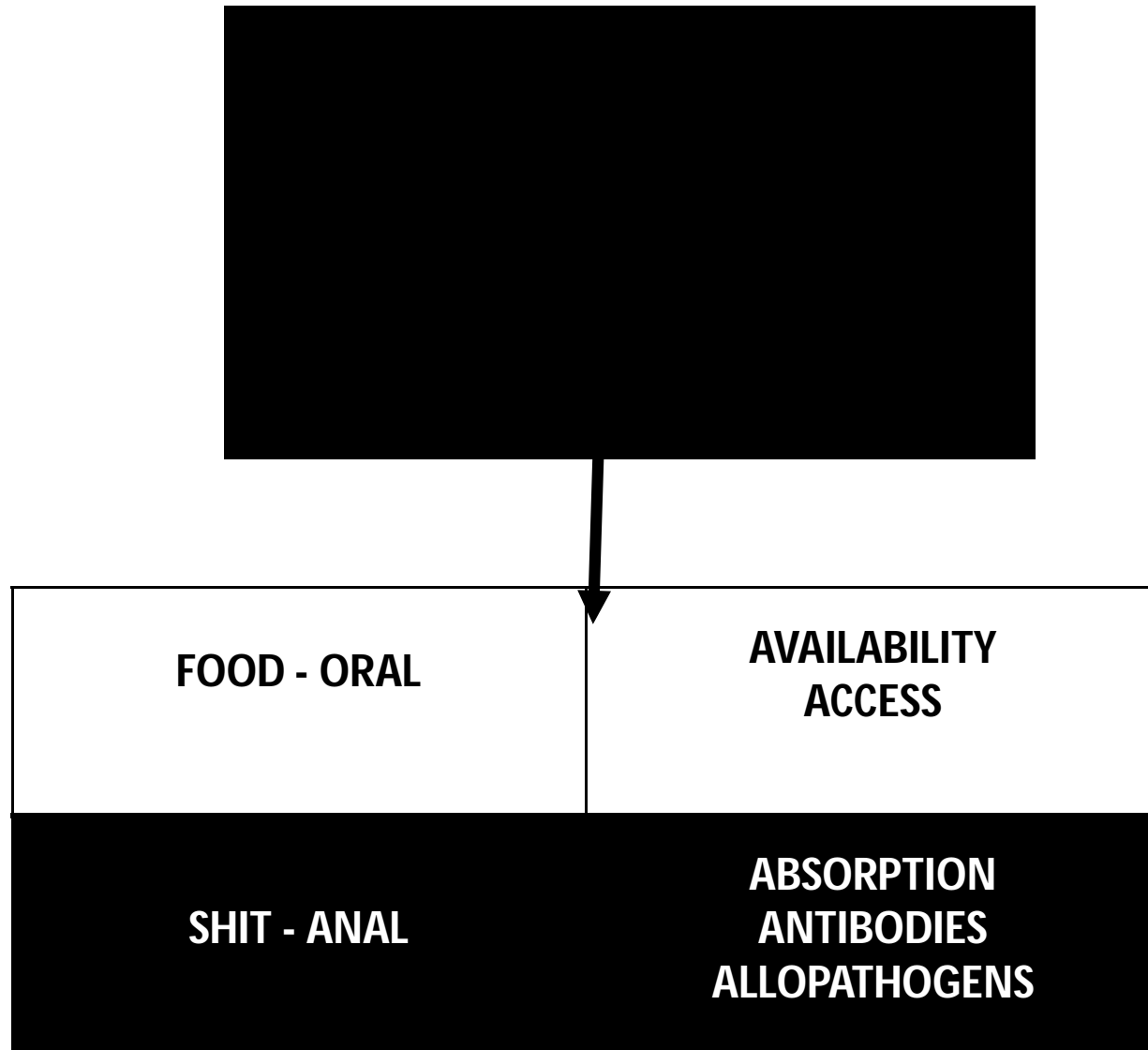


WASH, NUTRITION AND COMMUNITY-LED TOTAL SANITATION REVOLUTIONS IN INSIGHT AND ACTION

DSAI and Irish Aid Seminar on
Nutrition and WaSH: integration, research and future challenges
held at
Printing House, Trinity College Dublin, 19 May 2015

Robert Chambers
Institute of Development Studies, University of Sussex

Opening up the black box of undernutrition



The 5 As of Nutrition

ORAL -FOOD

- **AVAILABILITY**

- **ACCESS**

ANAL - FTIs

- **ABSORPTION**

 - Evacuation – diarrhoeas

 - Theft - nematodes – ascaris, hookworm (sucking blood), trichuris, tapeworms, giardia?

 - Diminished, damaged and leaky gut-

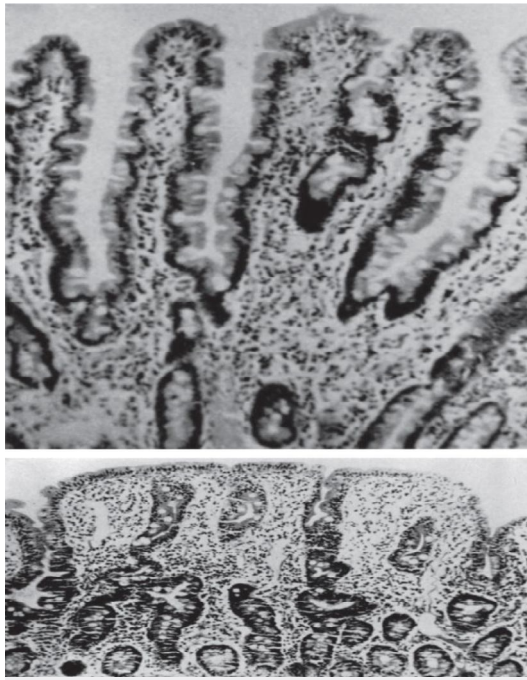
 - ENVIRONMENTAL ENTEROPATHY**

 - through bacterial infections etc

- **ANTIBODIES** to fight infections, using nutritional energy and proteins (immunologists please clarify)

- **ALLOPATHOGENS** other pathogens - liverfluke, hepatitis A, B and E, typhoid fever, polio, trachoma, various zoonoses etc

ENVIRONMENTAL ENTEROPATHY (EE)



- EE has been epidemiologically linked to living in an **unsanitary environment**
- People living in contaminated environments have leaky, chronically inflamed intestines
- Gut: short blunted villi, tissue infiltrated with inflammatory cells. Associated with ↑ energy, protein, carbohydrate needs
- Diverts nutrients from growth to infection fighting

Korpe & Petri, Trends in Molecular Medicine June 2012,
Vol. 18, No. 6

What is stunting

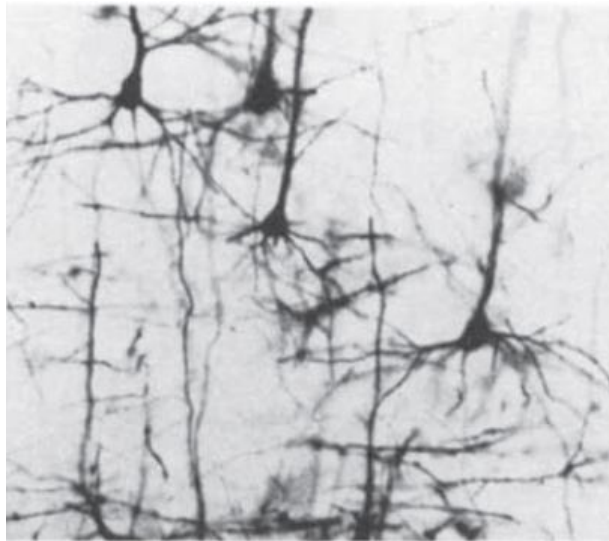


- **Early PEM in childhood. Growth failure.** The children in this picture were aged 2, 4 1/2 and 5 1/2 years from left to right. The first two are normal but the last is grossly retarded in growth although the weight/height ratio is normal and there is no evidence of clinical malnutrition. Stunting is the commonest evidence of chronic, mild PEM.

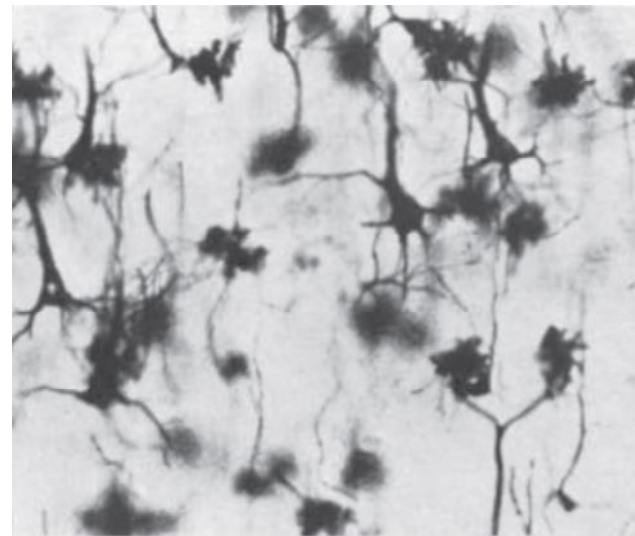
Effects of stunting on brain development



Stunting

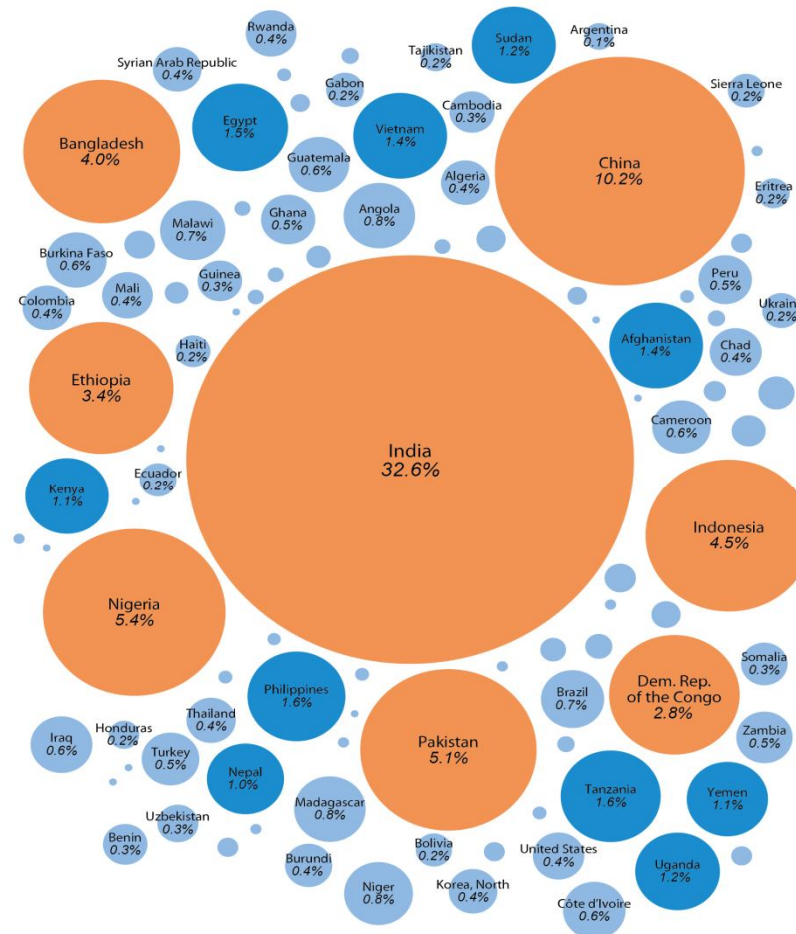


Typical brain cells
Extensive branching



Impaired brain cells
Limited branching
Abnormal, shorter branches

Children Malnourished (below height) percentage by country

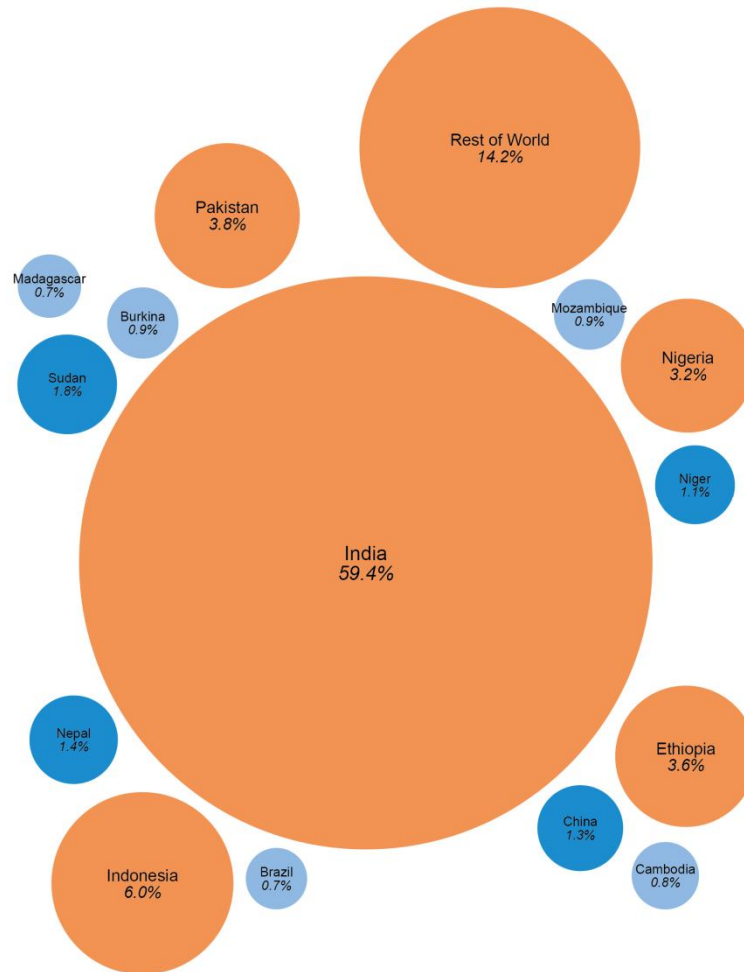


Figures are for 2007/08 or latest.

Sources: Processed from WDI; MPI data from OHPi MPI database
 Note: Author notes some discrepancies in WDI data for income poverty versus other poverty counts that suggests income poverty is underestimated

The Guardian newspaper, Tuesday 14 September 2010,
 posted by Jonathan Glennie
 (<http://www.guardian.co.uk/global-development/datablog/2010/sep/14/bottom-billion-poverty>)

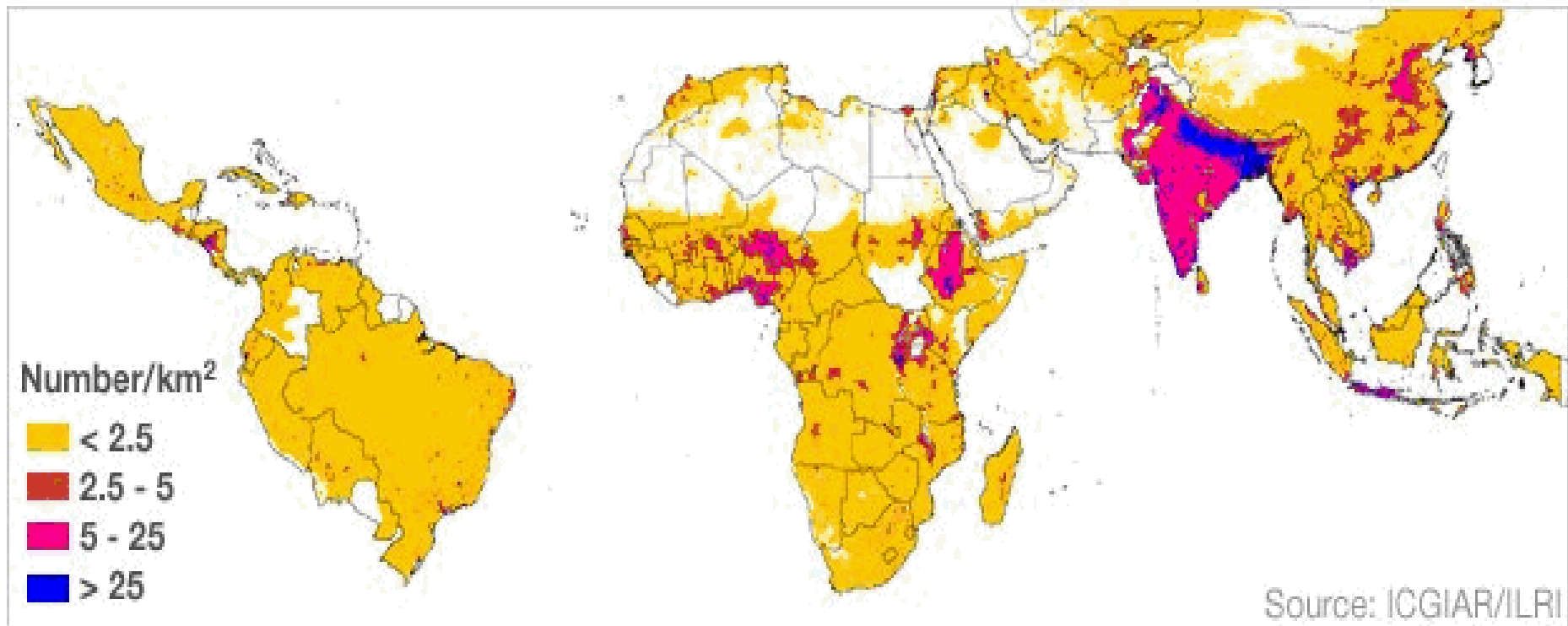
People practising open defecation: Country percentages of world total



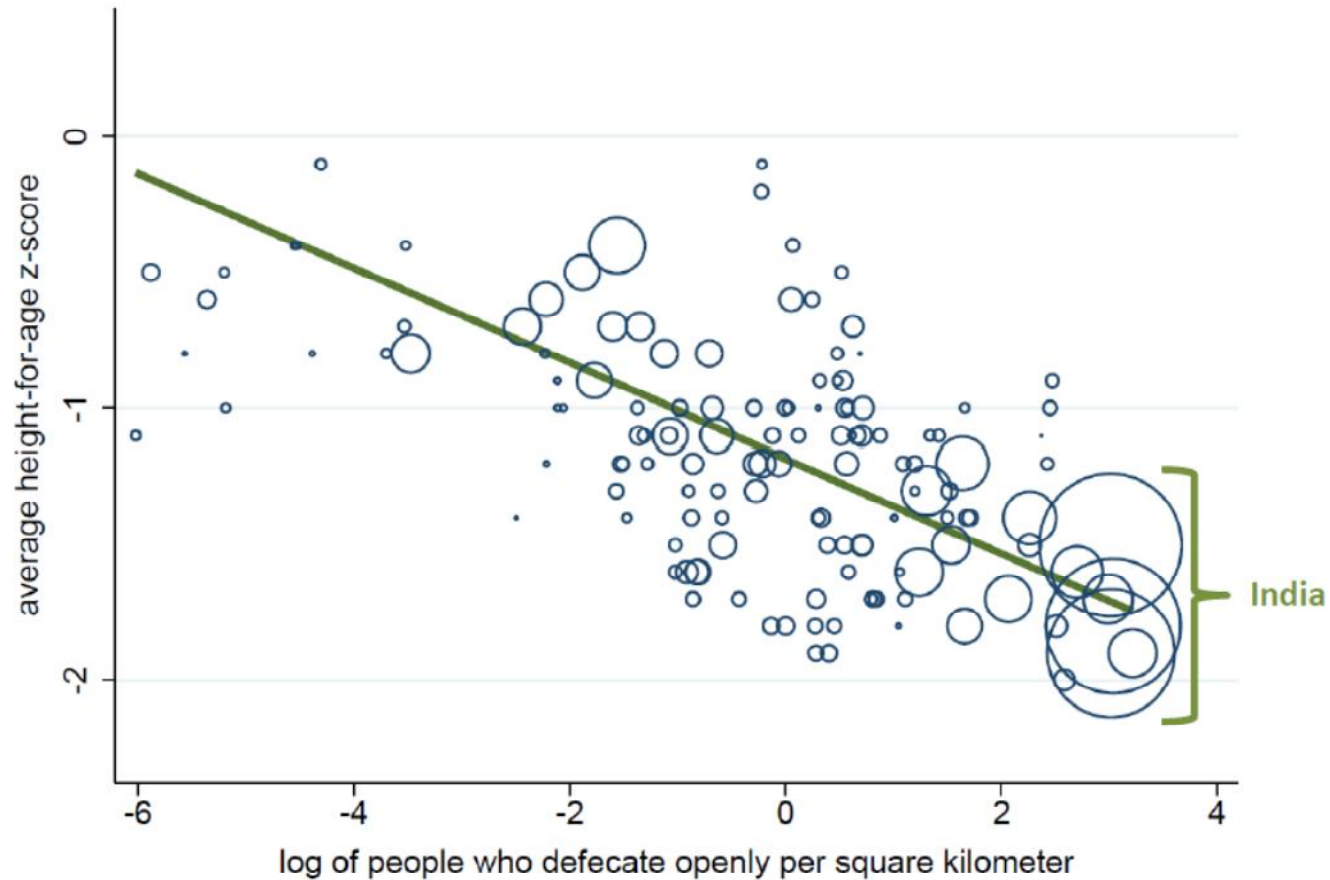
© UNICEF and World Health Organization 2012

Source: Figure 23, JMP 2012 report (<http://www.wssinfo.org/>). Estimated by the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (www.wssinfo.org) to ensure compatibility, thus they are not necessarily the official statistics of the concerned country, area or territory, which may use alternative rigorous methods.

Malnourished children



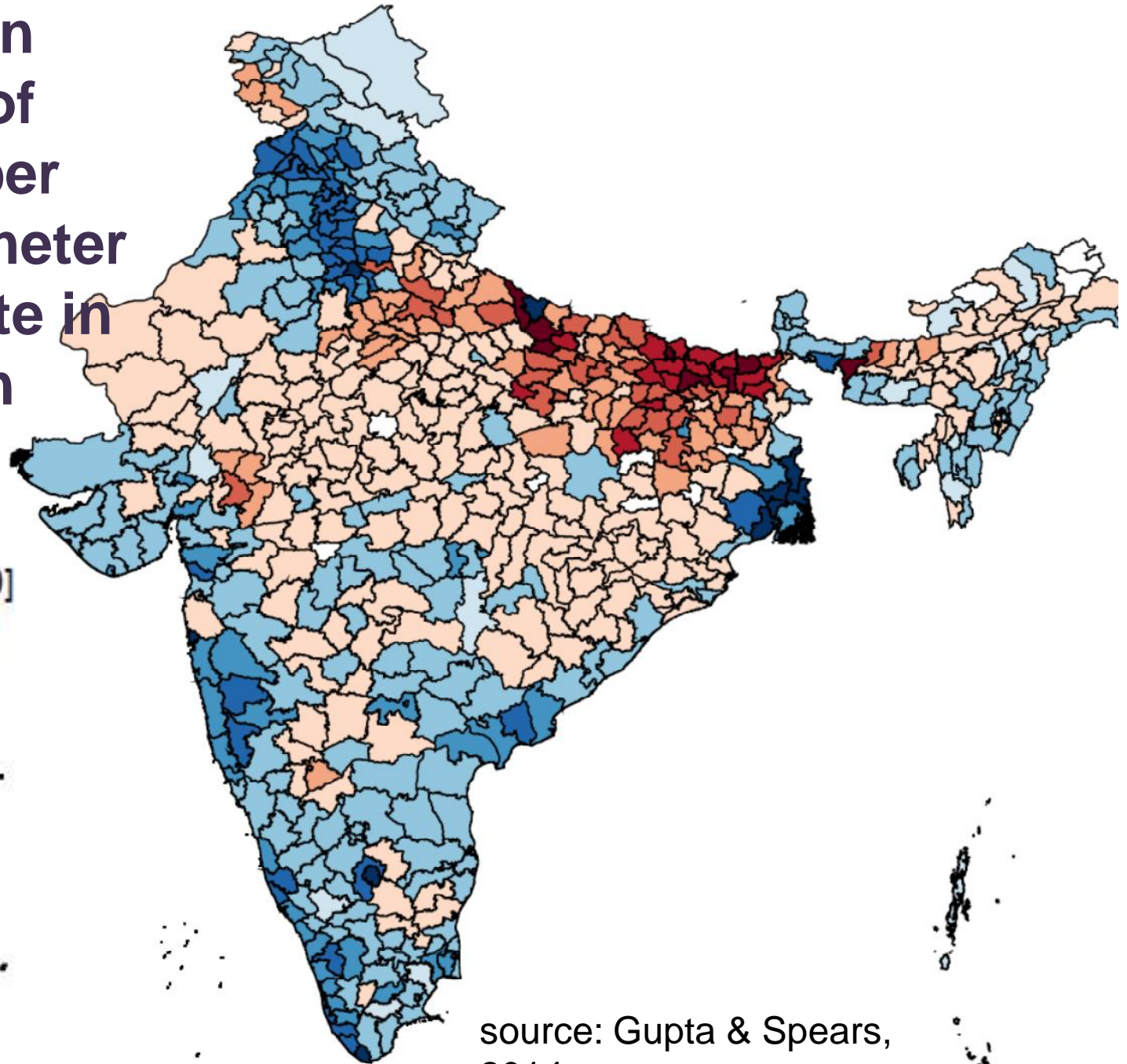
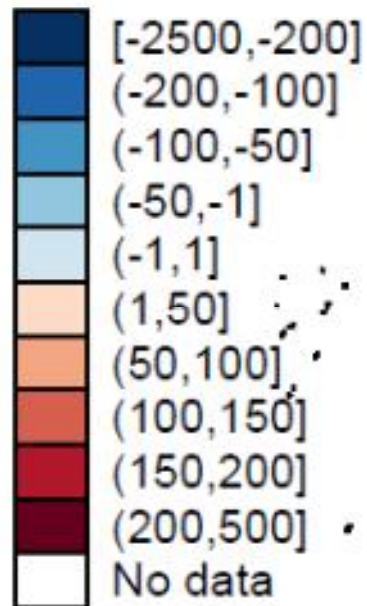
The Double Threat of OD and Population Density



Each circle represents a single Demographic and Health Survey round, reflecting one country in one year. The linear trend shows that children are shorter, on average, in countries where they are exposed to more OD. The circle sizes are proportional to population. The three largest circles represent surveys at different times in India

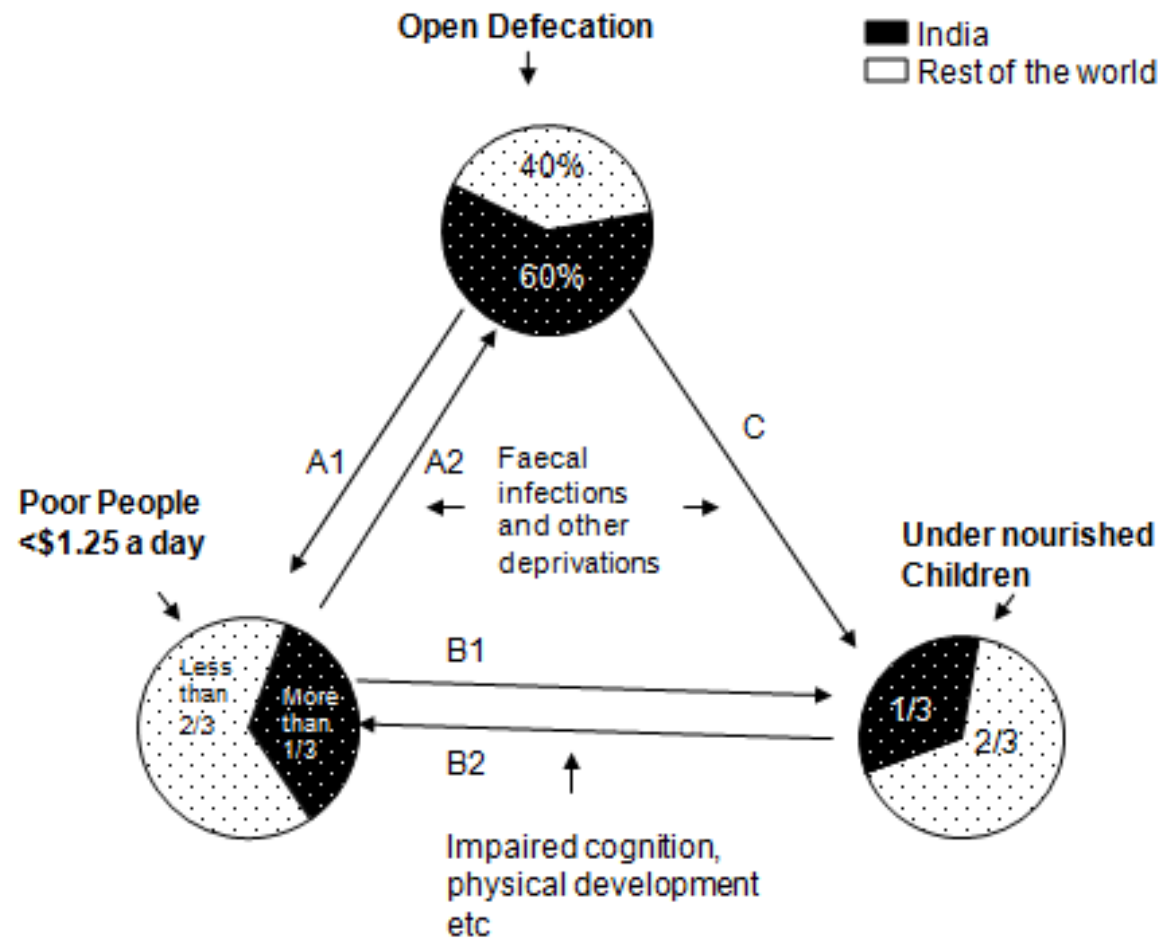
Spears, Dean (2012) 'How Much International Variation in Child Height can Sanitation Explain?'
Rice Working Paper, 10 December 2012

Change in number of persons per square kilometer who defecate in the open

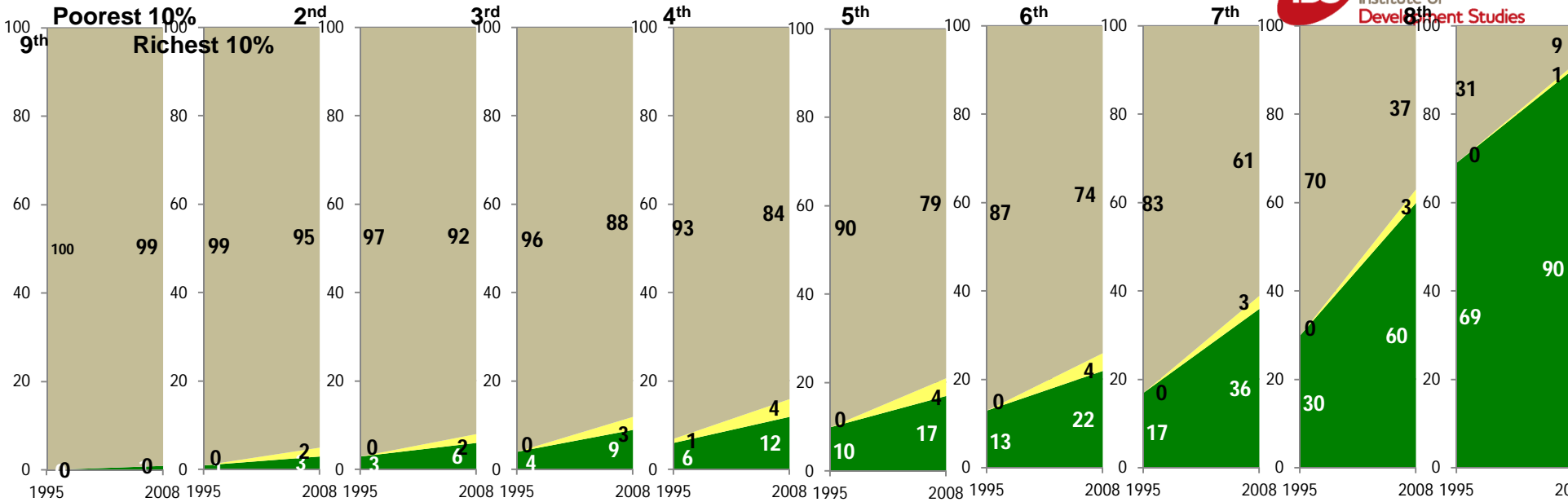


source: Gupta & Spears, 2014

Open Defecation, Poverty and Stunting: the causal syndrome



India: Rural areas



A RAPID RUN THROUGH CLTS

Mapping Bangladesh

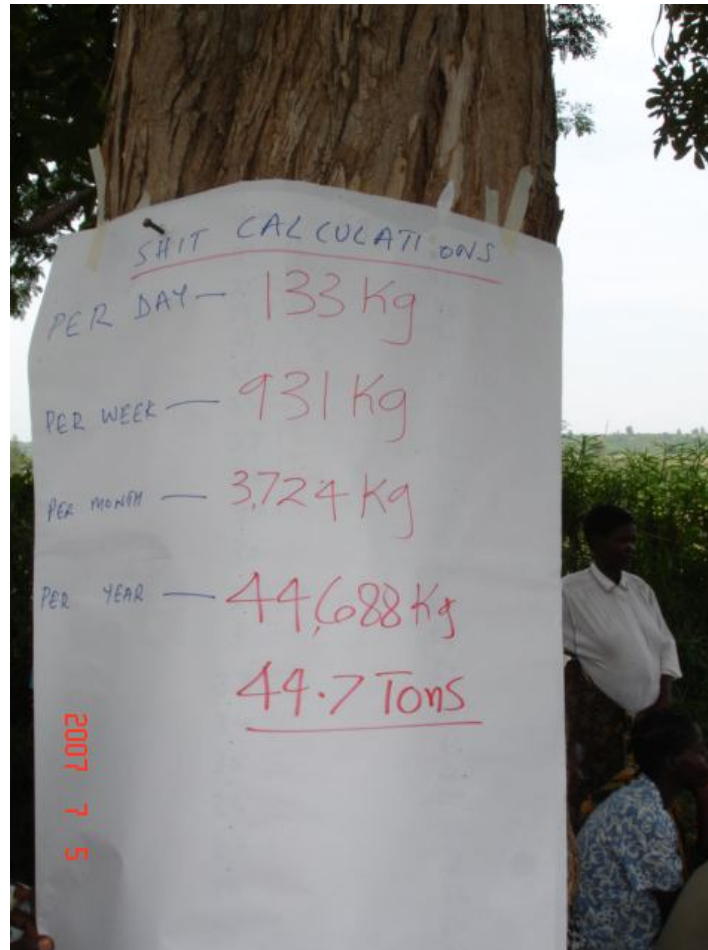


Transect walk: looking for signs of OD

Madagascar



Shit calculation Kenya





Ignition: shock and disgust

Kenya



Disgust and Ignition

Bolivia



Who wants to stop open defecation? Zambia



Verification and Monitoring Ethiopia and Bangladesh

CLTS activities Monitoring and ODF verification format
(የህዳርተሰብ መር አከታላይ ንጽህና (ሀ.መ.አ.ን.) መከተተኛና ማረጋገጫ ቅጽ::)

Wereda/ወረዳ: ጎርቹ kebele/ቀበሌ: መ.ራ.ንዥ ጉራሞ Village/የሌላውን ቡድን: ሳገራ (ከቤቶች)

ቁ. ተ. ር	Name of HH የህዳርተሰብ ስም	Sanitation and Hygiene status/ የንጽህና ጽዳት ዜጋትን (የ) ሰዎች ሁኔታዎች በማድረግ ይገለጻል							Child-friendly?/ በህፃናት ተስማሚ	Env ODI ንጹህ
		Pit digging/ ጉዳይ ግፋር	Sub-structure/ ር. መግቢያ ተዳዳኝ ክፍን	latrine hole cover/የህንጻ ር. መግቢያ ተዳዳኝ ክፍን	Super-structure/ ከለለ/ ጣፊ	Door/ ጠባቂ	Hand washing Water / ጣሃ	Soap/ash/ ሳሙና/አጠይ		
1	ገብረመስቀል ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
4	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
5	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
6	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
7	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
9	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
10	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
12	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
13	አብይ ገብረመስቀል	✓	✓	✓	✓	✓	✓	✓	✓	✓
14										
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Reported by/የሰጠው ስም: ተደክ ገብረመስቀል Date/ቀን: 12/10/2003 Signature/ፊርማ: [Signature]

ማሳሰቢያ: በሰጠው ስም ስምደታ በሚደረግ ስኬት ላይ ማረጋገጫ ማድረግ ይገባል::



ODF Declaration India



Pride, convenience, safety and self-respect Indonesia



Handwashing



For all the amazing achievements of CLTS,
there are, to put it mildly, many third
generation challenges