

# A Risky Business

## Improving Global Health through Better Demand Forecasts

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# Today's Presentation

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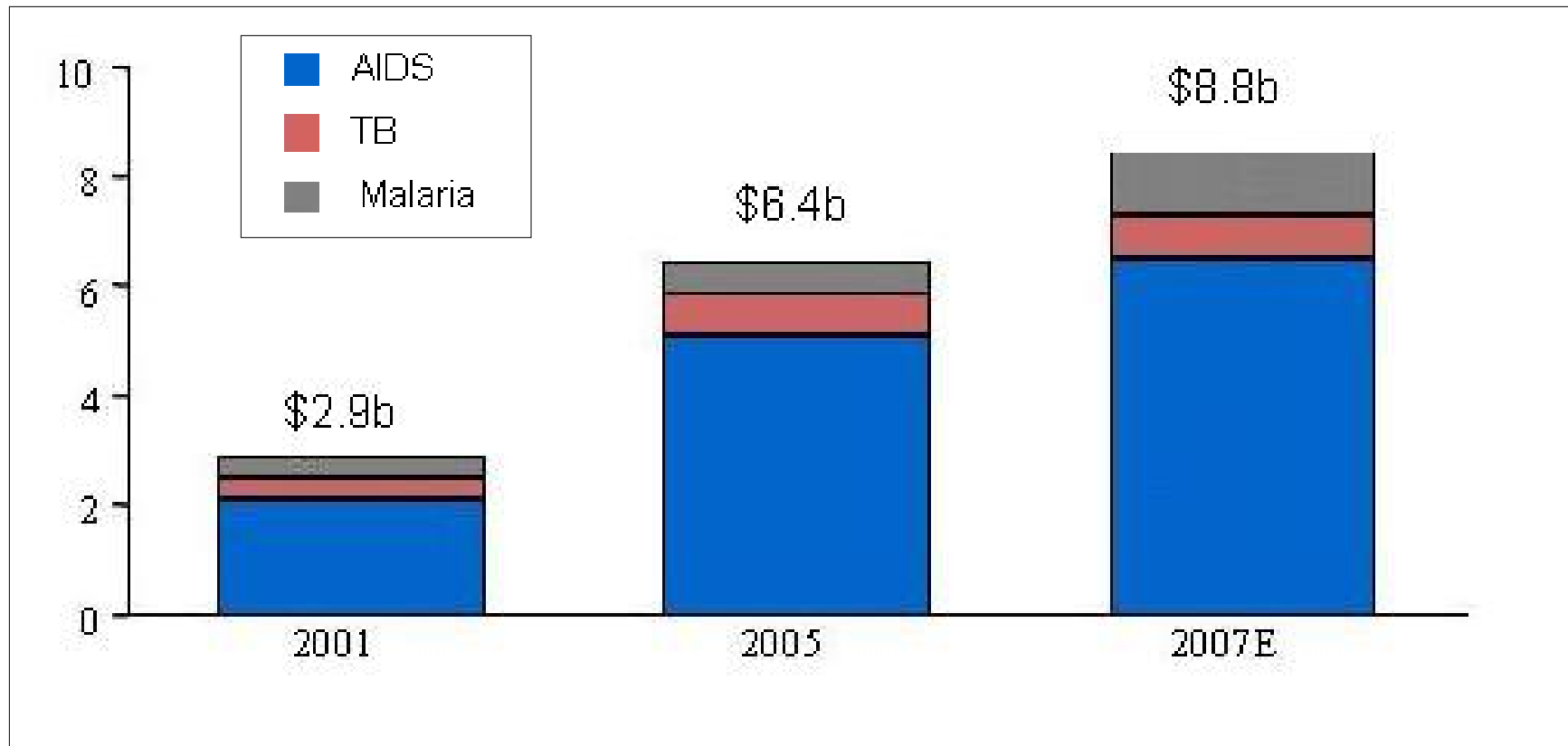
- i A new global health environment
- i Sad stories
- i Definition of demand forecasting
- i Importance of the problem of weak forecasting
- i Understanding what's "under" the problem we see
- i What can be done to solve the problem?

# New Global Health Environment

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- i New money
- i New suppliers
- i New products
- i New buyers
- i New intermediaries and roles

# AIDS, TB & Malaria Funding (2001-2007)



Sources: PEFPAR, Global Fund & World Bank

# Suppliers: New Players and Products

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- i New suppliers from many countries
- i New products with special characteristics
- i Variable quality



Greater competition and reduced prices in some markets and for some products

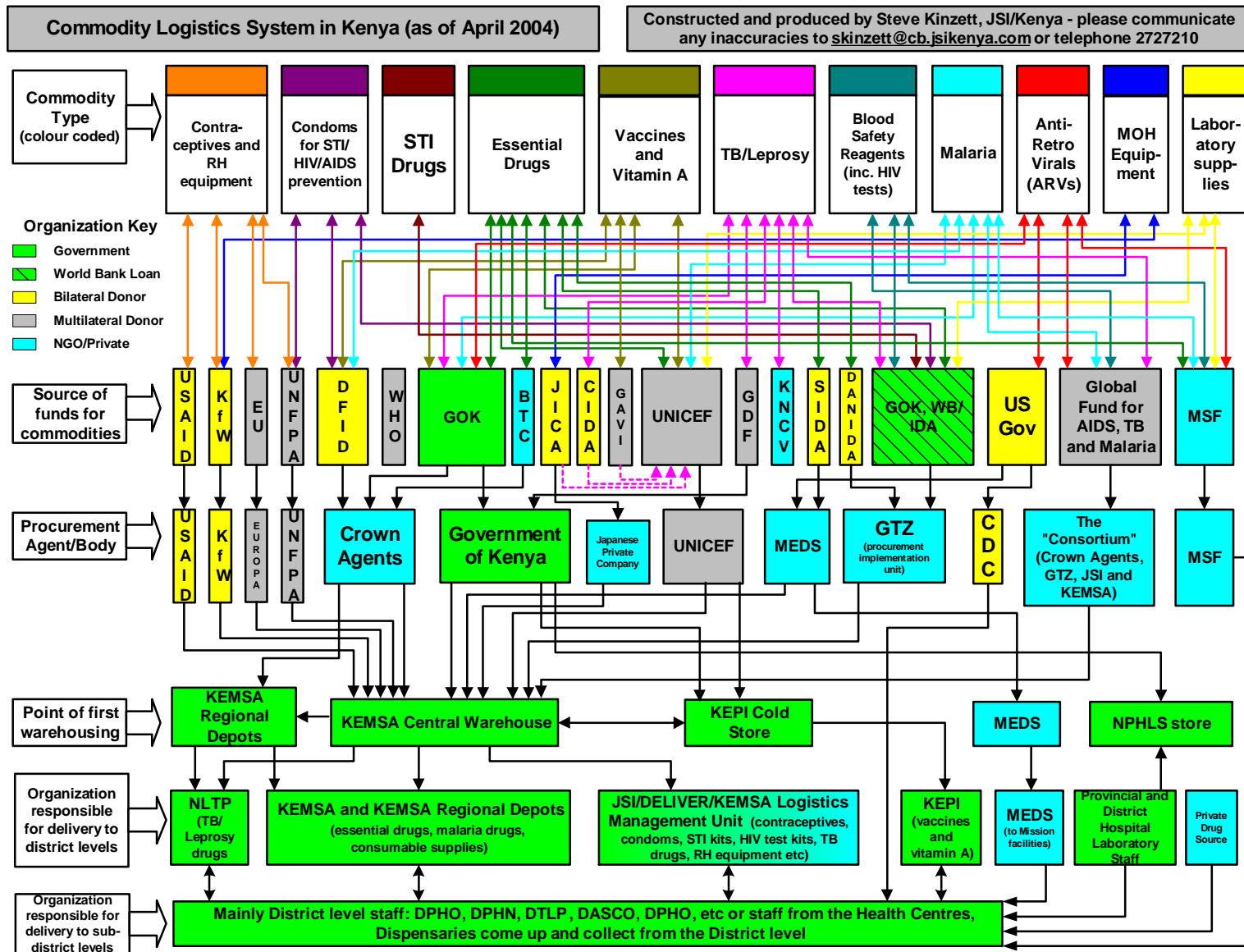
Complexity for buyers

Uncertainty in quality supply

| MMV Products - Anticipated Regulatory Approval by 2008  | R&D Development partners  |
|---|---|
| <p><b>CDA (Chlorproguanil-Dapsone-Artesunate):</b> a fixed-ratio three-drug combination, being developed to treat uncomplicated <i>P. falciparum</i> malaria.</p>   | <ul style="list-style-type: none"> <li>•GlaxoSmithKline UK</li> <li>•Liverpool School of Tropical Medicine UK;</li> <li>•London School of Hygiene and Tropical Medicine, UK</li> <li>•TDR, Switzerland</li> </ul> |
| <p><b>Eurartesim (Dihydroartemisinin-Piperaquine):</b> a fixed-ratio drug combination being developed to treat uncomplicated <i>P. falciparum</i> malaria in adults and children.</p>   | <ul style="list-style-type: none"> <li>•Holley Pharma, China</li> <li>•Oxford University, UK</li> <li>•Sigma-Tau Industrie Farmaceutiche Riunite, Italy</li> </ul>  |
| <p><b>Paediatric Coartem® (Artemether-Lumefantrine):</b> a paediatric dosage suitable for infants and children as small as 5kg.</p>   | <ul style="list-style-type: none"> <li>•Novartis Pharma, Switzerland</li> </ul>   |
| <p><b>Pyronaridine-Artesunate:</b> a low-cost, fixed-ratio combination, for the treatment of acute uncomplicated malaria in Africa and Asia (<i>P. falciparum</i> and <i>P. vivax</i> malaria). A paediatric formulation for children of &lt;10kg body weight will also be developed.</p> | <ul style="list-style-type: none"> <li>•Shin Poong Pharm. Inc., Korea</li> </ul>  |

# New Buyers

## Complex In-Country Supply Chains



# Sad Stories

- i WHO estimates of demand for Coartem fell short by multiples of 2-3
- i Sanofi tosses out 10m tables of artesunate due to overforecasts
- i Uganda has \$1-2m worth of expired AIDS drugs and other donor-purchased items due to overforecasts
- i Manufacturers exit HepB production after losing money due to overforecasts
- i Vietnam faces shortage of Uniject due to underforecast
- i **Within-industry champions for global health say weak demand forecasting is #1 reason for inability to make credible business case**

# Winners and Losers

- i **Who Loses from Poor Forecasting?**
  - | Patients
  - | Buyers
  - | Suppliers
- i **Who Wins from Poor Forecasting?**
  - | No one!

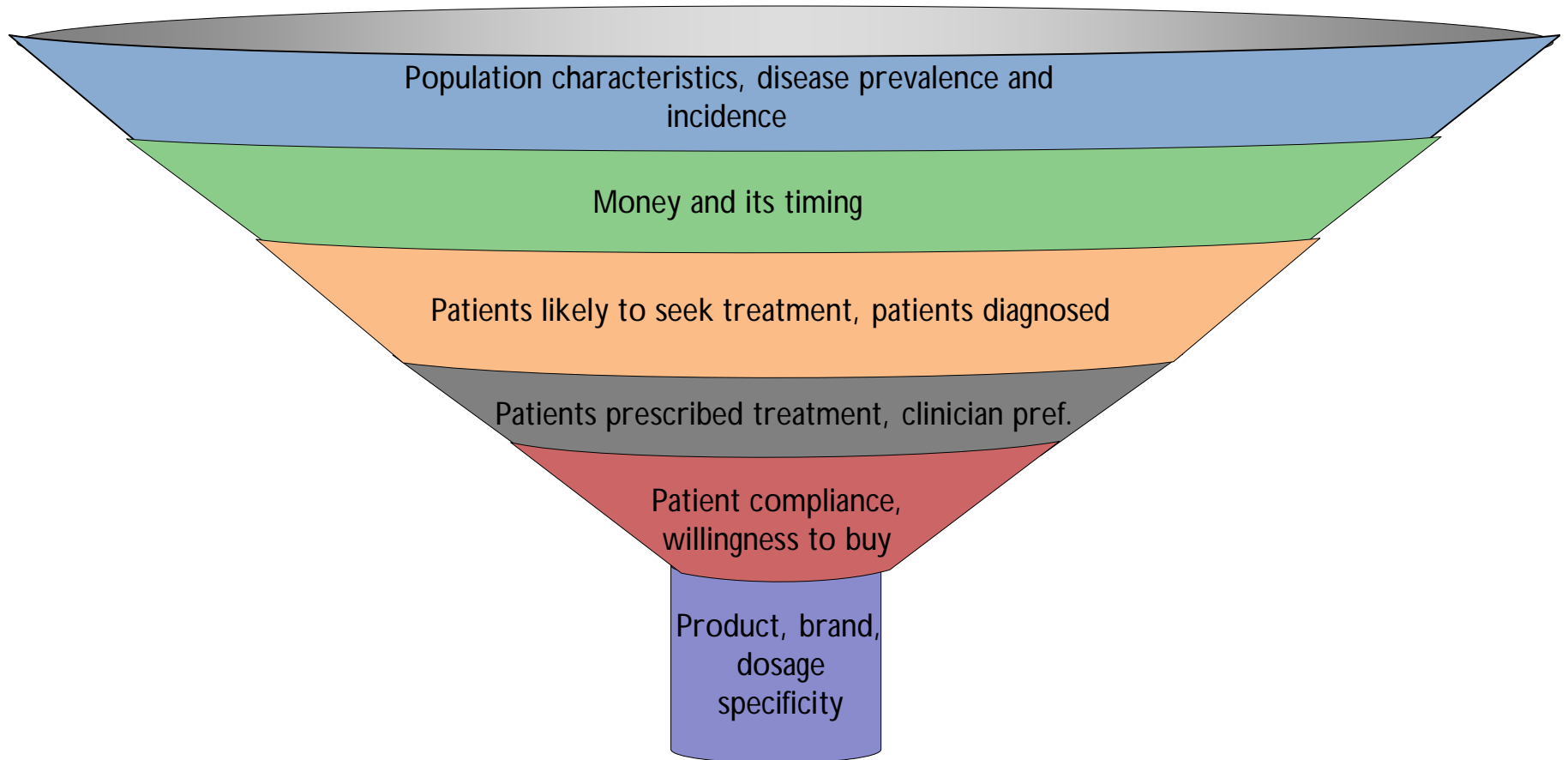
# What Is Demand Forecasting?

- i Demand forecasting  $\neq$  Needs estimates
- i Demand forecasting  $\neq$  Demand creation/advocacy
- i Demand forecasting  $\neq$  Target setting

Estimates "effective" market demand

Product needs which have or will have purchasing power behind them and will result in actual orders

# From Need to Demand



Effective demand = Actual access on the ground

# 5 Critical Functions of Demand Forecasts

1. **Essential products are available because supply matches demand**
  - i Manufacturers can plan & invest in capacity while taking advantage of production efficiencies
2. **New products are developed because there is a realistic picture of future markets**
  - i Manufacturers have information about new market potential and so can efficiently allocate more R&D resources
3. **Supply chain capacity is increased so products can get to people who need them**
  - i Developing country health systems can be expanded
4. **Funders plan purchases & make the most of available money**
  - i Donors & national governments can efficiently allocate resources
5. **The public health community sees bottlenecks & understands opportunities to expand use**
  - i Highlights key constraints; guides related policy & advocacy efforts

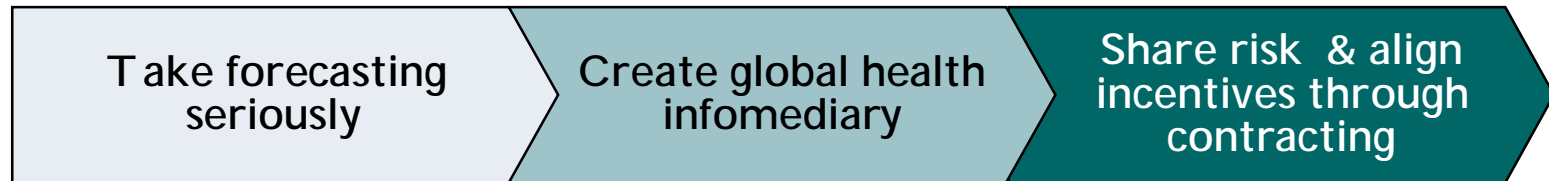
# ACT Supply Chain Risk Map

|  | Supply-side facilitators | Suppliers     | Quality regulators | Global technical agencies | Aggregate demand forecasters | Funding agencies | Procurement agents | Logistics providers | National buyers |
|--|--------------------------|---------------|--------------------|---------------------------|------------------------------|------------------|--------------------|---------------------|-----------------|
| <b>Supply-side risks</b>                 |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Batch yield risk                         | No risk                  | Low risk      | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | No risk         |
| <i>Excess inventory risk</i>             |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Economic                                 | No risk                  | High risk     | No risk            | No risk                   | No risk                      | Low risk         | No risk            | No risk             | Moderate risk   |
| Reputational                             | No risk                  | No risk       | No risk            | No risk                   | Low risk                     | No risk          | No risk            | No risk             | No risk         |
| <i>Long-term overcapacity risk</i>       |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Economic                                 | No risk                  | High risk     | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | No risk         |
| Reputational                             | Low risk                 | No risk       | No risk            | No risk                   | Low risk                     | No risk          | No risk            | No risk             | No risk         |
| <i>Shortage risk</i>                     |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Economic                                 | No risk                  | Moderate risk | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | No risk         |
| Reputational                             | No risk                  | High risk     | No risk            | Low risk                  | Moderate risk                | Low risk         | No risk            | No risk             | Moderate risk   |
| <b>Demand-side risks</b>                 |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Price increase                           | No risk                  | No risk       | No risk            | No risk                   | No risk                      | Moderate risk    | No risk            | No risk             | Moderate risk   |
| Price decrease                           | No risk                  | Moderate risk | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | Low risk        |
| <i>Budget and purchasing power risks</i> |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Grant approval and disbursement timing   | No risk                  | High risk     | No risk            | No risk                   | No risk                      | Moderate risk    | No risk            | No risk             | High risk       |
| Sustainability of funding                | Low risk                 | Moderate risk | No risk            | No risk                   | No risk                      | High risk        | No risk            | No risk             | High risk       |
| Obsolescence risk                        | Low risk                 | Moderate risk | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | Moderate risk   |
| <b>Regulatory and quality risks</b>      |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Lack of approved drugs                   | No risk                  | No risk       | Low risk           | No risk                   | No risk                      | No risk          | No risk            | No risk             | No risk         |
| <i>Regulatory enforcement risks</i>      |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Counterfeit product                      | No risk                  | Moderate risk | No risk            | No risk                   | No risk                      | No risk          | No risk            | No risk             | Moderate risk   |
| Safety of approved drugs                 | No risk                  | High risk     | High risk          | No risk                   | No risk                      | Low risk         | No risk            | No risk             | Moderate risk   |
| <b>Logistical risks</b>                  |                          |               |                    |                           |                              |                  |                    |                     |                 |
| Nontimely delivery                       | No risk                  | Moderate risk | No risk            | No risk                   | No risk                      | No risk          | Moderate risk      | Moderate risk       | Moderate risk   |
| Losses in the distribution chain         | No risk                  | No risk       | No risk            | No risk                   | No risk                      | Low risk         | No risk            | Moderate risk       | Moderate risk   |

# ACT Supply Chain Incentives Map

|  | Supply-side facilitators | Suppliers    | Quality regulators | Global technical agencies | Aggregate demand forecasters | Funding agencies | Procurement agents | Logistics providers | National buyers |
|--|--------------------------|--------------|--------------------|---------------------------|------------------------------|------------------|--------------------|---------------------|-----------------|
| <b>Supply side</b>   |                          |              |                    |                           |                              |                  |                    |                     |                 |
| Develop innovative products  | Incentive                | Incentive    | Indifferent        | Indifferent               | Indifferent                  | Indifferent      | Indifferent        | Indifferent         | Indifferent     |
| Increase size of the supply market   | Incentive                | Disincentive | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Disincentive       | Indifferent         | Incentive       |
| Decrease supply chain lead time  | Incentive                | Indifferent  | Indifferent        | Incentive                 | Indifferent                  | Indifferent      | Incentive          | Indifferent         | Incentive       |
| Overforecast in the short term   | Indifferent              | Disincentive | Indifferent        | Indifferent               | Incentive                    | Incentive        | Incentive          | Indifferent         | Incentive       |
| Underforecast in the short term  | Indifferent              | Indifferent  | Indifferent        | Indifferent               | Disincentive                 | Disincentive     | Disincentive       | Indifferent         | Disincentive    |
| Overforecast in the long term (1-5 years)  | Incentive                | Disincentive | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Underforecast in the long term (1-5 years)   | Disincentive             | Disincentive | Indifferent        | Disincentive              | Indifferent                  | Disincentive     | Indifferent        | Indifferent         | Disincentive    |
| Sharing information on demand, inventory...  | Incentive                | Disincentive | Indifferent        | Indifferent               | Incentive                    | Indifferent      | Indifferent        | Indifferent         | Indifferent     |
| <b>Demand side</b>   |                          |              |                    |                           |                              |                  |                    |                     |                 |
| Decrease wholesale price of artemisinin-based combination therapy drugs              | Incentive                | Disincentive | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Decrease retail or end-customer price of artemisinin-based combination therapy drugs | Incentive                | Incentive    | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Indifferent     |
| Expedite grant approval and disbursement   | Indifferent              | Incentive    | Indifferent        | Indifferent               | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Rapid adoption of artemisinin-based combination therapy drugs                        | Incentive                | Incentive    | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Indifferent     |
| Enhance the level and sustainability of funding                                      | Incentive                | Incentive    | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| <b>Regulatory and quality</b>  |                          |              |                    |                           |                              |                  |                    |                     |                 |
| Ensure regulatory compliance and safety  | Incentive                | Incentive    | Incentive          | Indifferent               | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Expedite regulatory approval of new drugs  | Incentive                | Incentive    | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| <b>Logistical and miscellaneous</b>  |                          |              |                    |                           |                              |                  |                    |                     |                 |
| Improve efficiencies in distribution chain   | Indifferent              | Indifferent  | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Incentive           | Incentive       |
| Ensure availability of complementary inputs  | Indifferent              | Disincentive | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Achieve long lasting success (eradication)   | Incentive                | Indifferent  | Indifferent        | Incentive                 | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |
| Have rigorous accountability in funds usage  | Indifferent              | Indifferent  | Indifferent        | Indifferent               | Indifferent                  | Incentive        | Indifferent        | Indifferent         | Incentive       |

# Recommendations Framework



Increases credibility and transparency of forecasting process through adoption of sound principles

Expands forecasting expertise for global health products

Consolidates disparate information sources

Enables more accurate forecasts

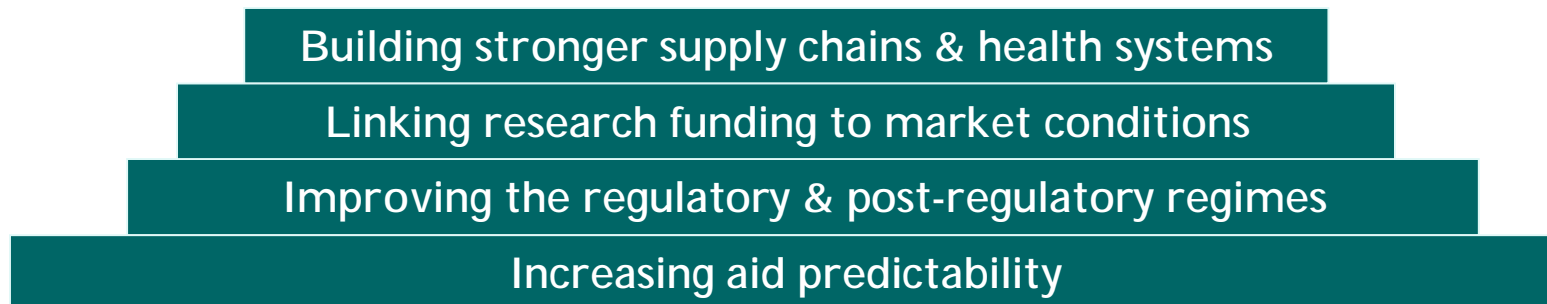
Establishes common baseline forecasts

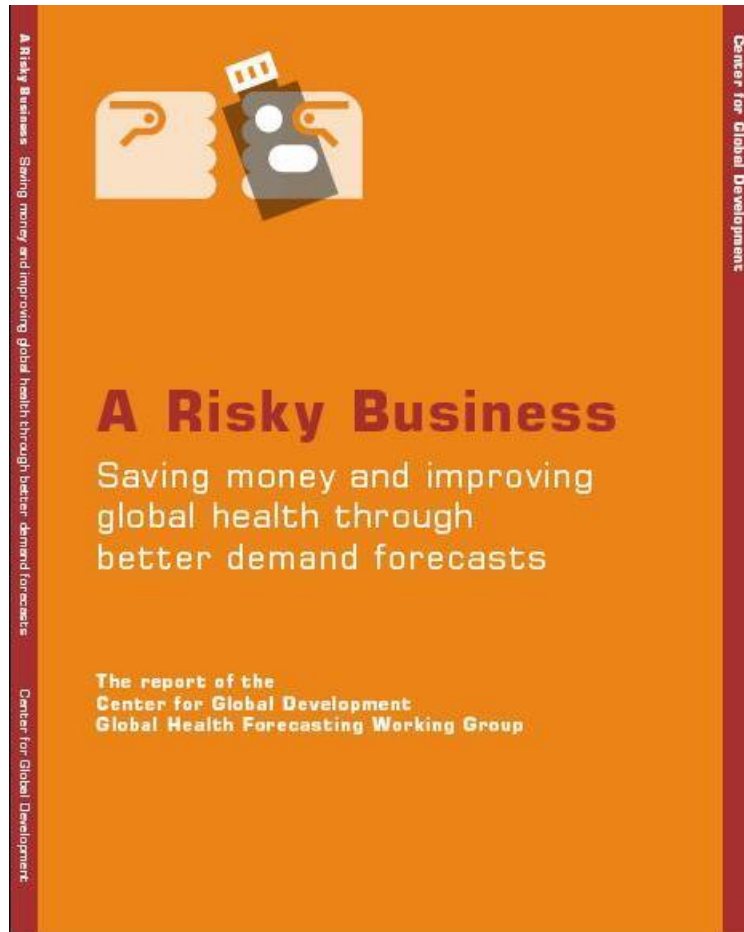
Shares suppliers' risk

Motivates all players to take forecasting seriously and share information

Motivates funders to reduce risk

## Building a foundation for long-term access





[www.cgdev.org/forecasting](http://www.cgdev.org/forecasting)