

Bioko Island Malaria Control Project (BIMCP)

Partnership Framework, Progress and Impact

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Purpose of presentation

- Malaria situation in Equatorial Guinea
- Description of the multi-stakeholder partnership
- Implementation progress and achievements
- Impact of 1st round of indoor residual spraying on Bioko Island



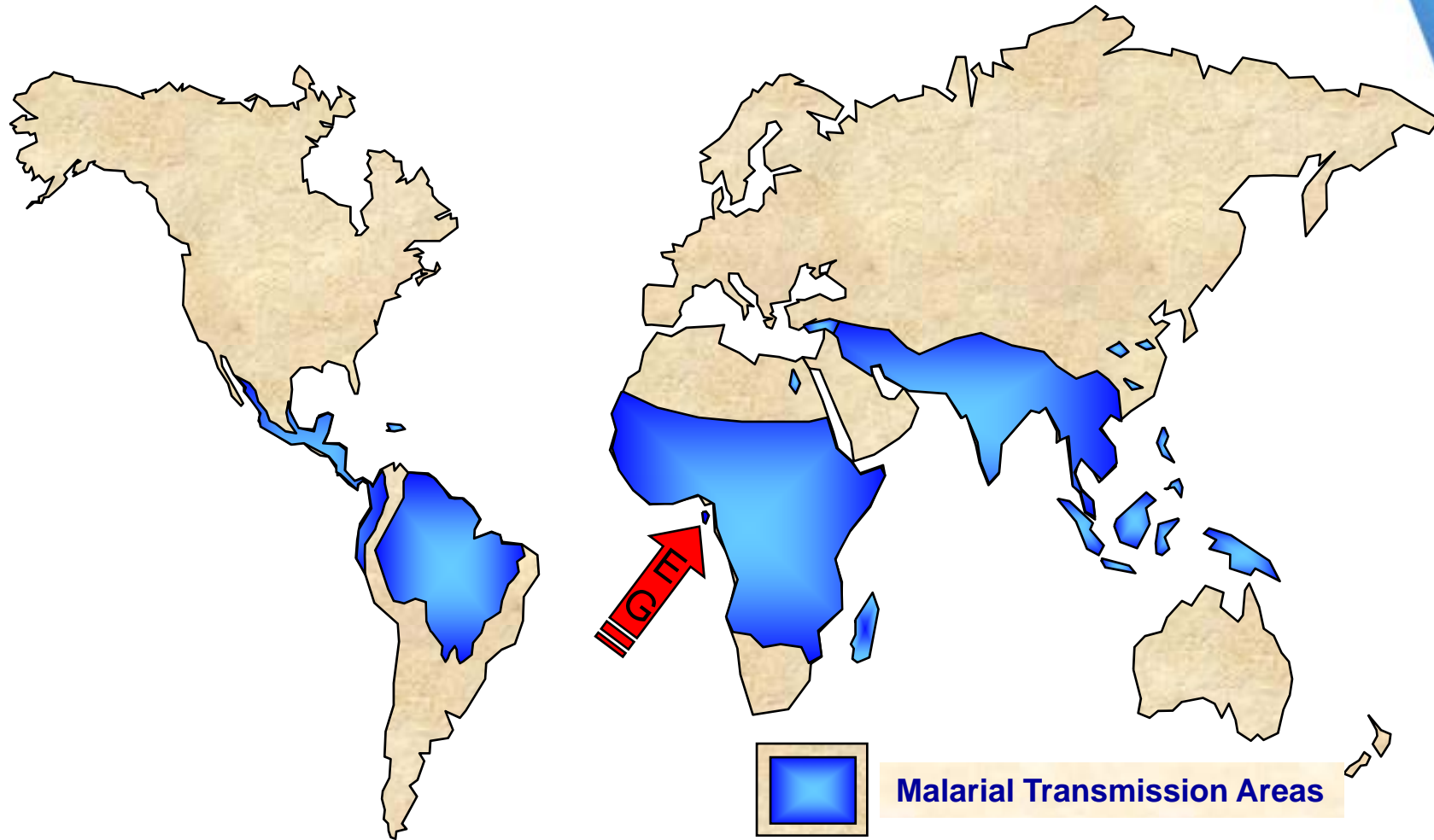


Malaria Context in Equatorial Guinea



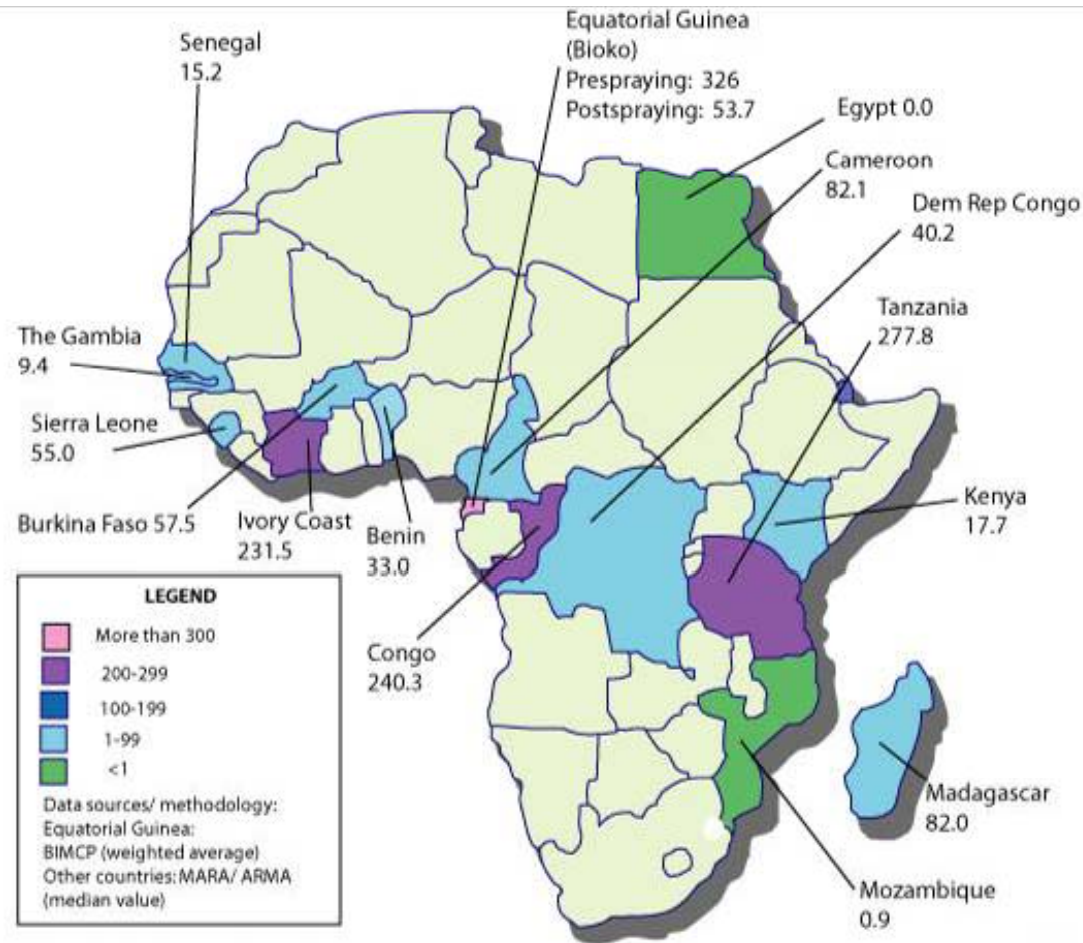


Malarial regions of the world





Number of malaria-infected mosquito bites per person per year



Notes: Data are not necessarily generalizable for each country. Post-spraying value for EG is an indirect estimate.





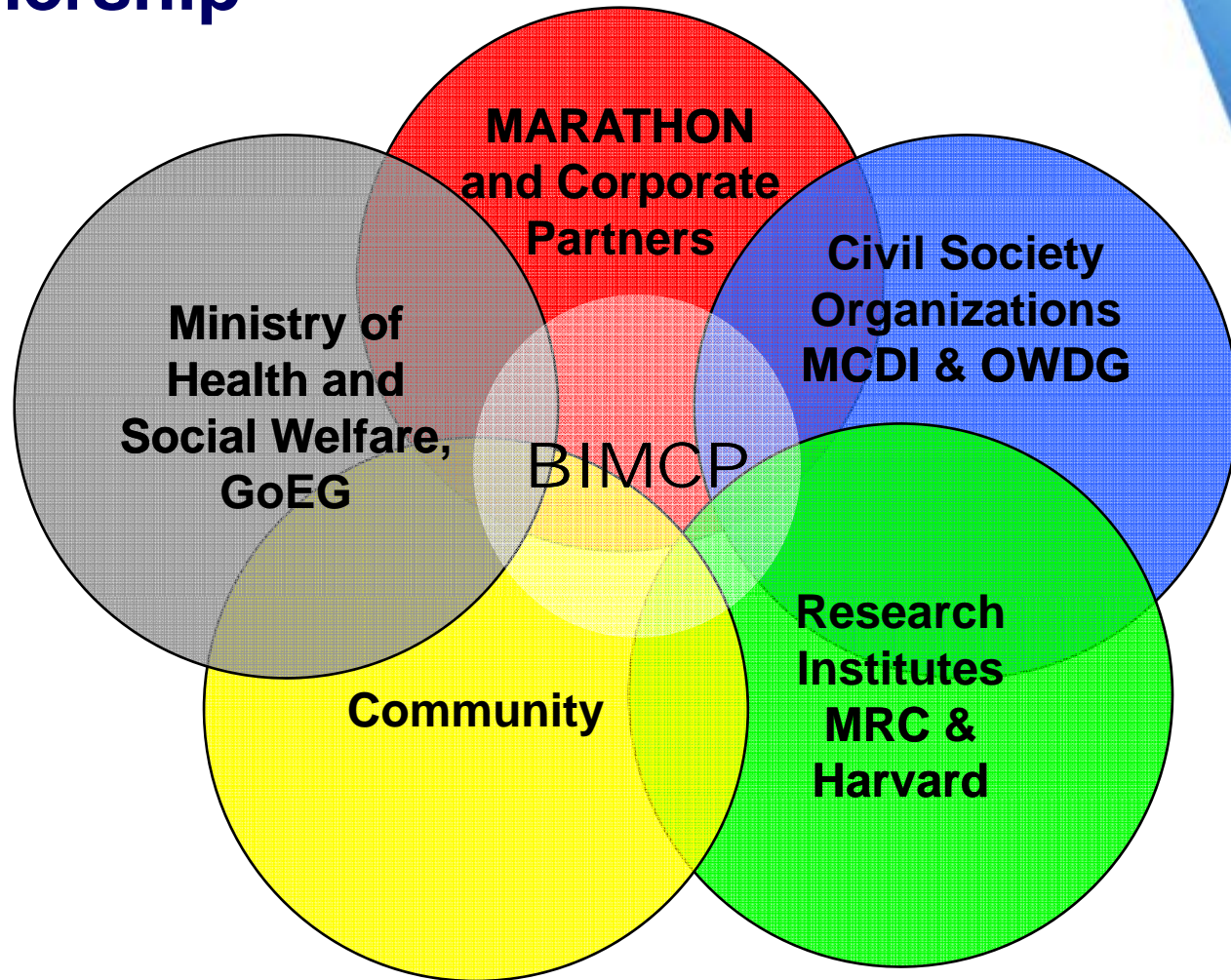
Multi-stakeholder partnership





Voluntary Multi-Stakeholder Partnership

Based on a highly cost-effective multi-stakeholder partnership between the private sector, Government and communities of Equatorial Guinea, civil society organizations, and research institutions





Voluntary Multi-Stakeholder Partnership

Stakeholders	Roles / Assets
Government [Equatorial Guinea]	Responsibility and Statutory Authority Policy and Legal Framework Leadership Organizational Infrastructure Access and Coverage Financing and Other Resources Commitment and Sustainability
Oil Companies [MARATHON / Noble Energy / Atlantic Methanol]	Technology / Skills / Innovation / Problem Solving Capacity Business Practice / Effective Management / Risk Assessment Political and Policy Leverage Financing Leverage (Government, Multilateral and Bilateral Donors) Financing and Other Resources Logistics
Non-Profit Organizations [MCDI / OWDG]	Knowledge of Development Context / Issues / Methods Specialized Knowledge and Practice in Social Sector Development / Poverty Alleviation Practical Country Field Experience Cost-Effective Delivery Systems Adaptability Participative, Community-Oriented Ethic and Approaches
Research Institutions [MRC / Harvard]	Technical Expertise in Research / Evaluation / Innovation Knowledge of Advanced State-of-the-Art Systems and Procedures Scientific Rigor / Methods / Credibility Education / Training Information Dissemination / Documentation
Community Organizations	Knowledge of Local Context / Conditions / Behaviors Practical Community-Based Field Experience Access and Credibility with Beneficiary Population





Benefits of partnering with MARATHON – A PVO Perspective

- Substantial corporate capacity / backstopping enabled rapid start-up and achievement of results
- Commitment to achieving results and strong interest in demonstrating substantive impact
- Commitment to sustainability





Project Components and Implementation Progress

August 2003 – April 2005





1. Indoor Residual Spraying





2. Improved diagnosis and treatment of malaria





3. Information, Education and Communications

...y te llevo al centro de salud el mismo día que empiezas a tener fiebre...
 ...y te doy toda tu medicina si es paludismo...
 ...y te llevo al hospital si así lo indica el médico

Porque te quiero, te cuido...

Proyecto Control del Paludismo en Biko, Guinea Ecuatorial

ESPERANZA NO ESPERA

COMO SIEMPRE, ESPERANZA NUNCA ESTA SEA AMALANA AL CUIDADO DE SUS TRES NIÑOS...

MAAAA...

DANIELITO... ¿QUE PASO, NIÑITO?

NO ME SIENTO BIEN, MAMAAA...

ANOCHÉ CUANDO TE ACOSTASTE ESTABAS BIEN...

¡PERO AHORA TU CUERPITO ESTA CALIENTE!

A ESPERANZA LE BASTA CON TOCAR LA FRENTE DE SU NIÑO PARA SABER DE INMEDIATO LO QUE ESTA OCURRIENDO...

¿LE ESTA COMENZANDO LA FIEBRE? ¡FUERTE COMO PALUDISMO!

NO SE CUANDO LE DEBERIA LLEVARLO EN ESTE MOMENTO AL CENTRO DE SALUD...

¿O ANTES? ESPERO A QUE LLEGUE AN ESPESO, LLEGA DECISION QUE HACERSE...

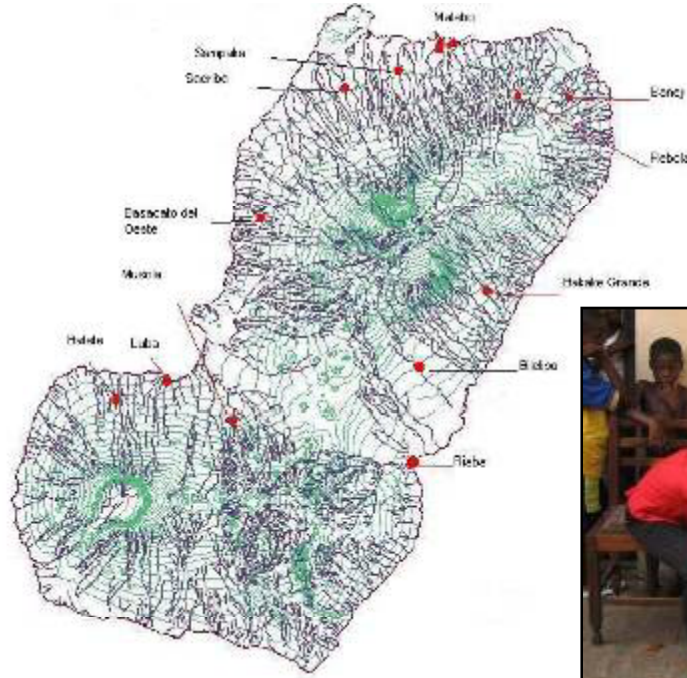
NO SE QUE SERA LO MEJOR...

EN ESE MOMENTO...





4. Surveillance and Evaluation





5. Capacity building: Training



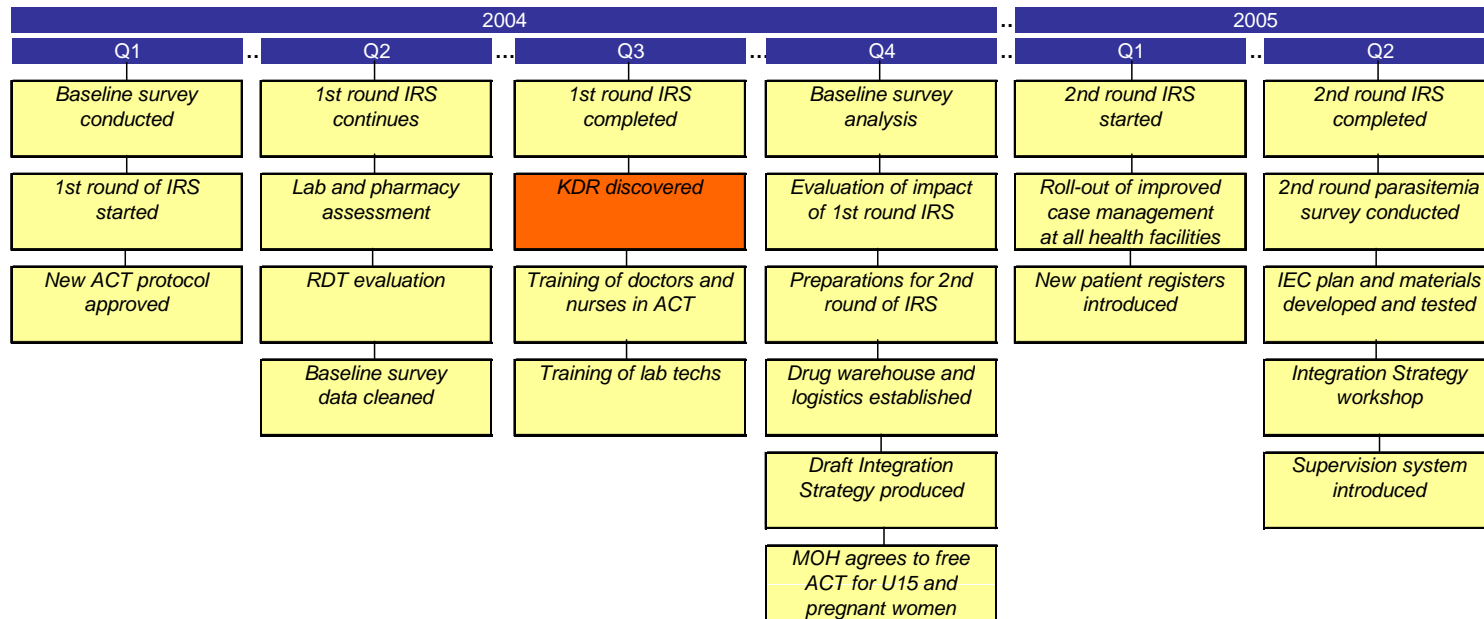
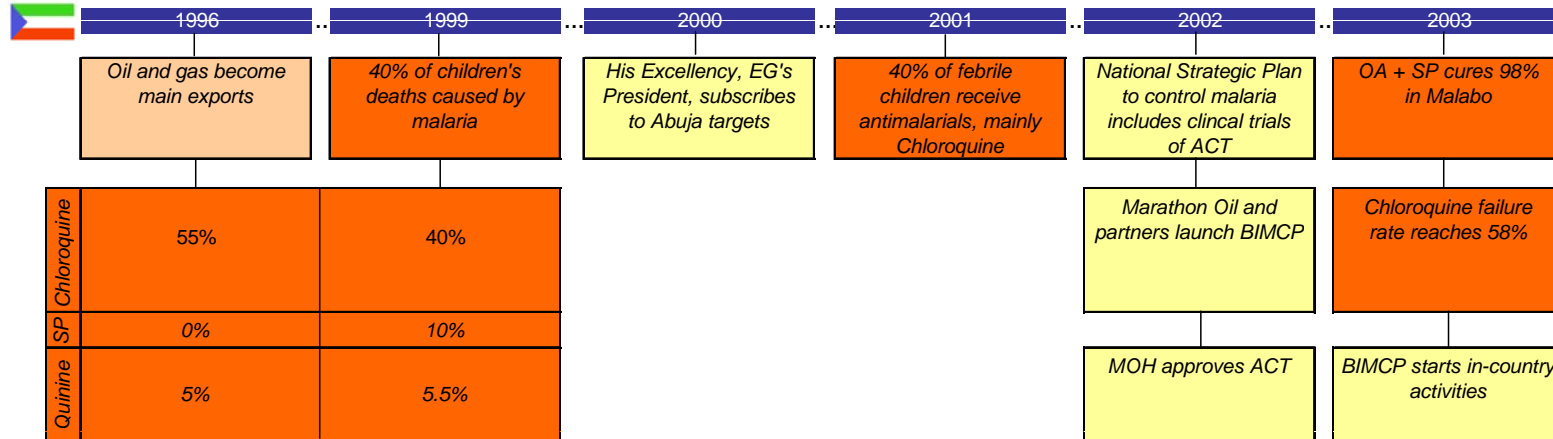


5. Capacity building: Information sharing through Manuals and Reports





BIMCP Implementation (2003-2005)





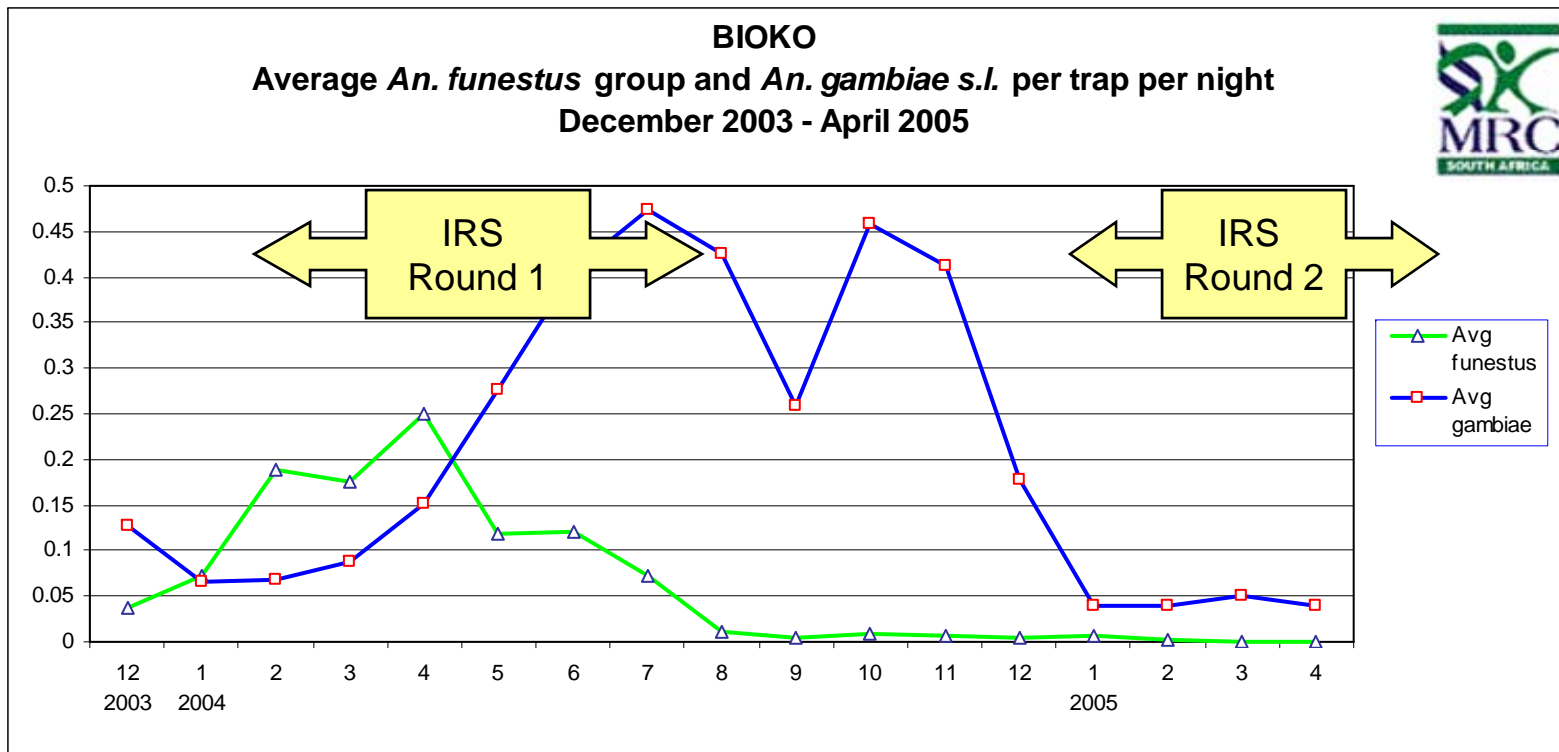
Impact of 1st Round of IRS on Bioko





Effect of Round 1 IRS on mosquito catch numbers

- Spraying has substantially reduced the number of malaria-carrying mosquitoes on Bioko





Effect Round 1 IRS on % of mosquitoes infected with malaria

- Surviving mosquitoes are much less infected with malaria

Pre-Spraying	Pre-Spraying	Post-Spraying		
		2-weeks	2-months	6-months
<i>A funestus</i>				
Average caught / 100 night per house	23.6	5.0	4.7	3.0
Proportion sporozoite positive % (n)	4.1 (364)	5.6 (72)	2.6 (154)	2.3 (217)
Estimated infective specimens / 100 nights per house	0.97	0.28	0.12	0.07
Relative change in numbers per night		0.21	0.20	0.13
Relative change in infective mosquitoes per night		0.28	0.13	0.07
<i>A gambiae sl</i>				
Average caught / 100 night per house	29.1	7.3	23.4	24.9
Proportion sporozoite positive % (n)	6.5 (705)	2.7 (112)	1.8 (386)	1.6 (696)
Estimated infective specimens / 100 nights per house	1.90	0.20	0.42	0.39
Relative change in numbers per night		0.37	0.80	0.86
Relative change in infective mosquitoes per night		0.16	0.22	0.21

4.1% -
2.3%
p=0.35

6.5% -
1.6%
p<0.001

Source: Analysis prepared by B. Sharp and I. Kleinschmidt, MRC





Impact of 1st Round IRS^a on % of children infected with malaria

- The rate of malaria infection among Under 15 year olds has decreased significantly

Sentinel site	February/ March 2004		February/March 2005		p-value for difference
	Prevalence of infection, % (n)	95% Confidence interval	Prevalence of infection, % (n)	95% Confidence interval	
All	45 (2451)	40 to 51	31 (2987)	23 to 40	0.0006*

Notes: (Analysis by Dr. Kleinschmidt (MRC) from data gathered by Dr. Torrez (MCDI))
 (1) 2004 survey carried out in June
 * change since 2004 statistically significant

The prevalence of infection dropped by 31% between 2005 with 2004

(a) Includes 1 month of ACT





Impact of 1st Round IRS^a on % of children who are anemic

- The prevalence of anemia among Under 15 year olds has decreased significantly

Sentinel Sites	February/ March 2004		February/March 2005		p-value for difference
	Prevalence of infection, % (n)	95% Confidence interval	Prevalence of infection, % (n)	95% Confidence interval	
All sentinel sites combined (excluding Santa Maria, Moka and Punta Europa)	76 (2232)	71 to 80	66 (2662)	60 to 72	0.0001*

Notes: (Analysis by Dr. Benavente (MCDI) and Dr. Kleinschmidt (MRC) from data gathered by Dr. Torrez (MCDI))
 (1) 2004 survey carried out in June
 * change since 2004 statistically significant

The prevalence of anemia dropped by 13% between 2005 with 2004





Incidence of malaria burden on households on Bioko Island

- Malaria has a negative impact on welfare of all households but particularly the poorest
- The burden from malaria is “catastrophic” for the poorest 40% of the population

Quintile of per capita household income	Cost-of-illness method (\$ per hh per month)	TC as % of hh Inc	Willingness-to-pay (\$ per hh per month)	WTP as % of hh Inc
Poorest 1	\$ 28.22	10.9%	\$ 23.10	9.0%
2	\$ 31.16	8.2%	\$ 31.15	8.2%
3	\$ 26.18	5.4%	\$ 21.69	4.5%
4	\$ 40.31	6.2%	\$ 30.74	4.8%
Wealthiest 5	\$ 43.42	2.4%	\$ 57.51	3.2%





Impact of 1st Round Spraying on welfare of Biokans

- The projected savings from not having to pay for malaria treatment have benefited everybody, but particularly the poorest

Quintile of per capita household income	Estimated Reduction in Malaria Cases per Year			Estimated Net Reduction in Economic Burden (\$ millions)			Net Burden Reduction as % of Total Annual Income		
	Mean	95% CI		Mean	95% CI		Mean	95% CI	
Poorest 1	32,420	23,284	41,969	1.60	1.18	2.02	6.1%	4.5%	7.7%
2	34,184	22,453	47,463	1.73	1.16	2.35	4.5%	3.1%	6.1%
3	27,669	19,498	36,392	1.51	1.11	1.90	3.0%	2.2%	3.8%
4	30,617	22,326	39,118	2.00	1.65	2.29	3.1%	2.6%	3.6%
Wealthiest 5	37,715	28,622	46,471	4.32	5.35	3.21	2.3%	2.9%	1.7%

- The BIMCP has already yielded a very substantial return on its investment

Total Cost 03-04: \$2.29 million

Total Benefit 03-04: \$10.8 million (95% CI: \$9.29m - \$13.16m)

Benefit-Cost Ratio: 4.1 (95% CI: 4.0 - 5.7)



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