

HBHI: stratification to improve targeting of vector control interventions

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Global **Malaria** Programme



**World Health
Organization**



The approach aims to reaffirm commitment and refocus to accelerate progress towards GTS goals through 4 response elements



Political will to reduce malaria deaths



Strategic information to drive impact



Better guidance, policies and strategies



A **coordinated** national malaria **response**

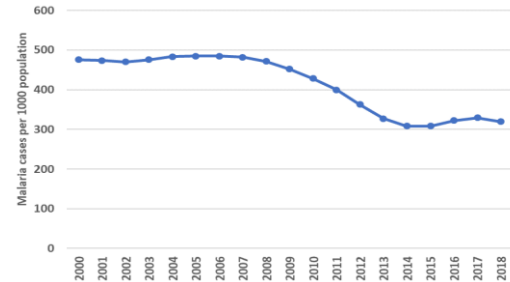
1 Burkina Faso, Cameroon, DRC, Ghana, India, Mali, Mozambique, Niger, Nigeria, Tanzania, Uganda

Strategic information for impact – process and products

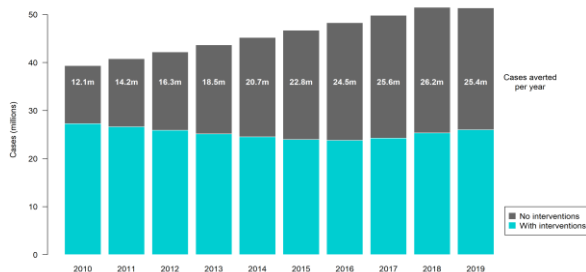


Malaria Programme Reviews

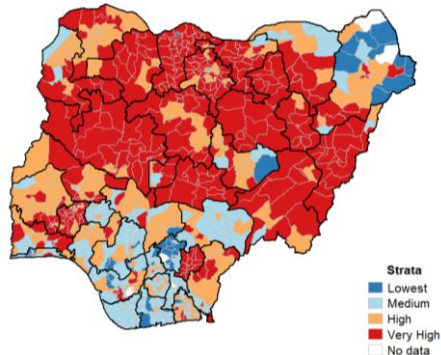
Progress Review



Impact Evaluation

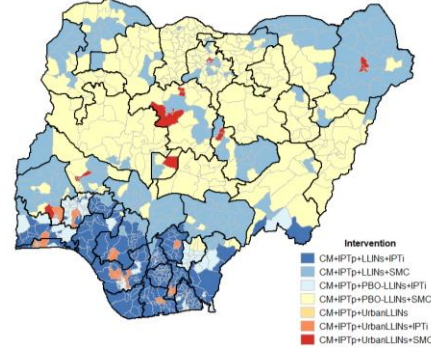


Stratification

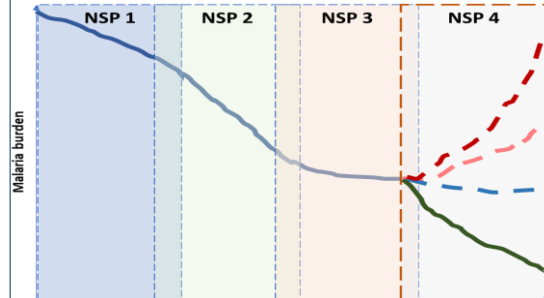


National Strategic Plans

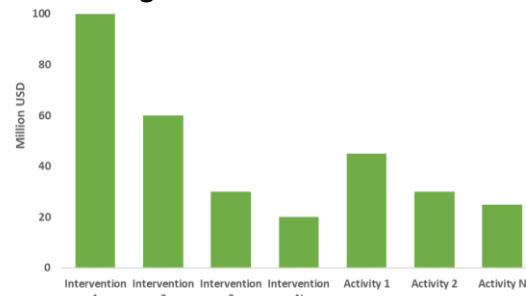
Intervention mixes



Optimizing mixes for impact (NSP goals)

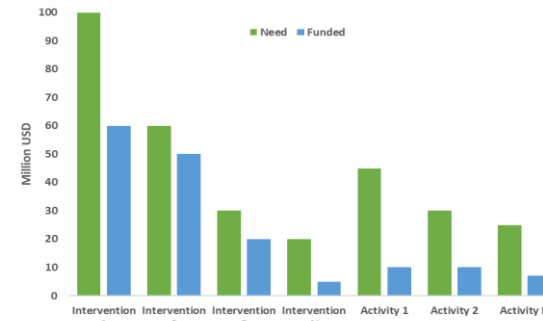


NSP costing

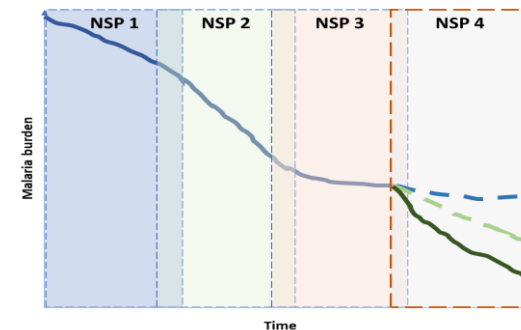
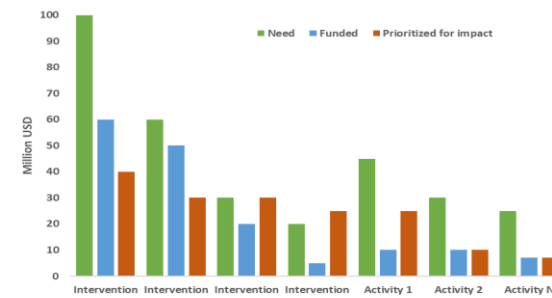


Resource prioritization

Available resources, gap



Prioritizing for impact



Delivery & monitoring

The Alliance for Malaria Prevention

A toolkit for mass distribution campaigns to increase coverage and use of long-lasting insecticide-treated nets



SEASONAL MALARIA CHEMOPREVENTION

WITH SULFADOXINE-PYRIMETHAMINE PLUS AMODIAQUINE IN CHILDREN



A FIELD GUIDE

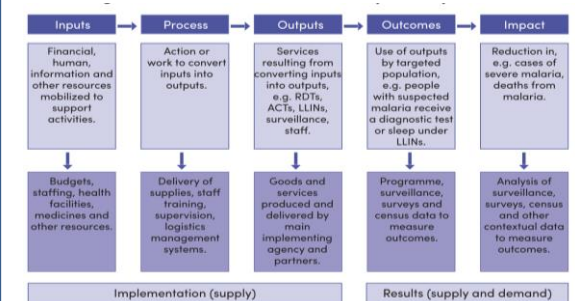


FROM THE AMERICAN PEOPLE

DELIVER PROJECT

Guidelines for Managing the Malaria Supply Chain

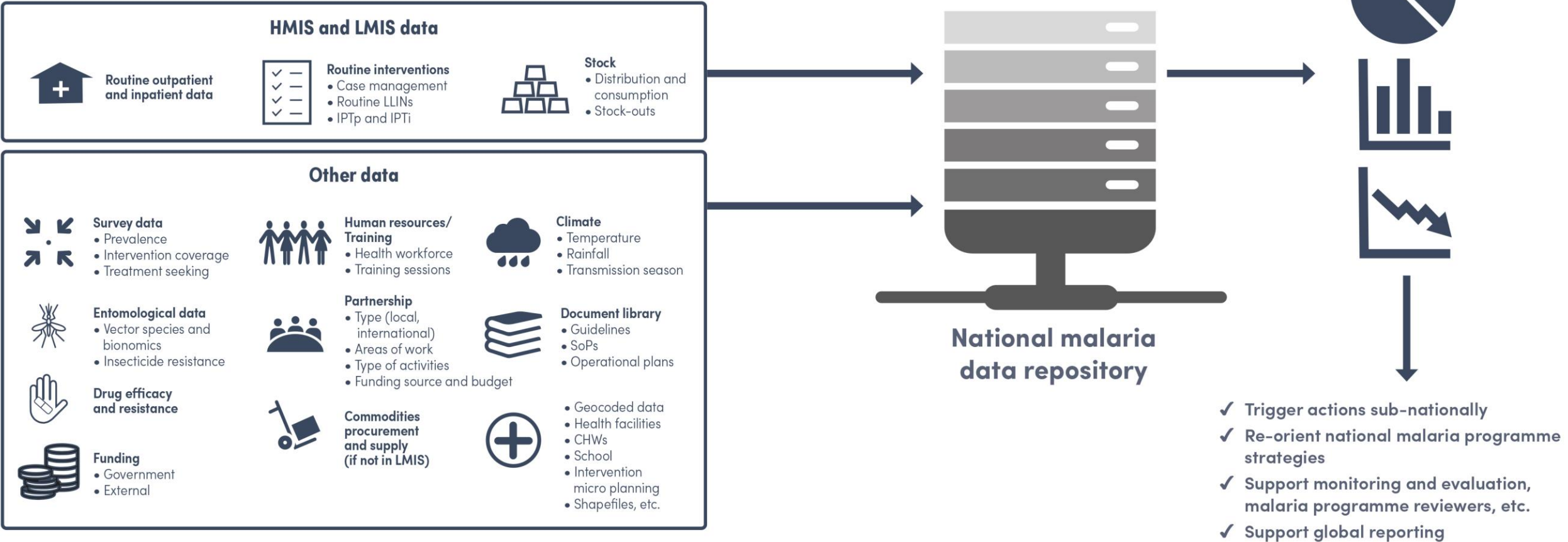
A Companion to the Logistics Handbook



ACT, artemisinin-based combination therapy; RDT, rapid diagnostic test; LLIN, long-lasting insecticidal net



FIG. 9.2.
Proposed structure of national malaria data repositories *Source: WHO-GMP.*



CHW: community health worker; IPTp: intermittent preventive treatment in pregnancy; HMIS: Health Management Information System; LLIN: long-lasting insecticidal net; LMIS: Logistics Management and Information System; SoP: standard operating procedure.

Stratification for vector control - LLINs



WHO Recommendation	Good practice statement	Country adaptation	Other considerations
LLINs prequalified by WHO are recommended for deployment as a core intervention in all malaria-endemic settings	Universal coverage with effective vector control using a core intervention (ITNs or IRS) is recommended for all populations at risk of malaria in most epidemiological and ecological settings. The population at risk of malaria may increase or decrease as a result of changes in malariogenic potential of a given geographical area	<p>In areas of very low receptivity, (pre-intervention) LLINs may not have substantial impact, resource optimization should take this into account</p> <p>Such areas may include those where climatic factors are not optimum for malaria transmission, or urbanized areas where the environment has been modified so that there is low potential for transmission.</p>	<p>In burden reduction settings, parasite prevalence before period of major scale up of interventions <1% may be considered a proxy for low receptivity.</p> <p>In urban areas, microstratification is required to define clusters of transmission for efficient targeting</p>



WHO

Recommendation

Pyrethroid-PBO nets prequalified by WHO are conditionally recommended for deployment instead of pyrethroid-only ITNs where the principal malaria vector(s) exhibit pyrethroid resistance that is: a) confirmed, b) of intermediate level, and c) conferred (at least in part) by a monooxygenase-based resistance mechanism, as determined by standard procedures

Good practice statement

May be considered acceptable instead of pyrethroid-only nets if this will not compromise coverage (e.g. total cost of the delivered PBO net is equal to or less than that of a pyrethroid-only net)

Country adaptation

If countries do not have data on MFO, a pragmatic approach to maximise impact might be to deploy PBO nets in areas of intermediate resistance with the highest.

Where resistance levels are high everywhere, areas of highest burden may be considered for PBO targeting

Other considerations

May be considered acceptable instead of pyrethroid-only nets if this will not compromise coverage (e.g. total cost of the delivered PBO net is equal to or less than that of a pyrethroid-only net)



WHO

Recommendation

IRS deploying a product prequalified by WHO is recommended as a core intervention **in all malaria-endemic settings**

Good practice statement

Universal coverage with effective vector control using a core intervention (ITNs or IRS) is recommended for all populations at risk of malaria in most epidemiological and ecological settings. The population at risk of malaria may increase or decrease as a result of changes in malariogenic potential of a given geographical area

Country adaptation

In areas of low receptivity, (pre-intervention), IRS may not have substantial impact on burden

Should be targeted in areas where largest burden reductions are likely to be achieved

Other considerations

Cost vs impact of IRS vs impact of investing in other interventions

Insecticide resistance management and cost

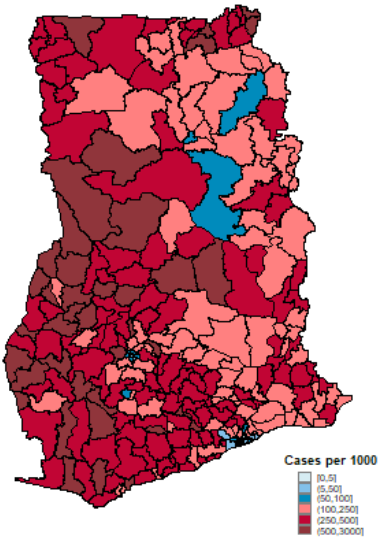
Sustainability

Clear transition plan, including assessment of potential rebound, if a decision is made to scale back IRS

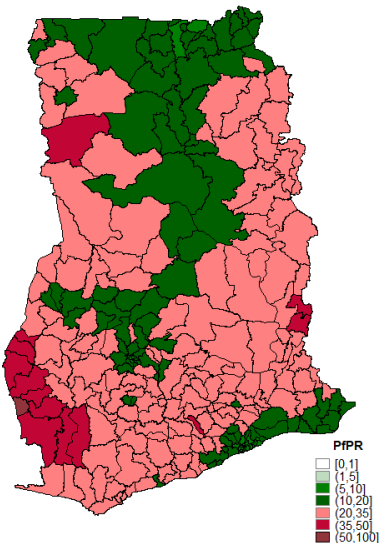
Country example - stratification



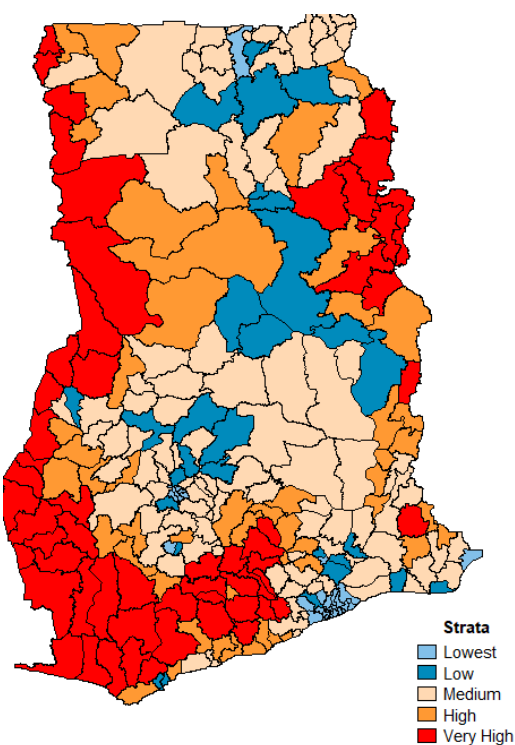
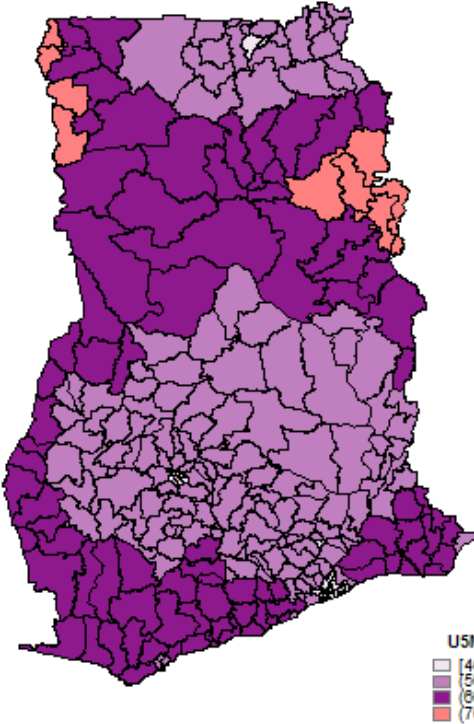
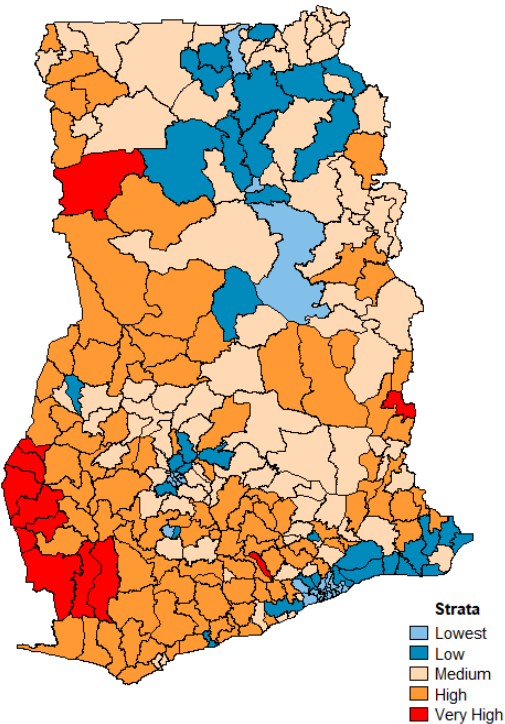
Adjusted incidence (2018)



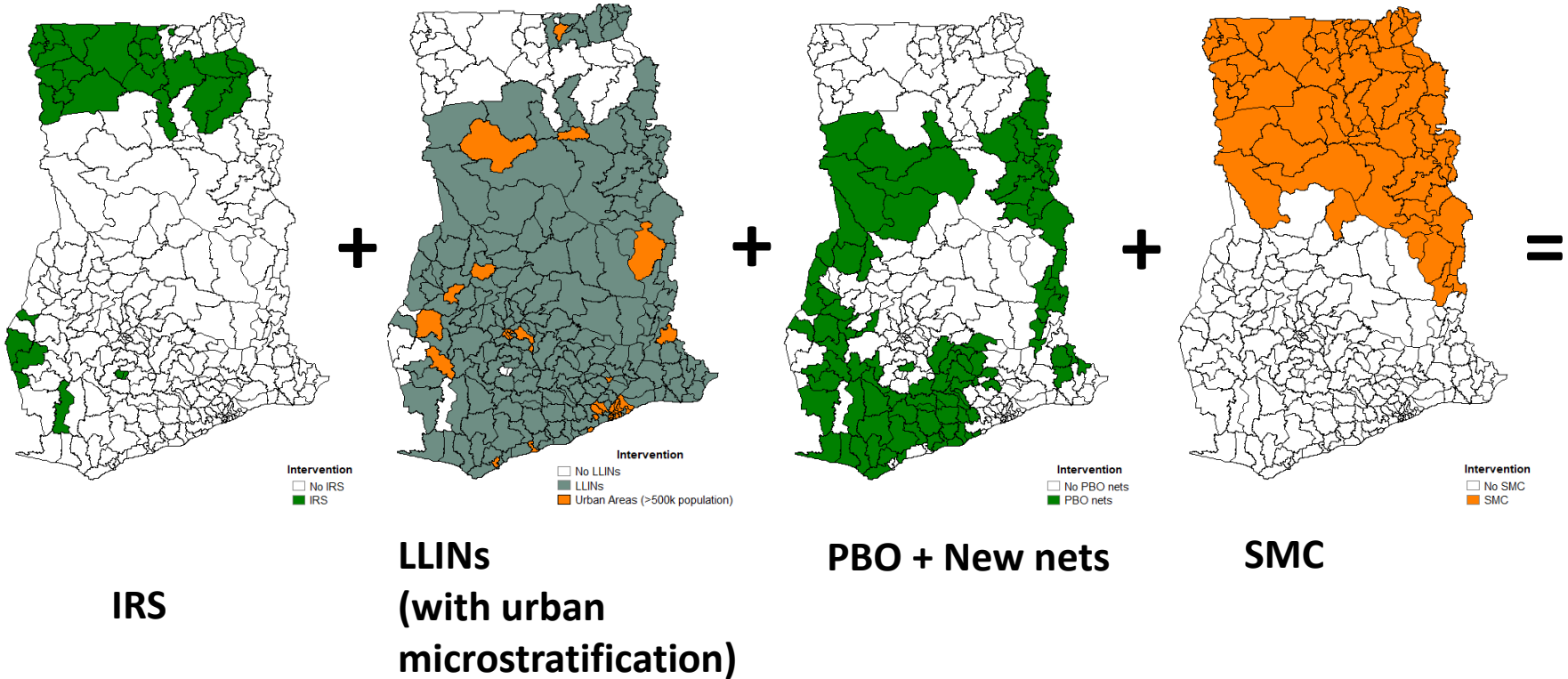
Prevalence (2018)



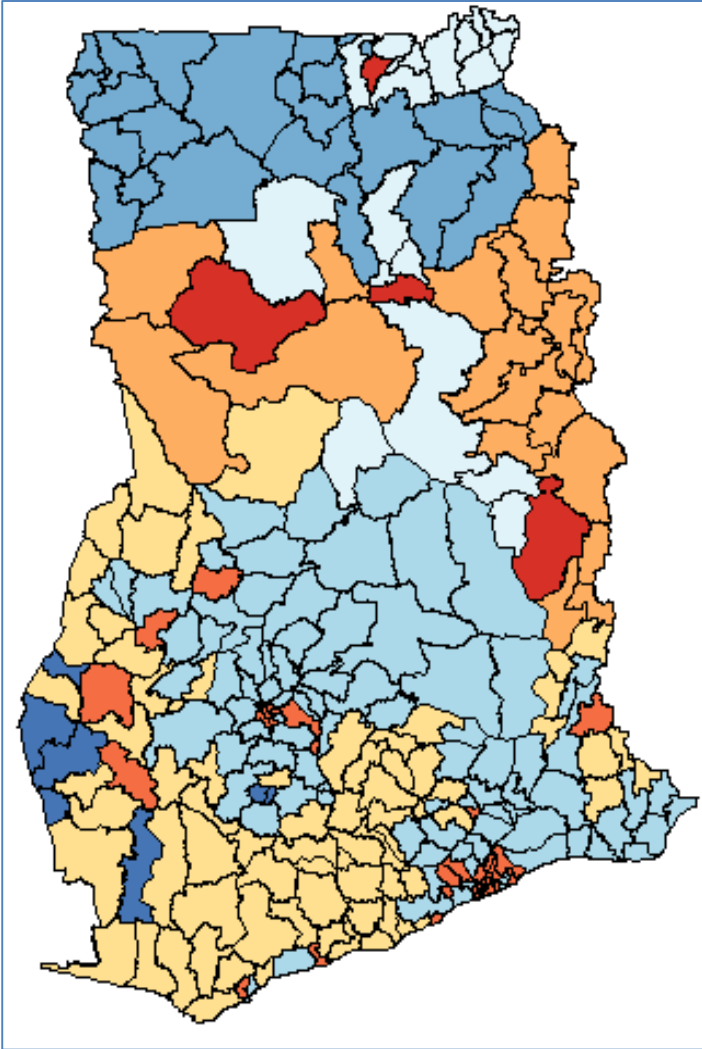
All-cause U5MR (2017)



Country example – intervention targeting



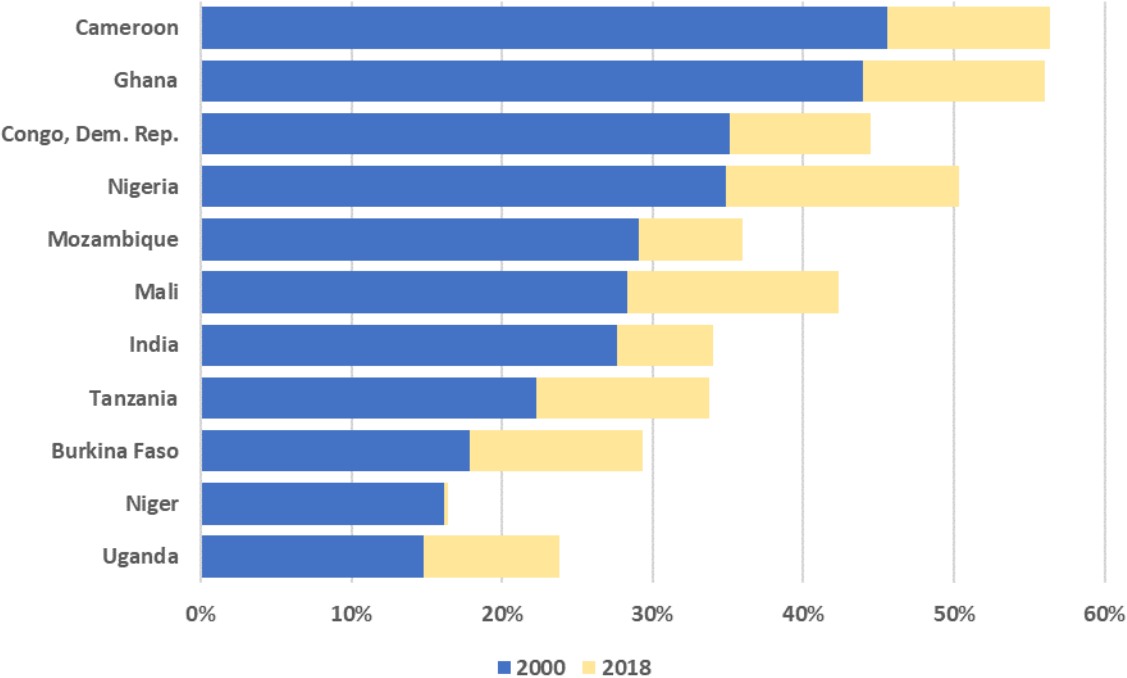
CM, IPTp everywhere



Intervention mixes

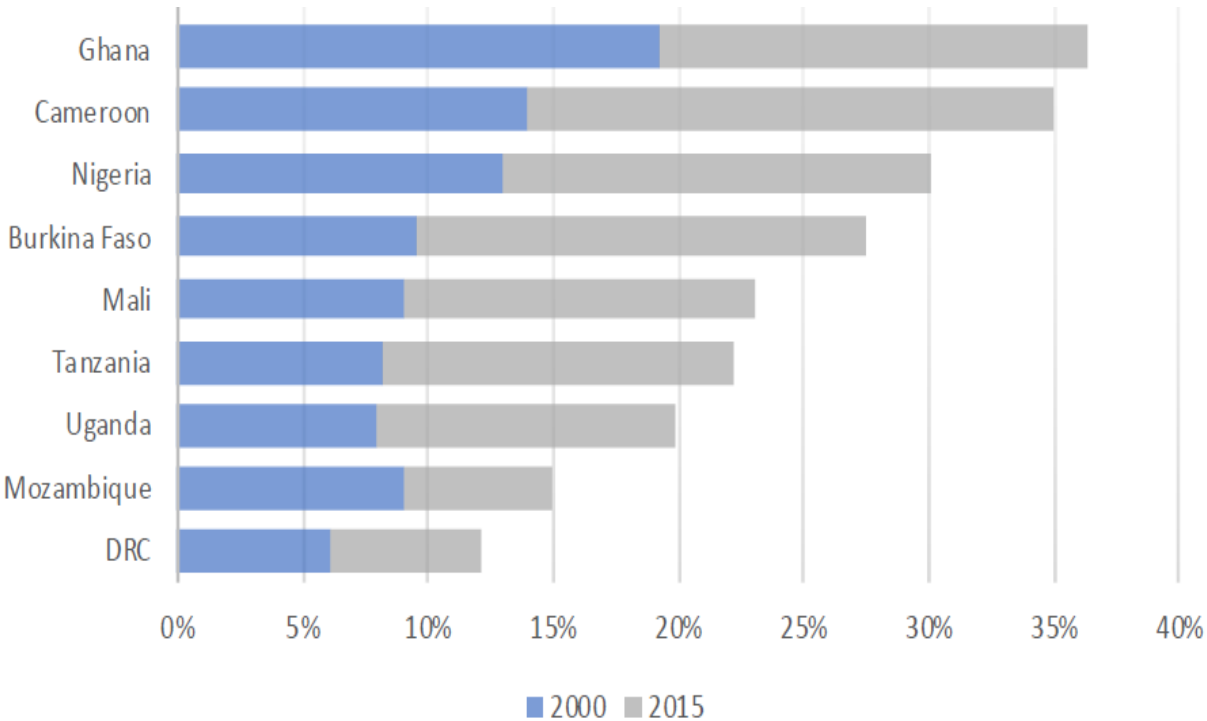


% population urban



World Bank estimates

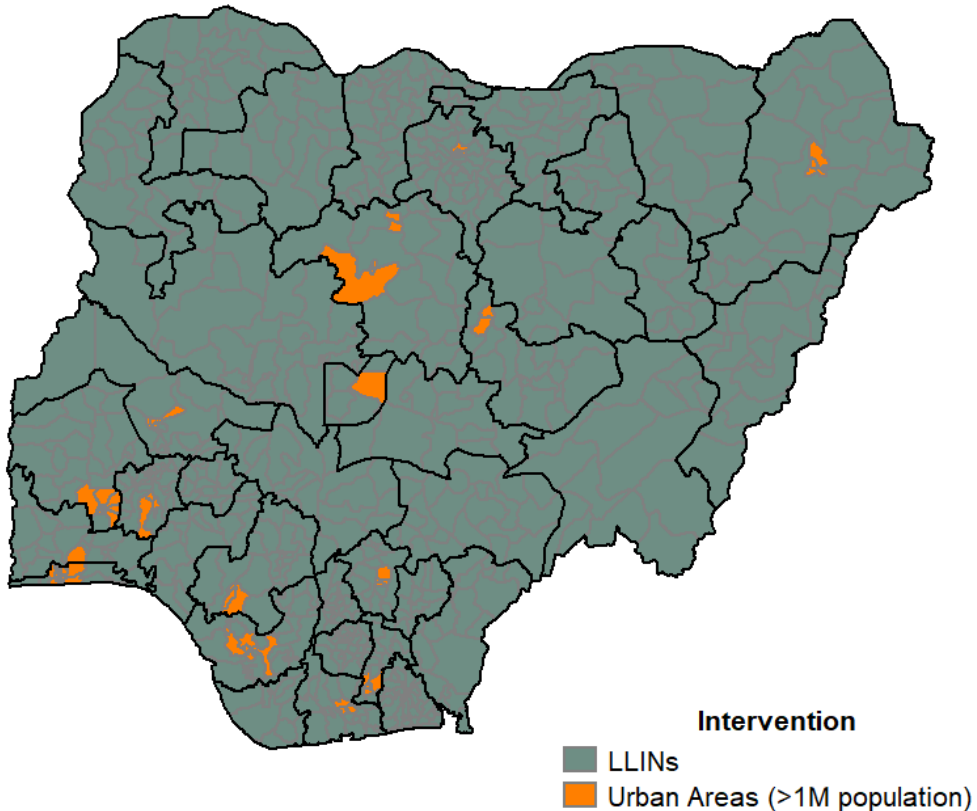
% improved housing



Tusting et al (2019), *Nature*

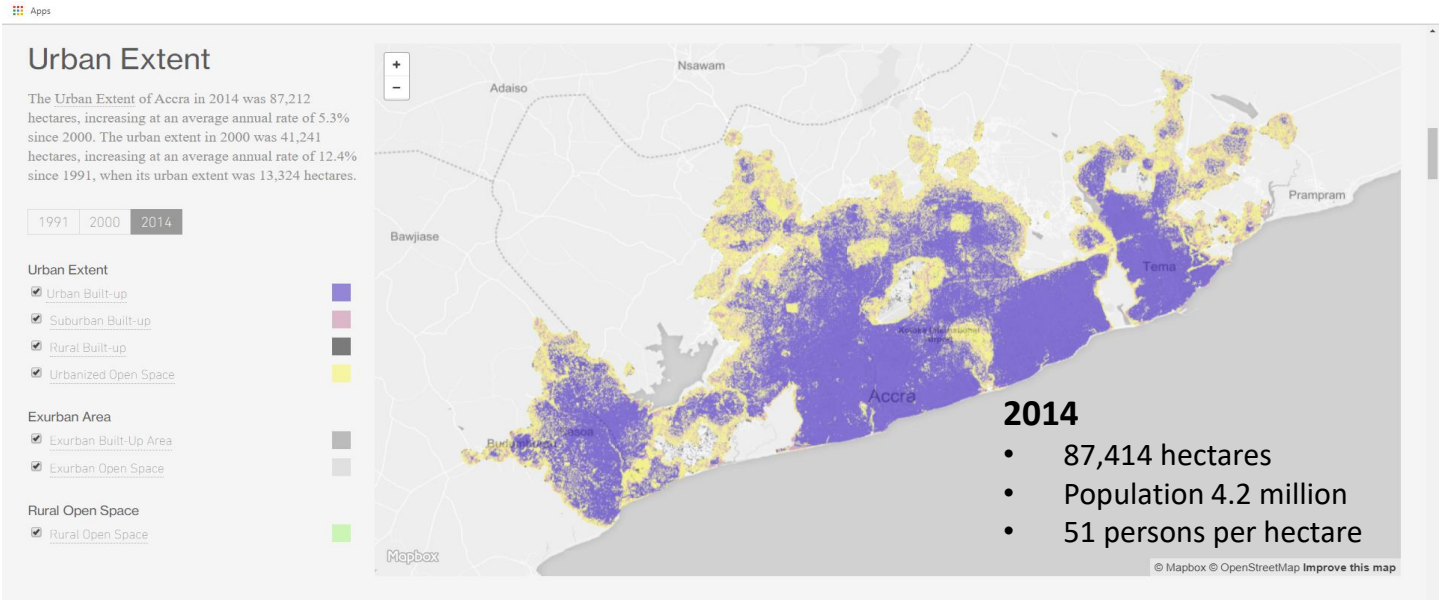
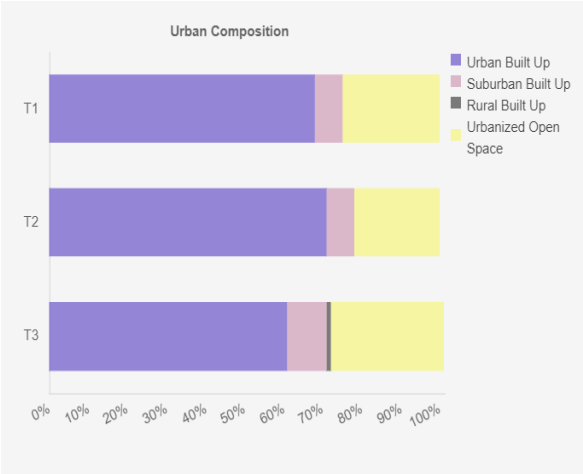
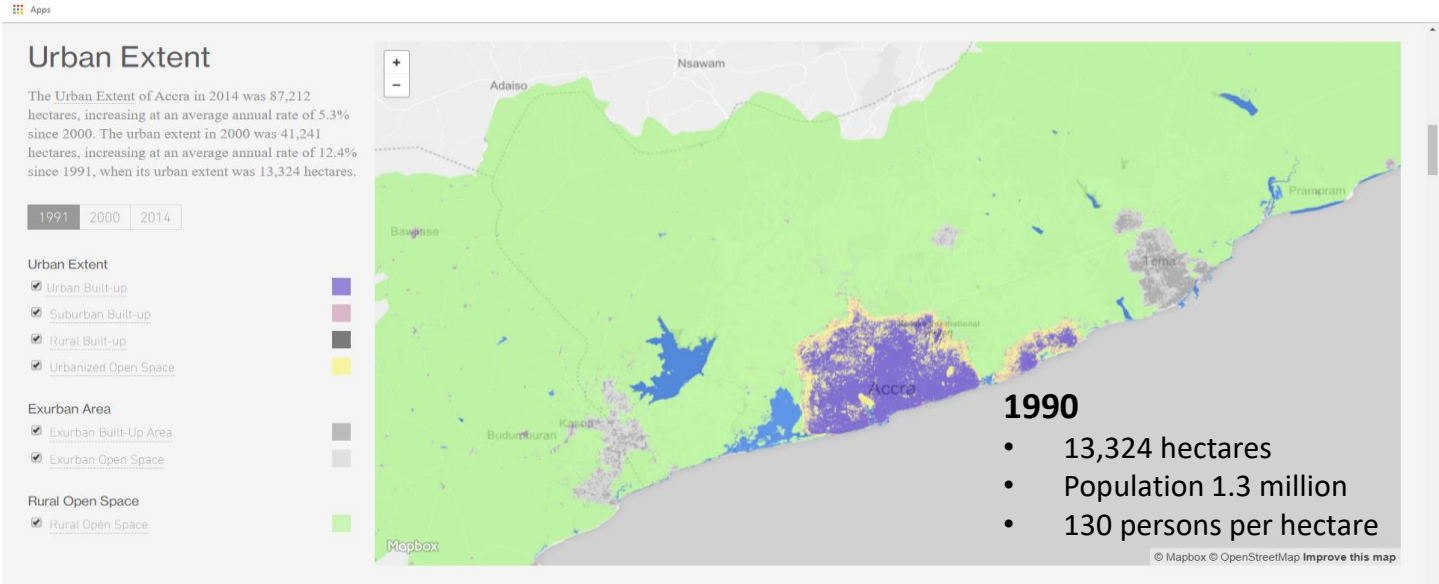


Nigeria



City	Cases	Percent of HFs reporting over 80% of
Aba	14,062	14%
Abuja	91,691	10%
Benin City	19,523	18%
Enugu	10,735	4%
Ibadan	110,149	31%
Ife	56,820	29%
Ilorin	24,427	24%
Ikorodu (Lagos)	282,139	30%
Jos	62,481	19%
Kaduna	116,880	18%
Kano	276,095	26%
Lagos	537,472	14%
Maiduguri	78,283	16%
Port Harcourt	21,968	18%
Warri	45,092	23%
Zaria	89,586	26%

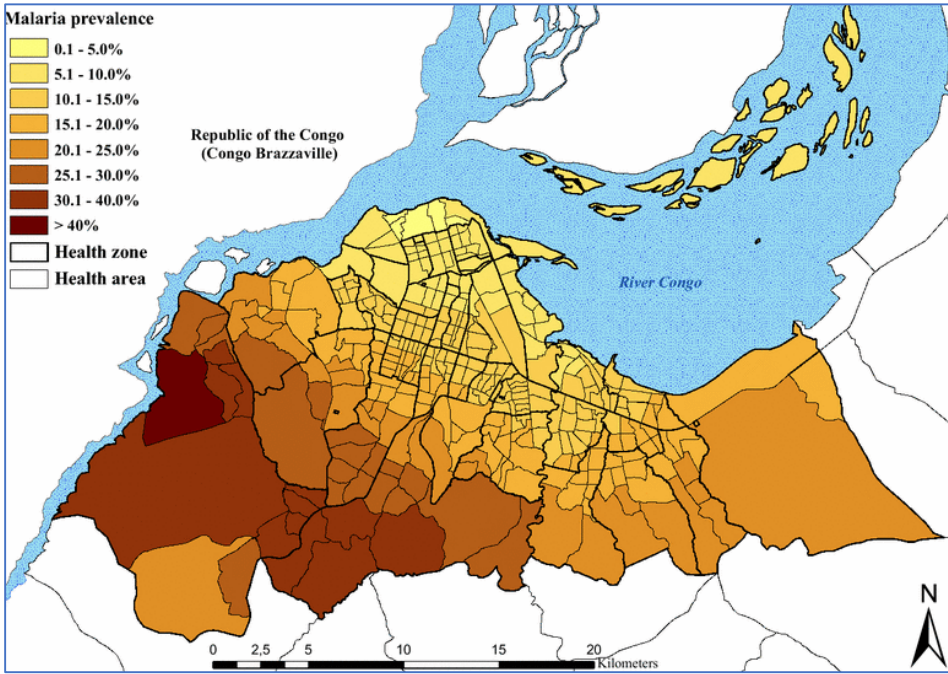
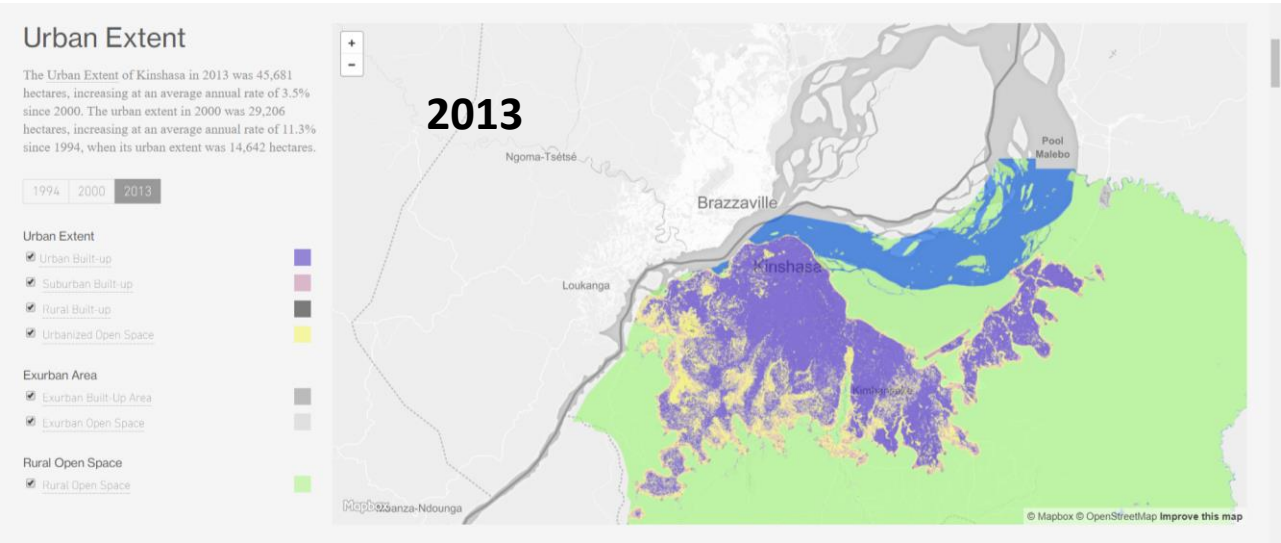
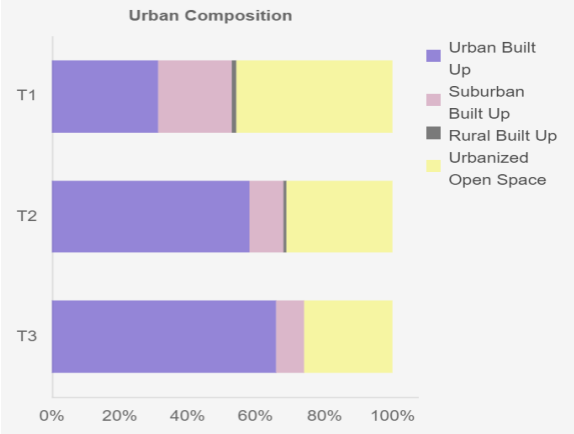
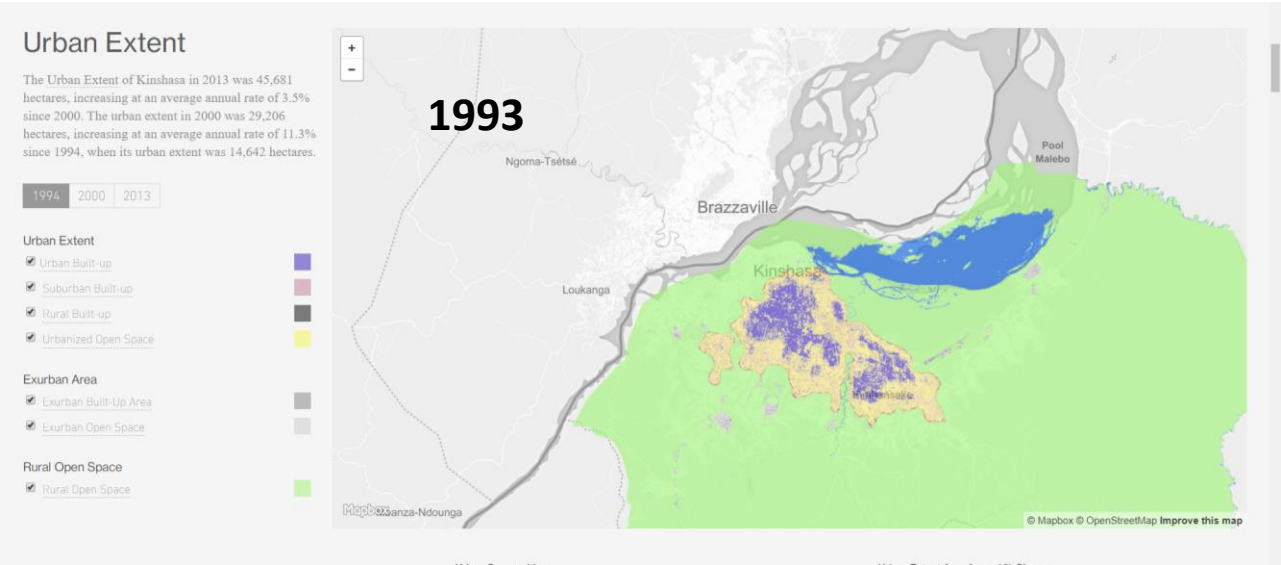
Accra



Year	<i>Pf</i> Parasite prevalence	Sampled population	Source
	Urban Accra		
1978	1.3%, Ablekuma district	Children U5	Gardiner et al (1984)
2016	5%	Children U5, MIS	Ghana MIS 2016
2019	3.2%	1500 Adult blood donors	Antwi-Baffour et al (2019)

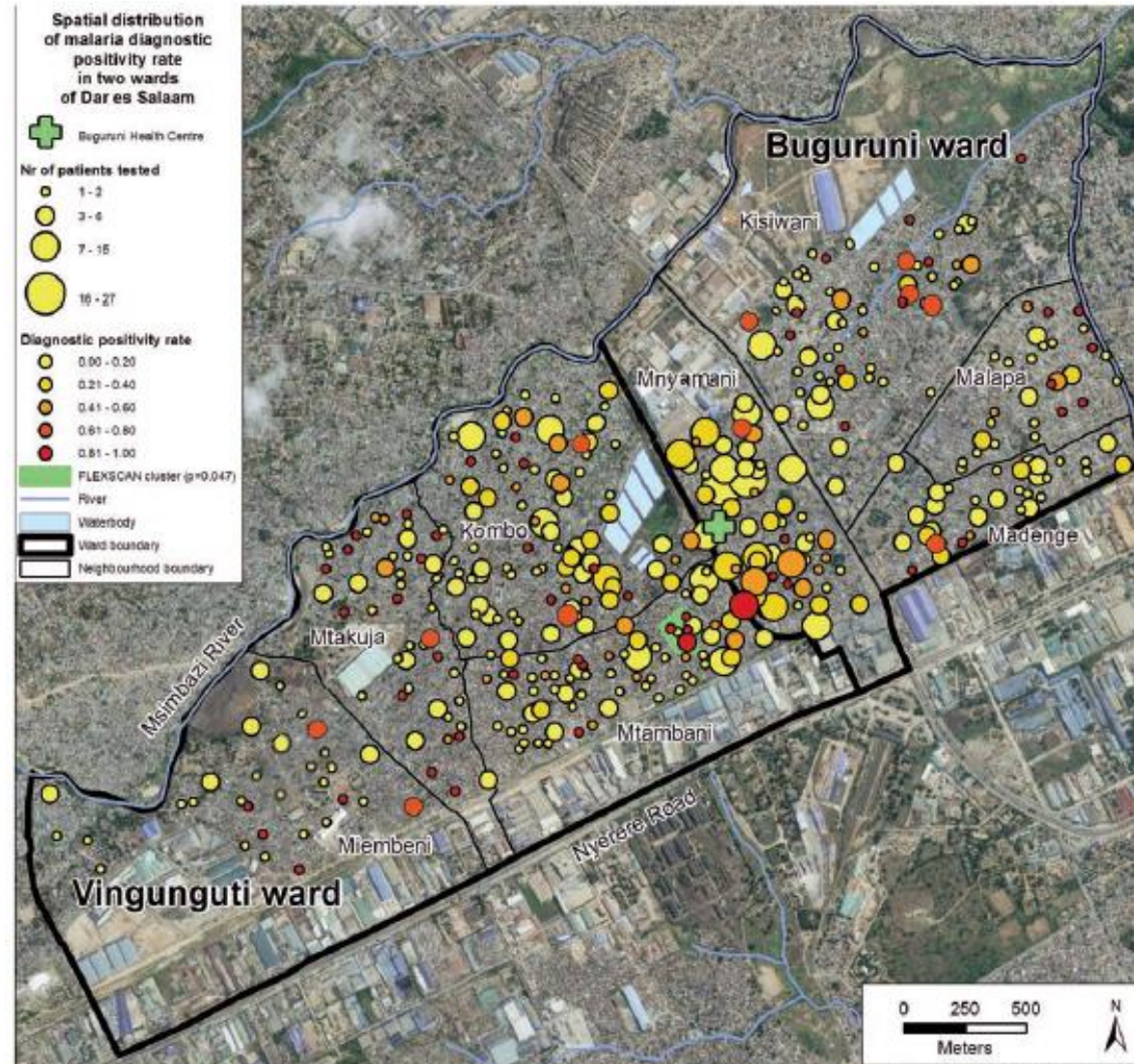
<http://www.atlasofurbanexpansion.org/cities/view/Accra>

Kinshasa



Ferrari *et al* (2016)

Microstratification – example of Dar es Salaam



Mlacha *et al* (2017)



**HBHI country NMCPs
managers and staff**

RBM

HBHI country partners

GF

**WHO HQ, Regional and
country staff**

USAID-PMI

BMGF

**MAP, STPH, IDM, PATH,
Northwestern University**

Many others...