

## Indoor Residual Sprays (IRS)

## **Supplier Conference**

Geneva

15 April 2014



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## • To initiate the dialogue

- ...between The Global Fund and suppliers of Indoor Residual Spraying (IRS) products and other interested partners
- To understand the current situation
- To share future plans and expectations
- To identify key actions to progress

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## Agenda

Time	Title and Objectives	Lead)
08.30 - 09.00	Registration and coffee	Marika Plasson
09.00 - 09.15	Welcome, objectives and agenda	Chris Game
09:15 - 09:45	Introductions	Steve Hornsby (facilitate)
09.45 - 10.15	Introduction to the Global Fund and to Procurement 4 impact (P4i)	Chris Game
	Initial Q&A	
10.15 - 10.45	Morning break	
10.45 - 11:05	Actions to Fight Malaria and IRS context	Dr Jan Kolaczinski
11:05 – 11:30	Global Fund Quality Assurance and testing / inspection requirements	Dr Joelle Daviaud / Dr Olivier
11:30 - 11:45	Current position ourpliers history forecosts	Pigeon Stove Hernoby
	Current position – suppliers, history, forecasts	Steve Hornsby
11:45 - 12:00	Global Fund funding model and organisational structures and roles	Sophie Logez
12:00 - 12:15	Q&A Panel	Jan/ Joelle/ Sophie/ Chris
12:15 - 13:15	Lunch	
13:15 - 14:30	Widening the discussion - presentations from partners - PMI, WHO,	Kristen George (PMI)
	UNDP, IVCC, RBM	Dr Emmanuel Temu (WHO)
	Plus Q&A Panel	Guy Rino Meyers (UNDP)
		Dr Tom McLean (IVCC)
		Dr Jan Van Erps (RBM)
14:30 - 15:00	Current performance (delivery/quality) – PPM orders, procurement	Stephanie Xueref / Judy
	process, case studies	Macleod, / Erin Seidner
15:00 - 15:30	Current performance (delivery/quality) – other/ overall	Dr Joelle Daviaud /
		Dardane Arifaj-Blumi
15:30 - 15:45	Afternoon break	
15:45 - 17:15	Root cause analysis / priority actions – group and presentations	Steve Hornsby (facilitate)
17.15 - 17.30	Re-cap on the day and next steps - tomorrow and Q3/Q4.	Aziz Jafarov

## Who's in the room?

- Who are you?
- What do you do?
- Why are you here?





• "At 17:30 today I would like....."







Introduction to The Global Fund and to Procurement 4 impact (P4i)

Christopher Game Chief Procurement Officer



TheGlobal Fund

RESULTS AT END 2013 Note: the Debte Fund is Type ARE. Taken seen and More to its ease new Part 142 covering the of the debte from



"An international financing institution that provides resources to low and middleincome countries in the fight against AIDS, TB and malaria".

C The Global Fund

To Fight AIDS, Tuberculosis and Malaria



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### Who are we?



Governed by a Board

## **Global Fund Guiding Principles**

- 1. Operate as a financial instrument, not as an implementing entity
- 2. Make available and leverage additional financial resources
- 3. Support programs that reflect country ownership and respect country-led formulation and implementation in 145 countries
- 4. Operate in a balanced manner in terms of different regions, diseases and interventions
- 5. Pursue an integrated, balanced approach to prevention, treatment and care
- 6. Evaluate proposals through independent review processes
- 7. Focus on performance by linking resources to the achievement of clear, measurable and sustainable results.



## **Partnership Approach to Governance**

A diverse partnership reflected in the Board and Country Coordinating Mechanisms



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Based on 5 core principals



**Invest more strategically** in areas with high potential for impact and strong value for money, and fund based on countries' national strategies;

**Evolve the funding model** to provide funding in a more proactive, flexible, predictable and effective way;

Actively support grant implementation success through more active grant management and better engagement with partners;

Promote and protect human rights in the context of the three diseases; and

**Sustains the gains, mobilize resources** – by increasing the sustainability of supported programs and attracting additional funding from current and new sources.



## **Procurement 4 Impact: Our Objectives**

#### Are directly aligned to the Global Fund's strategy

The Global Fund will become the benchmark organisation in the sector for Sourcing and Procurement

Using simple, clear leading edge processes and tools designed by and for the organisation

With measurable performance in value and lives saved



Minimising waste and eliminating non value adding activities

*Ensuring effective governance and watertight compliance* 

Building collaborative relationships with partner agencies suppliers and donors

## The Principles of Our Approach

Fundamentally changing the way we work across the supply chain to increase access to products



## Previously Direct Spend..."Voluntary Pooled Procurement"

### **Current State:**



### What could improve :

- Poor Penetration (Its Voluntary!!)
- Lack of Control
- High Agency Costs
- Wrong Agency Incentive model
- Agency 'local versus Global' expertise
- Poor visibility of innovation
- Lack of ownership / supplier relationships
- Poor funds flow
- Time / difficult to plan
- Mediocre internal customer service
- Little competition in pricing
- Role of Global Fund largely executional
- No volume leverage/Many spot purchases

*'It feels as though the roles have reversed and we have the agencies performing the sourcing, and the Global Fund is executing'* 

### What will change: Core Products

### Today

- Reactive procurement based on grant disbursement
- Spot tendering through PSA
- Minimal cross agency leverage
- Multiple negotiation processes
- Stock-outs and missed delivery windows
- Lack of standardised processes between Sourcing and PSM
- Wide discrepancy in prices between VPP and non VPP purchasing

### **12** Months

- Procurement based on forecast demand
- Long term, multi agency, collaborative contracts
- Single negotiation process
- 'Remote' inventory forecasting for Pooled Procurement
- A standardised project based approach.
- Contractually assured best price promulgated to all PR

### Improving our forecasting accuracy

To support our new planning process we will change the way we interact with our primary recipients. This approach will also be facilitated by the new funding proposals

Today	The Future
Demands are triggered by	Overall demand will be
PSM plans which are	calculated from available
presented in an	funding
inconsistent format.	
	This demand will be placed
Overall demand is	on manufacturers as an
calculated reactively by	underwritten volume
hand	Detailed PR requirements
Orders are placed on PSA	will be presented in a
for onward transmission to	consistent format
manufacturers	
manalaotaroro	We will use a planning tool
	to convert our forecast in
	to specific orders by type

## **The Commercial Relationship**

To ensure we maintain a competitive price in a longer term contractual framework we will need to change our commercial model.



## The Implications for our Suppliers

**A Closer, more strategic relationship** With appropriate governance and regular reviews.

### Longer term contracts

supported by increased focus on planning and scheduling

**Collaboration to drive continuous improvement** Joint teams working together to achieve specific objectives

### A fair return

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3

5

Based on market norms and with the opportunity for incentivisation.

### **Our Commitment**

We are committed to this way forward and will ensure our people have the right skills and attitude to make it work.



## Sourcing Achievements 2013

#### **Organization**

- New organization created by merging AMFm, Corporate & Voluntary Pooled Procurement
- New capabilities created, Business Planning and analysis, Active Pharmaceutical Ingredients and Formulation

#### Process

- Sourcing in-sourced from the Procurement Agents
- Procurement Agents re-purposed as Logistics Agents and placed in-house. New contracts to KPI Logistics agents further downstream and increase accountability

#### Market Dynamics

- All outstanding Market Dynamics performance issues resolved (WHO ARV guidelines & Paed. ARV's)
- Coalitions / consortiums formed with other donors and funders to leverage spend, specification and demand
- Indirect spend control initiated with grant teams (vehicles, civil works, IT & Lab supplies)

#### Performance

- 137 Million value / savings delivered in year to-date
- Lead-times reduced from 9 to 6 months
- LLIN global strategy successfully rolled out with tender savings of \$ 70Mil/annum)
- Training produced and delivered to FPM's and PSM's
- Spend through pooled procurement increased from \$300M to \$1Bn.

#### Supply Chain

- Supply Chain capabilities :
  - Ability to forecast
  - Track and trace system up and running
  - Ability to measure delivery performance (OTIF)
  - In country supply mapping for hi-impact countries under-way
  - Rapid Supply Mechanism defined for all three diseases and in process

## Sourcing Objectives 2014

**Organization** 

- Integrate Purchasing and Supply Managers(PSM's) into Sourcing organization
- Re-structure to segregate operations from strategy
- Strengthen Indirect spend area

#### Process

- Launch E-Procurement toolset (reverse auctions etc.)
- Launch country catalogue / application tool and implement in High-Impact countries
- Launch pooled disbursement

#### Market Dynamics

- Complete market strategy for Tenofovir combination drugs
- Leverage Indirect spend into partner organizations
- Introduce new Chinese and Indian vendors to the Aid sector
- Create repeatable capability by partnering in depth with Market Dynamic focused organizations

#### **Performance**

- Deliver 8% value / savings
- Achieve 60% OTIF
- Lead-times reduced from 6 to 5 months
- Roll out Global strategies on ACT's, Diagnostics & ARV's
- Implement Rapid Supply Mechanism

#### Supply Chain

- Complete Supply Chain mapping for High-Impact Countries
- Establish common platforms for traceability at beneficiary level (Counterfeit /theft /diversion)
- Create base level training for in-country partners

### **Overall Progress to Plan - Procurement 4 Impact – Goals**



- Just over \$ 137M value added
- 5 more countries have asked to join pooled procurement
- Current OTIF disappointing at 36.8% but for the first time it is measurable

- Develop and implement comprehensive reengineering of the Procurement Operating Model and Organization.
- Develop Procurement as a strong
  partner to create and facilitate Best in Class solutions and delivery for the Global Fund.
- 3. Create additional Value of 8% perannum
- 4. Increase spend penetration by 20% per annum
- 5. On Time and In Full (OTIF) service tocountries to exceed 75 %



## Malaria Portfolio & Priorities

Dr Jan Kolaczinski Senior Disease Advisor Strategy, Investment and Impact Division

Geneva



## Signed Proposals

# 32%





## **Disbursed Funding by Disease and Region (cumulative, End-2013)**

Region	HIV (US\$)	TB (US\$)	Malaria (US\$)
Africa - High Impact I	1,600,899,190	300,673,188	1,310,766,934
Africa - High Impact II	3,189,751,953	325,120,432	1,653,597,193
Africa - Central Africa	1,093,772,424	106,321,403	591,179,002
Africa - Western Africa	486,000,967	81,732,392	478,497,332
Africa - Southern/Eastern Africa	1,162,383,222	142,417,705	560,129,809
Asia - High Impact	1,941,551,670	1,383,191,621	684,319,052
Asia - South/East	455,764,456	244,132,119	478,661,296
Eastern Europe and Central Asia	1,176,170,770	579,461,845	36,611,709
Middle East and North Africa	424,273,779	207,403,778	294,678,332
Latin America and Caribbean	1,095,148,590	235,731,848	200,368,074
Total	12,625,717,022	3,606,186,329	6,288,808,733

## **Malaria Grants**

- 80 countries are eligible
- 298 active malaria grants (56% in WHO AFRO Region)
- 2 regional grants:
  - Regional Artemisinin Initiative (Greater Mekong Sub-Region)

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- Malaria Elimination in Central America + Hispaniola
- 1 Multi-country grant in Western Pacific

## **Expenditures by Service Delivery Area**



## **Countries Currently Delivering IRS With Global Fund Resources**

Global Fund Region	Countries
SSA: East Africa and Indian Ocean	Comoros, Eritrea, Ethiopia, Rwanda, Madagascar
SSA: Southern Africa	Mozambique, Namibia (Spray Equipment only), Zimbabwe
SSA: West and Central Africa	Gambia, Ghana, Sao Tome and Principe
East Asia and Pacific	Korea (Democratic Peoples Republic), Philippines, Solomon Islands, Timor Leste, Viet-Nam
Eastern Europe and Central Asia	Kyrgyzstan, Tajikistan, Uzbekistan
Latin America and Caribbean	Bolivia (Plurinational State), Guyana, Nicaragua
Middle East and North Africa	Sudan, Yemen, Iran
South and West Asia	Pakistan

## **Current Insecticide Choice**

Country	Pyrethroid	Carbamate	OP	DDT	Rotation
Bolivia	¥	¥			
Comoros	¥				
Eritrea	¥	¥			✓
Ethiopia		¥			
Gambia		¥	~		✓
Ghana			~		
Guyana	¥				
Iran	¥				
Korea (DPR)	¥				
Kyrgyzstan	¥				
Madagascar	¥	¥			
Mozambique		¥			
Nicaragua	Etofenprox				
Pakistan	¥				
Philippines	¥				
Rwanda	¥	¥			✓
Sao Tome & Principe		<b>~</b>			
Solomon Islands	¥				
Sudan		<b>~</b>			
Tajikistan	¥				
Timor Leste	¥				
Uzbekistan	¥				
Yemen		<b>~</b>			
Zimbabwe	<b>~</b>		✓	✓	✓

## **Global Fund Priorities**

#### The Global Fund Strategy Framework 2012-2016: "Investing for impact"

Vision	A world f	ree of the burden of HIV/AI	DS, tuberculosis and malaria with better hea	alth for all	
Mission			ditional resources to make a sustainable and aria in countries in need, and contributing to		
Guiding principles	<ul> <li>Being a financing instrument</li> <li>Additionality</li> <li>Sustainability</li> <li>Country ownership</li> </ul>		Partnership     Integrated, balanced approach	Performance-based funding Good value for money Effectiveness and efficiency Transparency and accountability	
Goals	10 million lives saved <sup>1</sup> over 2012-2016 140-180 million new infections prevented over 2012-2016				
	Global plan lead		Global Fund leading targets for 2016	Indicators for other selected services	
	HIV /	UNAIDS 2011-2015 Strategy, 2011		<ul> <li>PMTCT: ARV prophylaxis and/or treatment</li> </ul>	
	AIDS	Investment Framework, and UNGASS June 2011 Declaration	7.3 million people alive on ARTs	HIV testing and counseling     Prevention services for MARPs     Male circumcision	
Targets <sup>2</sup> (2016)		Investment Framework, and UNGASS June	<ul> <li>7.3 million people alive on ARTs</li> <li>4.6 million DOTS treatments (annual)</li> <li>21 million DOTS treatments over 2012-2016</li> </ul>	<ul> <li>Prevention services for MARPs</li> </ul>	

1. Based on impact of provision of ART, DOTS and LLINs using methodology agreed with partners. 2. Targets refer to service levels to be achieved in low- and middle-income countries. Note: Goals and targets are based on results from Global Fund-supported programs which may also be funded by other sources; targets are dependent on resource levels

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## **Global Fund Priorities**

- Follow WHO normative guidance: – WHO Global Malaria Program, 2014 Policy Brief http://www.who.int/malaria/publications/atoz/who-policybrief-2014/en
  - Roll Back Malaria Harmonization Working Group, Malaria Implementation Guidance in Support of the Preparation of Concept Notes for the Global Fund
  - http://www.rbm.who.int/partnership/wg/wg harmonizatio n/docs/HWG-2014-country-briefing-note.pdf



## **Global Fund Priorities**

Key Priorities:

- Scale up of 'Test.Treat.Track.'
- Replacement of quinine with artesunate as firstline treatment for severe malaria
- Maintaining the gains in vector control coverage:
  - Regular LLIN replacement
  - Use of IRS as an alternative to LLINs, particularly in the context of insecticide resistance management

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- Monitoring insecticide resistance



#### GUIDANCE FOR DEVELOPMENT OF NATIONAL INSECTICIDE RESISTANCE MONITORING AND MANAGEMENT PLANS

DRAFT FOR LIMITED CIRCULATION April 2014

	uction
	ON 1: Elements of a National Insecticide Resistance Monitoring & Management Plan
	rative Summary
2. Situ	ation Analysis
	Insecticides registered for public health and agricultural use
2.2	Main vector species
	Distribution
	Incrimination history
	Behaviour
2.3	Vector Insecticide Susceptibility Status
	Data mapping
	Data management and dissemination
24	Current Vector Control Interventions
2.5	Evidence and Knowledge Gaps
2.6	Risks and Risk Miligation
2.7	Financial and Other Resource Constraints / Gaps
	lementation Francework
3.1	IRM Decision-making body
3.2	Insecticide Susceptibility Monitoring
	Sentinel sites $\dots$
	Type/s of susceptibility and mechanisms tests
	Data recording and reporting
3.3	Interpretation of Test Results and Policy Implications
34	Human Resources
3-5	Procurement and Supplies
3.6	Regulatory Requirements and Procedures
3-7	Budget and Potential Sources of Funding
SECTI	ON 2: Annual Workplans for IRM Plan Implementation
	cticide Resistance Monitoring
1.1	Mosquito Populations to be Tested and a construction and a construction and a construction of the construc
1.2	Insecticide Susceptibility Testing
1.3	Resistance Mechanisms Identification
2, Inse	eticide Resistance Management
	eline / Gantt Chart
	nal Budget
Annex	es

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## **Dr Joelle Daviaud / Dr Olivier Pigeon**



## **Global Fund Quality Assurance** requirements **Responsibilities and implications**

The Global Fund: IRS Supplier Conference: 15th / 16th April 2014









## Global Fund's PSM Principles

- Procure quality assured products
- in a transparent and competitive manner
- In the most adequate form to support adherence (fixed dose combinations, children forms)
- At the lowest possible price
- In adherence to applicable National Laws and international agreements
- Supply Systems: capacity to ensure an uninterrupted supply of health products while minimizing risk of wastage and diversion



General principles while executing procurement:

- Best value for money
- Fairness, Integrity, 0 Transparency
- Effective competition 0









Pharmaceutical Products (since December 2010)

### Condoms

WHO/UNFPA Procurement Guidelines (2010)

**Global Fund Quality Assurance** for Health Products

**Diagnostic Products** (since March 2011)

Long Lasting Insecticidal Nets, IRS

WHOPES recommendations

2012 WHO Public Health **Pesticides Procurement** guidelines









## **Quality Standards for LLINs/ Pesticide products**

### **Quality Standards :**

Grant funds may only be used to procure pesticides that are recommended for use by the WHO **Pesticide Evaluation Scheme** (WHOPES)

### **Reference Guidelines:**

Guidelines for procuring public health pesticides on our web page at http://www.who.int/whopes/resources/ en/










# Global Fund quality requirements for procurement of IRS products

- 1. Select IRS approved by WHOPES (formulations/manufacturers)
- 2. Systematic Manufacturers CoA review at pre-shipment level
- 3. Random pre-shipment testing by an independent QC lab
  - Sampling to be done by an independent sampling agent
  - Testing:
    - QC testing by ISO 17025 certified laboratory, WHO Collaborating Centre for QC of Pesticides
    - According to WHO Methods and Specifications

4. Post shipment testing if risk identified after the receipt of the products









### **IRS** approved by WHOPES : **Global Fund List of IRS**

#### Purpose:

- tool to assist Principal Recipients (PR) of Global Fund grants in procurement.
- published in GF website in the following URL: http://www.theglobalfund.org/en/procurement/quality/health/
- Content:
  - insecticide for IRS listed by WHOPES and published at: http://www.who.int/whopes/Insecticides IRS Malaria 09.pdf
  - prepared based on the WHOPES evaluation report.
  - only IRS products for which QC methods specifications are published in WHOPES website

http://www.who.int/whopes/guality/newspecif/en/

- updated as and when changes happen in the WHOPES website
- non exhaustive list









### **Global Fund List of IRS**

	1.	IST OF INDO	OR RESIDUAL SE	PRAYS (	IRS) THA	T MEET WHOP	ES SPECIFICATIO	NS FOR U	ISE AGAINST	MALARIA VE	CTOR
	a Version #4 3 July 2013										
TO ap	turers listed below edifications for pest two who.int/whops 5 list of Insecticide	are subject to the cost	pliance of the formulated pro- sealth can be viewed at: in/				technical material has been see in WHO specifications. The list				ne use of the product of the bell Pund grants in procurations.
inter stars	application and legally re- with the CF requirement	in a strain processing and a strain of the COLUMN ST	<ol> <li>The Global Paul requires in part oranges, Public Paul 200 Paul</li> </ol>	residential for the	and with spatiality party of the second s	restances in a second provider the	provide the set is information that will an initially for the information of par- meters and parks parts or your (a) of the initial set of the set of the set of the set of the initial set of the set of the set of the set of the	addin Pendenia Part	international stranged with the income, the Principal Paragon	<b>Citchel Pond's requirement</b>	is a fasticity countries is salest 20 to de 3 to important that the period address information provided to the 14 but should
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### Monitoring the Quality of Pesticides Why? How?

#### WHO specifications for pesticides

define the essential chemical and physical • properties associated with the efficacy and the risk of use of a product

#### **Poor-quality pesticides**

- can result in inadequate application of the product
- increase the risk for users and the • environment
- lead to ineffective control and potential • development of resistance

#### QC essential to

- minimize risks associated with their handling and use
- guarantee their efficacy and stability during • storage

### ALITY CONTROL: PRESHIPMENT AND ARRIVAL

Quality control of pesticides is essential to minimize risks associated with their handling and use and also to guarantee their efficacy and stability during storage. Poor-quality pesticides can result in inadequate application of the product, increase the risk for users and the environment and lead to ineffective control and potential development of resistance.

WHO specifications for pesticides provide an international point of reference against which products can be judged, either for regulatory purposes or in commercial dealings, and thus prevent the trade of substandard products. They define the essential chemical and physical properties associated with the efficacy and the risk of use of a product.

All public health pesticides offered for sale should meet the WHO specifications, when they exist. When WHO specifications do not exist, any other relevant internationally accepted or national specifications should be considered. The bidder must provide evidence that the product offered complies with the relevant specification. A certificate of analysis should be provided by the supplier for each batch of product at the time of delivery. The independent control of the quality of the product has to be determined through independent analysis by the procurement entity.

Глобальный фонд





### **Quality of Pesticides:** WHO recommendations (1)

- All public health pesticides offered for sale should meet the WHO specifications, when they exist.
- When WHO specifications do not exist, any other relevant internationally accepted or national specifications should be considered.
- The bidder must provide evidence that the product offered complies with the relevant specification.
- A certificate of analysis should be provided by the supplier for each batch of product at the time of delivery.









### Quality of Pesticides: WHO recommendations (2)

- Independent control of the quality of the product to be determined through independent analysis by the procurement entity:
  - choosing an independent certified or accredited laboratory,
  - each batch should be tested for compliance with the specification.
  - random sampling of samples when appropriate
  - shipment of samples to the selected laboratory,
  - quality control according to methods referenced in the WHOPES pesticides specifications/other internationals spec if needed.
  - the analysis should not be limited to the active ingredient content but include all the physical and chemical properties specified in the WHO specifications or other relevant specifications.
  - reporting by the selected laboratory.







### **Responsibilities when pesticides are** procured with Global Fund resources (1)

#### PRs/PAs responsibilities

- 1. to inform the manufacturer on QA requirements in tender specifications/ contract/ PO steps;
  - Only WHOPES products could be procured
  - Quality control according to specifications published by WHOPES
  - Products to be shipped only when the GF secretariat issued the approval letter based on CoA review / QC results
- 2. When POs issued, to requests manufacturers
- to provide the PRs/PAs/the GF Secretariat the details of all the batch numbers allocated for the purchase order
- the Certificate of Analysis of all batches to be supplied ٠

#### The Secretariat/PAs responsibilities

- to send the CoAs for review to the selected Quality Control Laboratory
- to issue final approval letter, based on QC lab results, for shipment or ٠ not of the IRS lots







### **Responsibilities when pesticides are** procured with Global Fund resources (2)

#### The Quality Control Laboratory responsibilities

- to review the CoAs and based on the review, to select the lots to be tested
- to perform QC tests according to WHOPES recommended methods
- to issue CoAs review/ QC report and address them to the Global Fund

#### The Manufacturers responsibilities

- to provides the list of batches and CoAs to PR/PA/ GF
- to inform in advance pn the date of expecting release of the vbatches for sampling planning
- to set aside the consignment to enable the sampling agency to perform Consignment Inspection in the location of storage.
- to ship the batches quarantined, inspected, sampled and tested/skipped only on receipt of clearance from the PR/GF Secretariat/ PAs.









### Implementation

- Process systematically followed for all VPP/PPM procurements since 2012
- Process today implemented by most of the PRs

#### Challenges encountered

- Low number of IRS formulations WHOPES approved
  - difficulty to get appropriate formulation as requested by the country
  - delay in delivery of appropriate IRS
  - difficult to replace the IRS selected in case of quality failure
- Complete CoAs not provided
  - no randomization of lots tested could be applied, increase of QC, and delay in shipping the IRS
- Shipment sent and distributed in country before sampling
  - Considerable delay in sampling and QC testing
- Significant Quality failures









### Conclusion

- Procurement of appropriate IRS in due time is still challenging for many programs
- The lack of pesticides of assured quality has delayed the use of LLINs and IRS by countries and in some cases for more than one year:
  - no spraying before the raining season
  - great public health significance in particular by contributing to insecticide resistance.
- Quality of Pesticides cannot be compromised:
  - The Global Fund is increasing the quality monitoring of pesticides
- Improve collaboration with WHO, Partners, Quality Control Laboratory and communication with Manufacturers should lead to increase the access to assured quality pesticides by the programs in country









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### Quality Control of pesticide formulations

#### Olivier Pigeon & Marie Baes Walloon Agricultural Research Centre (CRA-W), Gembloux, Belgium

#### The Global Fund, IRS Supplier Conference, Geneva, 15 April 2014

Centre wallon

Centre wallon de Recherches agronomiques

Département Agriculture et Milieu naturel

Unité Physico-chimie et Résidus des Produits Phytopharmaceutiques et des Biocides Bât. Carson Rue du Bordia, 11 - B-5030 GEMBLOUX - Tél : ++ 32 (0)81 62 52 62 - Fax : ++ 32 (0)81 62 52 72 pesticides@cra.wallonie.be - http://www.cra.wallonie.be





Plant Protection Products and Biocides Physico-chemistry and Residues Unit (U10)

WHO Collaborating Center for Quality Control of Pesticides



✓ Has a long experience in pesticides physico-chemistry and residues ;

✓ Gives support to WHO, FAO, CIPAC, ESPAC, GF, UNDP ...



**ISO 17025 Accredited** 



### Quality Control of pesticide formulations



Importance to control the quality of pesticides

Poor-quality pesticides :

- > are unlikely to serve the intended purpose;
- > are likely to provide poor value to users;
- are likely to be more harmful, directly or indirectly, to humans and the environment;
- may be phytotoxic to treated crops.



### Quality Control of pesticide formulations



### Importance to control the quality of pesticides

#### Examples of adverse effects of poor-quality pesticides :

- Excessive level of a hazardous impurity increases risks of adverse effects on users and/or the environment.
- Poor suspensibility of dispersions may produce uneven distribution of active ingredient in the spray tank and uneven application.
- Insoluble particulates present in products intended for spray application may block nozzles and/or filters.
- Granular formulations which are too fragile may produce respirable dust when handled and applied, increasing the risk of user exposure to active ingredient.
- → Any of the above consequences will usually have a negative impact on the marketability of a pesticide product and its registration could be withdrawn or restricted









Manual on development and use of FAO and WHO specifications for pesticides

November 2010 - second revision of the First Edition





#### **Scope of specifications**

- → to provide unique, robust and universally applicable standards for quality of agricultural pesticides (FAO) and public health pesticides (WHO)
- Jugement of the quality of products
- Enhance confidence in the purchase and use of pesticides
- Better pest control
- Ensure public and environmental safety





#### What is a pesticide specification ?

- A list of basic quality criteria for distinguishing between products having acceptable and non-acceptable quality (of the same type).
- But it does not define the best product, nor that the product is suitable or safe for a particular purpose.
- FAO/WHO limits of specification includes the uncertainty of measurement : this means that a product which is outside or at the limit for a parameter cannot be considered as a good quality product.





#### Pesticide specification criteria

- Description of the product
- Active ingredient identity and content
- Relevant impurities
- Physical properties
- Storage stability









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#### Use of specifications

- as part of a contract of sale, so that a buyer may purchase a pesticide with some guarantee of the quality expected;
- by the competent authority to check that the quality of the formulation on the market is the same as that registered.

NB : FAO/WHO specifications may be used by national authorities as an international point of reference but are not intended to replace national or international registration requirements.







**Publication and revision of specifications** 

- FAO/WHO development of specifications has changed to a "new procedure" in recent years.
- Evaluation by the FAO/WHO Joint Meeting on Pesticide Specifications (JMPS)
- Specifications for TC and formulated products + evaluation report
- http://www.who.int/whopes/quality/en/





Test methods for Quality Control of pesticides

**Test methods supporting specifications** 

- Widely-accepted, well-validated test methods are essential.
- Test methods should be straightforward and robust.
- Well-trained technicians and a suitably-equipped laboratory are required for reliable results.





Test methods for Quality Control of pesticides

CIPAC = Collaborative International Pesticides Analytical Council

- CIPAC is an international, non-profit-oriented and non-governmental organization devoted to:
  - promote the international agreement on methods for the analysis of pesticides and physico-chemical test methods for formulations.
  - promote inter-laboratory programmes for the evaluation of test methods
- The methods are proposed by companies and are tested by laboratories all over the world. After evaluation of the results and adoption, the methods are published in the CIPAC Handbooks.
- http://www.cipac.org/





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### Thank you for your attention



Centre wallon de Recherches agronomiques

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#### **Current position – suppliers, history, forecasts**

**Steve Hornsby** 

15 April 2014 Geneva

😋 The Global Fund 🌍 Le Fonds mondial 😋 El Fondo Mundial 🌍 Глобальный фонд 🌍 全球基金 الصنديق العالمي



#### Historical and forecast GF IRS demand Potential \$100m spend over 2014 - 2018



# NFM Envelope includes \$4.4bn for Malaria over next 3 years



20 March 2013

The Global Fund ( Le Fonds mondial ( El Fondo Mundial ) Глобальный фонд ( 全球基金 الصندوق العالمي

#### **Countries receiving IRS funding with Global Fund Malaria grants Financing**

Malaria Grants: Coverage by Country (Rounds 1-10)



#### **Initial segmentation: Matrix of WHOPES recommended** pesticides and approved manufacturers





**WHOPES** 

# Recommended pesticides for IRS and approved manufacturers (and current GF suppliers)

Pesticides listed by WHOPES	Pesticides recommended for use as IRS	Formulations approved by WHOPES	Tagros India-	BASF (Agro)	Megma ni India	India	Heranba India (Paar Impex)	Bharat Rasaya n	Sumitom o Japan	Bayer Corp Sciences	FMC Corp	Cheminov a	Agros South Africa	lsagro Italy	Mitsui Chemical s	Syngenta
Alpha- Cypermethrin	Pyrethroids	TC,WP,SC	√ TC,WP, SC	√ TC,WP, SC	√ TC,WP, SC	√ TC,WP, SC	√ TC,WP, SC	√ TC,WP, SC								
BIFENTHRIN	Pyrethroids	TC,WP									√ TC, WP					
CYFLUTHRIN	Pyrethroids	TC, EW, WP								TC, EW, WP						
Deltamethrin		TC,DP,WP,SC, EC,UL,WG,EW ,WT				√ TC,WP, SC,EC, UL,WG	√ TC,DP,SC ,EC,WG, WP,UL,E W	,		√ TC,DP,S C,EC,EW, WP, WT, UL,WG			√ TC, DP, SC, EC, WP, UL, WG	√ TC,EC		
Etofenprox	Pyrethroids	TC,WP,EW													√ TC,WP,E W	
Lambda- Cyhalothrin	Pyrethroids	√ TC,EC,WP,CS	√ TC,EC, WP					√ TC								√ TC,EC, WP,CS
Fenitrothion	Organophosphates	TC,WP,EC							√ TC,WP, EC							
Malathion	Organophosphates	TC,DP,EC,UL										√ TC,DP,EC, UL				
Pirimiphos- Methyl	Organophosphates	TC,EC,CS														√ TC,EC, CS
BENDIOCARB	Carbamates	TC,WP								√ тс,wр						
Propoxur	Carbamates	TC,WP								√ TC,WP						
p,p'-DDT	Organochlorines	TC,DP,WP														

The Global Fund New Funding Model

IRS meeting ,Geneva ,15 April 2014

#### Principles of the new funding model

**Principles** of the new funding model

- **Bigger impact:** focus on countries with the highest disease burden and lowest ability to pay, while keeping the portfolio global
- **Predictable funding:** process and financing levels become more predictable, with higher success rate of applications
- Ambitious vision: ability to elicit full expressions of demand and reward ambition
- Flexible timing: in line with country schedules, context, and priorities
- More simple: for both implementers and the Global Fund

#### **Overview of the new funding model**



### 5 areas to prepare for the new funding model



### NFM: Health Product Management requirements



- PSM coordination mechanism
- Health product management
- Supply chain strategy/ Health Systems Strengthening

### Health Product Management requirements: Country Dialogue



#### Rationale

The Country Dialogue process is meant to ensure that requests to the Global Fund:

- Are integrated into the broader disease strategy and National Strategy for Pharmaceutical System Strengthening
- Build upon the lessons learned from past grant implementation
- Are inclusive and reflect inputs of diverse stakeholders, including the regulatory authorities, supply chain stakeholders and lab authorities

### Health Product Management: Grant Making Step



#### **PSM-related Requirements**

- Finalized estimated needs (quantification aligned with program targets)
- Defined PSM arrangements and the specific activities to address the systemic gaps
## **PSM Preparation for the Concept Note**

#### **Countries**

Work on defining a Pharmaceutical System Strengthening Strategy (with costed implementation plan and short/long term priorities) aligned with HSSP Define the system for estimating health products' requirements **Ask for TA and contact PSM Specialists in the Global Fund for guidance** 

#### **Global Fund**

Options for flexibilities (extensions and/or other provisions) to deal with challenges related to timing Country-specific discussions GF- Country Programs- Partners recognizing the different country-specific situations Support Countries to prepare <u>for the Concept Note</u>

#### **Partners**

TA in:

- Pharmaceutical System Strengthening (PSM optimization; RUM; QA; PV etc)
- Quantification for HIV, TB and Malaria medicines and commodities

# Global Fund's PSM Principles

- Procure quality assured products
- in a transparent and competitive manner
- In the most adequate form to support adherence (fixed dose combinations, children forms)
- At the **lowest possible price**
- In adherence to applicable National Laws and international agreements
- Supply Systems: capacity to ensure an uninterrupted supply of health products while minimizing risk of wastage and diversion



General principles while executing procurement:

- Best value for money
- Fairness, Integrity, Transparency
- Effective competition



#### **Global Fund Q & A Panel**





#### Agenda

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	UNDP, IVCC, RBM	Dr Emmanuel Temu (WHO)	
	Plus Q&A Panel	Guy Rino Meyers (UNDP)	
		Dr Tom McLean (IVCC)	
		Dr Jan Van Erps (RBM)	
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	process, case studies	Macleod, / Erin Seidner	
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# President's Malaria Initiative Indoor Residual Spraying Program









President's Malaria Initiative

Kristen George, Malaria Technical Advisor PMI/USAID April 15, 2014

# PMI Program Worldwide

The following receive U.S. Government malaria funding and are part of the President's Malaria Initiative (PMI). Nineteen country program: Angola, Benin, Democratic Republic of the Congo, Ethiopia, Ghana, Guinea, Kenya, Liberia, Madagascar, Malawi, Mali, Mozambique, Nigeria, Rwanda, Senegal, Tanzania, Uganda, Zambia, and Zimbabwe Greater Mekong Subregional Program: Burma, Cambodia, China (Yunnan Province), Lao PDR. Thailand, and Vietnam

The following receive U.S. Government malaria funding but are not part of PMI: Burkina Faso, Burundi, Chad, and South Sudan. Amazon Molaria Initiative Bolivia, taran Ecuador, Guyana, Peru, and Suriname Amozon Meloria Initiative Bolivia, Brazil, Colombia,

1

# History of PMI Support to IRS

- IRS was included as one of the core elements of PMI's strategy from the start of the Initiative
- PMI helped to re-introduce IRS as an effective tool in SS Africa for malaria control
- PMI provides a comprehensive package of support for IRS





# FY 2013 Results

#### >5.6 Million Houses

sprayed in 15 countries

#### >22 Million Residents

#### protected by IRS

#### >29,000 Personnel Trained

as spray operators, team leaders, or supervisors High Coverage

Average of 95% coverage across all countries

# FY 2014 Program Focus



Proposed total IRS budget: \$89.7 million

# Adjusting IRS Results to Settings - 2014



\* Indicates projected targets

# **Insecticide Evolution**



# Insecticide Resistance: Ghana Example

- Used pyrethroids from 2008 2011 as program scaled-up from 5 to 9 districts
- Emerging insecticide resistance and the transmission season necessitated a switch to a long lasting organophosphate
- Higher cost of the organophosphate forced a reduction in program size from 9 to 4 districts
- Preliminary study results comparing pyrethroid & organophosphate spray rounds show 56% reduction in parasitemia

# PMI's Insecticide Procurement Process & Policies

- WHOPES approval required
- Based on annual ento data, among other factors
- Country-led decision
- Procurement by insecticide class, RFQ to all known vendors
- Competitive process
- QA/QC pre-shipment testing

WHO recommended insecticides for indoor residual spraving against malaria vectors

Insecticide compounds and formulations <sup>1</sup>	Class group <sup>2</sup>	Dosage (g a.l./m²)	Mode of action	Duration of effective action (months)
DDT WP	OC	1-2	contact	>6
Malathion WP	OP	2	contact	2-3
Fenitrothion WP	OP	2	contact & airborne	3-6
Pirimiphos-methyl WP & EC	OP	1-2	contact & airborne	2-3
Pirimiphos-methyl CS	OP	1	contact & airborne	4-6
Bendlocarb WP	C	0.1-0.4	contact & airborne	2-6
Propoxur WP	C	1-2	contact & airborne	3-6
Alpha-cypermethrin WP & SC	PY	0.02-0.03	contact	4-6
Bifenthrin WP	PY	0.025-0.05	contact	3-6
Cyfluthrin WP	PY	0.02-0.05	contact	3-6
Deltamethrin SC-PE	PY	0.02-0.025	contact	6
Deltamethrin WP, WG	PY	0.02-0.025	contact	3-6
Etofenprox WP	PY	0.1-0.3	contact	3-6
Lambda-cyhalothrin WP, CS	PY	0.02-0.03	contact	3-6

# Relevant Issues

- Long lead times
- Manufacturers desire to have multi-year commitments
- High cost of newer compounds resulting in program size reduction
- Current environment isn't conducive to development of new insecticides

# **Looking Ahead**

- **Concentrate IRS focus on:** Data driven decisions IRS targets, insecticide choice, other vector control interventions
- Support new product development
- Commitment to improving WHOPES process



# Thank you!



# 1 saving lives

#### **Tom McLean**

#### **INNOVATION AND ACCESS**

GFATM INDOOR RESIDUAL SPRAY CONSULTATION

Geneva April 2014



#### Innovative Vector Control Consortium IVCC Formed in 2005 to Meet the Challenge of Innovation in Vector Control





#### Insecticide Resistance at The Tipping Point









#### Modelling short and long lived IRS





12 month season No resistance Equal Repellency Realistic lifetime curves from IVCC data.

#### IVCC **Public Health Insecticides** Portfolio: March 2014





#### **IVCC** Funding







#### \$12.00 Spray Ops Commodities \$10.00 Spray Ops \$8.00 \$6.00 Local Labor \$4.00 Local Admin \$2.00 S-US-Based Burkina Faso Motambique Senegal R-Manda Ethiopia Benin Niseria Average Ghana Mali ANBOIA **Liberia** Labor and STTA Medium Programs Large Programs Small Programs

#### FIGURE CC4: IRS COUNTRY UNIT COSTS PER PERSON PROTECTED, BY COST CATEGORY

Data from PMI / Abt AIRS costs report.

#### IQK<sup>™</sup> "Insecticide Quantification Kits"







- A market place that values Prevention and Innovation.
- Capacity on the ground for insecticide resistance management.
- Product Innovation and competition from manufacturers.
- Processes to bring products quickly to registration and use.
- Policy and Guidelines for effective interventions

# PC saving lives

#### Thank you



#### Market Rupture Needed Pascal Day Bayer 2006

1956



<u>Music</u>: Vinyl Disc

<u>Telephone</u>: Wire Phone

<u>Television</u>: Cathode Ray Tube



<u>Music</u>: CD and MP3



<u>Telephone</u>: Mobile+Camera+



2006

<u>Television</u>: Plasma/LCD HD



<u>IRS</u>: Hudson Sprayer WP formulation 2000 mg DDT/m<sup>2</sup>



<u>IRS</u>: Hudson Sprayer WP formulation 2000 mg DDT/m<sup>2</sup>



#### Why IVCC Exists





#### Estimated Global Agrochemical Market (\$bn)





### Insecticides for IRS Quality Assurance

EVERAL ~

1.1

The Global Fund, 15 April 2014 Jan Van Erps



# 8/9



Diapositive 104 sur 12

8 out of 9 purchase orders had failing batches

WHOPES laboratory Gembloux, Belgium

All are manufacturers of products with WHO recommendations and specifications

8 POs for 440 tonnes worth 5 million USD



- Appearance
- Content
- pH (hydrolysis)
- Wet sieving test (nozzles)
- Suspensibility (equal spraying)
- Persistent foam (rincing, cleaning, spilling over)
- Pourability
- Prolonged storage stability test (soluble bags)



#### **PRE-SHIPMENT (WHOPES and GLOBAL FUND)**

**Post-shipment** 

1 batch with persistent foam failure pre-shipment had content totally decomposed post-shipment

2 batches OK pre-ship had failing soluble bags post-ship

Testing <u>and sampling</u> to be done by an independent agent

Supplier declared failure but did not share results

Average testing time 9 days – 3,5 weeks (10-14w PSST)



#### How did other buyers do?

#### UNICEF:

tender for QC reference lab : no problems !

#### <u>RTI :</u>

62 orders 2006 - 2011 :

CDC approved lab in Nairobi : no problems !

#### **Countries:**

countries with local QC labs: no problems !

#### Why? "UNDP newcomer"? Are all tests performed?




Why also originators?

**Deterring competition?** 

Pressure on quality due to pressure on lead times and price?

Equilibrium : Quality – Lead Time – Price out of balance?



## Pre-shipment and independent sampling!

## Is the bar of the WHO specs too high? If not why failures against full testing?

Striking the balance between: Quality – Lead Time – Price









# **IRS Procurement**

### PSM Group of GF Partnership Team UNDP, Geneva

15 April 2014 IRS meeting Geneva



## Which Insecticides

- 1. Pyrethroids: Deltamethrin, Alpha-Cypermethrin, Lambda-Cyhalothrin
- **2. DDT**
- **3. Bendiocarb**



## Which countries?

- 1. Zimbabwe
- 2. Tajikistan
- 3. Kyrgystan \*
- 4. Soa Tome and Principe \*
- 5. Sudan
- 6. Iran



## **Process and principles**

- Only WHOPES approved suppliers and products
- > Open competitive process
- Process starts minimum 9 months before planned spraying
- Registration is a standard requirement where applicable
- All batches are tested for the first two years of supply
- Testing is done pre-shipment



## **Process and principles**

Suppliers are informed of the pre-shipment tests

- Testing will be done on the specifications and standards provided by the supplier
- COA is a standard requirement
- All QC tests done in Gembloux Laboratory WHO partner
- Results of the tests are shared with national authorities

Waste management guidelines need to be provided. (for DDT including disposal of residual volumes and packaging)



## Few WHOPES approved suppliers

- The different formulations are not always available (batch size, risk of non compliance)
- QC testing takes a long time. (best QC lab only QC lab)
- Non compliance with at least one of the requirements
- All suppliers indicated that their non compliance was not relevant.

When can a product still be used if it is non compliant?



- But most agreed to replace batches some desisted to further supply
- 100 % compliance was reached after second or third replacement
- Pressure from programs to not miss spraying season
- No time for stability testing so only quantities for use within 9 months after arrival
- Need for better waste management tools and environmental friendly products and packaging



wet sieving, suspensibility, content, content after storage stability tests. closure and dissolution rate of soluble bag, persistent foam, release of Lambda-Cyhalothrin, sealing of bags



## Discussion

When can a product still be used if it is non compliant 100 % compliance was reached after second or third replacement

- Do we need more flexibility in specifications (lower the standards).
- How build more confidence in product and manufacturers
- Information about the impact on the environment





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Procurement of IRS under PPM PFSCM's experience

April 15<sup>th</sup>, 2014



PFSCM IS A PARTNERSHIP OF ISI AND MSH

JSI Ømsh

WWW.PFSCM.ORG

# Partnership For Supply Chain Management and PPM

- **PFSCM** a consortium of 13 private sector, nongovernmental and FBOs
- 2 main projects
  - Supply Chain Management System (SCMS) funded by PEPFAR since 2005
    Pooled Procurement Mechanism (VPP) funded by the Global Fund since 2009
- Under PPM
  - □ PFSCM has to date provided procurement service to 60 countries
  - □ PFSCM supplies medicines and health products in support of two diseases
    - ✓ HIV/AIDS: ARVs, HRDTs
    - ✓ Malaria: ACTs, ANTM, MRDTs, IRS
- PFSCM team working on PPM
- Service scope: procurement, transport, custom clearance, delivery to CMS
- 40 people spread across the US, NL, UK and Switzerland with 3 key functions (Client relations, Operations, Freight and Logistics)
- Direct relationship and communication with Principal Recipients
- Daily coordination with GF secretariat (Sourcing teams, Regional teams)

## PPM IRS orders at a glance

#### ✤ 13 inquiries spread over 2 years

#### ✤ 6 countries

Pakistan, Mozambique, Cape Verde, Timor Leste, Yemen, Gambia

#### Short procurement turnaround

- ~ 20 weeks in average from requested delivery date
- ranging from 4 weeks and up to 36 weeks

#### ✤ 4 different products from the WHO approved IRS list

- Deltamethrin WG 25% and WP 5%
- Bendiocarb WP 125g and 62.5g
- DDT WP 670g and 75%
- Lambda Cyhalothrin 10 CS



# Quality challenges of IRS products procured under PPM

- ✤ Batch testing at WHO pre-qualified laboratory systematically carried out
- ✤ Independent sampling ( RFP for inspection and sampling service April 2014)
- ✤ PPM QC test failure > 55% (5 out 9 orders for which products have been tested )
- Quality failures
  - Suspensibility 3
  - Bag dissolution 2
  - Active ingredient 1

- Persistent foam 1
- Wet sieve test 1
- Impurity 1
- Timeline for replacement: 7 to 12 weeks
- Impacts:
  - **Programmatic-** spraying period missed
  - **Financial** product replacement/destruction, ocean or road transport changed to air, level of efforts
  - Reputational weaken trust in the reliability of suppliers and quality/safety of IRS

# PFSCM procurement and evaluation process for PPM/IRS

#### Principal Recipient's request

- Receive enquiry and check for completeness product identification/quantity
- Confirm it is a WHO recommended insecticide for IRS against malaria vectors
- Seek clarifications from the Principal Recipient if required

#### Open and competitive tender

- Issue RFQ to all eligible manufacturers / WHOPES (1-2 wks response time)
- Evaluation of offers price & technical factors (registration, lead time)

#### Offer to Principal Recipient

- Preparation of the Price Quotation & submission to Principal Recipient for approval
- Receive PR's approval and GF confirmation of funds' availability

#### Order placement

• Place Purchase order with the manufacturer

## IRS Quality control carried out at WHO PQ lab Analytical Methods

#### Common test carried on all IRSs

- Appearance
- Content
- Wet Sieve test
- Suspensibility
- Persistent Foam
- Wettability (without swirling)

#### Tests specific to certain IRSs

- Acidity/Alkalinity
- Degree of Dispersion
- pH of a 1% suspension in water
- Dustiness
- Dissolution rate of water soluble bag

## Case study 1: Mozambique - Insecticide – WP – Water Soluble Sachets

#### □ 1st Consignment :

- x6 batches procured
- Test Result:
  - x3 batches failed due to non-compliance with the following:
    - Wettability (x1 batch)
    - Dissolution rate of the water soluble bag (x2 batches)

#### **2nd Consignment :**

- x20 batches procured + 3 replacement batches
- Test Result:

x23 batches failed due to non-compliance with one or more of the following:

- Wet sieve test (x23 batches)
- Suspensibility (x23 batches)
- Dissolution rate of the water soluble bag (x23 batches)



## Case study 1: Mozambique - Insecticide – WP – Water Soluble Sachets

#### Resolution:

- Re-testing arranged by manufacturer at 3 laboratories including WHO PQ Lab
- Results indicated that the samples were non-homogeneous and did not pass key parameters
- Manufacturer's Quality and Production teams undertook an investigation into the origins of that issue and developed a specific action plan. Same product has subsequently been supplied to another recipient country and the product passed all tests.



## Case study 2: Pakistan - Insecticide – WG – Water Soluble Sachets

- x54 batches procured
- Test Results:

x37 batches: failed due to non-compliance with one or more of the following:

- Active Ingredient content (x12 batches)
- Persistent foam (x 30 batches)
- Dissolution rate of the water soluble bag (x11 batches)

#### Resolution:

- The x8 batches which failed only on dissolution rate of the soluble bag were repackaged into metallised sachets.
- To decrease potential issues with the soluble bags, the other batches were replaced, packaged in metallised sachets and, following successful testing, dispatched as a second consignment to Pakistan.



## Case Study 3: Cape Verde – Insecticide – WP – Metallised Sachets

- x6 batches procured
- Test Result:

x6 batches failed due to non-compliance on Suspensibility (i.e. 100% failure) strongly out of the limit of the WHO specification for suspensibility as per details below:

WHO Specification: Minimum 60%

Results (Mean of 2 Determinations): Batch 1: 31.1; Batch 2: 28.5; Batch 3: 25.1; Batch 4: 39.2; Batch 5: 29.1, Batch 6: 42.5

#### Resolution:

- Results were clear and supplier proceeded with replacement





# Root cause analysis / priority actions

## **Group and presentation**





### Your mission...

- Split into mixed groups on your tables and agree presenter (5)
- Root cause analysis (25)
  - Agree a problem statement (5)
  - Agree main cause groups (5)
  - Brainstorm potential primary and secondary causes (15)
- Prioritise actions (20)
  - Brainstorm potential actions to address causes (10)
  - Categorise based on effort and impact (10)
- Present back to wider group and respond to questions (4x10)



### **Root cause analysis**



135

### **Prioritisation**



### Your mission...

- Split into mixed groups on your tables and agree presenter (5)
- Root cause analysis (25)
  - Agree a problem statement (5)
  - Agree main cause groups (5)
  - Brainstorm potential primary and secondary causes (15)
- Prioritise actions (20)
  - Brainstorm potential actions to address causes (10)
  - Categorise based on effort and impact (10)
- Present back to wider group and respond to questions (4x10)



#### **Aziz Jafarov**



