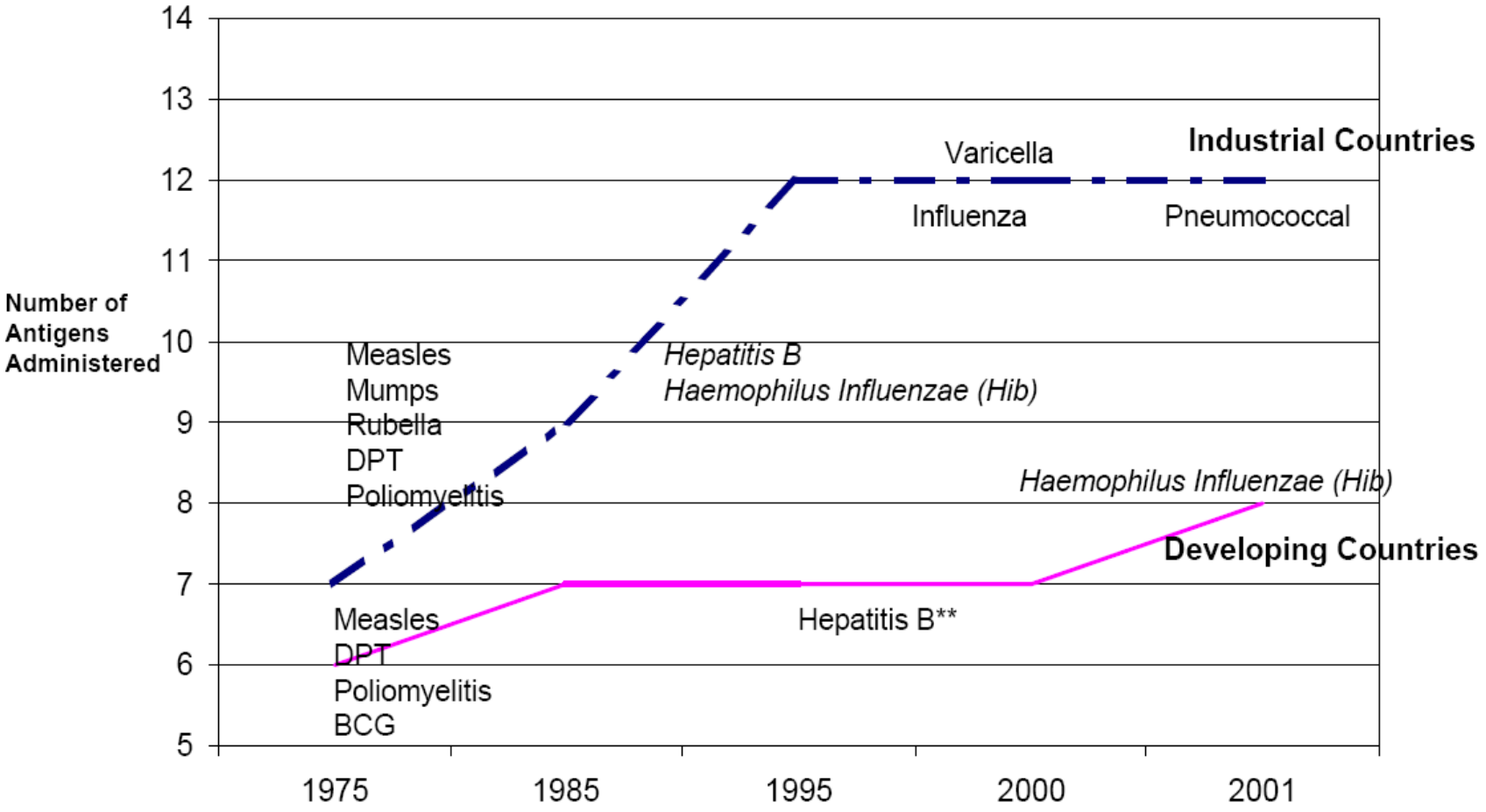
Who typically funded and now funds it all (2002 figures)



Population with regular access to essential medicines (1997)



Early in the decade, 12 antigens to developed world and 8 to developing



HOW POLICY IS MADE

How WHO makes policy

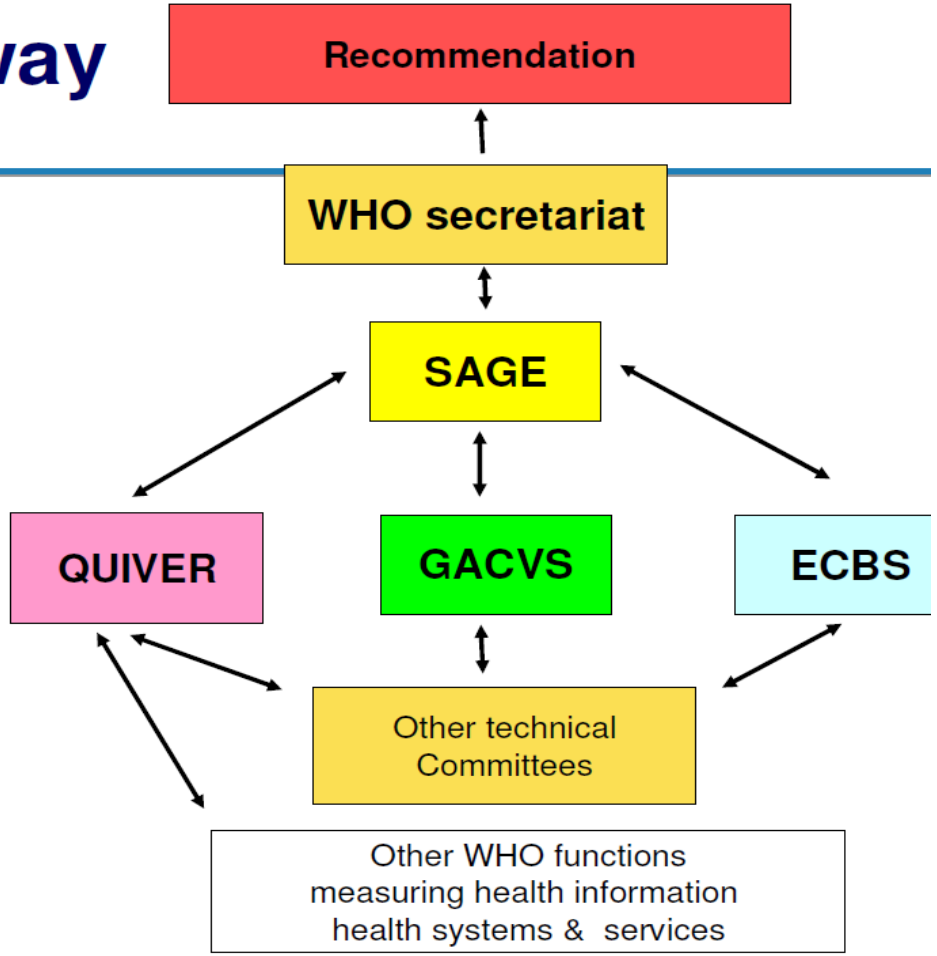
WHO policy pathway

Terms of reference:

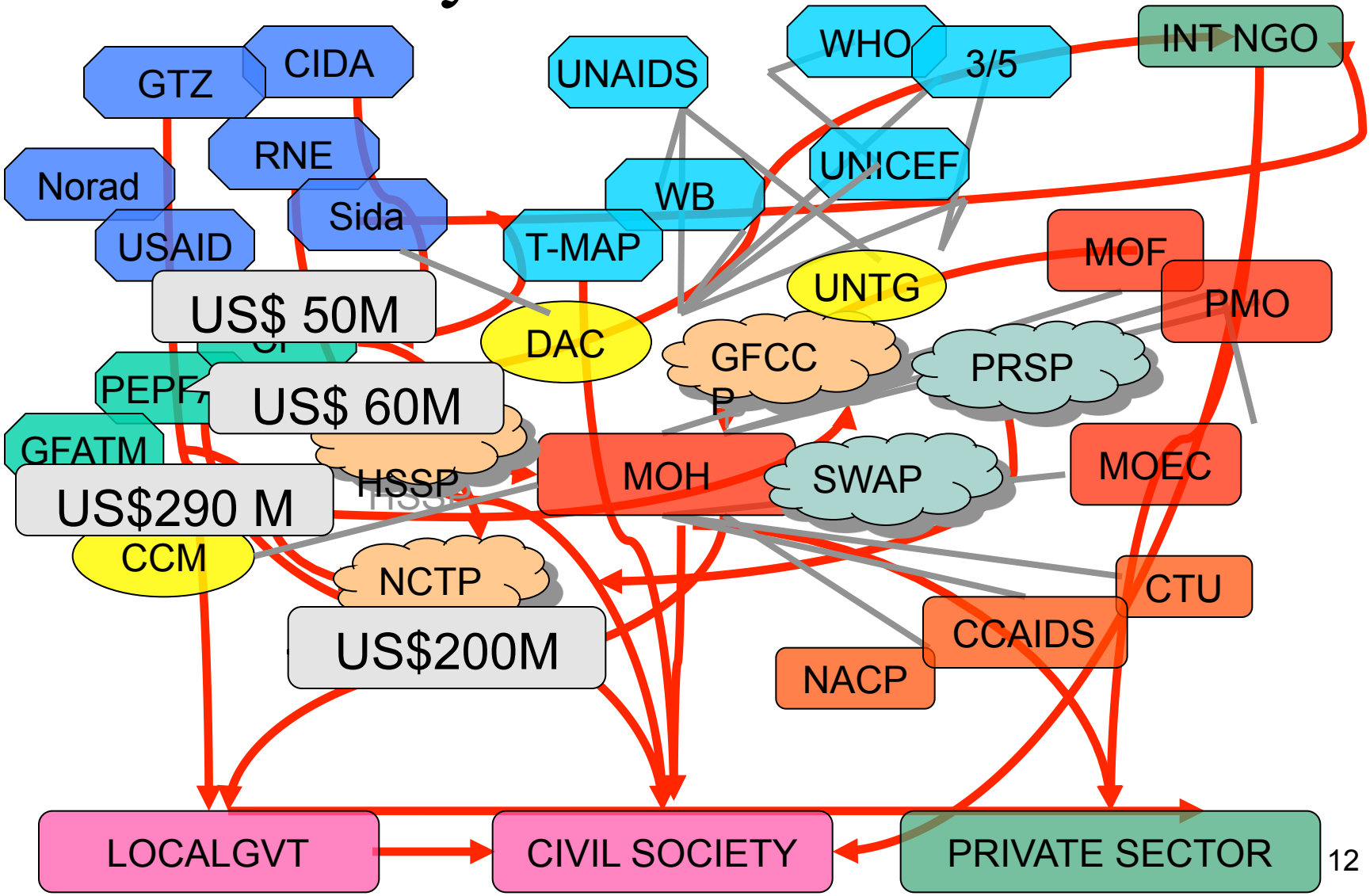
- Estimating the burden of VPD
- Modeling vaccine intervention
- Economic evaluations of vaccines, immunizations, and related technologies and interventions
- Analytical components of operational and implementation research

Current composition:

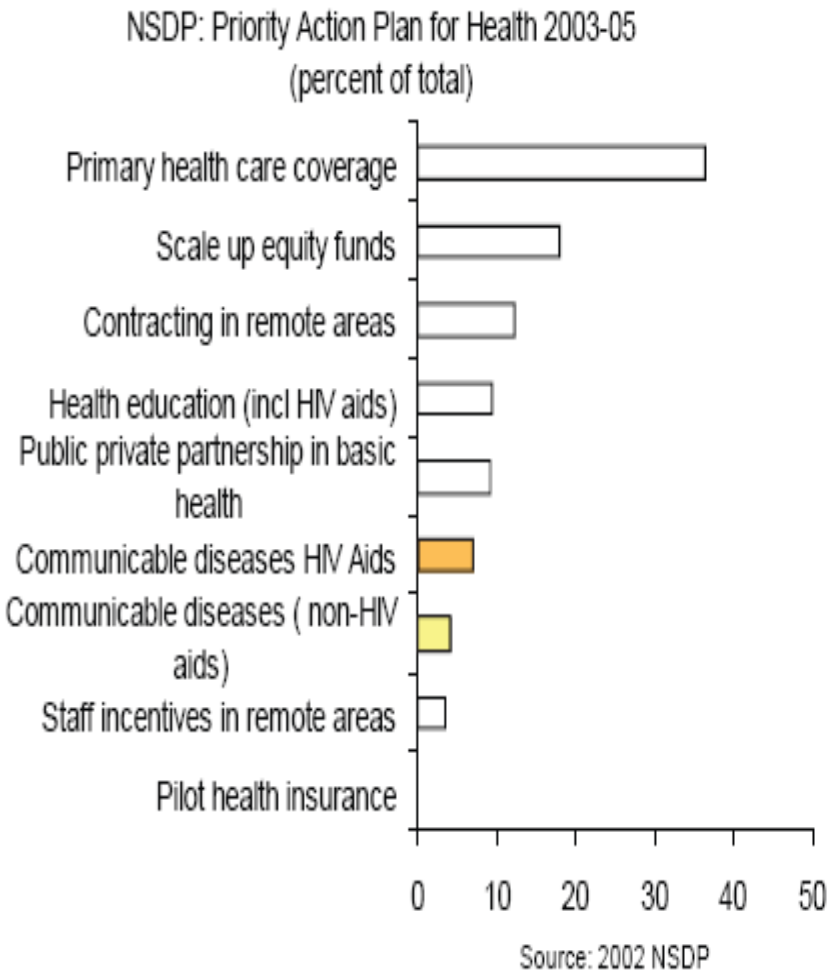
- 12 members with expertise and background in epidemiology, modeling, economics, statistics and health systems

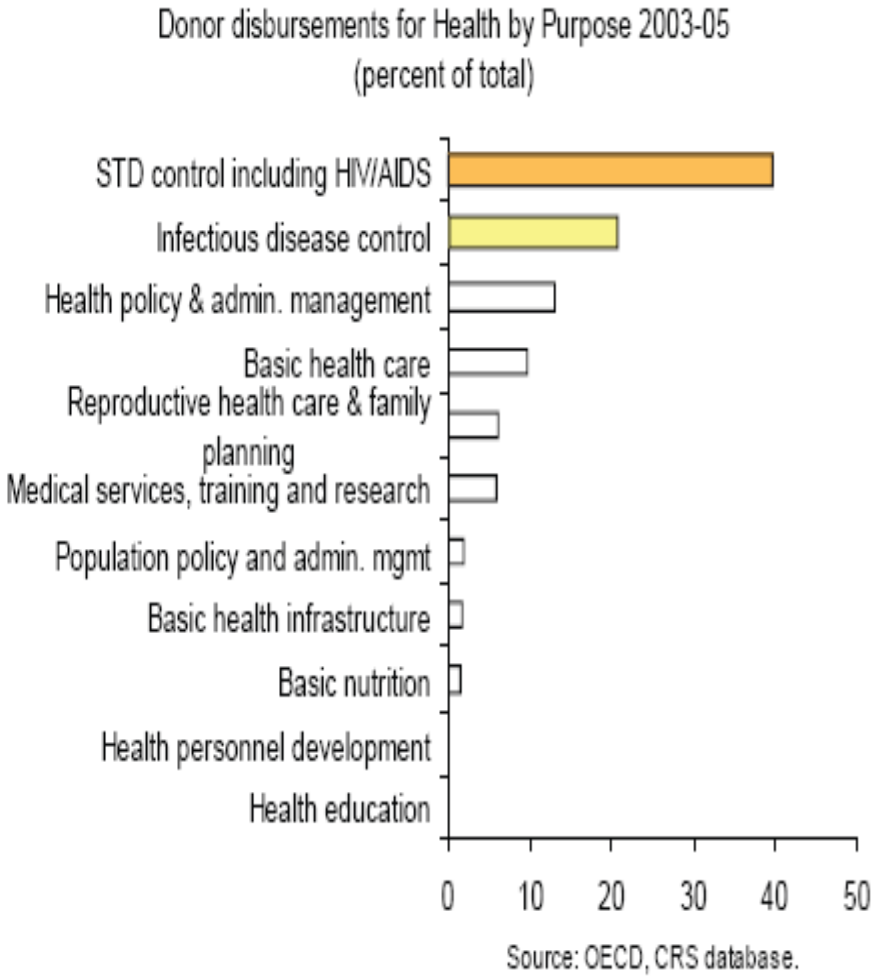


AIDS stakeholders and donors in one African country (World Bank AIDS Campaign Team for Africa)



Donor priorities versus country priorities

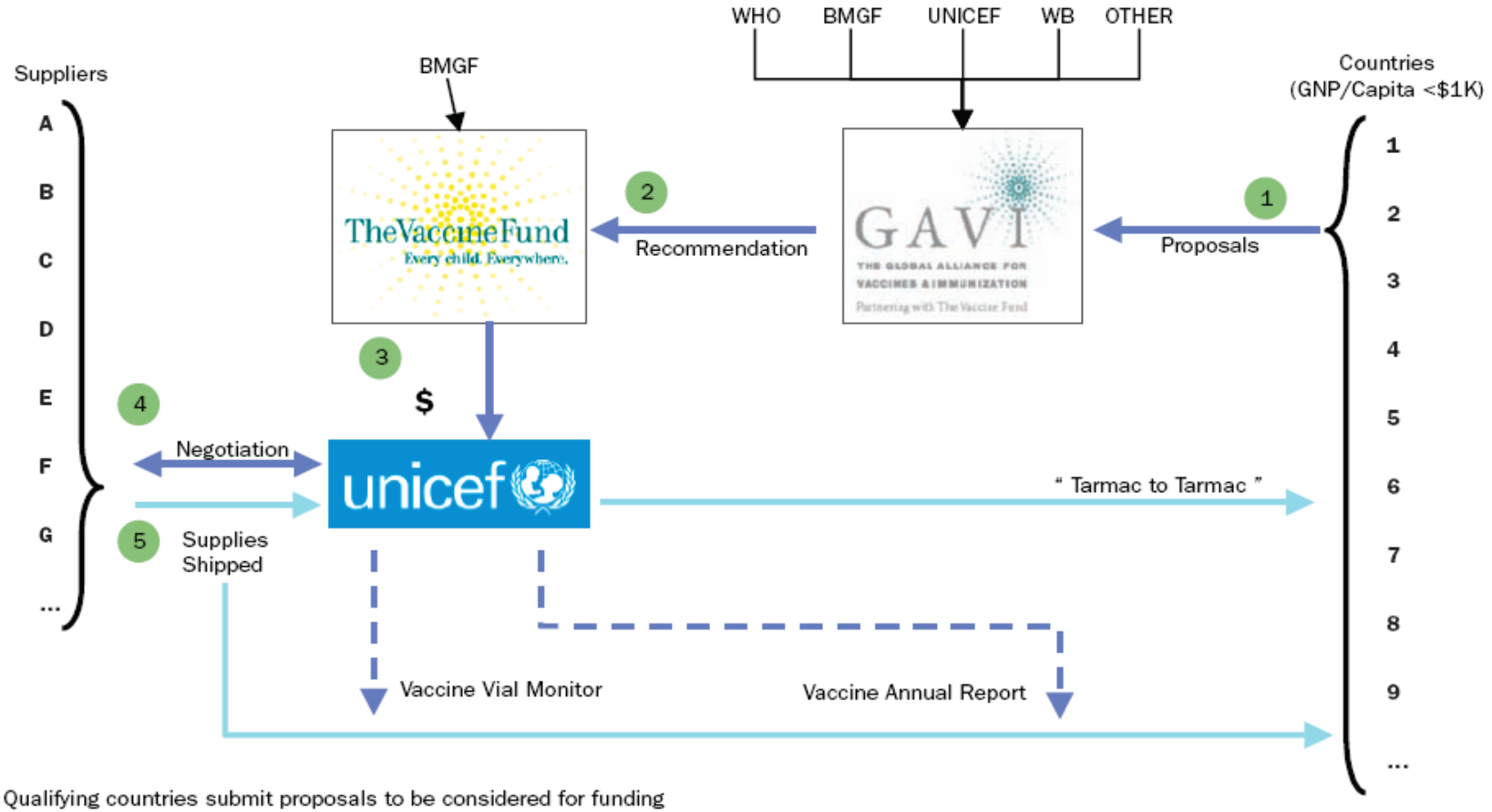




Source: National Strategic Development Plan, Cambodia, and OECD/CRS

The vaccine procurement process

(for poor countries)



1 Qualifying countries submit proposals to be considered for funding

2 GAVI evaluates and submits recommendation to the Vaccine Fund

3 The Vaccine Fund approves purchase recommendation and provides funding through UNICEF

4 UNICEF supply division procures all vaccines after negotiating directly with suppliers

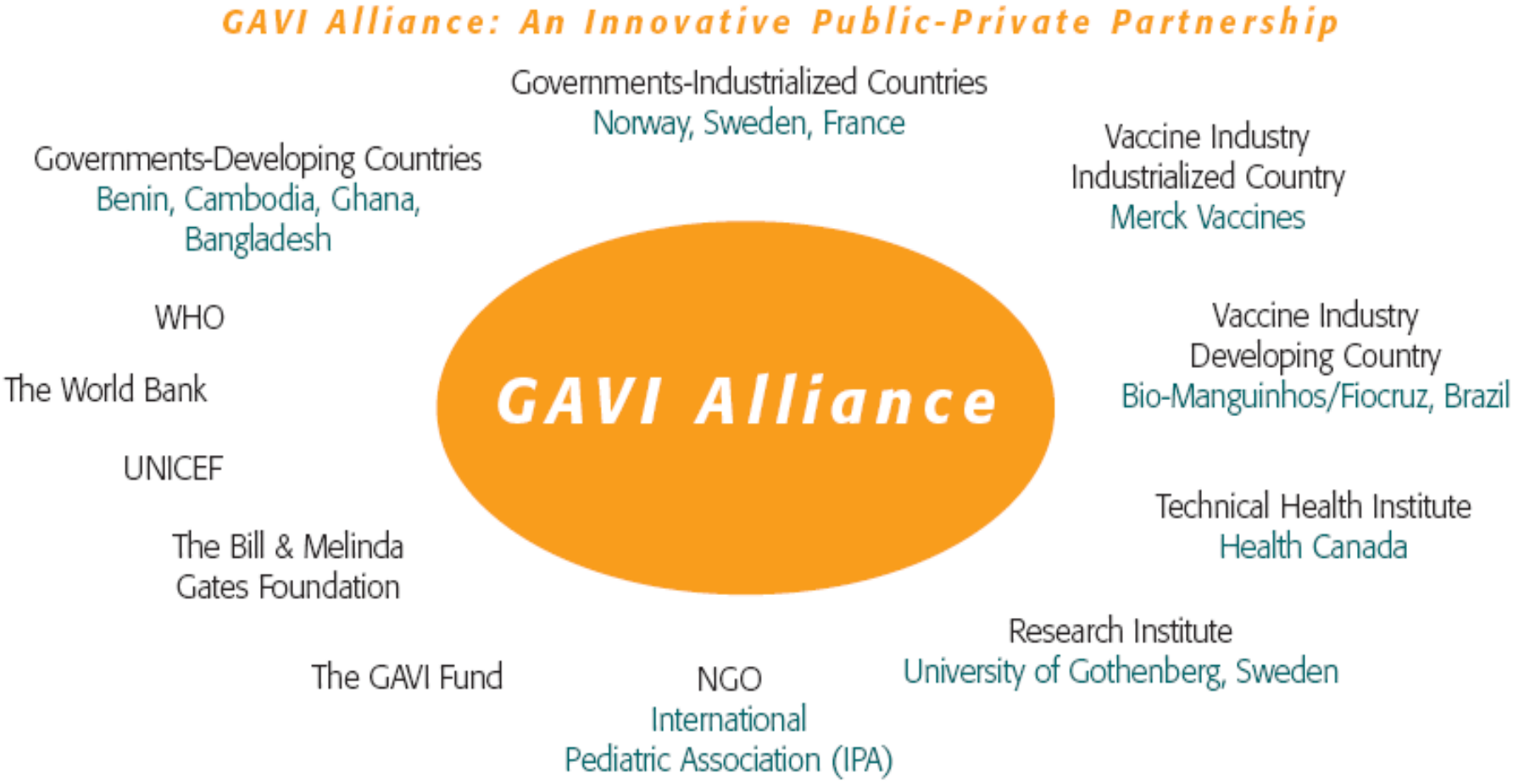
5 Suppliers ship directly to recipient countries or via UNICEF

KEY: WHO - World Health Organization. BMGF - Bill & Melinda Gates Foundation. WB - World Bank. GAVI - The Global Alliance for Vaccines and Immunization

Source: GAVI, UNICEF, Vaccine Fund websites; BVGH/BCG interviews

GAVI

The GAVI Alliance



GAVI / GAVI Fund

- GAVI is an alliance of the various actors involved in immunization programs
- Goals
  - Increase global access to basic vaccines
  - Shorten time before available vaccines are widely used in the developing world
  - Accelerate the development and introduction of future vaccines.

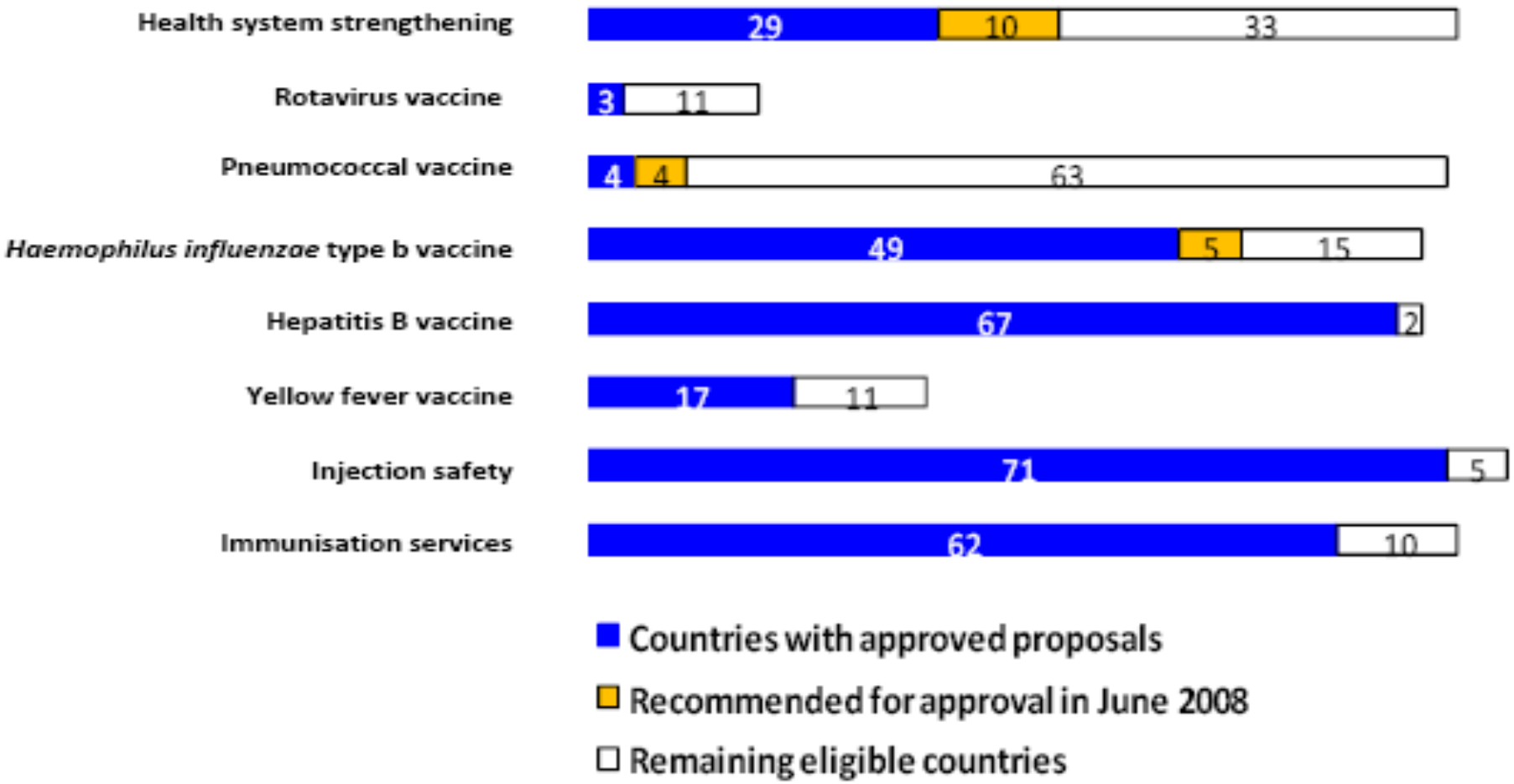
GAVI / GAVI Fund

- GAVI Fund is the financing & resource mobilization arm
  - Finances procurement of new vaccines & injection supplies
  - Rewards performance to strengthen health systems and increase coverage
  - Engages in strategic research and negotiation with the pharmaceutical and public health sectors through ADIPs

How GAVI financing is used

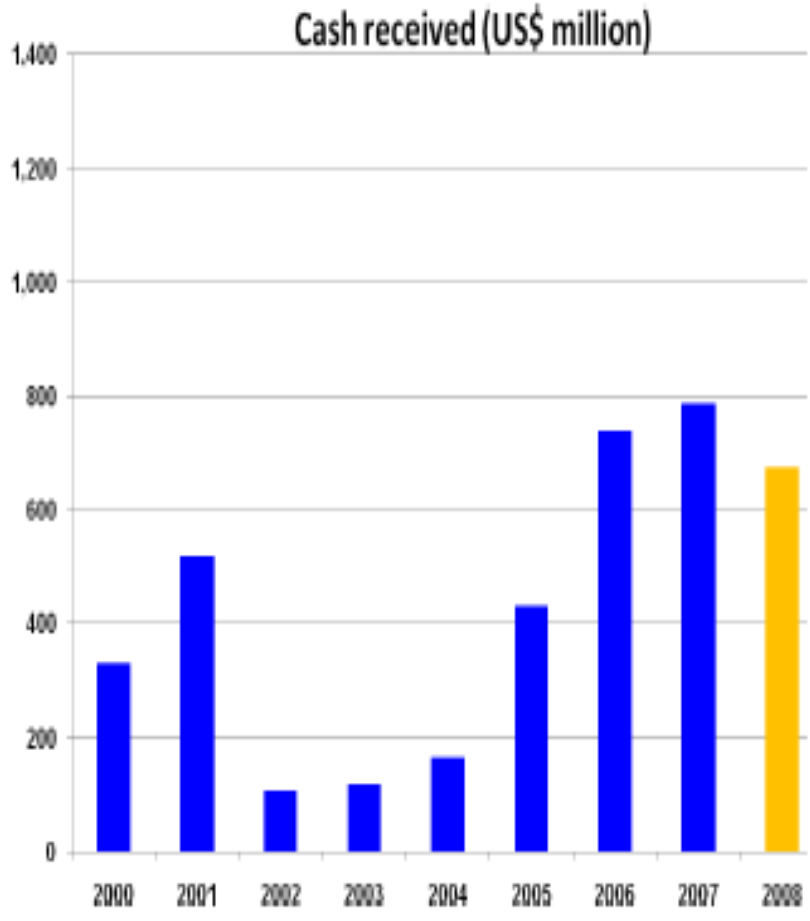
- Focus on the poorest 72 countries, where disease burden is greatest
- Two windows of support:
  1) Providing new and underused vaccines
  2) Building capacity in national health systems for the delivery of immunisation, maternal and child health services

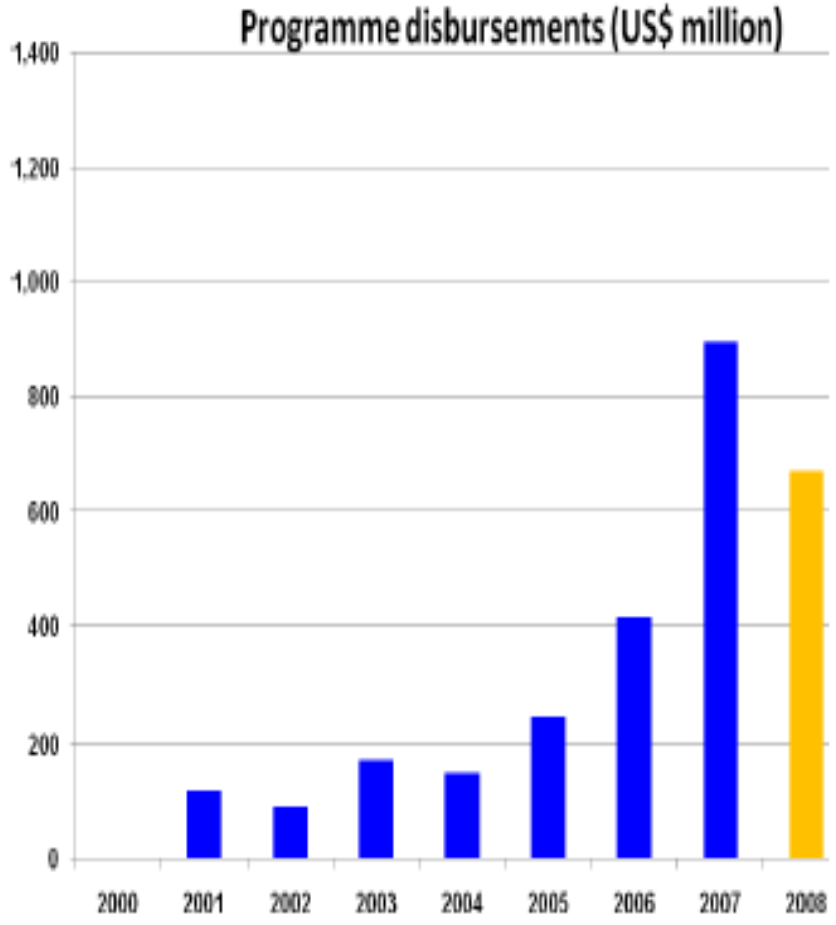
Eligible countries, approved proposals by support window



Source: GAVI Executive Secretary / CEO Report to the Board June 2008

GAVI cash received and programme disbursements, 2000-2008





Source: GAVI Executive Secretary / CEO Report to the Board June 2008 (2008 figures are projections)

GAVI cash, breakdown

	1999- 2000	2001	2002	2003	2004	2005	2006	2007	2008 Q1
Australia	0	0	0	0	0	0	5,000,000	5,000,000	-
Canada	0	0	1,880,356	4,755,421	6,032,835	130,868,641	5,190,311	0	-
Denmark	0	1,147,407	0	0	3,338,879	3,416,107	4,411,262	4,737,540	-
European Commission (EC)	0	0	0	1,260,000	0	0	0	4,849,640	-
France	0	0	0	0	6,029,114	0	12,630,000	0	-
Germany	0	0	0	0	0	0	5,260,400	5,948,000	-
Ireland	0	0	510,750	623,750	650,000	831,460	7,902,000	8,311,200	-
Luxembourg	0	0	0	0	0	645,150	1,318,775	811,840	1,422,900
Netherlands	0	24,060,335	13,375,172	16,492,642	17,329,866	15,859,414	0	33,547,469	38,885,301
Norway	0	17,894,690	21,325,656	21,791,087	40,924,593	39,534,594	64,979,314	86,156,761	-
Sweden	0	1,892,133	1,114,800	2,385,182	4,931,430	12,663,401	14,593,975	15,514,976	-
United Kingdom	4,463,400	0	15,048,250	5,605,950	18,491,535	6,625,149	23,214,072	48,113,952	-
United States	0	48,092,000	53,000,000	58,000,000	59,640,000	64,460,000	69,300,000	69,300,000	-
Direct contributions from government Donors + EC	**4,463,400**	**93,086,564**	**106,254,984**	**110,914,032**	**157,368,252**	**274,923,916**	**213,800,109**	**282,291,378**	**40,308,201**
IFFIm*	**0**	**0**	**0**	**0**	**0**	**0**	**524,749,285**	**428,268,866**	**-**
The Bill & Melinda Gates Foundation	325,000,000	425,000,000	0	3,500,000	5,000,000	154,338,000	0	75,000,000	75,000,000
Other Private**	20,000	0	1,630,361	2,580,847	1,805,051	473,480	1,904,352	1,335,180	6,212,838
Private and Institutions	**325,020,000**	**425,000,000**	**1,630,361**	**6,080,847**	**6,805,051**	**154,811,480**	**1,904,352**	**76,335,180**	**81,212,838**
Total Contributions	**329,483,400**	**518,086,564**	**107,885,345**	**116,994,879**	**164,173,303**	**429,735,396**	**740,453,746**	**786,895,424**	**121,521,039**

*IFFIm funds available to support GAVI programmes. IFFIm donors: United Kingdom, France, Italy, Spain, Norway, Sweden and South Africa.

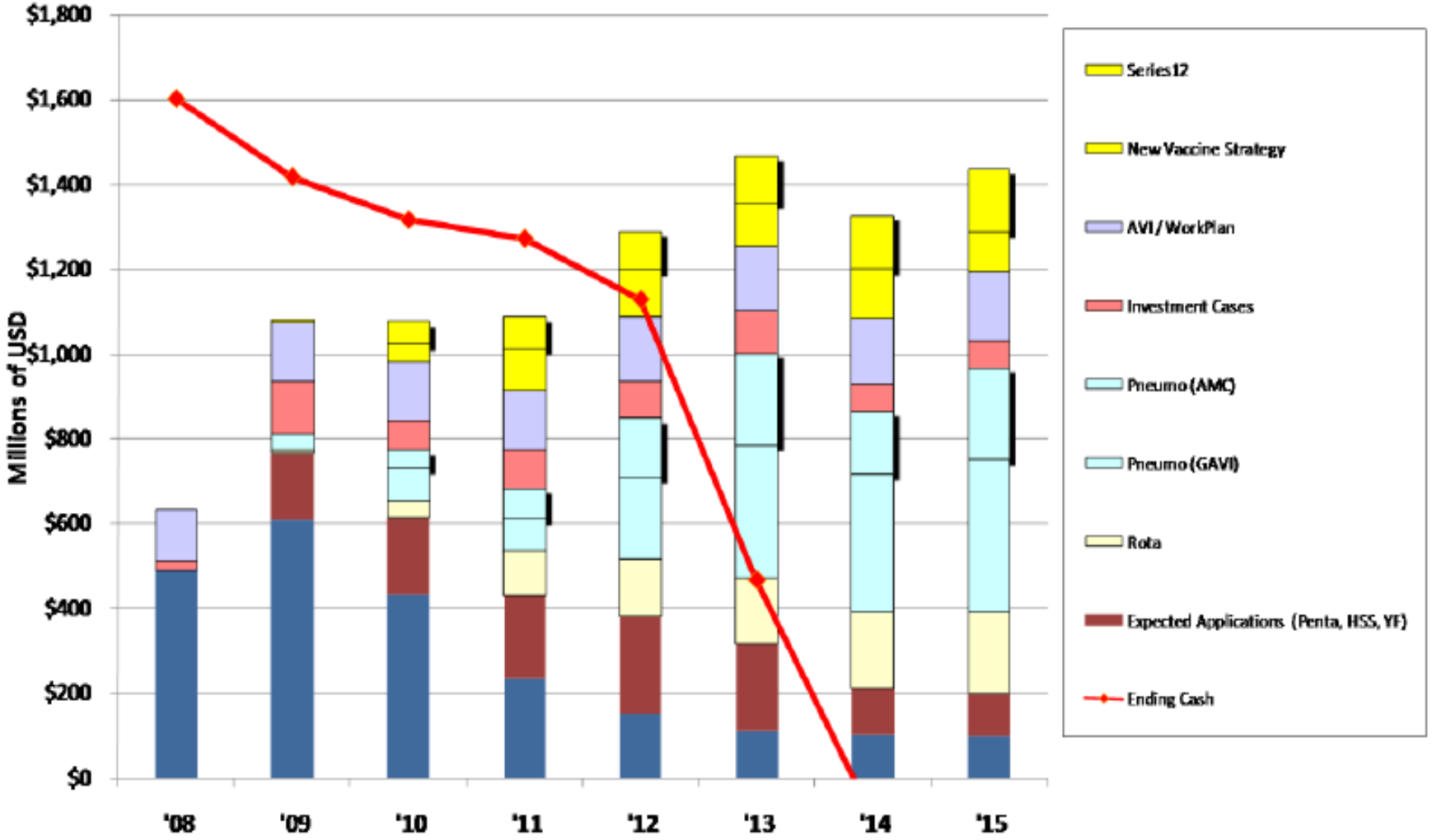
** Including funds received from the Immunize Every Child Campaign

Source: GAVI Executive Secretary / CEO Report to the Board June 2008

GAVI AND PNEUMO VACCINE

The next slides discuss a recent decision involving about $5.5bn of funds, a large proportion of which still needs to be raised
The point is to show how difficult it is to enact policy in an efficient way regardless of what the ‘models’ says should be done
The spirit in which it is written is that ‘we can do things better’
Most of the text was added after the talk

GAVI Spending Projections and Cash Balance 2008-2015



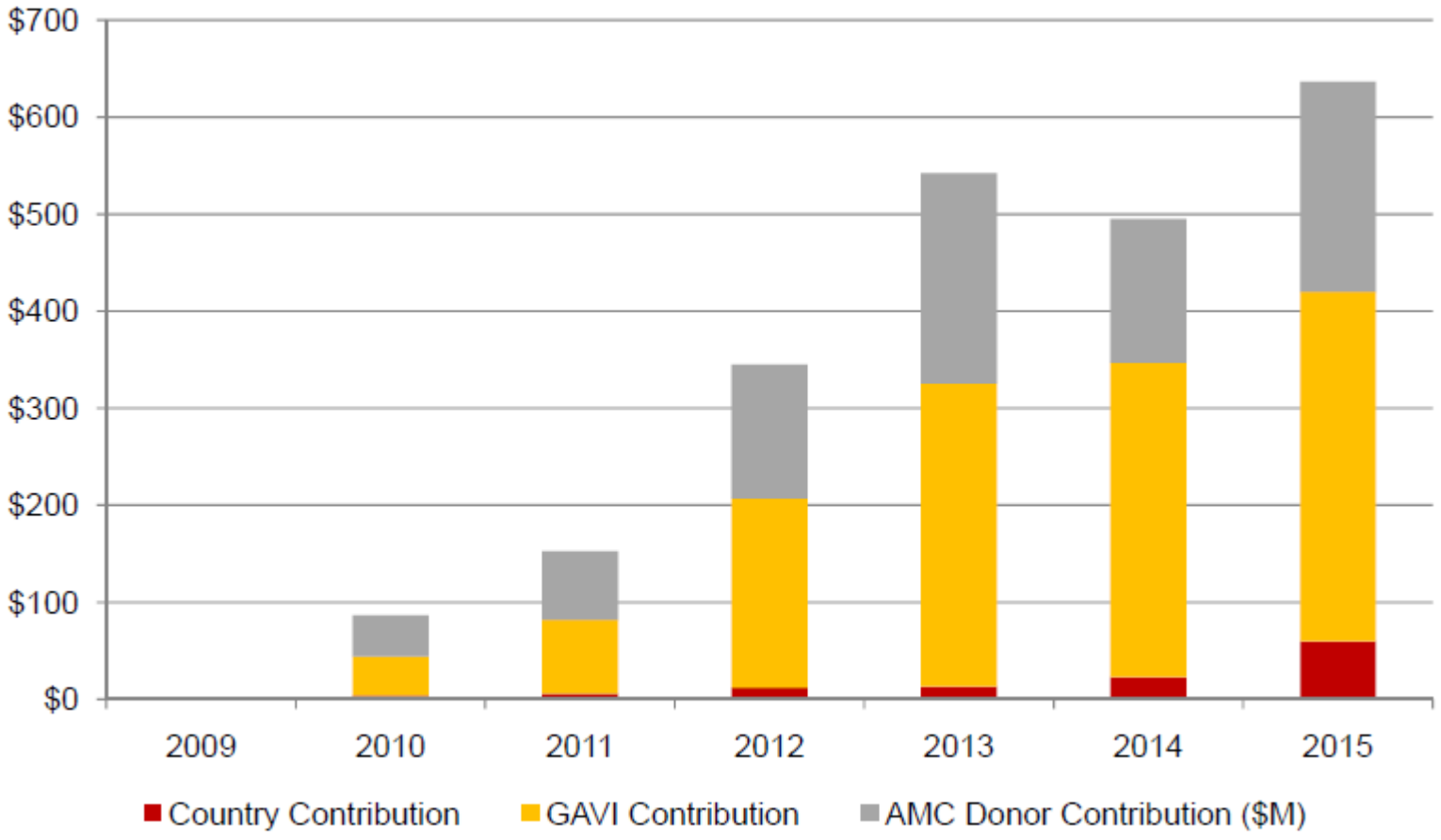
Costs: Maximum contributions

Years	2010	2011	2012	2013	2014	2015	Cumulative ($M)	
							2010-2015	2010-2020
AMC Donor Contribution ($M)	42	70	138	216	148	216	**831**	**1,500**
GAVI Contribution ($M) (no inflation)	40	76	195	313	324	360	**1,308**	**3,381**
Country contribution ($M)	4	6	12	13	23	60	**118**	**667**
Total	**86**	**153**	**345**	**542**	**495**	**637**	**2,257**	**5,548**

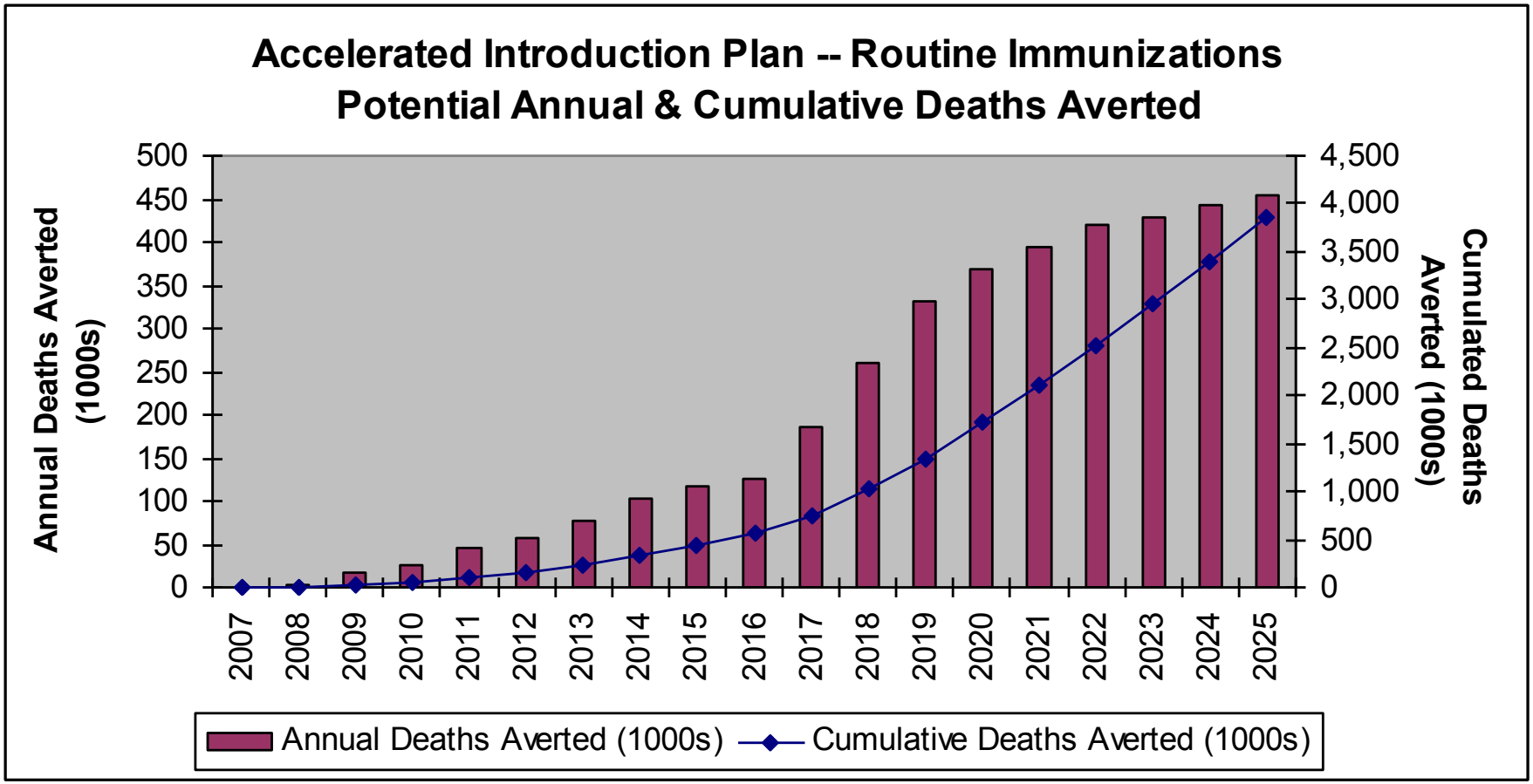
Source: GAVI Alliance & Fund Board meetings 25 & 26 June 2008

- Total costs (bottom right-hand corner) of $5.5bn+
  - AMC $1.5bn
  - GAVI own funds $3.4bn
  - Country contributions (mostly from donor sources) just under $700m

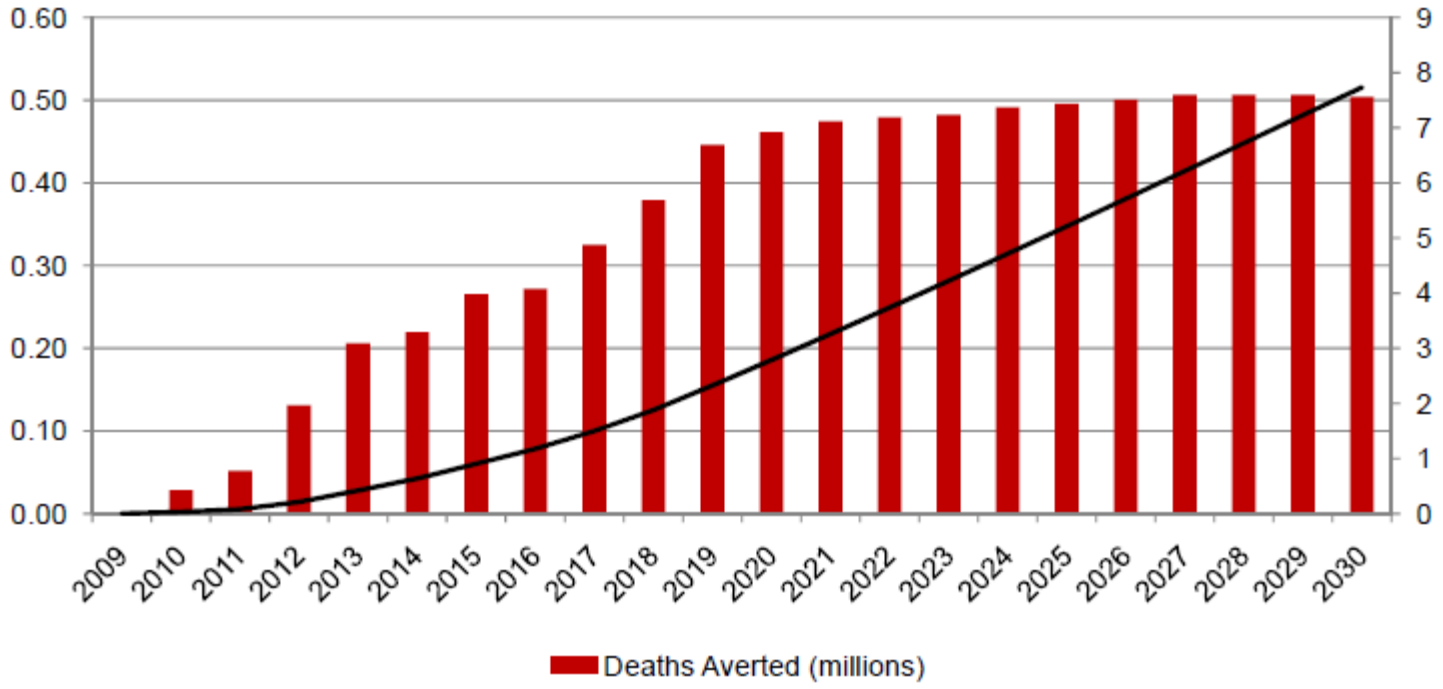
Costs: Maximum contributions cont...



Projected mortality impact from accelerated pneumococcal vaccination



Projected mortality impact from accelerated pneumococcal vaccination



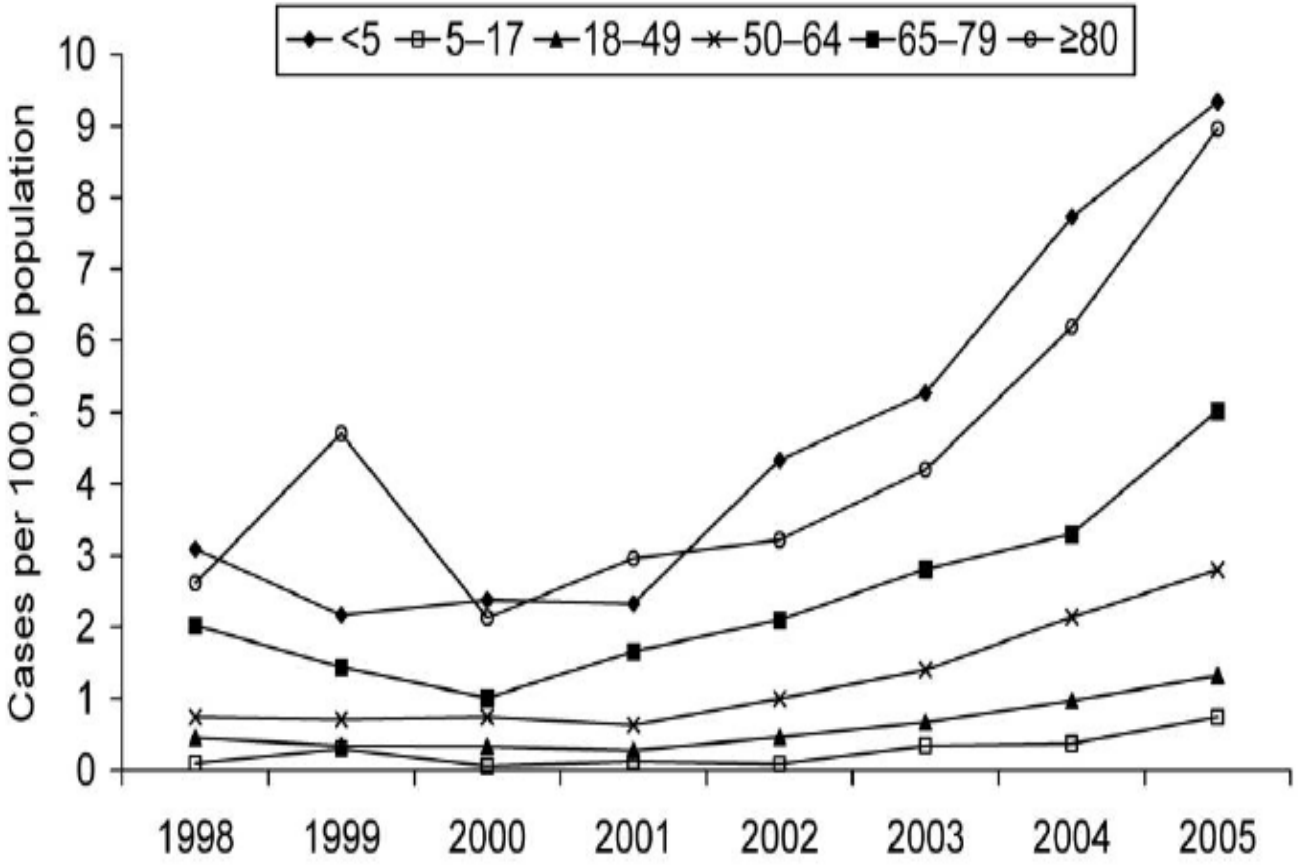
But it is still tough going

- [The following uses only the GAVI financing and mortality figures given above without further comment. Like the GAVI figures, there is no discounting. Base-line mortality taken to be 700,000-1m, most recent WHO figure]
- First $2.25bn associated with about 4.75%-6.8% reduction in pneumococcal mortality 2009-2030
- Next $3.25bn associated with about 28.75%-41.2% reduction in pneumococcal mortality 2009-2030
- Still need to work out how to prevent the other 52%-66% or so of pneumococcal mortality 2009-2030
- The above heavily dependent on long-term low prices: peak years fall after the $5.5 billion has gone
  - 2.8 million lives saved in the period the money is spent (at about [undiscounted] $2000 per life saved)
  - 5.2 million after the $5.5bn spent, out to 2020. Prices must of necessity be a great deal lower in the latter period

But it is still tough going

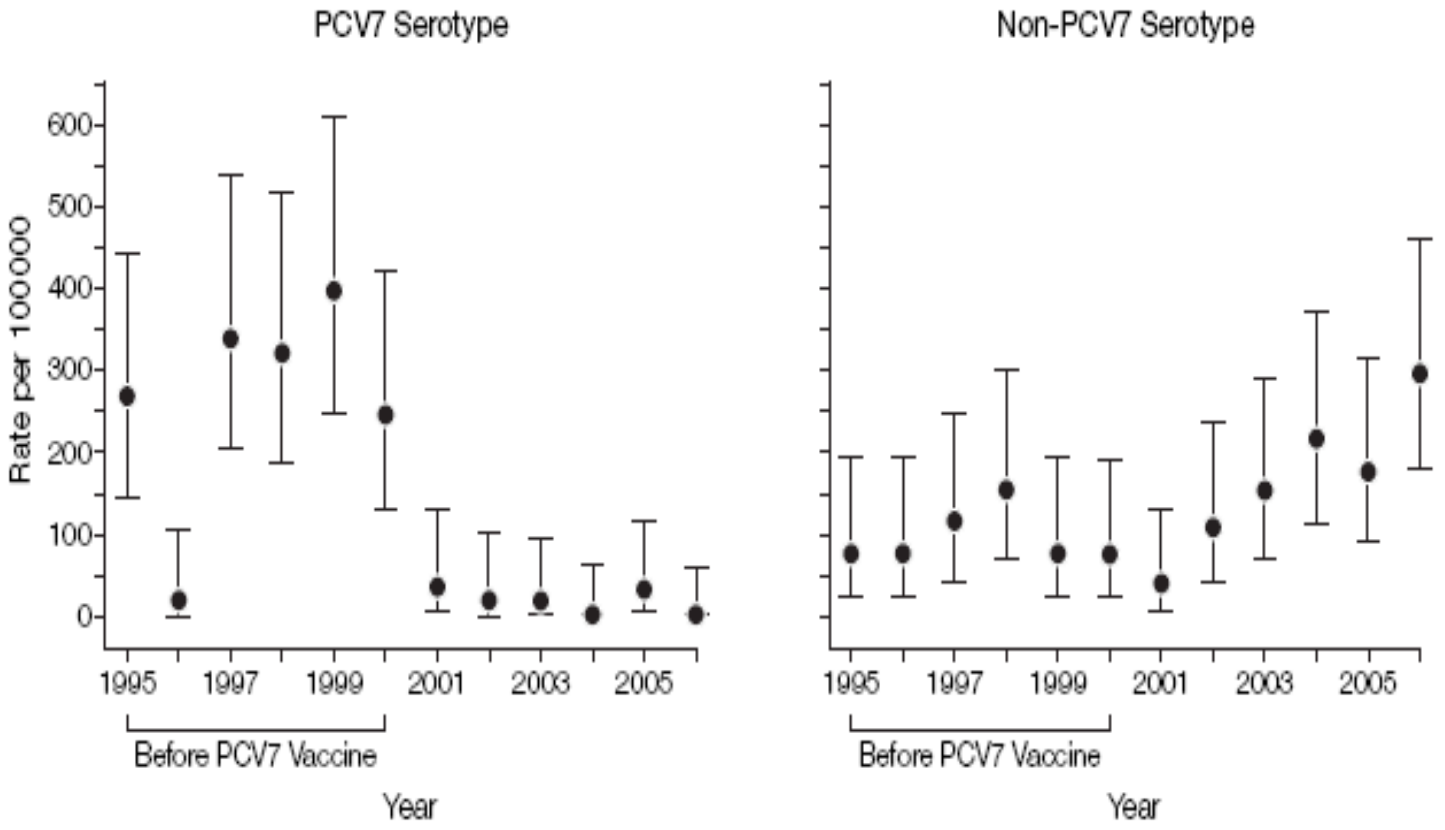
- Follow on vaccines because of serotype issues?
  - Capacity issues?
  - Cost of goods?
  - Long-term success hugely dependent on what happens ten or so year out
  - Protein-based vaccines for example. What is the incentive and funding for them?
- US will need (and buy at good prices) follow-on more-serotype vaccines (see next two slides)
- Costs of sustaining first round GAVI countries?
- Packaging issues in first round GAVI countries
- Needs for big investment in cold chain
- Three-dose schedule (4 in developed economies but evidence coming in is that 3 is OK) and timing of dose matters
- It is still a hugely tough problem

Age-specific incidence of serotype 19A replacement disease in the USA



Moore et al, J Infect Dis 2008;197:1016

Invasive pneumococcal disease among Alaskan Native children <2 yrs of age



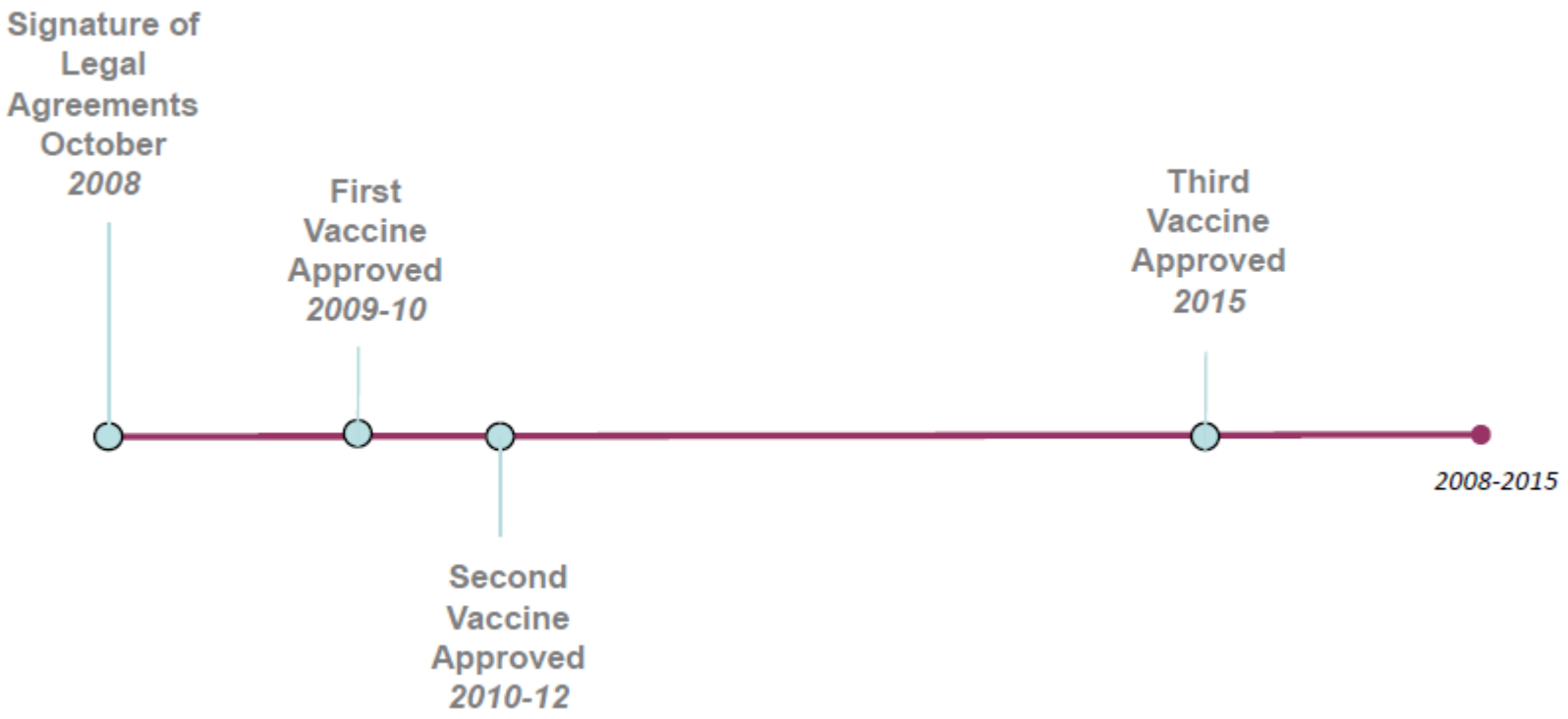
Error bars indicate 95% CI

Singleton et al, JAMA 2007;297:1784

GAVI financing issues

- GAVI and countries putting in about $4bn on top of the pneumococcal AMC up to 2020 (probably more because some of the other budget lines also support this program)
  - This has to come from sponsors too
- Note that not much of the AMC payment is particularly front loaded
  - A lot is in the 2015-2020
  - The payments would be heavily discounted if used as an R&D incentive
- GAVI funding shortfall of $2.5bn out to 2020 on the pneumo program (according to figures above and presuming AMC fully pays out)
- GAVI needs to heavily top up its funding starting 2014
- GAVI also needs all other programs refunding of about $1bn per year
- About $16bn if 2015 levels are sustained during the pneumo program
- There are lots of other potentially competing vaccines on the horizon and a need to think critically how to raise and spend money in this area as efficiently as possible to have as big an impact as possible.
- Affordability? Long-term sustainability?
- Main problems in this case were
  - Not to develop a more universally applicable vaccine in the first place
  - Profit motive drove a string of lower-number serotype vaccines and now we need funding to make up for this
  - Not enough attention to technology to make it cheaper in the long-run
  - Not sufficiently exploit the value of rich-world markets (including for follow-on more-serotype vaccines)

Timeline


Signature of Legal Agreements October 2008
First Vaccine Approved 2009-10
Second Vaccine Approved 2010-12
Third Vaccine Approved 2015
2008-2015

Assessments of GAVI

- http://www.gavialliance.org/resources/6._GAVI_Phase_1_Evaluation___Secretariat_Response.PDF
- "GAVI's vaccine strategy in Phase 1, based on the assumption that creating and demonstrating a market for vaccines in developing countries would attract new suppliers, create competition, and lower prices, did not come to fruition. While GAVI has taken various studies of the vaccine market and the procurement agent function, more should be done to investigate new approaches, since this is a critical component of GAVI's long term mission. **More analysis of the economics of vaccine production and vaccine markets, and development of strategies to create competitive and sustainable vaccine markets is needed."**
- "GAVI should **focus more attention on improving performance in underperforming countries**, working with in-country partners to provide additional support."
- "The Accelerated Development and Introduction of Priority New Vaccines (ADIPs) were effective in compiling data to support new vaccine introduction, and advocating for their use. However, the key weakness of the ADIP model was that it did **not adequately prepare countries for vaccine introduction.**"

Assessments of GAVI

- GAVI allowed countries to set their own priorities for use of ISS funding, but its overall policies governing support to countries strongly promoted adoption of new vaccines**.** GAVI did **not always have strong scientific evidence,** or universal support for all of its strategic policies – such as Hib introduction. As a result, there was a **perception that GAVI pushes new vaccines inappropriately**. GAVI **must ensure that its positions and policies have strong scientific foundations** and widespread support throughout its partner organizations, and must seek additional ways to **allow countries to set priorities for themselves** regarding how to improve its immunization programs, particularly as it embarks on new activities."
- "There has also been criticism that **GAVI has not increased total funding for immunization, merely redirected it to GAVI**."
- "GAVI **should reassess its sustainability definition** and approach to ensure there is broad partner agreement on the importance of sustainability relative to adding new vaccines, and to develop **a long term financing plan for all vaccines**.

GAVI programme spending projections, 2008–2015

	2008	2009	2010	2011	2012	2013	2014	2015
Approved Country Applications	$491	$608	$430	$236	$152	$108	$101	$98
Expected Applications (Penta, HSS, YF)	$0	$158	$184	$194	$229	$208	$109	$100
Rota	$0	$7	$39	$105	$133	$156	$183	$193
Pneumo (GAVI Purchases)	$0	$40	$79	$76	$195	$313	$324	$360
Pneumo (AMC Purchases)	$0	$0	$42	$70	$138	$216	$148	$216
Investment Cases	$21	$124	$70	$90	$90	$99	$62	$64
AVI / WorkPlan / Admin expenses	$120	$137	$137	$140	$148	$152	$156	$161
New Vaccine Strategy - Child mortality	$0	$6	$42	$101	$112	$104	$117	$96
New Vaccine Strategy - Reduced Disease Burden *	$0	$0	$52	$72	$90	$109	$127	$147
Total	$632	$1,079	$1,074	$1,085	$1,288	$1,466	$1,327	$1,436

Source: GAVI Executive Secretary / CEO Report to the Board June 2008

GAVI: New sources of funds

IFFIm Commitments	In local currencies
United Kingdom	£1,380 million
France	€1,239.9 million
Italy	€473.45 million
Spain	€ 189.5 million
Norway	US $ 27 million
Sweden	SEK 276.15 million
South Africa	US $20 million
Brazil	US $20 million*
Total	**approx US$ 5.5 billion****

AMC commitments	US$
Italy	635 million
United Kingdom	485 million
Canada	200 million
Russian Federation	80 million
The Bill & Melinda Gates Foundation	50 million
Norway	50 million
Total	**$1.5 billion**

*In 2006, Brazil announced its intention to join IFFIm with a commitment of US$ 20 million over 20 years. Formalisation of this commitment is pending.
**subject to currency fluctuations

Source: GAVI Executive Secretary / CEO Report to the Board June 2008