



MDGs 4 and 5: What Can HDSS sites contribute?

Don de Savigny

INDEPTH Scientific Advisory Committee





Millennium Development Goals

*“Obstacles -
are those frightful things you see when you take
your eyes off your goal”*

Henry Ford



MDG 4

Reduce 1990 under-five mortality by 66%
by 2015

MDG 5

Reduce 1990 maternal mortality by 75%
by 2015



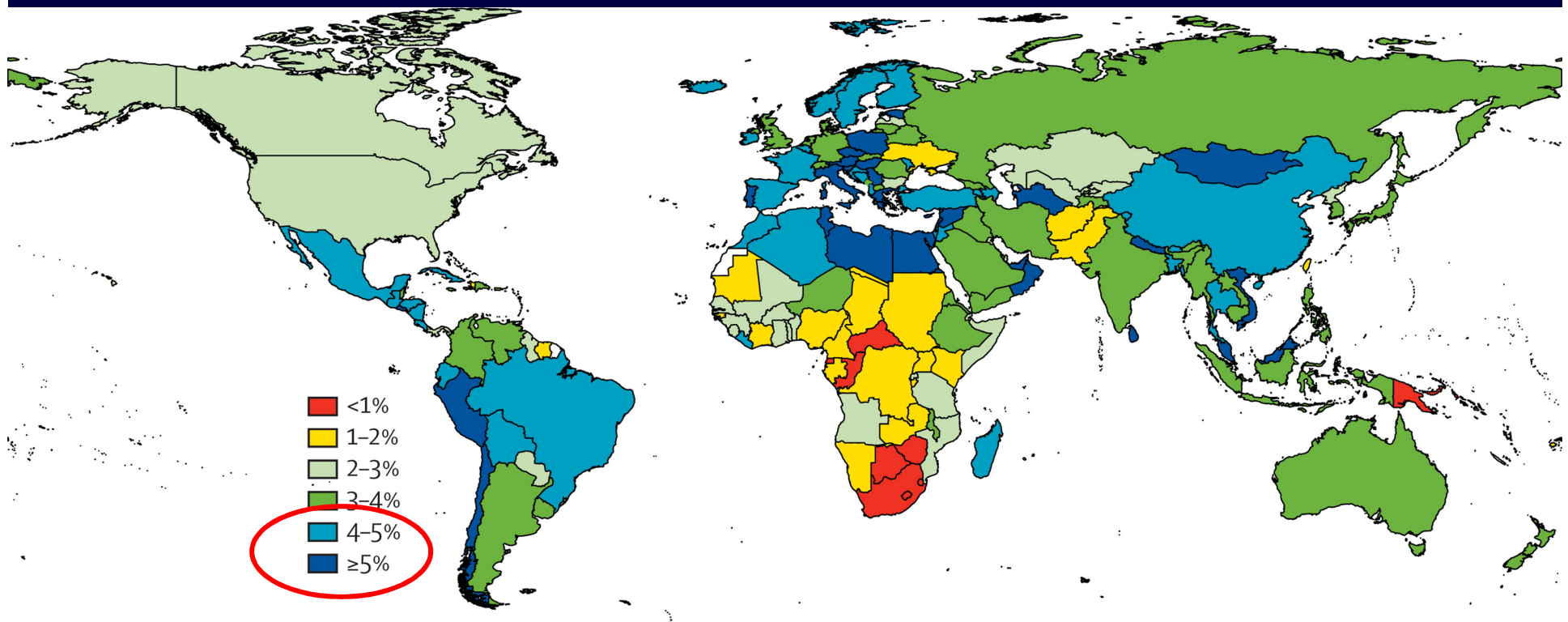
MDG 4

How are we doing?

In countries with INDEPTH Sites



Under-five mortality decline progress



Countries need 4.4% annual declines to achieve MDG4

Rajaratnam et al. Lancet 375: 1988-2008 (2010)



Can we achieve Millennium Development Goal 4? New analysis of country trends and forecasts of under-5 mortality to 2015

Christopher J L Murray, Thomas Laakso, Kenji Shibuya, Kenneth Hill, Alan D Lopez

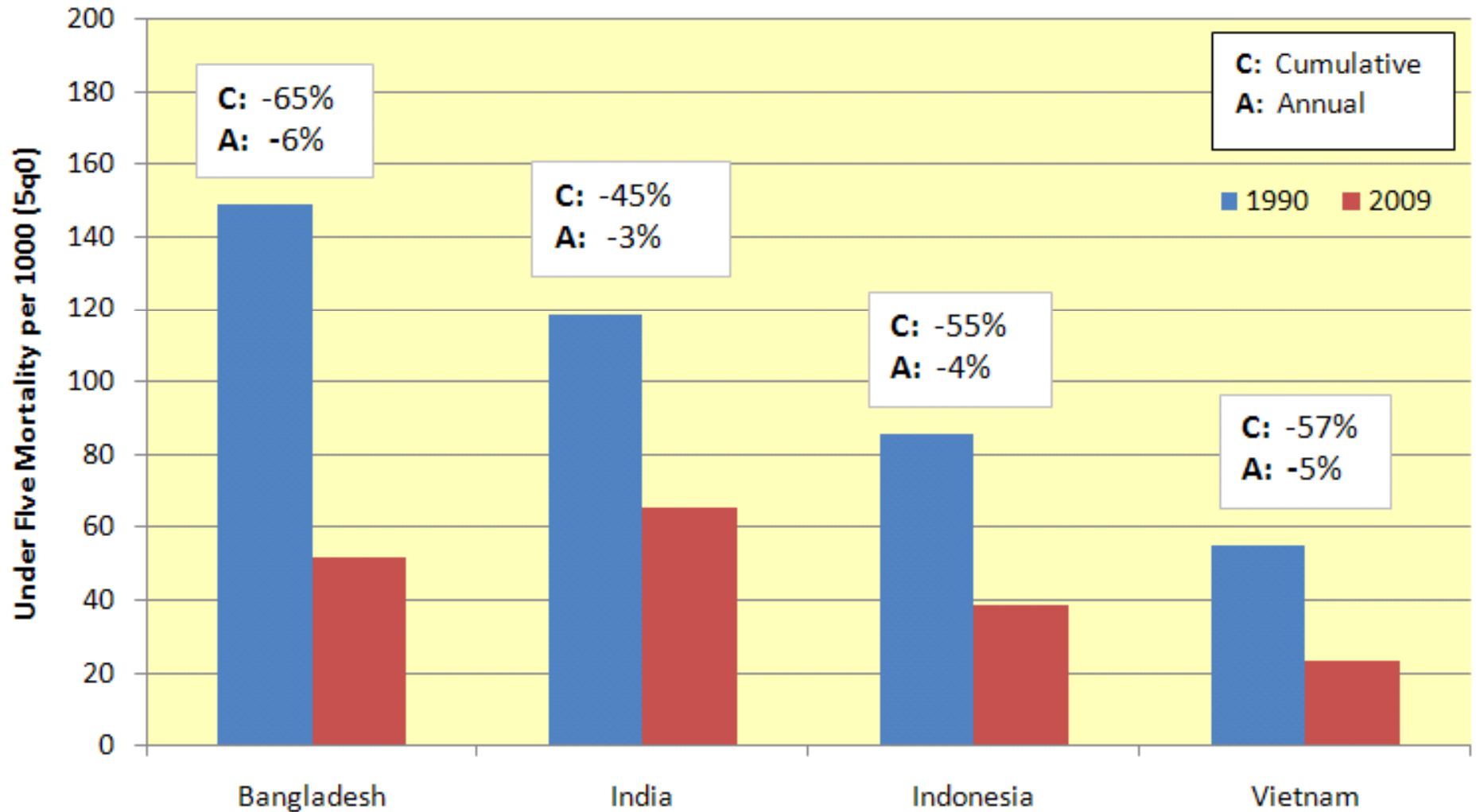
Lancet 2007; 370: 1040-54

"Prediction is very difficult,
especially about the future"

Niels Bohr

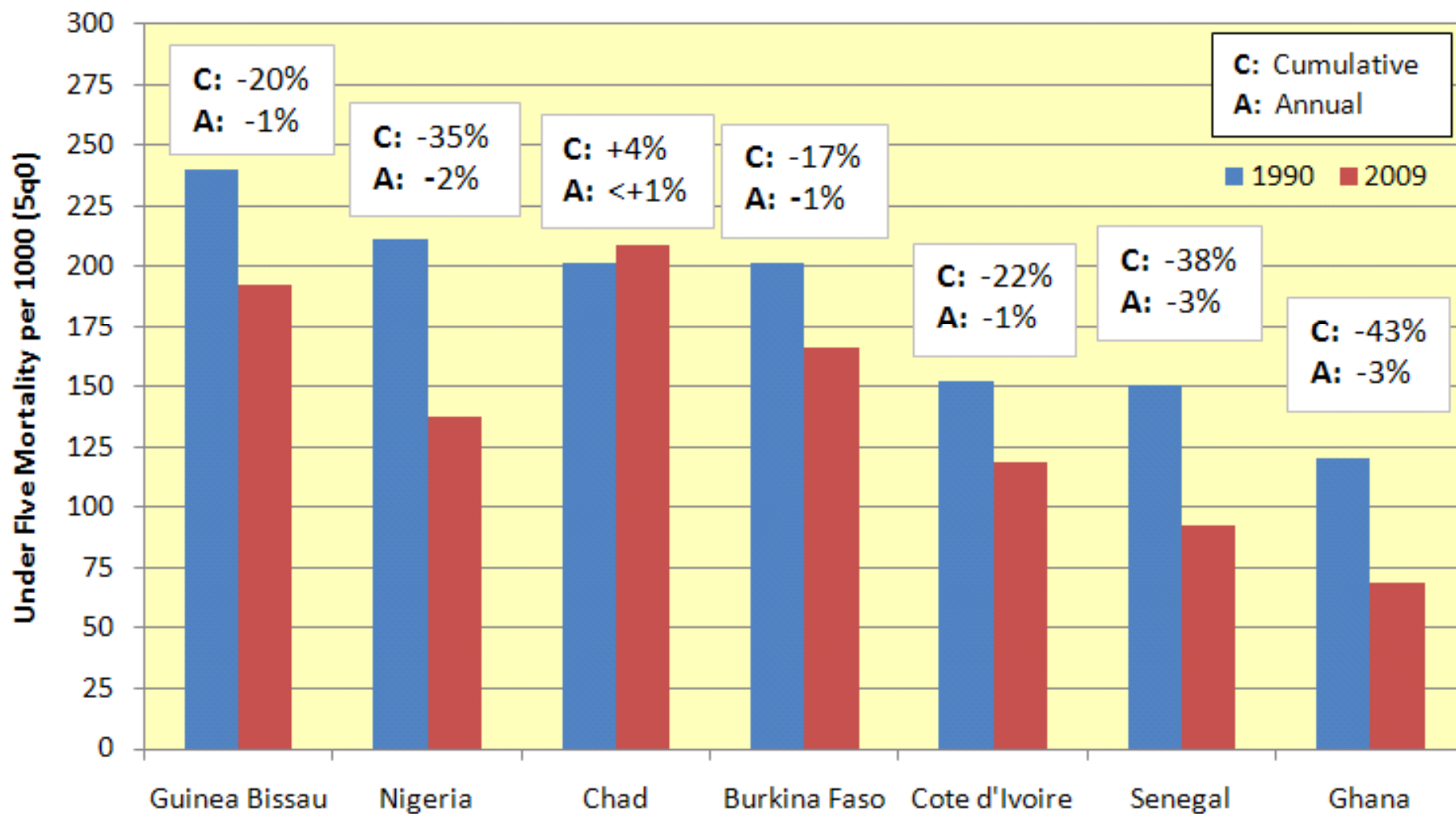
Country	Probability of achieving MDG 4
Vietnam	84.00%
Indonesia	50.00%
Bangladesh	43.00%
Malawi	19.00%
Ethiopia	5.00%
Mozambique	4.00%
Burkina Faso	0.00%
Chad	0.00%
Cote d'Ivoire	0.00%
Ghana	0.00%
Guinea Bissau	0.00%
India	0.00%
Kenya	0.00%
Nigeria	0.00%
Papua New Guinea	0.00%
Senegal	0.00%
South Africa	0.00%
Tanzania	0.00%
Uganda	0.00%
Zambia	0.00%

MDG 4 Progress in Asia



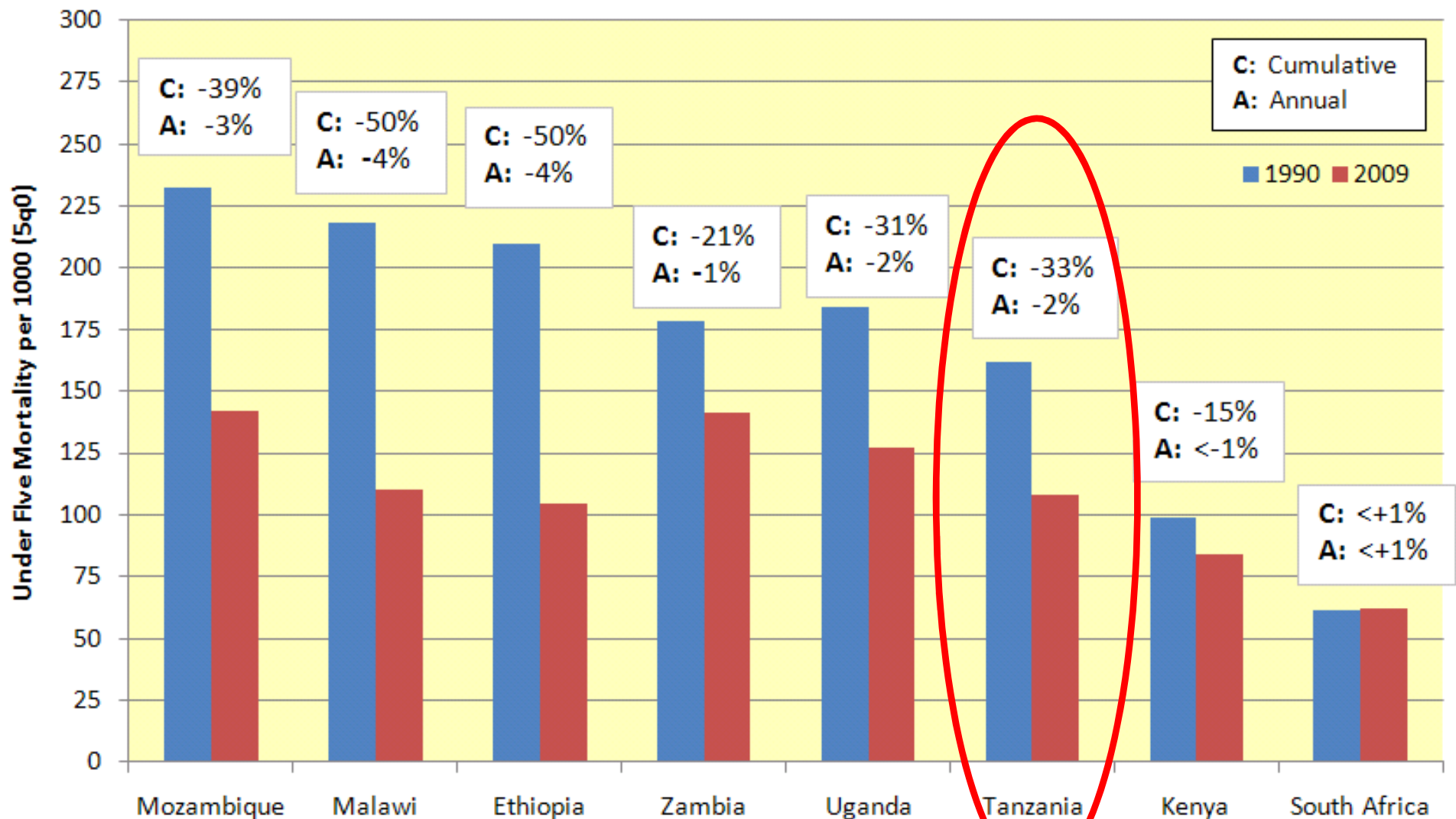
Data source: Calculated from UN Inter-agency Group on Child Mortality Estimation Sept 16, 2010

MDG 4 Progress in Western & Central Africa



Data source: Calculated from UN Inter-agency Group on Child Mortality Estimation Sept 16, 2010

MDG 4 Progress in East & Southern Africa



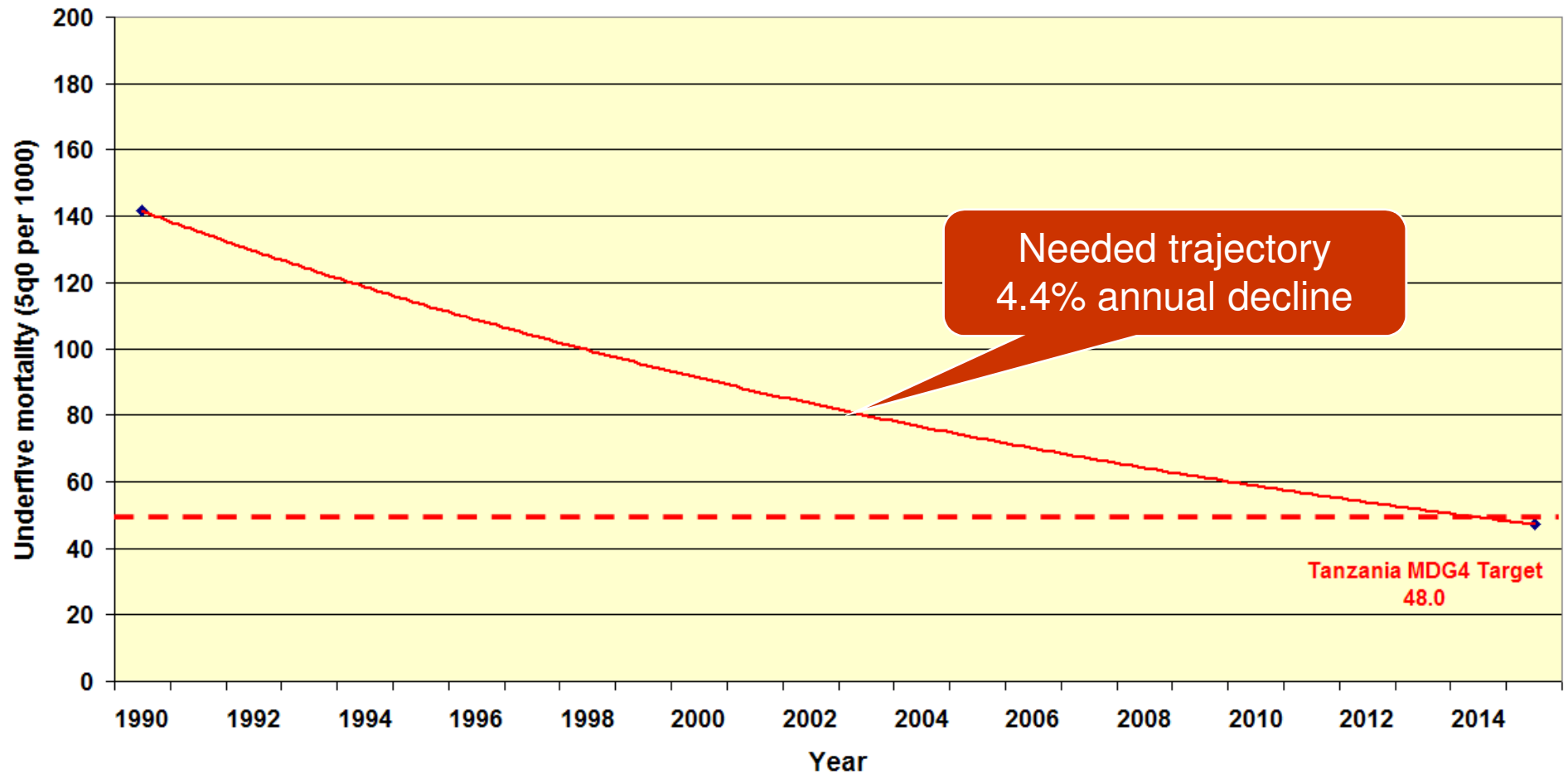
Data source: Calculated from UN Inter-agency Group on Child Mortality Estimation Sept 16, 2010



What does this mean for a typical high mortality INDEPTH country?

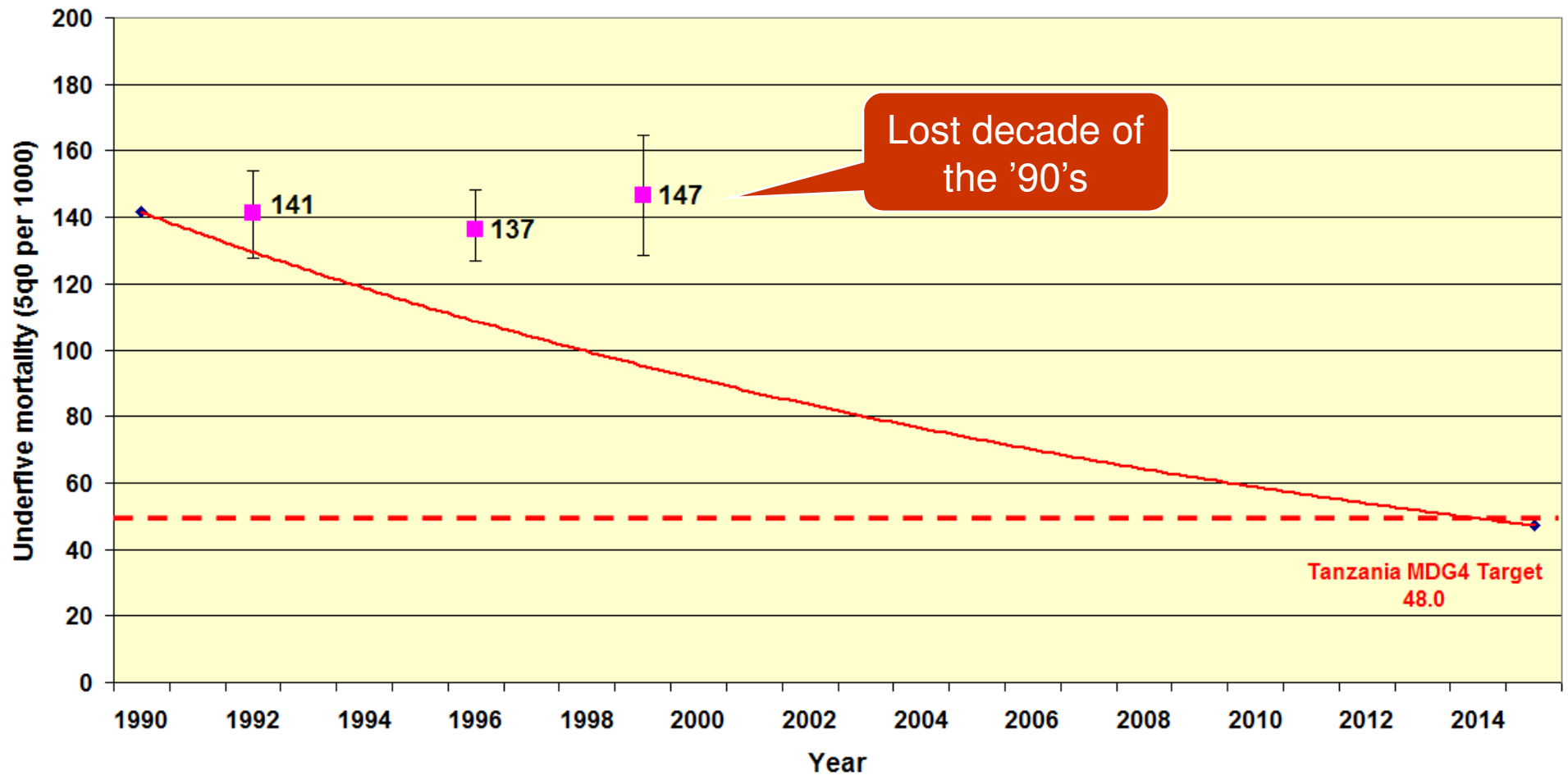
Example: Tanzania

Tanzania national MDG 4 Progress?



Tanzania national MDG 4 Progress?

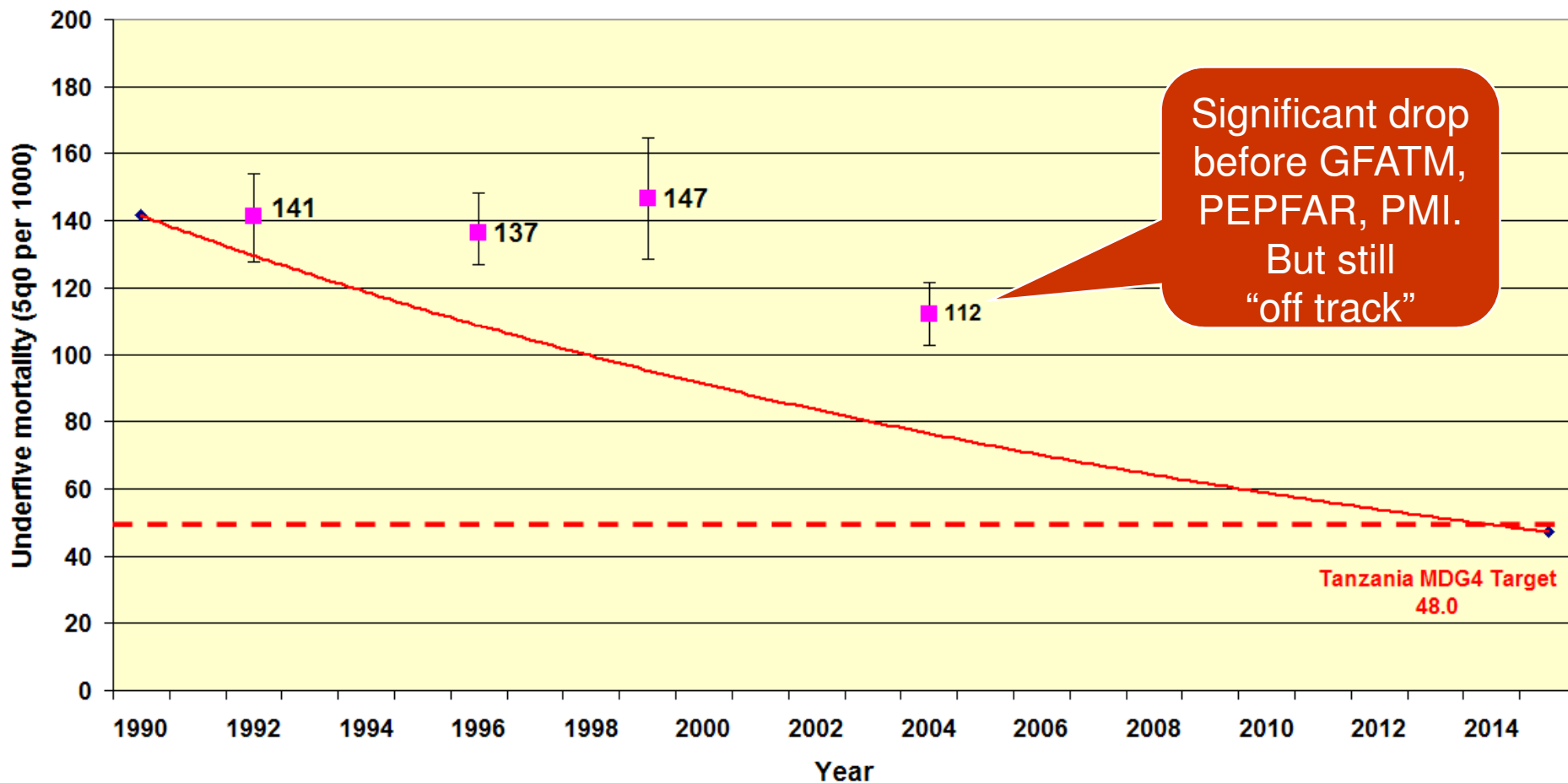
DHS data 1992 to 1999



Source data: Tanzania DHS 1992, 1996, 1999, Tanzania National Bureau of Statistics & ORC Macro.

Tanzania national MDG 4 Progress?

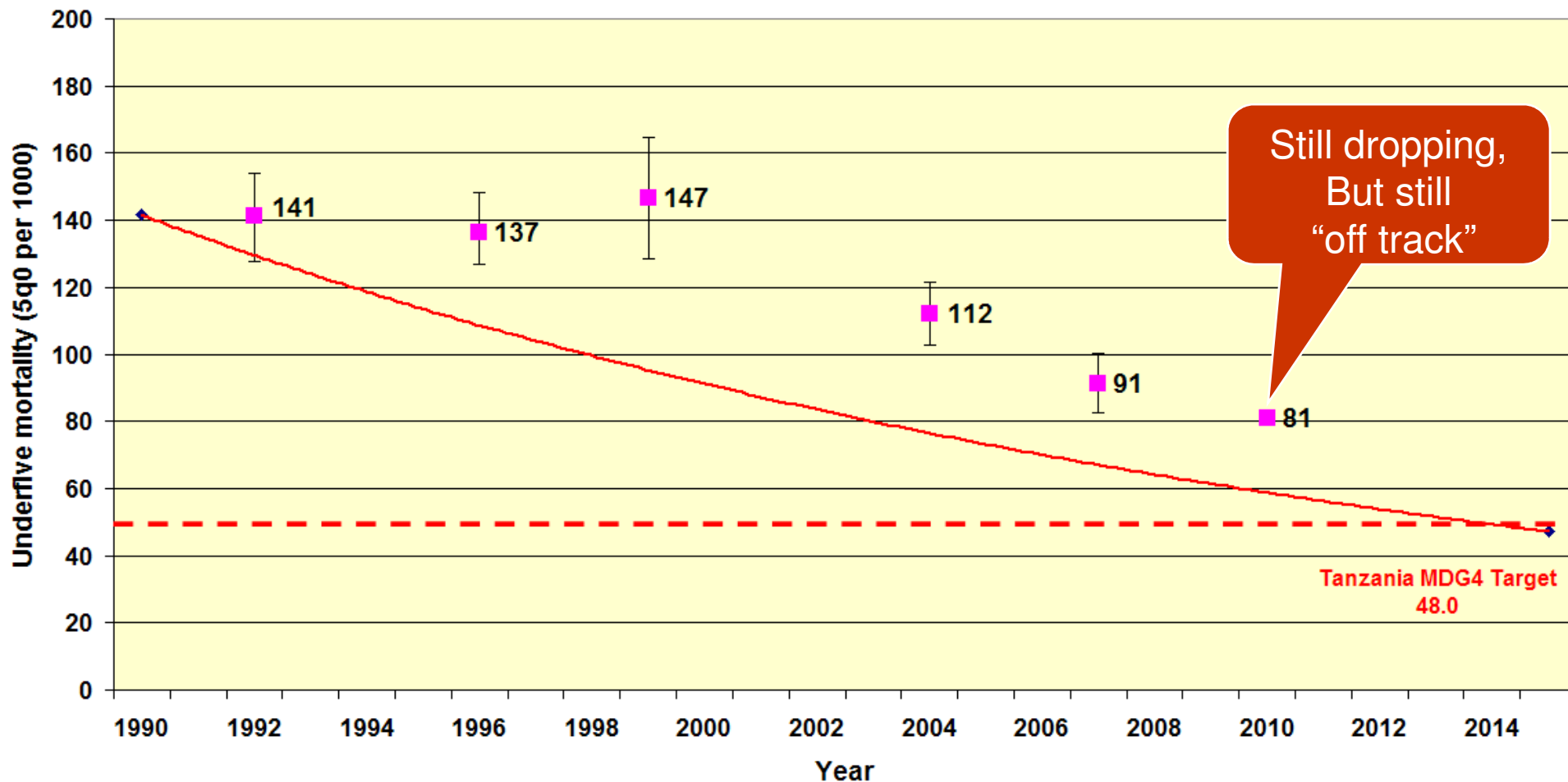
Four DHS surveys 1992 to 2004



Source data: Tanzania DHS 1992, 1996, 1999, 2004, Tanzania National Bureau of Statistics & Macro International.

Tanzania national MDG 4 Progress?

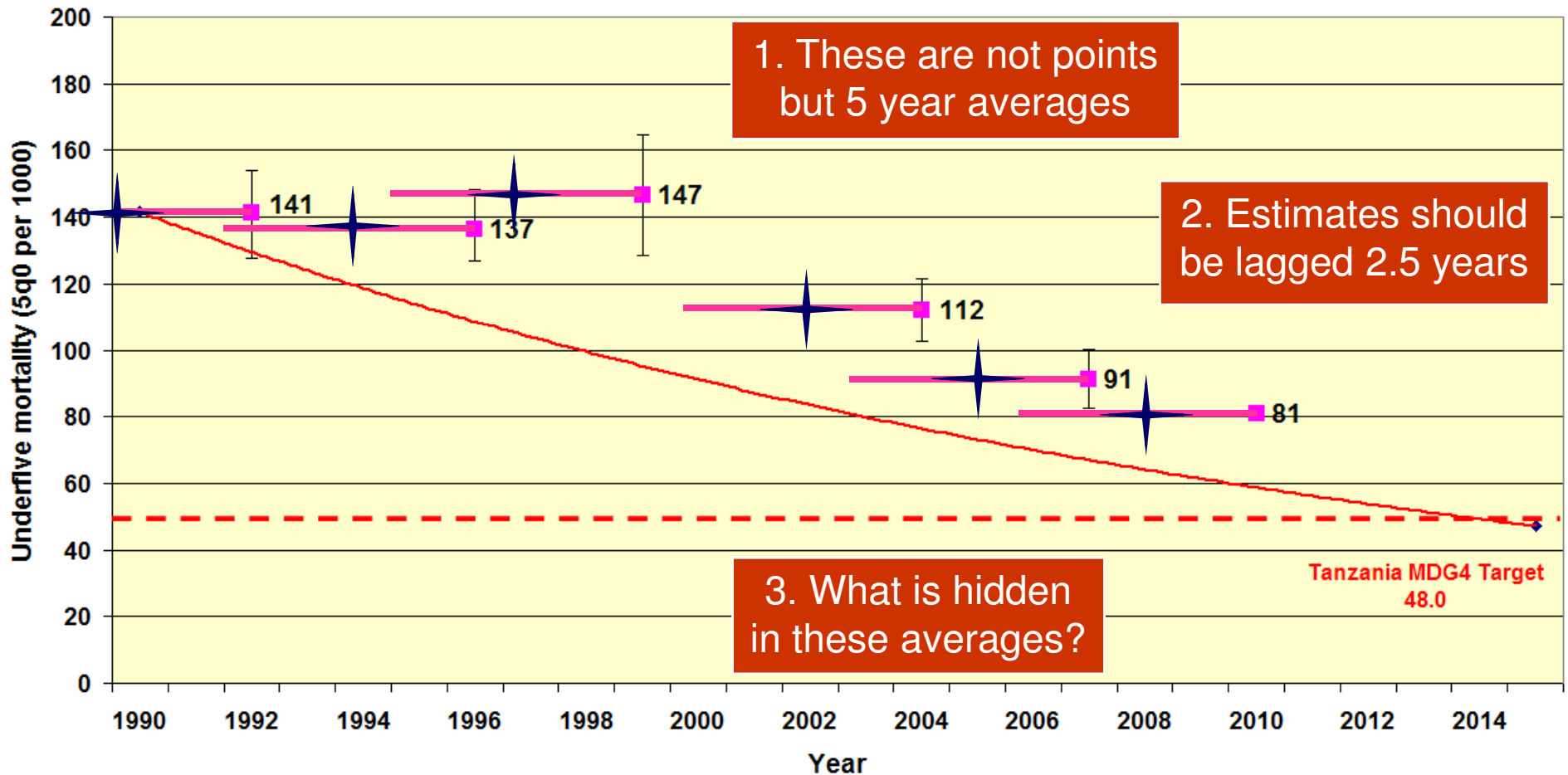
Six DHS Surveys 1992 to 2010



Source data: Tanzania DHS All Surveys, Tanzania National Bureau of Statistics & Macro International.

TZ Under five mortality 1990-2010

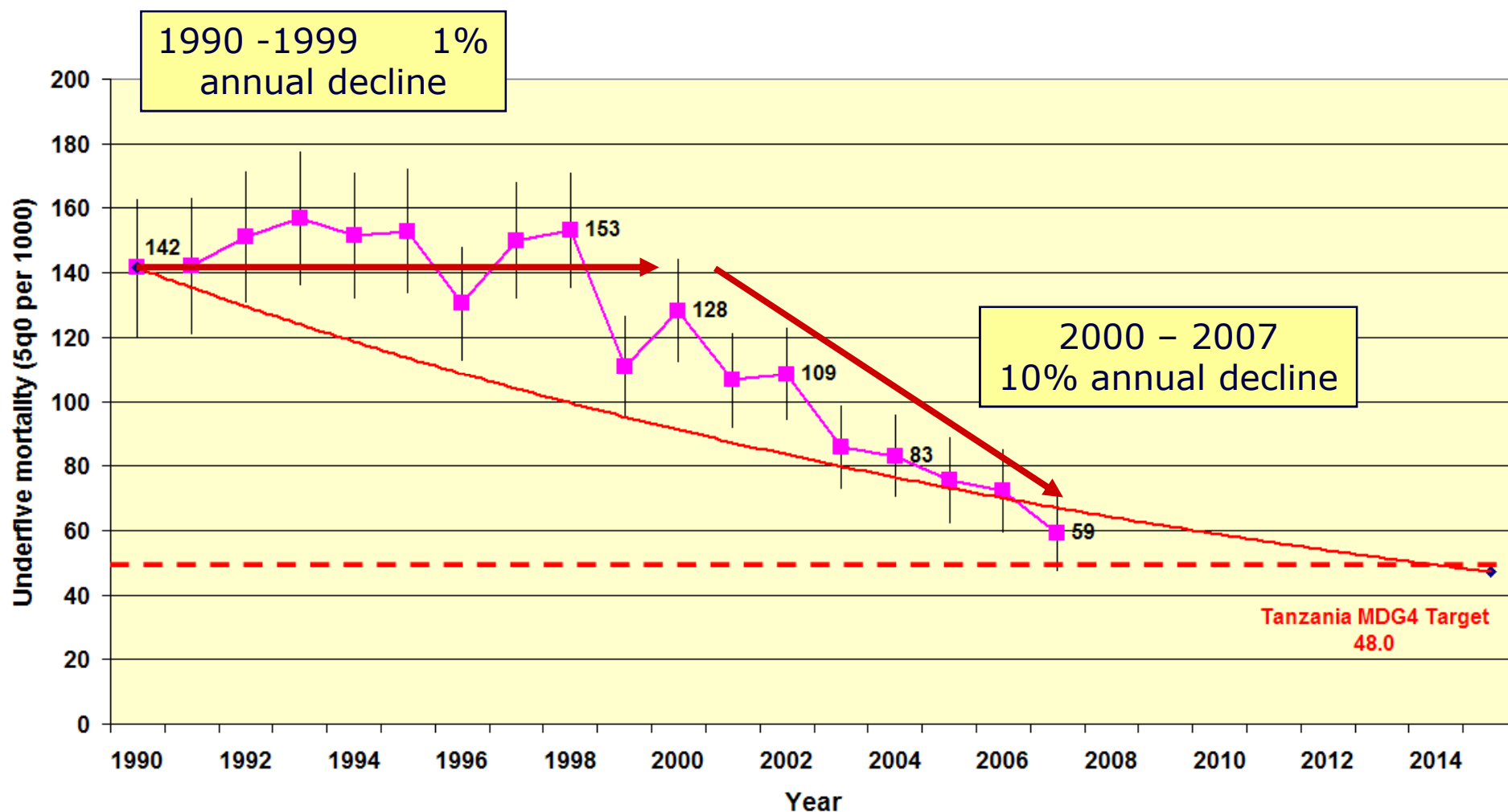
Three things not normally considered



Source data: Tanzania DHS All Surveys, Tanzania National Bureau of Statistics & Macro International.

Under five mortality 1990-2010

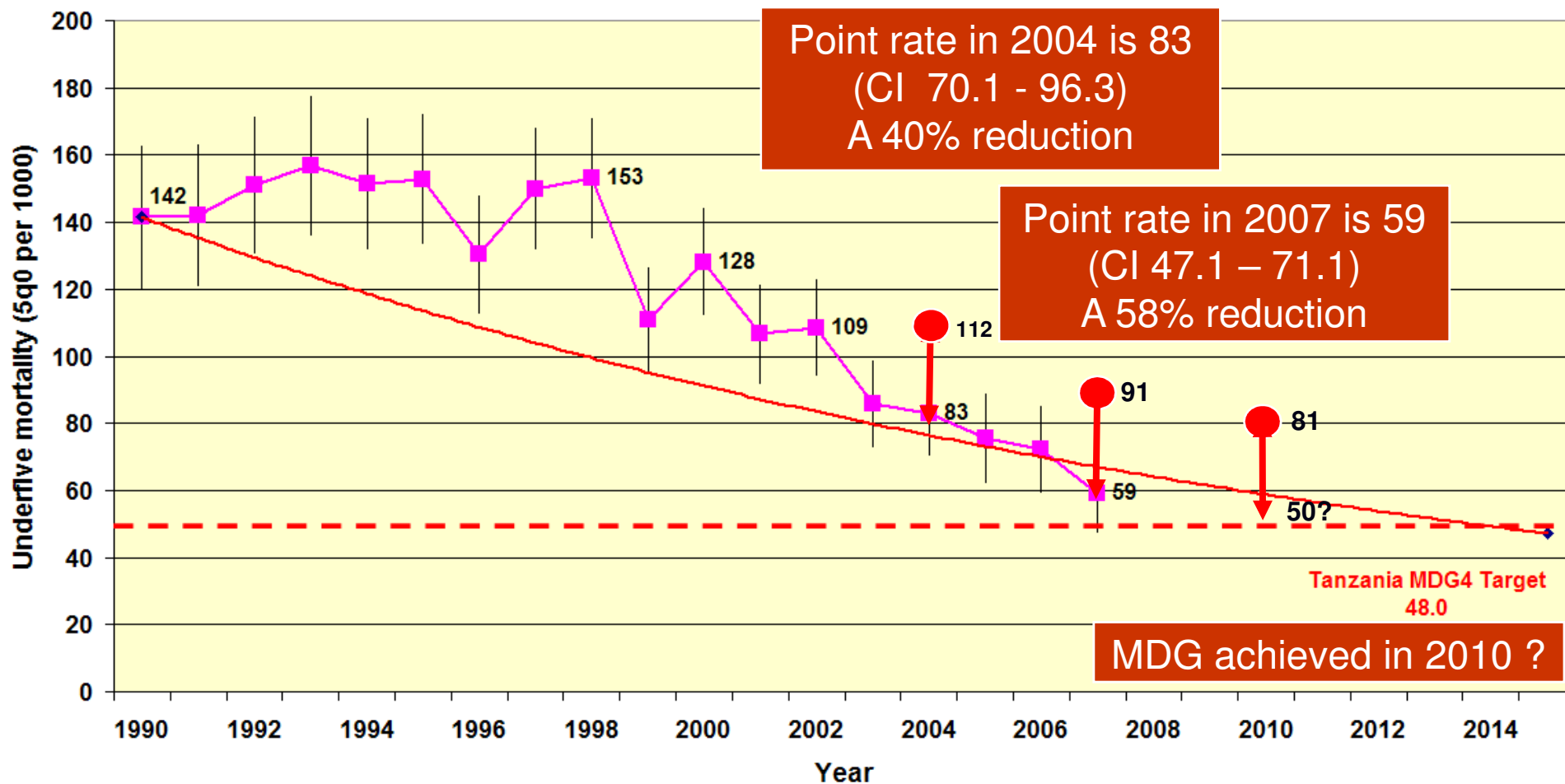
Accelerating & back on track



Source data: Tanzania DHS 2004, Tanzania MIS 2008, Tanzania National Bureau of Statistics & Macro International.

TZ under five mortality

Unpacking the 2004 & 2008 DHS by year

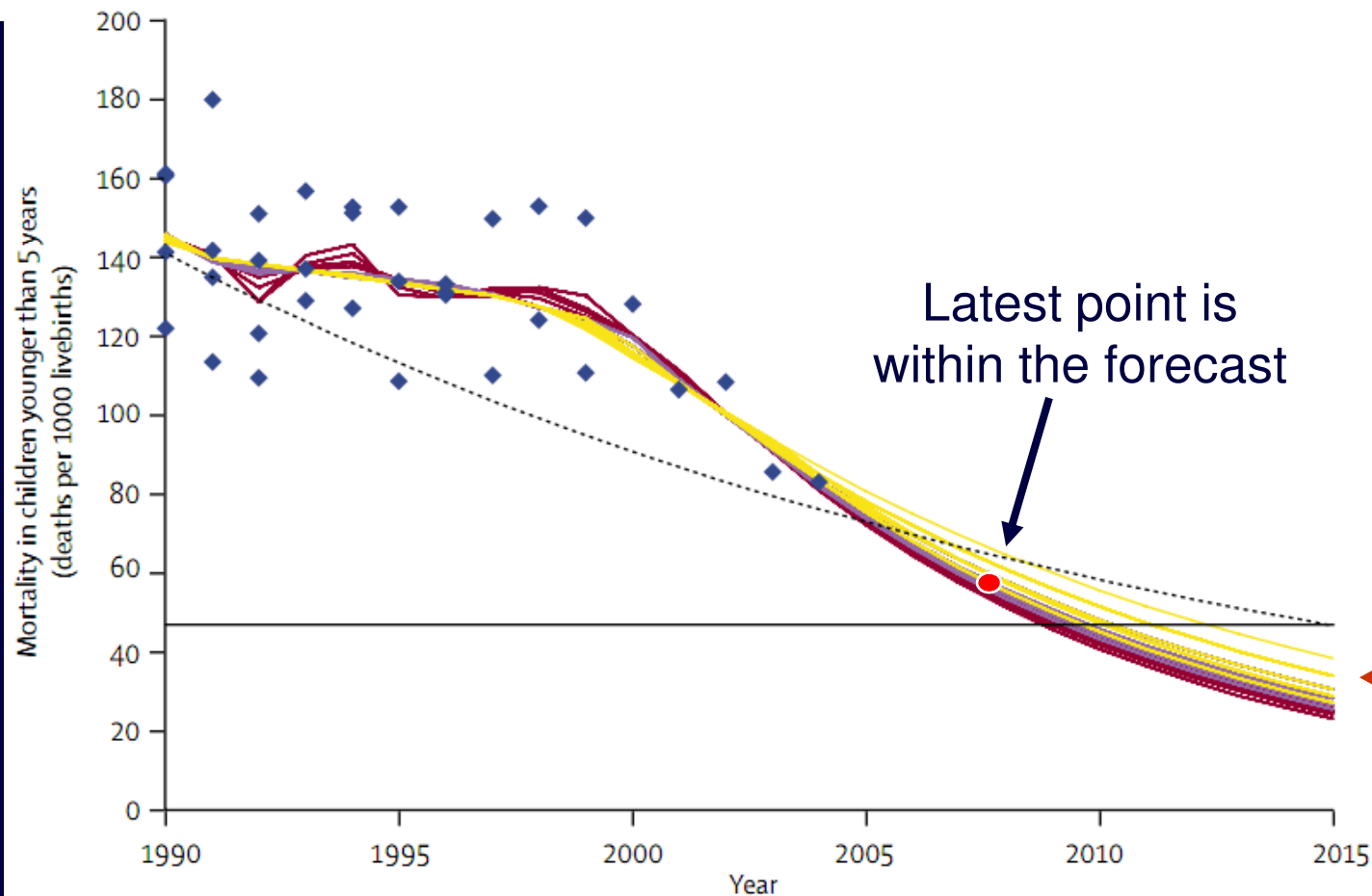


Source data: Tanzania DHS 2004, Tanzania AIDS & Malaria Indicator Survey 2008, Tanzania DHS 2010, Tanzania National Bureau of Statistics & Macro International.

Child survival gains in Tanzania: analysis of data from demographic and health surveys

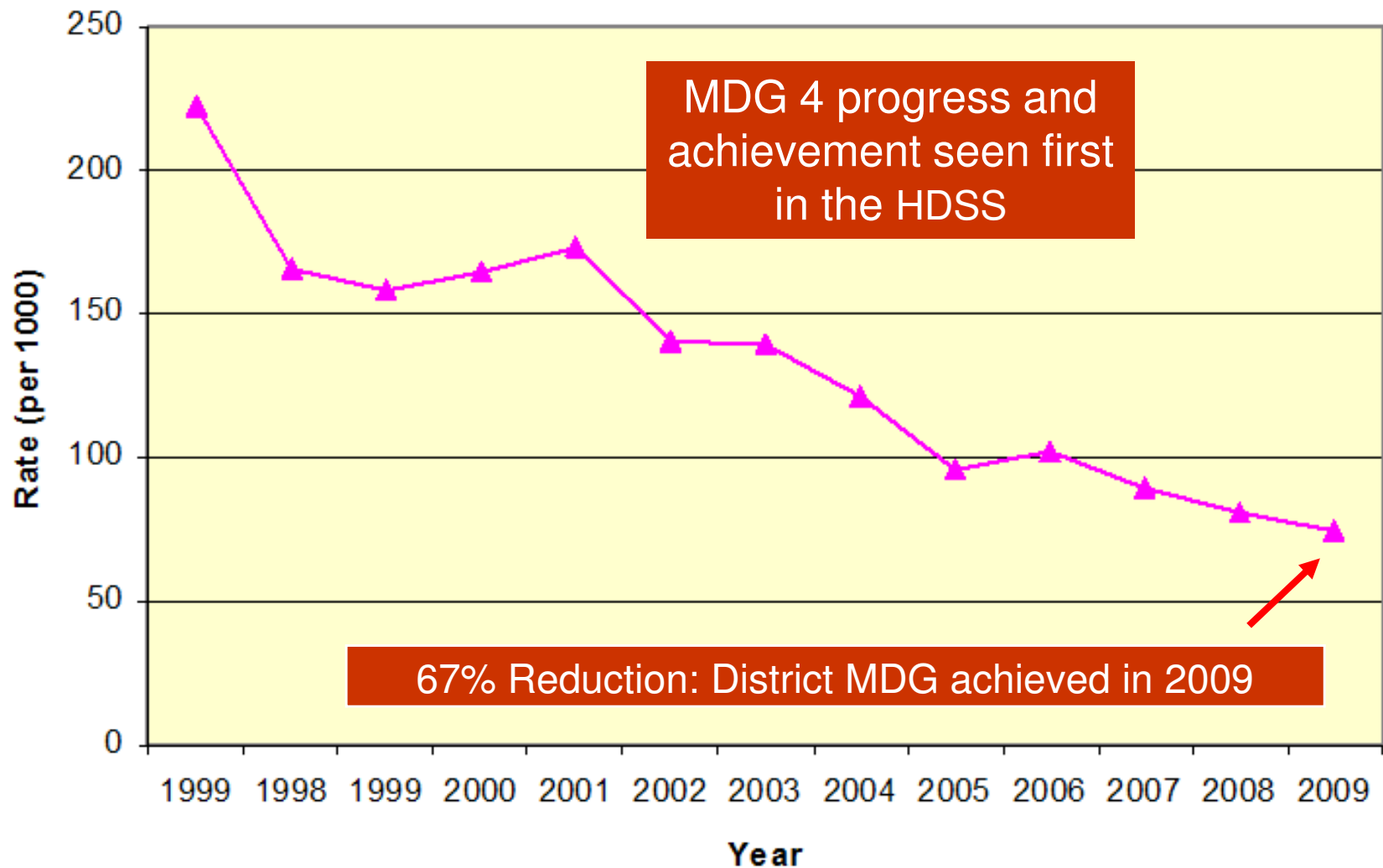
Honorati Masanja, Don de Savigny, Paul Smithson, Joanna Schellenberg, Theopista John, Conrad Mbuya, Gabriel Upunda, Ties Boerma, Cesar Victora, Tom Smith, Hassan Mshinda

Lancet 2007; 370: 1040-54





Under-five mortality Navrongo HDSS





Neonatal, postneonatal, childhood, and under-5 mortality for 187 countries, 1970–2010: a systematic analysis of progress towards Millennium Development Goal 4

Julie Knoll Rajaratnam, Jake R Marcus, Abraham D Flaxman, Haidong Wang, Alison Levin-Rector, Laura Dwyer, Megan Costa, Alan D Lopez, Christopher J L Murray

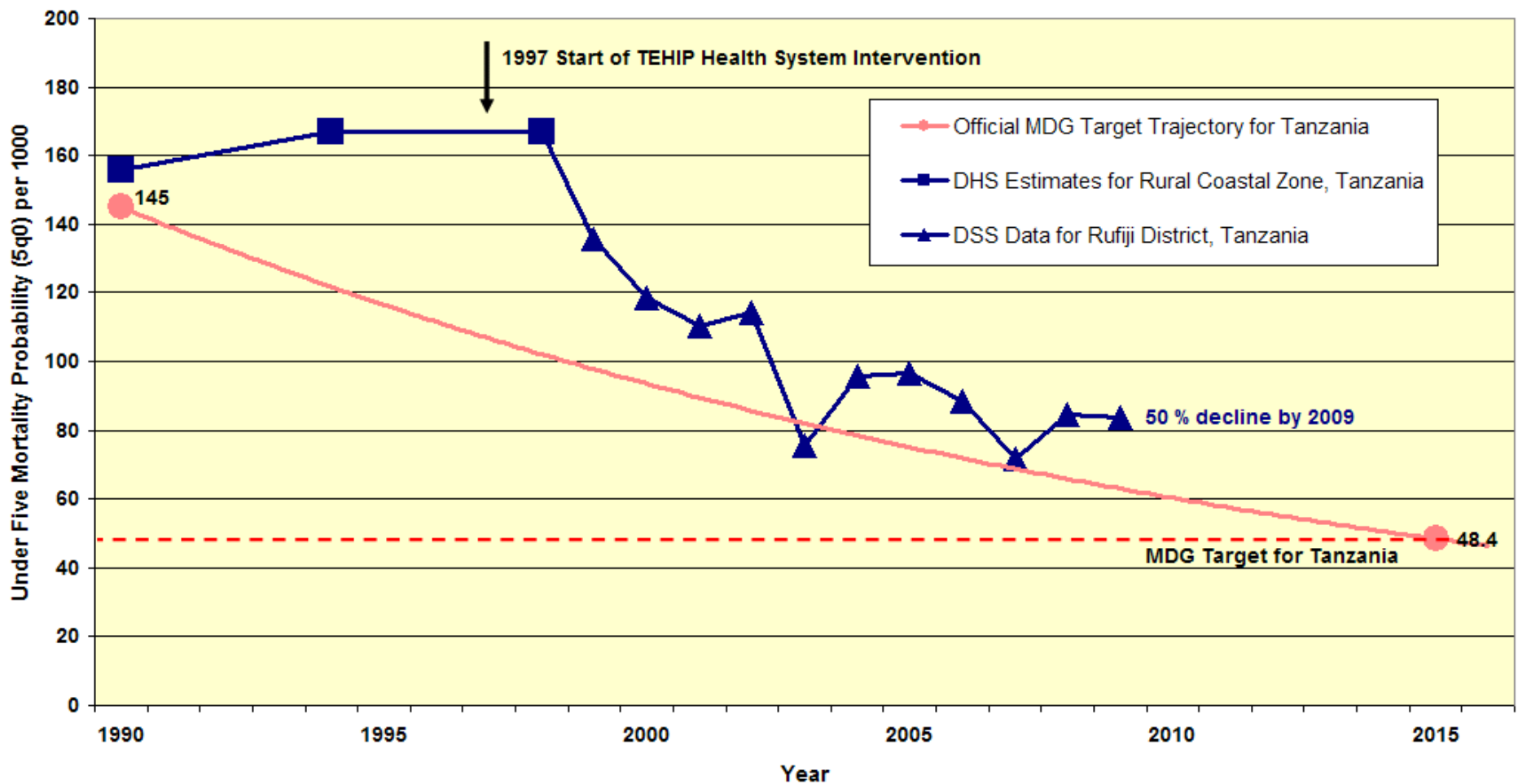
Lancet 2010; 375: 1988–2008

“There is compelling evidence that several low-income countries in sub-Saharan Africa are experiencing an accelerated decline in child mortality.

Our descriptive analysis does not explain this. ”

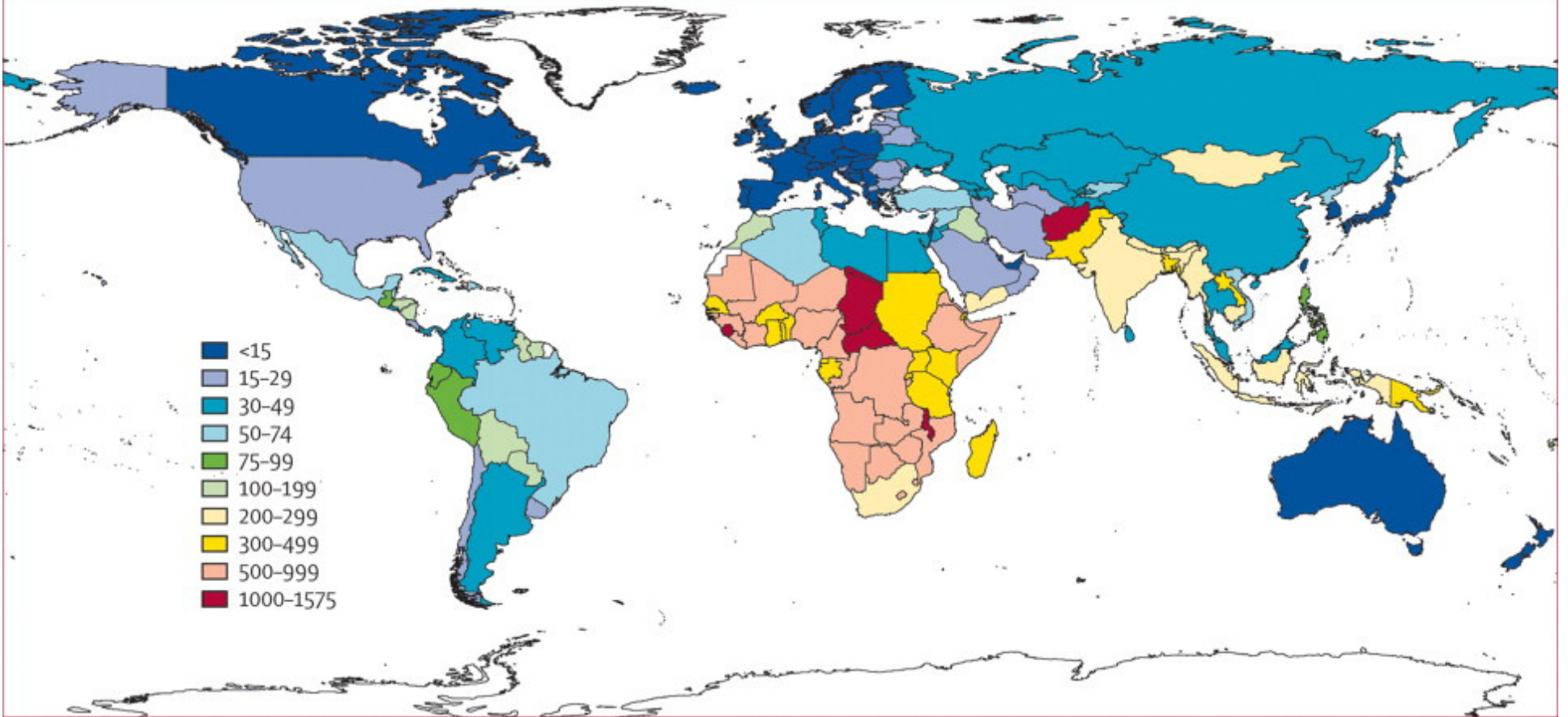


What a remote rural DSS shows





MDG 5 Maternal Mortality 2010

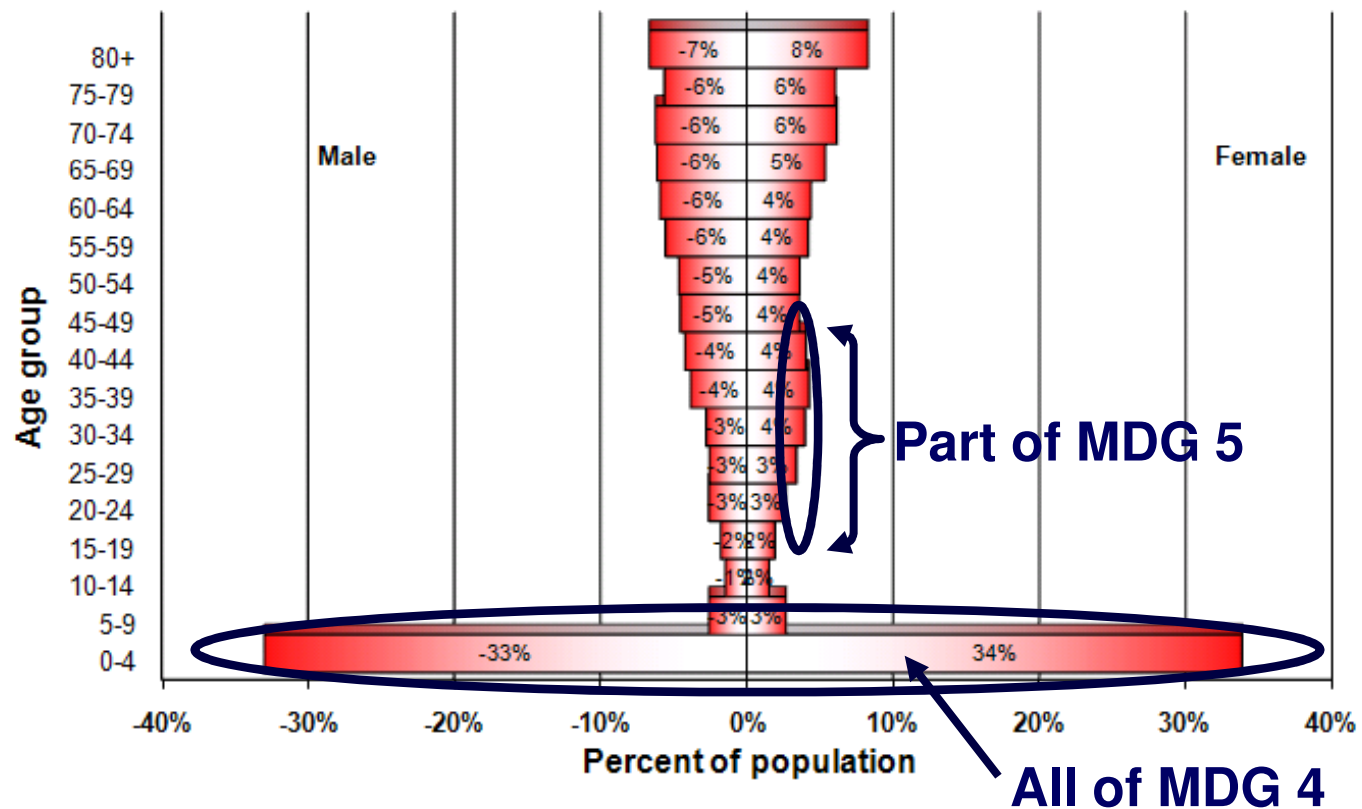


Hogan et al. Lancet 375: 1609-1623 (2010)



Maternal mortality: A huge measurement challenge

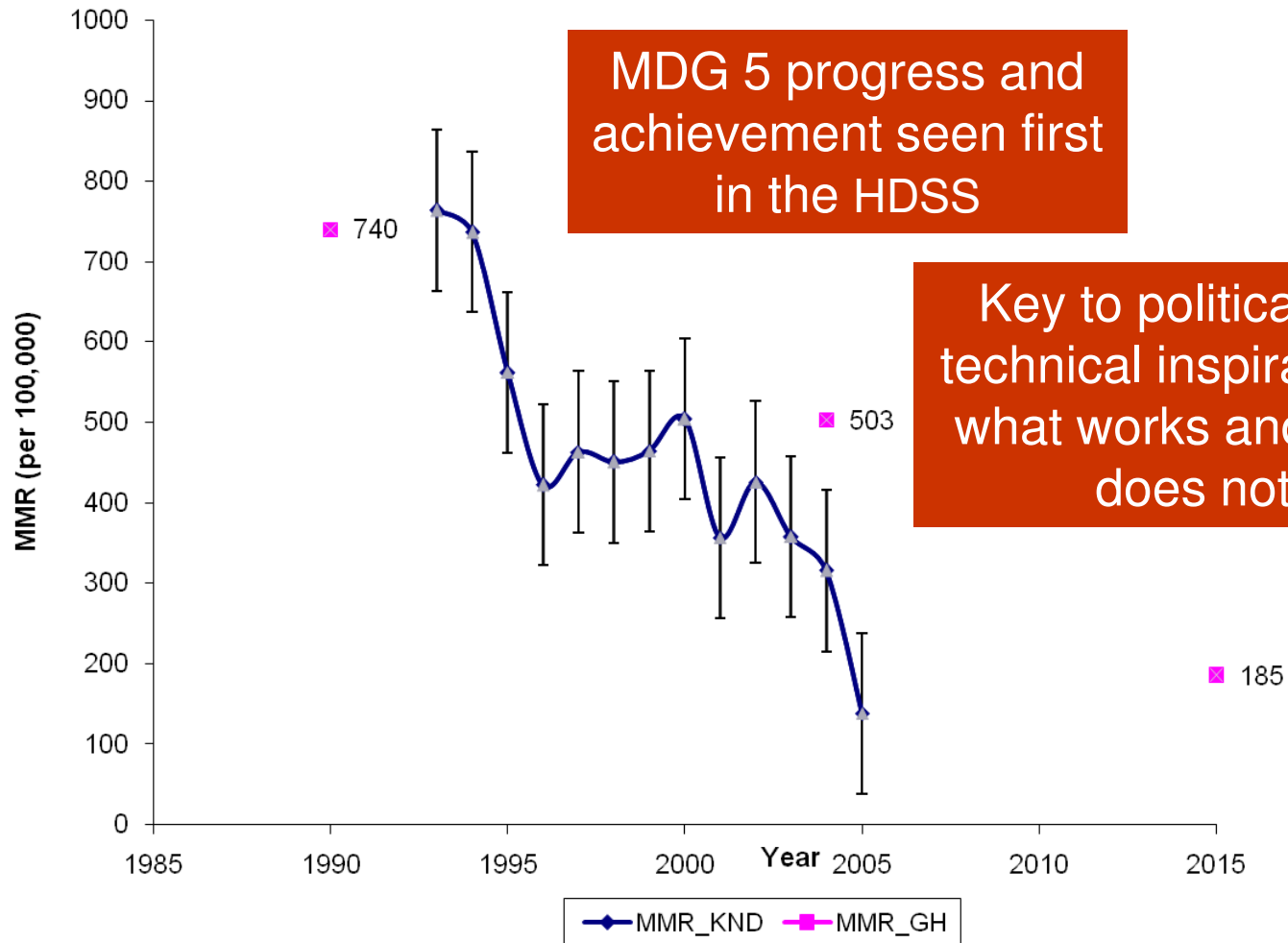
Distribution of deaths for Ghana





HDSS tracking of District MDG 5

Trends in Maternal Mortality, Ghana and Kassena-Nankana District Compared, 1990-2015



MDG 5 progress and achievement seen first in the HDSS

Key to political and technical inspiration of what works and what does not



MDG 5 & maternal mortality

- Patchy and uncertain / unknown progress
- HDSS (and DHS) under-powered to detect annual trends in maternal mortality, but can show plausible trends within five year periods
- HDSS could do a better job now of:
 - registering pregnancies, documenting obstetric care, and
 - explaining determinants of each maternal death -- steering:
 - health system change
 - population behaviour change



"The trouble with our times is that the future is not what it used to be."

Paul Valery

Telling the future by looking at the past (DHS) assumes that conditions remain constant. This is like driving a car by looking in the rearview mirror.

With prospective surveillance in HDSS we can do better.

What about SRS with VA?



What can INDEPTH HDSS sites do for MDGs?

STUDY DESIGN ARTICLE

COACTION
PUBLISHING

Monitoring the millennium development goals: the potential role of the INDEPTH Network

Martin Bangha, Alioune Diagne, Ayaga Bawah and
Osman Sankoh*

INDEPTH Network, Accra, Ghana

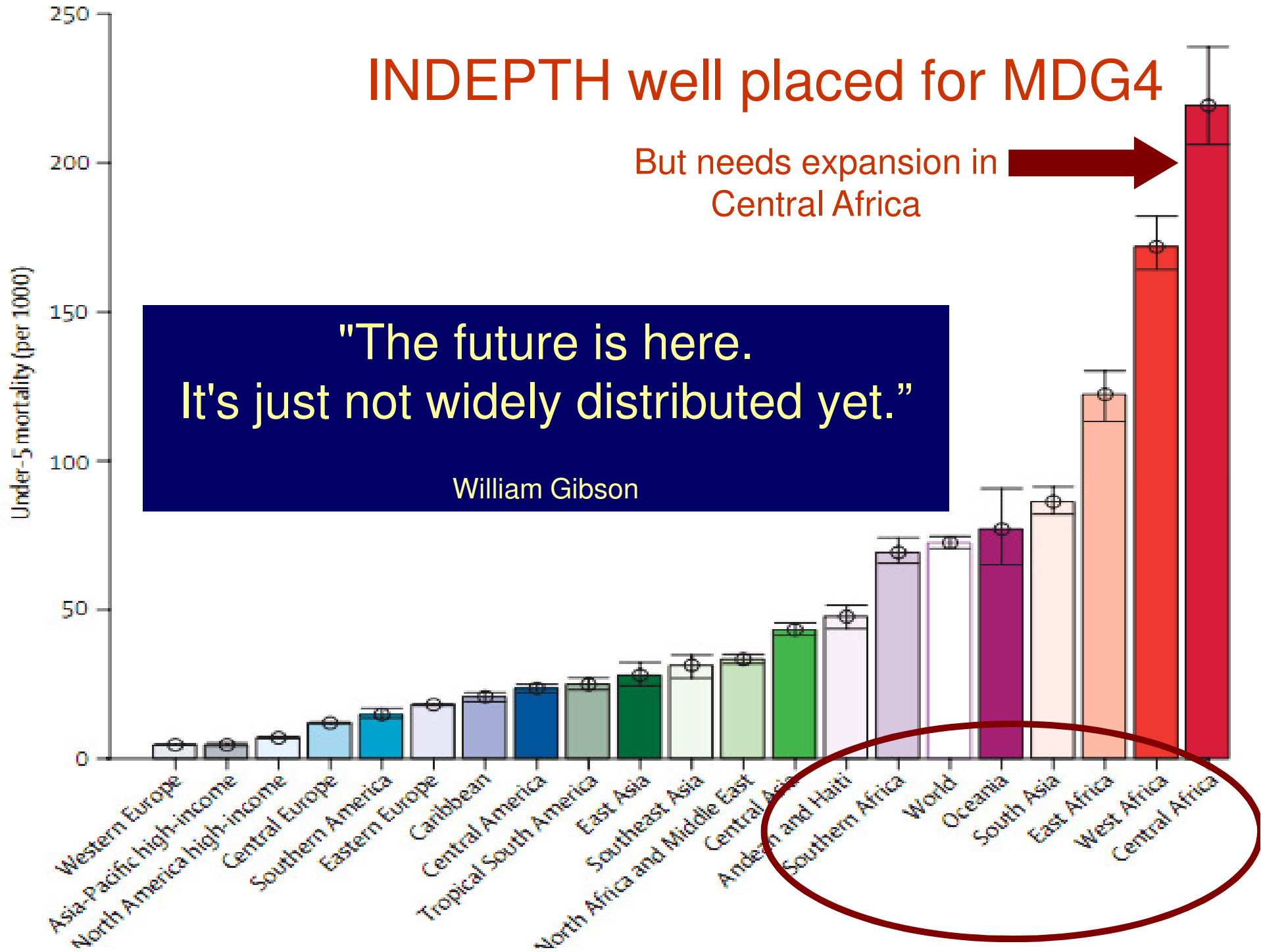
Global Health Action 2010, 3: 5517

INDEPTH well placed for MDG4

But needs expansion in
Central Africa



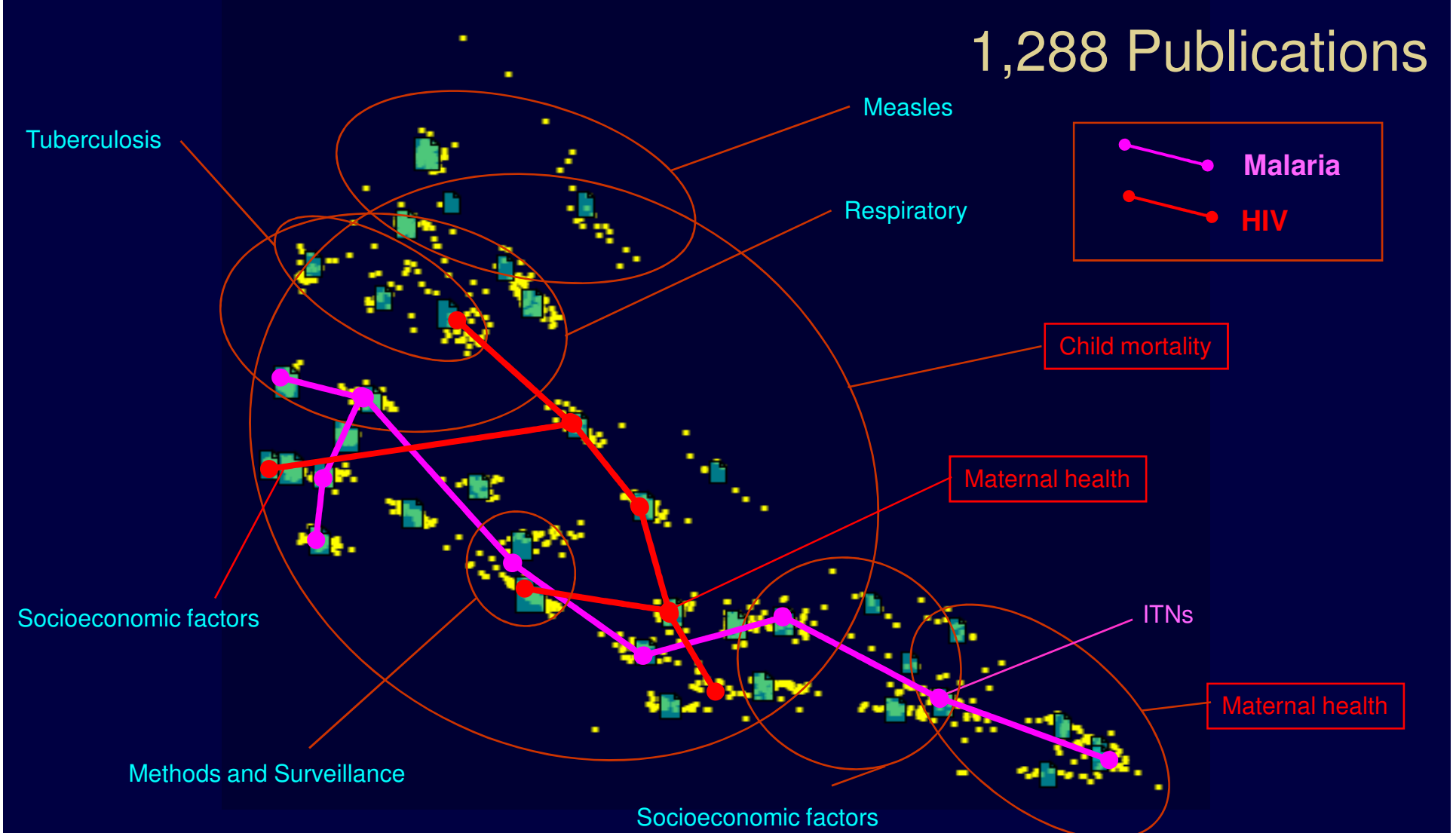
"The future is here.
It's just not widely distributed yet."
William Gibson





The current INDEPTH publication galaxy

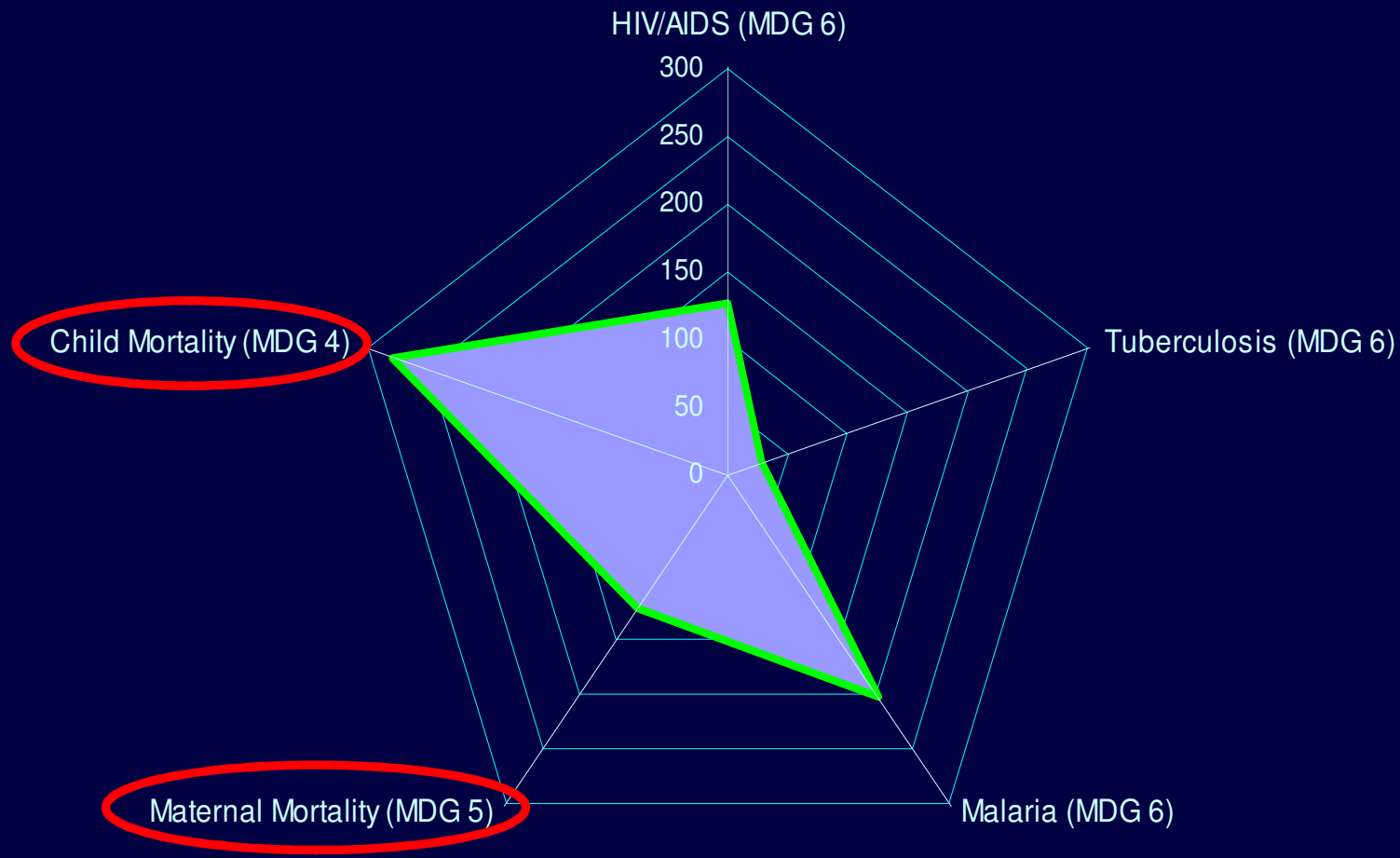
1,288 Publications





INDEPTH HDSS Publications 1990-2009

Millennium Development Goals



n = 622 references



For the MDGs, what INDEPTH HDSSs have now

- Research infrastructure in high mortality settings
- Pregnancy, birth, mortality, & cause of death surveillance
- Ability to evaluate health interventions
- Equity disaggregation (MDGs for the poorest?)

Six things INDEPTH can and needs to do better

1. **Report** mortality in real-time over next five years
2. **Add** district health system observatory function
3. **Measure** system-level interventions and monitor system change
4. **Monitor** mortality contextual dynamics
5. **Expand** in Central Africa
6. **Explain** reasons for acceleration (or stagnation) in MDGs 4 & 5



Thank you

Don de Savigny
INDEPTH Scientific Advisory Committee
&
Health Systems Unit
Department of Epidemiology and Public Health
Swiss Tropical and Public Health Institute
University of Basel
Basel, Switzerland



d.desavigny@unibas.ch