Integrated Production and Pest Management Programme in West Africa

Regional IPPM Programme
USD 9.5m

Senegal, Mali, Burkina, Benin

Funding :
Govt of The Netherlands

GEF Niger and Senegal Rivers Pollution Reduction Programme
USD 8.4m

+ Guinea, Mauritania, Niger

Funding: GEF / UNEP

2 Rivers, 7 Countries, 130,000 Farm Families

Farmer Field Schools in West Africa

- 1996: IPM Introduced in Africa (Ghana)
- 2001- 2005: Phase I Senegal, Mali and Burkina Faso 25,000 farmers trained
- 2007-2010: Phase II + GEF adds Benin, Guinea, Niger and Mauritania 130,000 farmers targeted

Weekly meetings 25 farmers

Comparing conventional versus new practices

Understanding Mechanisms !

Natural enemy cage studies Burkina Faso

Literacy: an issue to address ...

but not a major barrier

“The Field is our Book”

Farmer Field Schools:
20 Years Experience 87 Countries

West African Programme: Across all crops

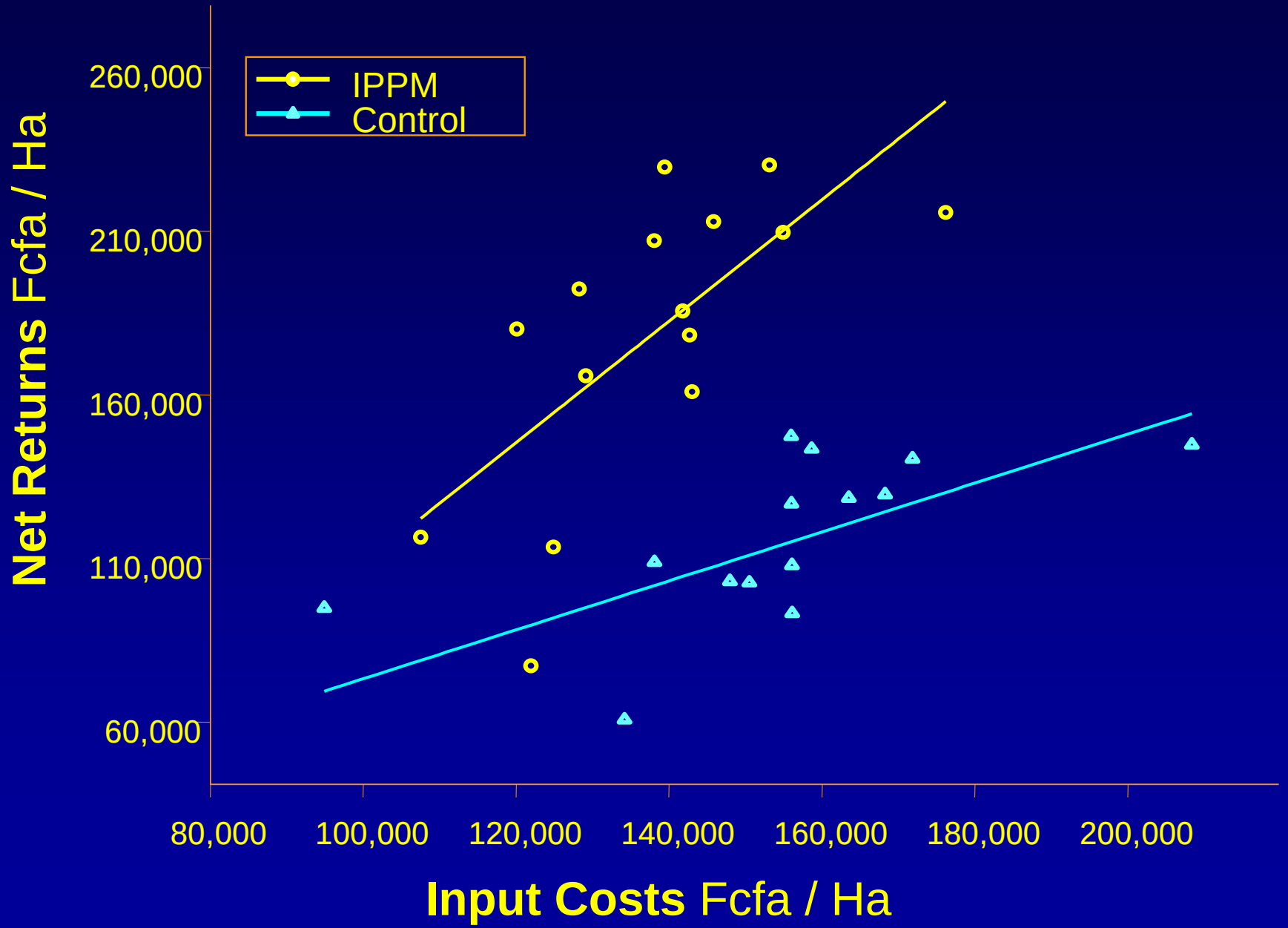
	Median
Yields	+ 23%
Pesticide Use	- 75%
Net Margins	+ 41%

Mali

(Pretty & Waibel 2005)

62 IPM initiatives
26 countries
54 crop combinations
35% increase in yields
72% decrease in pesticide use

Mali: 400 Cotton Farmers



Simple Agronomic Solutions can have Dramatic Results:

Benin: Irrigated Rice (500 ha)

Yields: **2.1** t/ha → **5.6** t/ha

Fertilizer use: **4.5** t/ha → **1.5** t/ha

Growing Diversity of Topics

- Rice
- Vegetables
- Cotton
- Pulses
- Dry land Cereals
- Karité
- Pourghère (Jatropha Curcus)
- Mango, citrus
- Mixed Farming Systems
- Soil Fertility Management
- Aquaculture (rice-fish)
- IVM

Linking Farmers to Markets
and Innovative Credit Mechanisms

Building Resilient Farming Systems
Diversified Cotton Systems (Burkina)

Reversing trends in soil degradation:

Conservation Agriculture

- Improving Economic and Ecological Resilience
- Buffer to climate change variability

Sustainability

Burkina: FFS approach being adopted as principal extension tool in newly reformulated extension system and the new Service for Good Agricultural Practices

Mali: IPPM programme contributed to development of several national policy papers; FFS approach adopted by Department of Crop Protection and written in to national budget; Minister of Agriculture request for 75% of Malian rice farmers to be trained

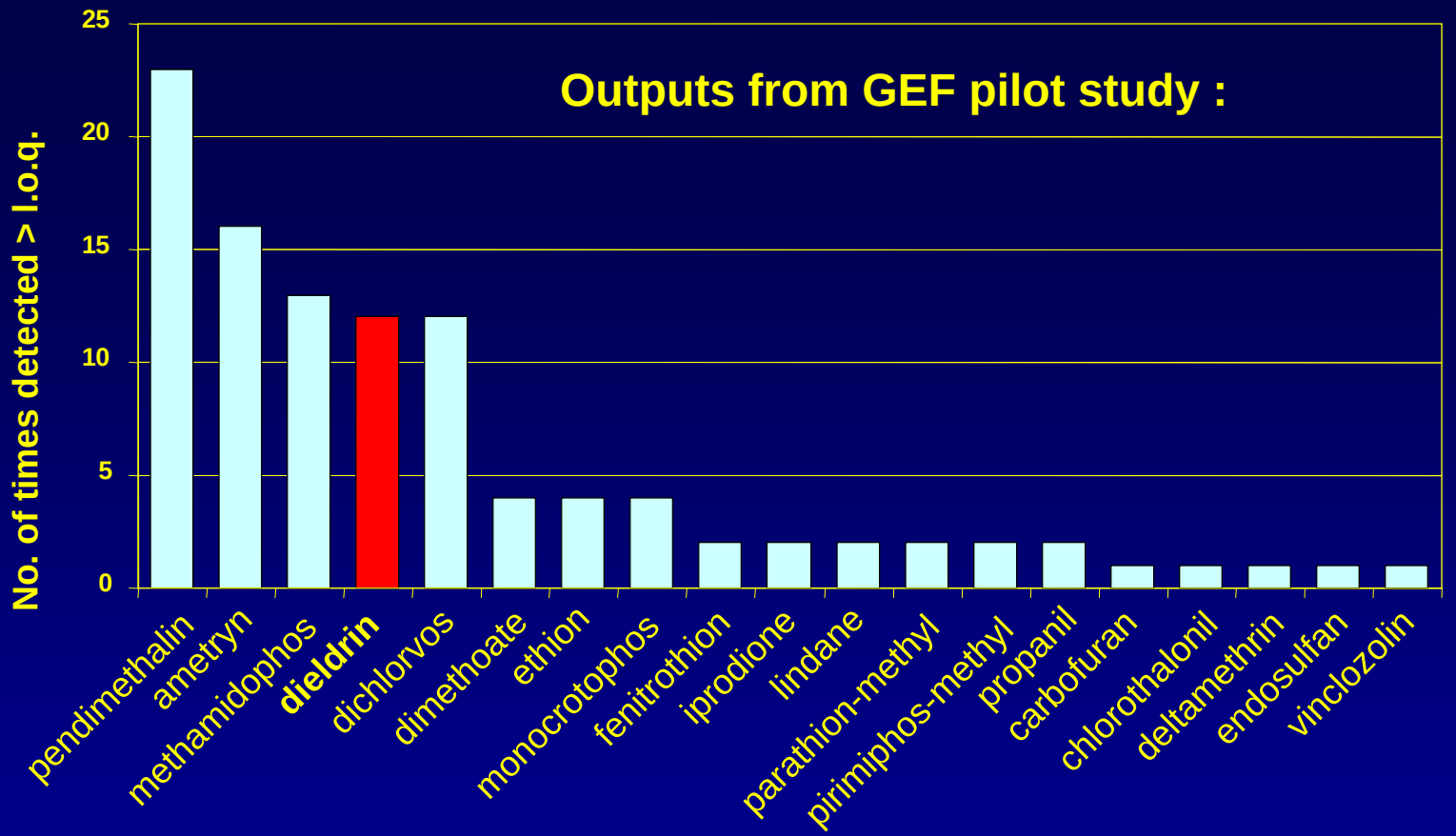
Senegal: IPPM / FFS approach written into National Agriculture Programme 2009/2010; FFS adopted as approach in National Strategy for the Development of a Healthy and Sustainable Agriculture (ASD)

GEF/UNEP/FAO
Reducing Dependence on POPs and other Agro-Chemicals in the Senegal and Niger River Basins through IPPM

Development Objective:

- Protect transboundary waters
- Eliminate POPs and other toxic pesticides
- Increase agricultural productivity and net economic benefits to farmers

GEF/UNEP/FAO
Two Rivers, 6 Countries
30 Sub-Watersheds, 30,000 Farm Families



- **19 pesticides**
- **Dieldrin, methyl-parathion, monocrotophos, methameidohos, endosulfan, lindane**

- **90% exceeded European Drinking Water Standards**
- **90% exceeded the Maximum Tolerable Risk levels for ecological effects**

Africa is only 2% of global market for pesticides,

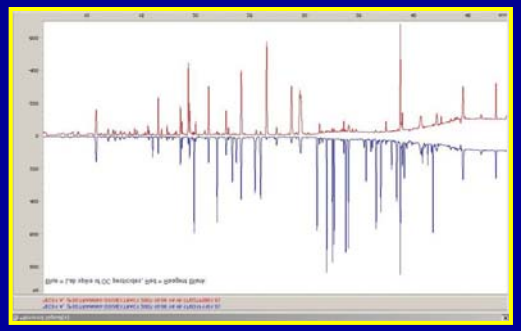
…but targeted by industry to substantially increase over the next 10 years

Cotton production is an important “open door” for highly toxic pesticides flowing into other systems

Pesticides in West Africa put at Risk Highly Fragile Aquatic Ecosystems

...and the populations whose survival hinges on scarce water resources

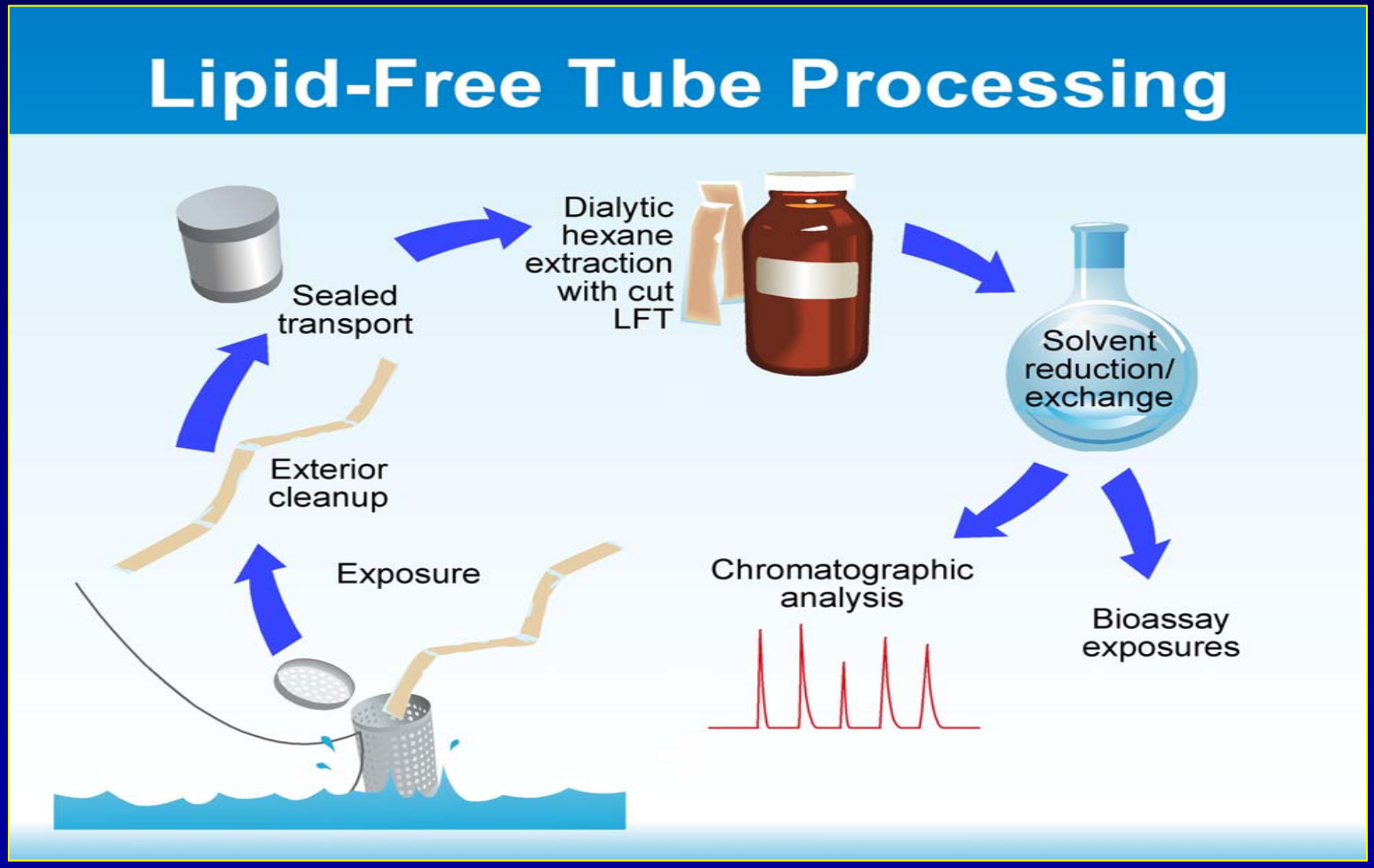
New Technologies for Monitoring Pesticides Highly Feasible and Cost Effective



Training with
Oregon State University

Passive Sampling Device (PSD):

Extraction for Identification and bioassay exposure studies



PSD: Local Preparation

CERES Locustox: Dakar Senegal

Locally built stainless steel deployment cages

PSD: Local Deployment & Retrieval

Pesticide Transport and Fate Modeling Approach

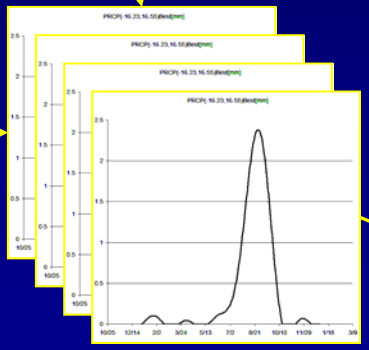
Daily data exists for irrigation events, hydrographs, pesticide applications, precipitation?

NO

YES

Synthesize data using algorithms coded in computer program

Use Observational Data.



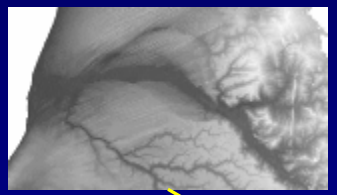
Time Series Drivers: Irrigation Events; Precipitation; Pesticide Application, hydrographs.

Physical Parameters; conveyance loss irrigation, percolation loss flood fields, soil characteristics giving base-flow.

Calibration Steps

Satellite Image Google Earth

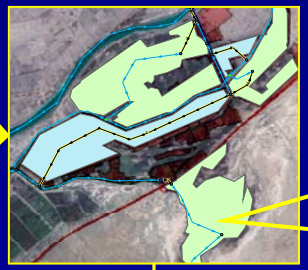
DEM 90 m CGIAR



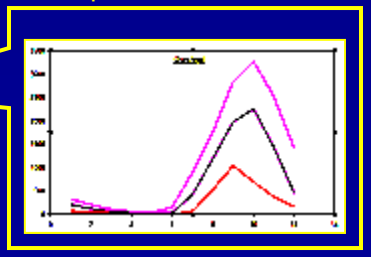
GEF/SAED/ENDA/LocusTox 2003

Irrigation Scheme (SAED)

MIKE-Basin Model



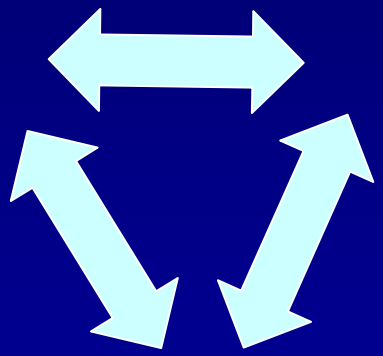
Results: temporal view of pesticide concentrations at Receptor Site



Overall Strategy: An Integrated Approach to Agro-Chemicals Risk Management

Community Education & Farmer Training

Environmental Monitoring



National & Regional legislation

Conclusions

Outcomes from IPPM include:

- optimized input use; increased net profit while developing soil fertility and sustainable farming practices (ORA-1);
- Platform for variety of initiatives, e.g. diversified farming systems and conservation agriculture (ORA-1);
- Reduction of risks to communities and environment from pesticides (ORA-3);
- Environmental monitoring of chemicals feeds into community awareness and national strategies and policies (ORA-3);
- Strong evidence for increasing adoption and institutionalization by governments.

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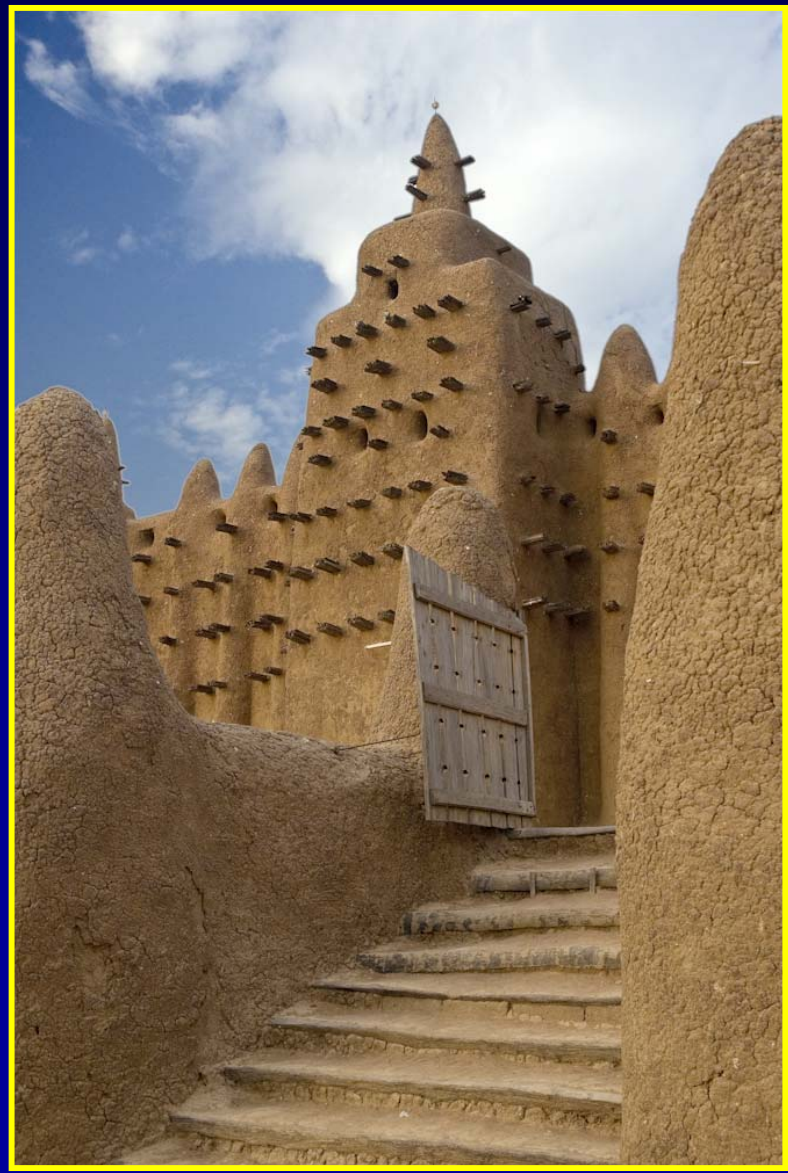

Thank You

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