



The Business of Cocoa Farming

The Role of Monitoring and Evaluation

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MARS
incorporated



Monitoring & Evaluation in Outreach and Training



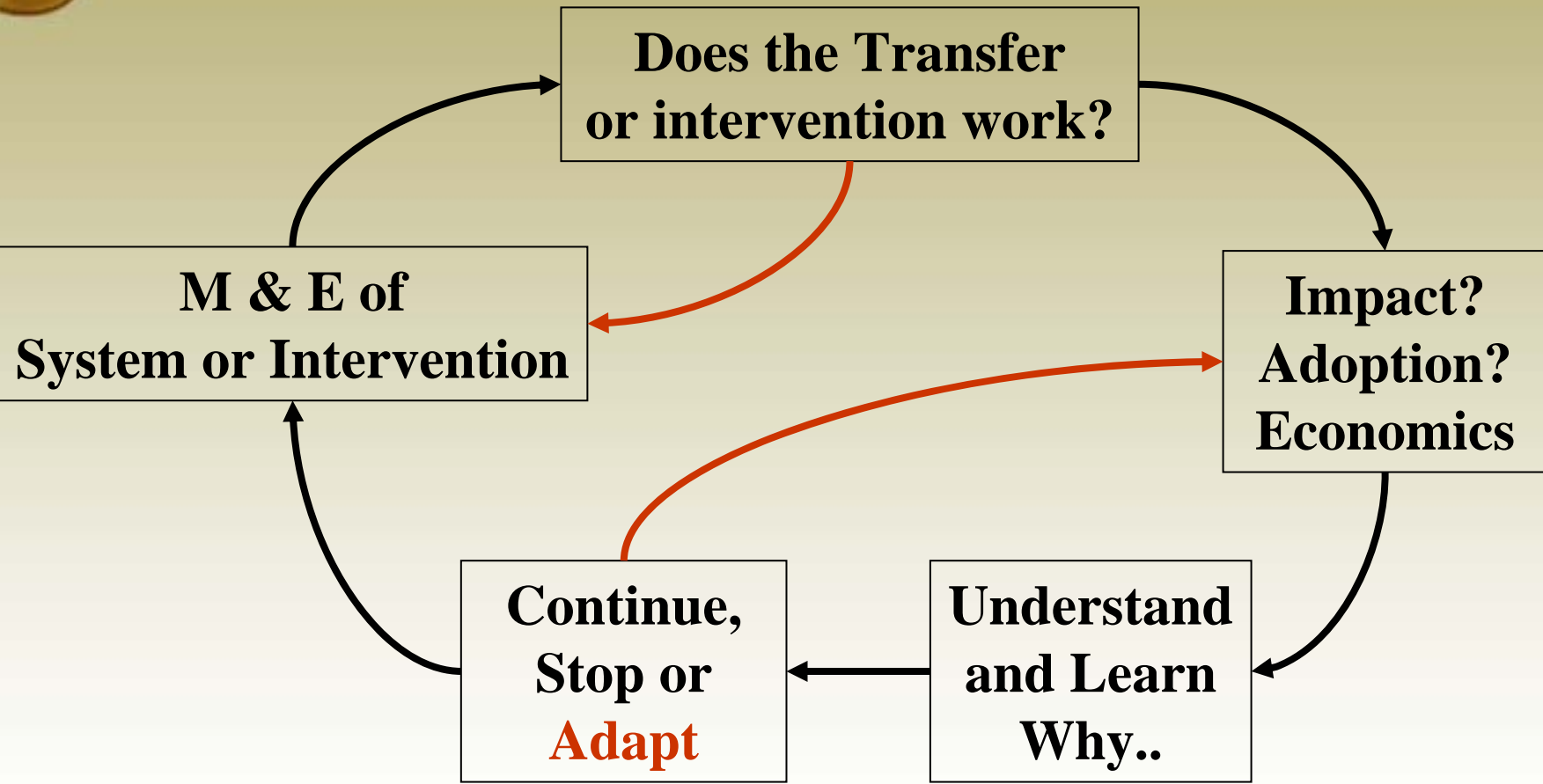
- Establish whether:

This is the Obvious use of Monitoring and Evaluation

- What are the economics of the intervention?
- What information do I need?
 - How do I measure?
 - What precision do I need?
 - How will the information be used?

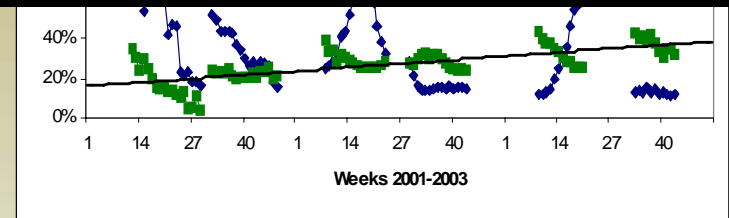


Info from M&E Systems



A real example of good use of M & E Impact in Indonesia of the Success Alliance - Farmer Field Schools

- Cocoa pod numbers
 - - 40% over three years (droughts)
- Cocoa price
 - +100% 2001-2002
 - - 80% 2003



S Sulawesi \$/kg farm gate cocoa price

Understood how well interventions and the Training methods work....

Years 2001-2003

Untrained farms now 40% worse off

Data from
J. Mumford



Nigeria: M & E to understand how to improve adoption/impact



- M&E show that Farmer Field Schools in W. Africa typically increase yield/income by 25% - 40%
- In Nigeria, initial M&E results showed < 10%
- Stratifying the sample showed:
 - Old farmers: result of FFS: 0 %
 - Young farmers: result of FFS 40%
- Learnings:
 - Many farmers (or farm owners) are old
 - Old farmers (or owners) don't train their workers or children
 - So, for Maximum Effect of FFS
.....concentrate on training the young.....



Cameroon: M & E to understand how to improve adoption/impact



- Impact of Black Pod Control on many farms:
 - Loss reduction from 40% to 25% through cultural controls only
 - Loss reduction from 40% to 20% through heavy fungicide use
 - Loss reduction from 40% to 10% through cultural controls plus RPU (- Rational Pesticide Use - of 3 rounds per year)
 - More labour for Cultural controls but less in fungicide application through RPU - combined: slightly more labour
 - Saving of fungicides from 6 rounds to 3 rounds/yr and RPU
- Impact: 35% more income from reduction in crop loss and less fungicide use, even when labour increased



Cameroon: M & E to understand how to improve adoption/impact



- Learnings:
 - Black Pod control is for many farmers the most important issue
 - One single intervention is not powerful or cost effective
 - Combined interventions work best - if they are understood
 - Trade-off in more labour vs less fungicide cost is acceptable
 - Training in FFS should pay extra attention to BP control, and then pay some more attention to BP control...
 - and then work on lesser issues..

M & E only for Measurement - or is there another use?



**I would like to take you to
these other uses of M & E**

- **M & E to establish what real 'field' issues are**
 - Help researcher and extension managers to establish priorities?
- **M & E as a tool for Strategy and Planning?**
 - The reality of farming systems, farmers' capacity and motivation to adopt

Losses in Cocoa Production: real M&E data



Cocoa Swollen Shoot Virus -	Witches' Broom	Stem Borer
<p>Problem mainly In Ghana</p> <p>Solution: Eradication and replacement</p> <p>Intervention Not popular</p> <p>Had lots of attention</p>	<p>Problem mainly in Brazil (Lat. Am)</p> <p>Solution: better germplasm</p> <p>Too difficult: Industry disappearing</p> <p>Had lots of attention</p>	<p>Problem in W. Africa and Asia</p> <p>Solution: cultural/chemical control</p> <p>Rarely an epidemic Farmers 'live with it'</p> <p>Little attention: Why?</p>
<p>Loss: =90 million US\$</p>	<p>Loss: =450 million US\$</p>	<p>loss: large but unknown</p>

A close-up photograph of cocoa pods heavily infested with small, light-colored larvae, showing significant damage to the pod's surface.

Cocoa Pod Borer Damage

Problem: Indonesia/Asia

Solution:

**Cultural control
+ RPU + Sleevings?**

Lots of Action!

Loss: 300 million US\$ yr on yr

A photograph showing a cocoa pod with a dark, irregular hole and surrounding discoloration, indicating damage from a mirid insect.

Mirid Damage

Problem: Global

Solution:

Cultural control + RPU?

Little action: WHY?

Loss: 200 million US\$ yr on yr

A photograph of three cocoa pods. One is whole and green, another is partially eaten and yellowed, and the third is severely damaged with a large, dark, hollowed-out section.

Rodent damage (rats)

Problem: Global

Solution:

**Predators?
Traps or Poison?**

Little action WHY?

Loss: 300 million US\$ year on year

A photograph of a cocoa pod with a large, dark, circular lesion on its surface, characteristic of black pod disease.

Black Pod Damage

**Problem: Global BUT
large regional differences**

Solution:

**Cultural + RPM
new controls?**

Lots of Action!

Loss: 500 million US\$ yr on yr

Is the Action in the Right Places?



- Do we work on:
 - the largest loss globally?
 - what helps most farmers globally?
 - what helps farmers most (biggest issues) in individual countries?
 - what really threatens the industry?
 - what is the easiest to fix?
- Who decides the priorities?
- And on what basis: M & E



Ghana: M & E to understand farming systems (I)



- Farmers trained in FFS
 - Effect of interventions on FFS site: 50% -100%
 - Effect of interventions on farmers' own site: 35%
 - **In other words: No complete adoption**
- Comparing income of Farms with all interventions vs Farmer Choice interventions:
 - Income per ha higher on 'all interventions'
 - But income on total acreage not perceived much higher on 'all interventions': Agro-economy and Farmer needs

Ghana: M & E to understand farming systems (II)



To get Ghanaian Farmers to Adopt more interventions:

Change perception on ‘cost’

Change perception on ‘risk’

Change ideas on ‘investment’

Change perception on ‘land ownership’

Culture is the driver, not Science

- Know what you need to change -

Now a side step in the presentation



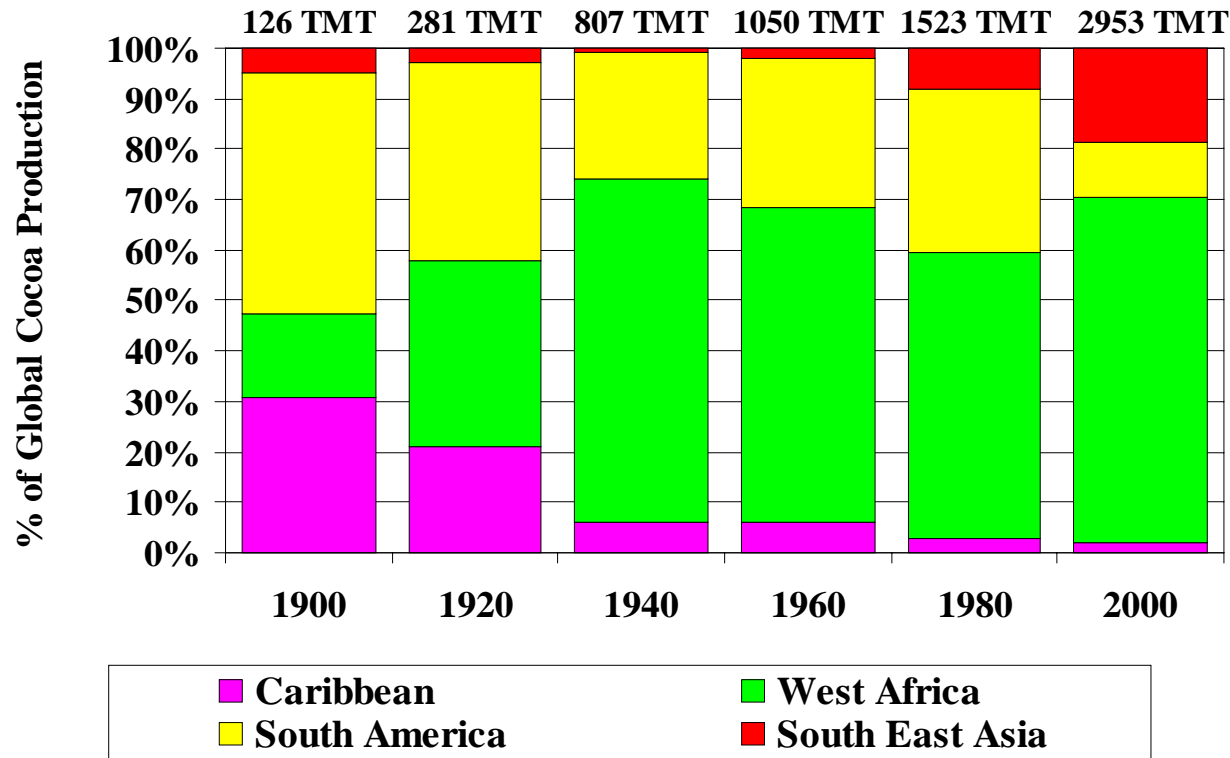
- Overview of Global production
 - Where is Cocoa Produced?
- Importance of Production to Countries
 - Challenges in Current Production systems
- Is there a future in Cocoa Production
 - Future Market
 - Successful future Farming Systems
 - And how to plan for it?

- And what Information do we have, do we need, for planning?

Cocoa Production: Historical, Regional info



COCOA PRODUCTION BY REGION 1900 - 2000



Production Comments

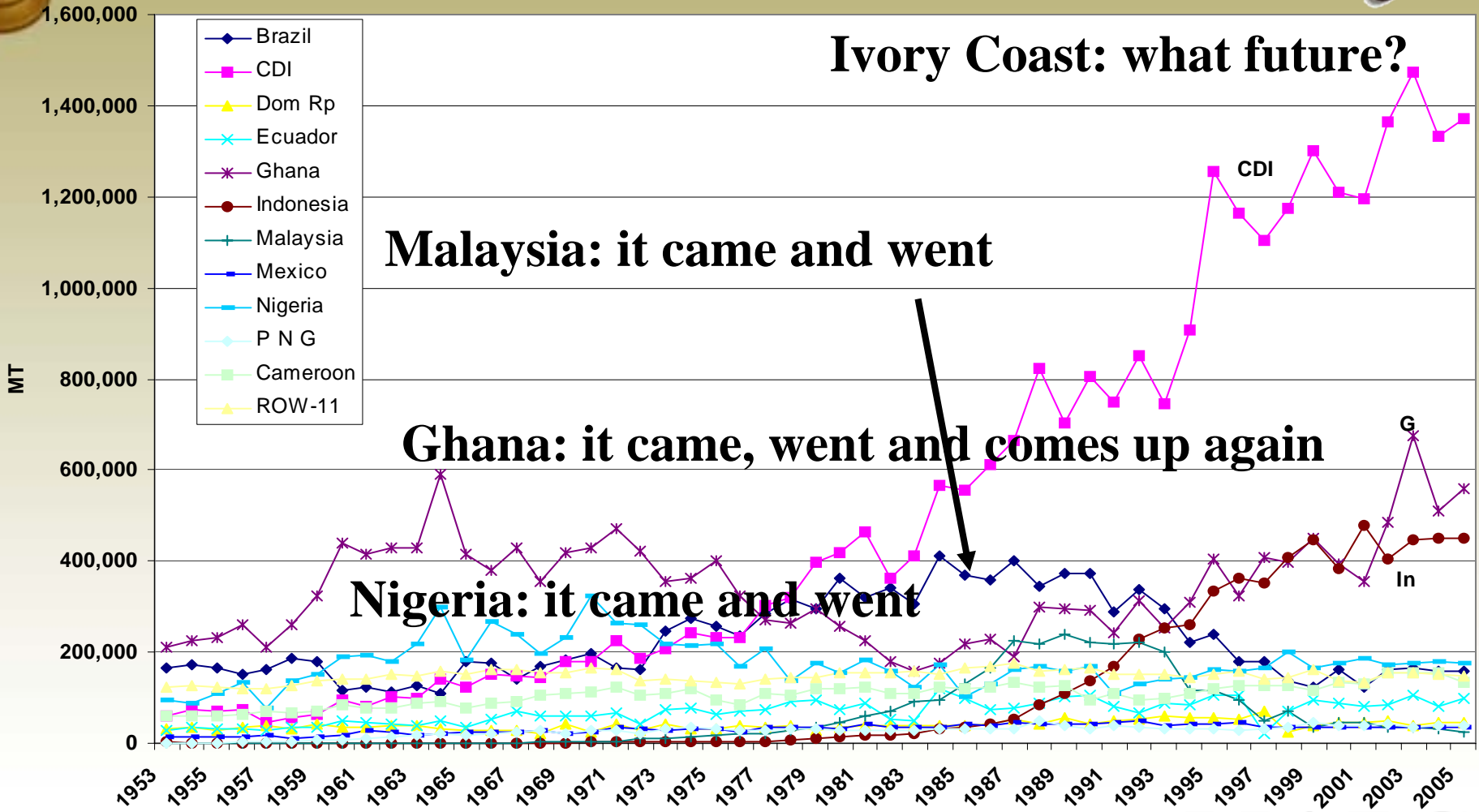
**Americas &
Caribbean**
- declining

Asia
- big local
increase but
small effect

West Africa
- 'accidental'
growth is the
main growth



World Cocoa Production



Importance of Cocoa for African Countries



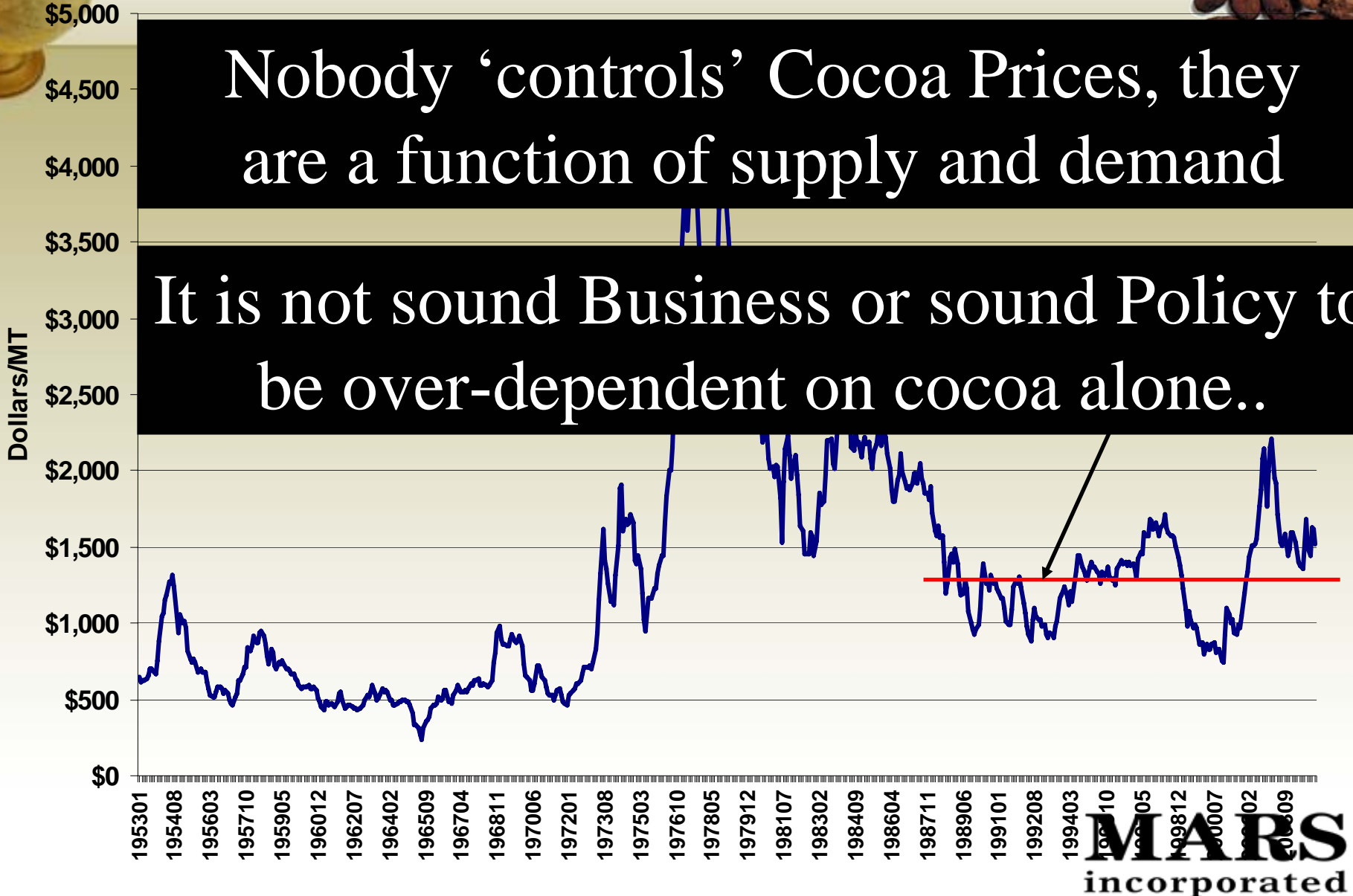
Country Data and Cocoa	Cameroon	Nigeria	Ghana	Cote d'Ivoire
Ranking of cocoa as Agriculture income earner and as source of employment	1 1	n/a 1	1 1	1 1
Production (2005)	180,000	190,000	630,000	1,400,000
People 'living' of cocoa	1,400,000	1,400,000	6,300,000	7,000,000
Percentage of people 'living' of cocoa	12%	1%	29%	44%
Foreign exchange earnings in millions US\$	270	285	945	2,100
% of foreign exchange earnings derived from cocoa	15%	0.40%	30%	35%

Monthly Average NY Cocoa 2nd Futures Price



Nobody 'controls' Cocoa Prices, they are a function of supply and demand

It is not sound Business or sound Policy to be over-dependent on cocoa alone..





With Such High Stakes - This should be sound business?



- With national economies depending on cocoa, and with a large percentage of people in some countries depending on cocoa for their livelihoods...

We would imagine this industry has built sound and sustainable agricultural systems, supported by strong research and extension services... in other words, farmers who know what they are doing...

And M&E would be a source of information and a planning tool.....



Ghanaian Rural Infrastructure



Historical challenges of a sustainable cocoa supply chain



- **Economic issues - Low Yields**
 - Poor agronomic practices, pest and disease problems, ageing farms, inadequate planting materials
- **Economic issues - Other**
 - Inadequate infrastructure and land-use planning, poor market information systems, absence of crop diversification and land tenure rights, no credit systems for small scale farmers, inadequate use of farm inputs
- **Environmental issues**
 - Weather anomalies and trends, temperature and water stress, soil fertility, impoverished and depleted soils, soil erosion, deforestation
- **Social Equality**
 - Lack of education opportunities and of farmers infrastructure, threats from human diseases (eg malaria, HIV/Aids, etc.), vulnerable rural livelihoods

And the challenges in the Trade and Confectionery Industry...



- **Inadequate Marketing systems**
 - delivery of low farm gate price
 - no price/quality signals to farmers
 - boom/bust cycles etc.
- **Chocolate Market far away from Farmer**
 - Not enough direct contact/feedback
 - No local consumption
- **Consumer Needs and Demands**
 - Pressure to improve human and environmental conditions
- **Corporate Social Responsibility**
 - The image of a business, a product...



Historical Cocoa Production systems - a good 'entry point'?



You don't want to be in the same position....!

But:

- if you don't know where you're coming from...
- and if you don't know where you should be heading..
- and if you don't know how to get there..

**Industries this large require anticipation and planning:
Think of "Sustainable Cocoa Farming Systems"**

Are there also 'Positives' with regard to cocoa?



- Potentially very good benefits to Farmer
 - Increased earnings, income diversification
 - sustainable farming, continued production
- Benefits to Government
 - Foreign exchange, spin-off activities, rural population livelihoods secured
- Benefits to Industry
 - Continued supply of good quality cocoa
- Benefits to Environment
 - Cacao as a building block in ecologically sound tree based agricultural systems

All this is possible... if done correctly...

Will there be a Market for Cocoa - History

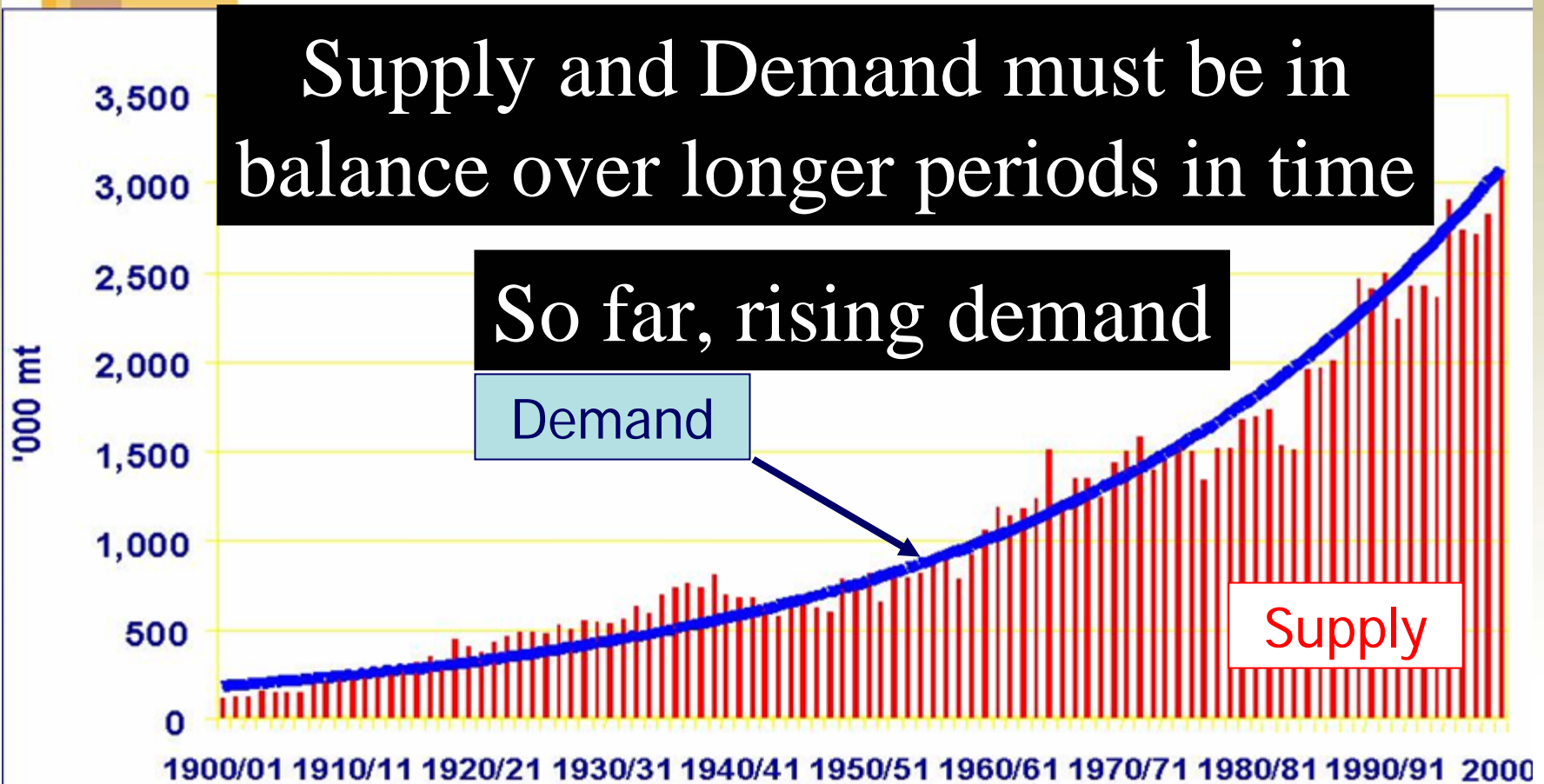


World Cocoa Production

1900 to 2000

Supply and Demand must be in balance over longer periods in time

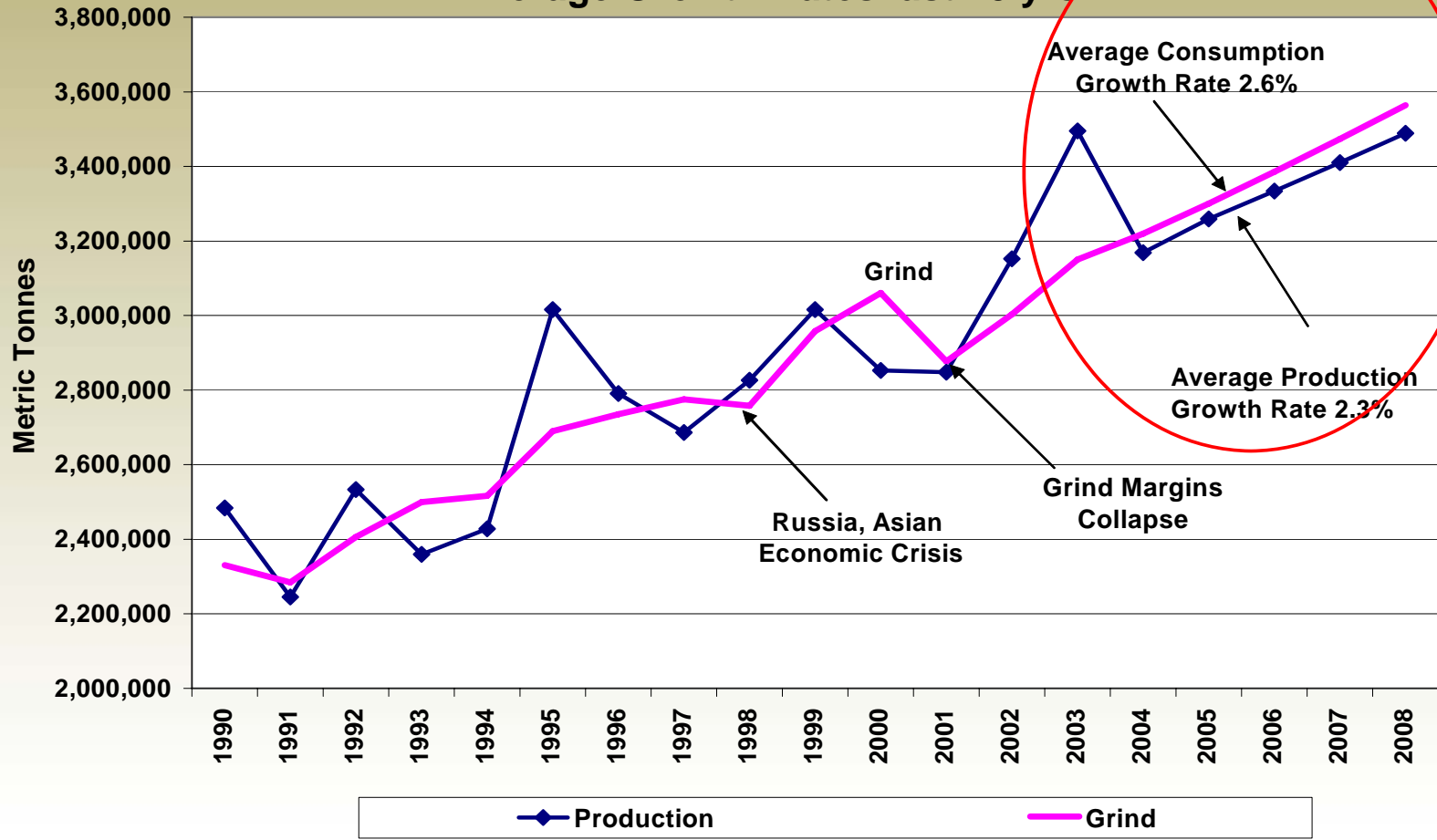
So far, rising demand



Future: Supply/Demand Estimates



Global Cocoa Production and Grind
Average Growth Rates last 15 yrs





the Demand side:

Main cocoa (chocolate) consumers...



Nearly all consumption in Europe/US - room for increase?

Will there be an increase in Future demand?



Analysts believe there will be growth

- New Consumers
- New Products (health, dark chocolates)

Cocoa farming systems of the Future



On-Farm needs:

- Intensification and diversification of chosen crops
 - fewer trees/units per crop but high output per tree/unit;
 - good agronomic practices, loss reduction and crop protection
 - deliberate choice of crop combinations: spatial, temporal
 - Fertilization and use of agro-chemicals
- Companion trees for various crops
 - economic function, added bio-diversity function, perhaps trade-off between these trees and the yield of the primary crop

It is all about Strategy and Planning

And Knowledge that needs be brought to farmers....



Cocoa in the Asian Region Challenge or Opportunity?



- Cocoa Production
 - Indonesia, Papua New Guinea, Malaysia, Philippines, Vietnam
- Cocoa Processing
 - Malaysia, Indonesia, small industry in the Philippines
- Competition?
 - Are we competing or are we ‘supplier and customer’?
- Or is there something else?
 - Let’s have a look at individual countries..



The Asian Region and Cocoa

- Case study: Indonesia



- **Current Situation:**
 - Large Cocoa Production, 560,000 mt and growing - answering rural population's need for cash crop and important for provincial govts.
 - Processing industry uses 25% of beans, plenty room for both local processors and bean exports to other countries
 - Some special products, Java-A beans, Plantation beans
- **What is Indonesia's Competitive Advantage?**
 - Potentially the worlds' second largest producer of beans and products from 'non-Africa region'
 - 'safety in bulk'. World Market always needs good quality bulk beans
 - Main supplier to Asian processing industry



The Asian Region and Cocoa

- Case study: Papua New Guinea



- **Current Situation:**
 - Cocoa Production of 55,000 mt (10% of Indonesia) and increasing slightly - answering rural population's need for cash crop
 - Unique flavour profile
 - No local processing industry, but beans sold at premium to overseas processors

- **What is PNG's Competitive Advantage?**
 - A steady supply of good quality beans to World Market
 - the Premium for its' unique quality (which would be lost in local processing activities)



The Asian Region and Cocoa

- Case study: Malaysia



- **Current Situation:**
 - Small production of 30,000 mt but largest processing capacity in the region, over 200,000 mt
 - Professional processing industry, established reputation
 - Good 'lab research'
 - Good germplasm

- **What is Malaysia's Competitive Advantage?**
 - Professional processing industry - needs beans
 - Collaboration with Asian neighbours on Research and Trade, consumer of Asian beans to feed its' processing Industry



The Asian Region and Cocoa

- Case study: Philippines



- **Current Situation:**
 - Small production of 5,000 mt but potential for 100,000 mt - answering rural population's need for cash crop and potentially the “number 2 foreign exchange earner” after the coconut industry
- **What is the Philippines' Competitive Advantage?**
 - Diversification of existing Coconut plantations with cocoa and other (tree) crops, no new land conversion to cocoa, benefits
 - Farmers, Government, the Environment, and the Global cocoa industry
 - Fermentation ‘on order’ in fermentation factories
 - Supply to other Asian “Processing Countries”



The Asian Region and Cocoa

- Case study: Vietnam



- **Current Situation:**
 - Small production of 3,000 mt but potential for 30,000 mt or more
 - Income and crop diversification in Mekong Delta or in the high-lands.
 - No ‘historical bad practices’ and quality and trade mechanisms can be designed from the start
- **What is Vietnam’s Competitive Advantage?**
 - Very high yields, science-driven agriculture
 - Centers of Excellence of Cocoa Production for Dissemination of information to remote areas
 - Cocoa as an element to preserve and enhance eco-systems
 - Tailor-made product to fill high demand for supply to other Asian “Processing Countries”

The Asian Region and Cocoa - Competition or Collaboration?



- **Different Countries, Different Targets?**
 - Know where you are (Measure and Evaluate)
 - Know where you want to go (Strategy and Planning)
 - Design a road map - with M & E to measure where you are going

- **Identify advantages for**
 - the individual countries
 - the whole region

Mango
Grafting

Some Regional Competitive Advantages

Farmer
Nursery



Communal Grafting



Municipal Nursery



Coconut and Cocoa Farm



Cocoa under Fruit



Cocoa under Coconut



Cocoa in Mixed Farm



A multi-crop system in Krong Ana district Dak Lak Province, Vietnam



Crotalaria

Corn

Leuceana

Cocoa

Peanut



Conclusion



- **A lot of information on Improved Cocoa Farming Systems exists already**
- **If we can get the planning and the policies right, and**
- **If we can ensure that Farmer Training is effective and efficient;**
- **We will have addressed the major criteria for a thriving cocoa industry in Asia**



Thank You