

REPOSITIONING NATURAL PRODUCTS SCIENCE AND EDUCATION TO MEET DEVELOPMENT CHALLENGES IN SUB- SAHARAN AFRICA

By

The Natural Products Research and Training Network

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SSA, No Longer an Island: 21st Century *Chain link & Bursting Bubbles*

**Rise of
Anthropocene
Ecosystem Pathology &
climate change**

**African Great Lakes
Nexus. Natural
Resources Conflict
& Exploitation**

**Dwindling
agriculture &
range production
potential**

**Grappling
with attaining
MDGs**

**Population
explosion &
Livelihood
Crisis**

**ICT
Revolution &
Y2K crisis**

**Rise of
Naturally occurring
Emerging Diseases
& Epidemics**

Bioterrorism



Natural Products – the Regions Neglected Industry / Alternative Riches & Livelihood Option

1. **SSA Natural resources; forests, bushes and woodlands harbor >51% of the world's biodiversity - the bedrock for African natural products resources. Man's solutions are in nature**



Potential of Natural Products Industry

1. Global market - > US\$170 billion and continuing to grow
2. Natural Products (NP) - indigenous, alien, cultivated or value added
3. Accessible to and owned by poor rural people
4. Ecologically and culturally adapted to local conditions (biodiversity-friendly' industry)

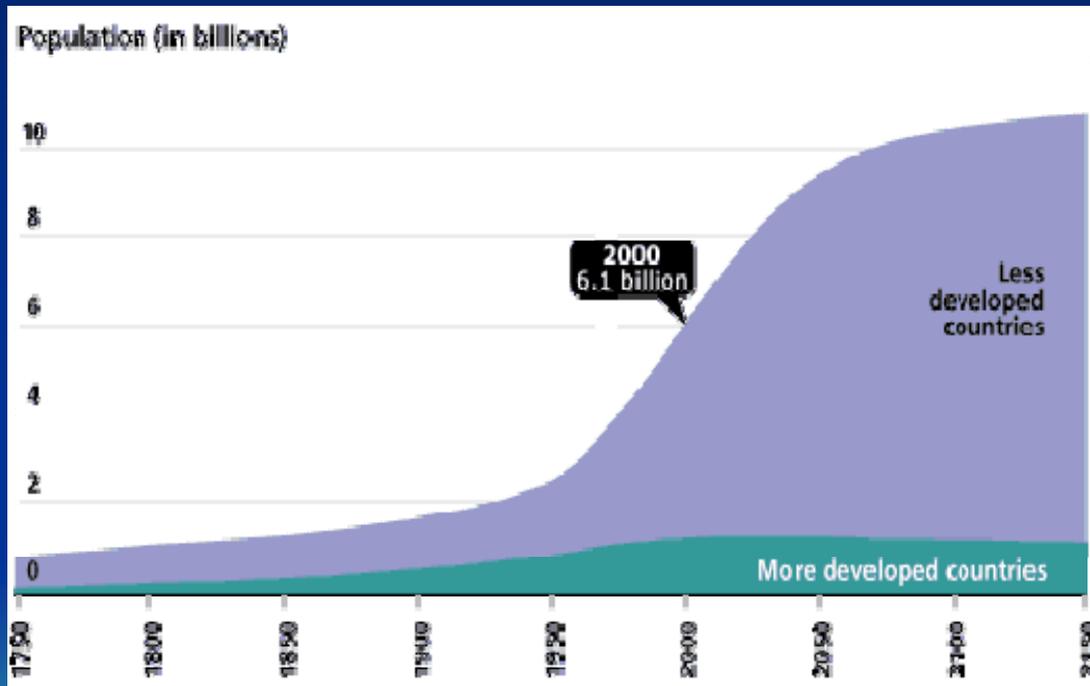


Promises of the future: Sub-Saharan's 2020 projections

- **Shift of 1-2 billion people from poverty to middle class globally**
- **“Westernization” of Africa, Asia and Latin America**
- **Realization of “One World, One Health” vision**



Rapidly Increasing Human Population



- 6.1 Billion people in 2000
- ~9.4 to 11.2 Billion in 2050

Source: United Nations, *World Population Prospects*, and estimates by the Population Reference Bureau.

Rapidly Increasing Urbanization

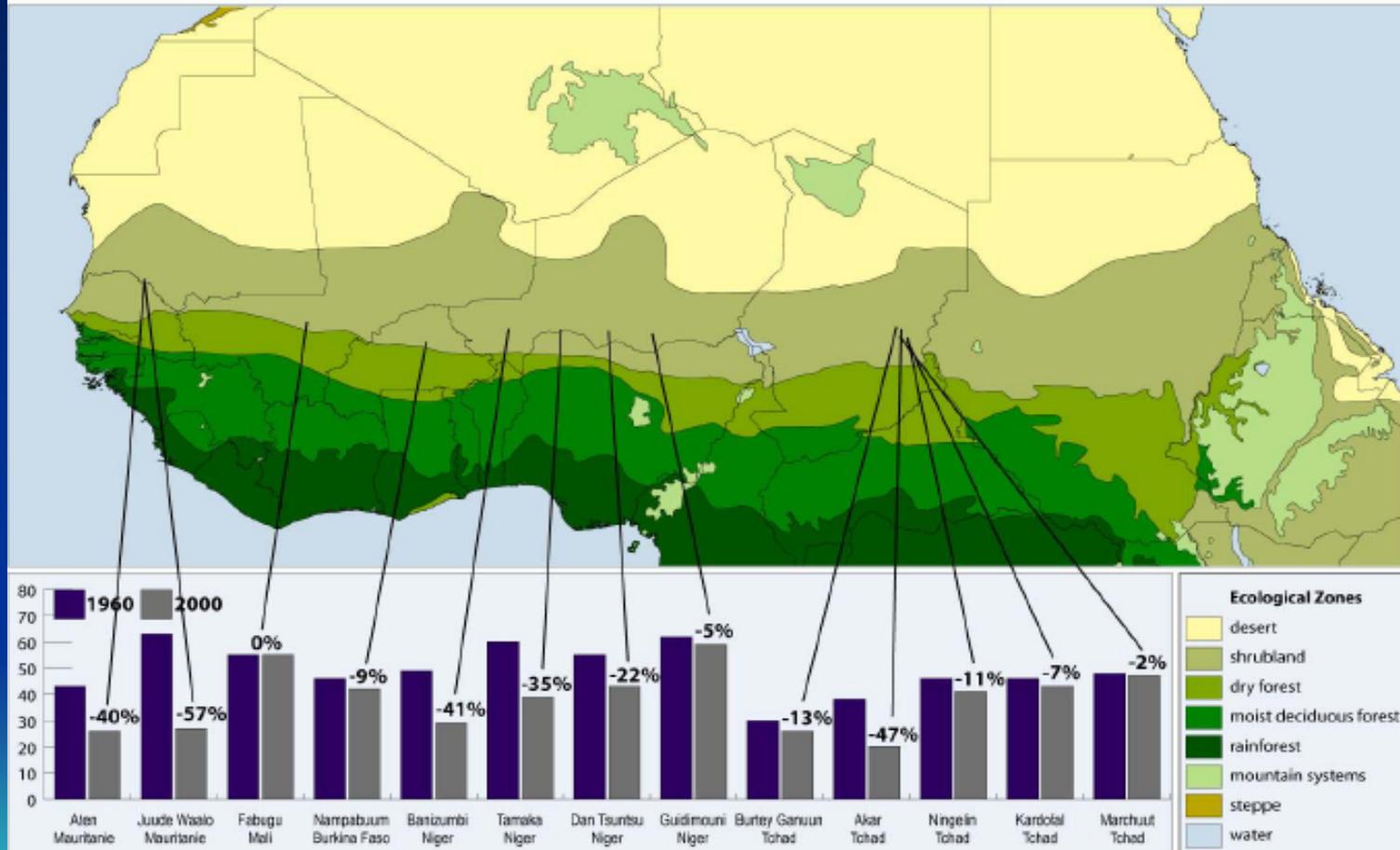


- 2000
 - 47% world population living in urban areas
- 2030
 - 60% world population living in urban areas

Biodiversity & NP Loss in Sahel

Forest species loss in the Sahel 1960-2000, field data

Total number of forest species on village lands and percent decline



Forest species: villagers. U.S. Geological Survey (USGS), field representatives of the Famine Early Warning System Network (FEWS NET).
 Ecological zones: Food and Agriculture Organization (FAO). 2001. Global forest resources assessment 2000. FAO, Rome, Italy.
 Map: USGS Earth Resources Observation Systems (EROS) Data Center, 2002.

Future:
Where will the road take us?



Setting a new agenda: Concept of the Total Natural Products Industry

Goal: *a holistic, vibrant & sustainable regional NP science & education program, securing and sustainably engaging the African NP industry for socio-economic development*

Mission: *to “foster the transformation of the NP industry into a productive, competitive and sustainable livelihood option in the region”*

Vision: *to be “a vibrant and leading regional academic network in strategic NP innovations and services”*



Core paradigm shifts: Holistic NP Science & education; integrating value chain & resource management – from the wild / farm to the consumer

1. Domestication & Propagation of Wild NP Botanicals
 2. Farming NP Botanicals
 3. Value addition, Value chain analysis & management (from farm/ production to consumption)
 4. Industrial component (extraction, purification, packaging)
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Core paradigm shifts: NP Technology, value chain & resource management

1. Vocationalisation of NP Industry,
 2. Biotechnolisation of NP
 3. Entrepreneurship
 4. Referral services &
 5. Rural Transformation
 6. Bio-safety & Bio-security
 7. Blended learning approaches with E-learning technology
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Implementation Plan: specific objectives

1. Upgrade at least 10 existing MSc-level staff to PhD. At least 8 BSc level to MSc – level. Boost NP experts pool
2. Develop graduate curriculum in NP technology, value chain & resource management (coursework & thesis) with components at each node
3. Explore Piloting Graduate program by E-learning
4. Build efficient communication among stakeholders - website



Implementation Plan: specific objectives

5. Engage government & local NP industry in network actions – guest lecturers, supervision & remedial courses
6. Increase research opportunities for staff & students – scientific conferences & seminars
7. Increase number and quality of women scientists
- >30% women candidates
8. Enhance RISE faculty staff retention at universities –joint senior & postdoc supervision of students



..... recognizing the power of globalization, whether it be knowledge economy, trade, health, global warming; we are ready to respond in partnership!

..... the digital links may enhance networking!



**Thank you for
your attention**

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