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Indigenous Knowledge and Environmental Impact Assessment in Africa

THE CASE OF GHANA



By:

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Conceptual Basis

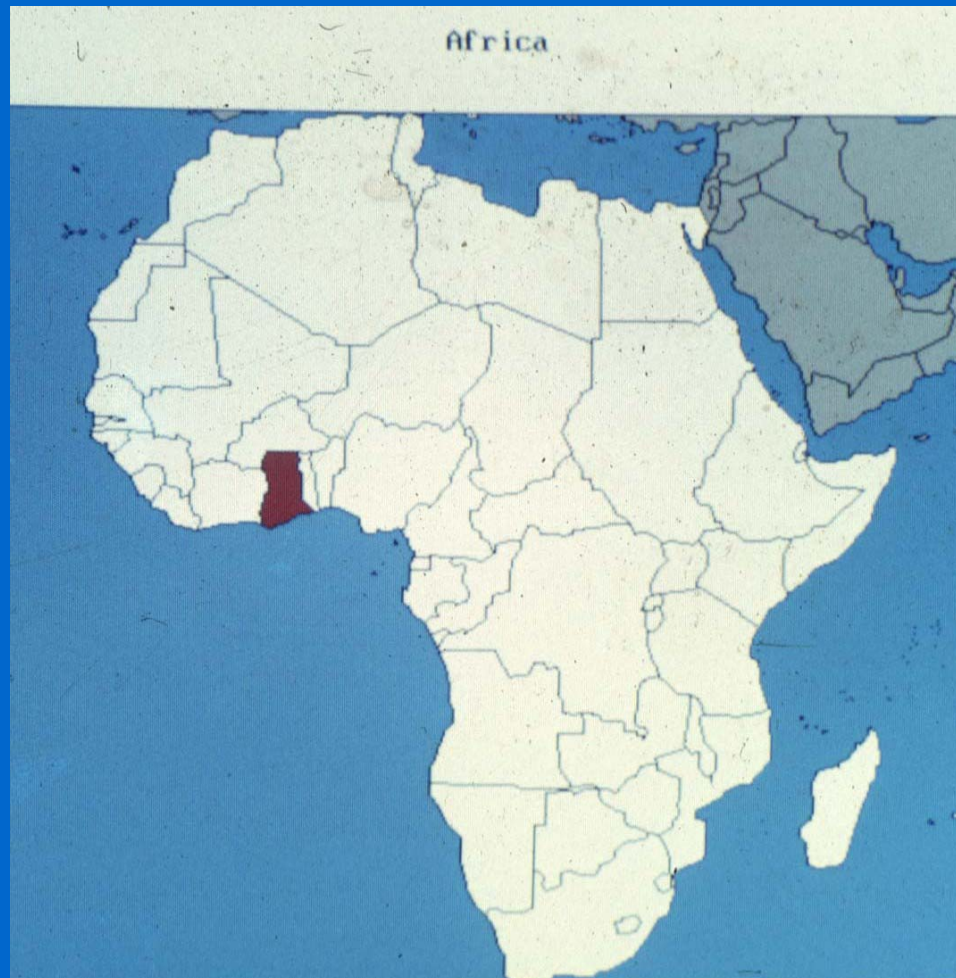
- The way we conduct EIA studies in developing countries is limited by what we fail to notice. And because we fail to notice what we fail to notice, there is little we can do until we realize how failing to notice shapes the success or failure of our EIA studies.

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Outline

- Background
- Goal and objectives
- Methods
- Findings and implications
- Conclusion

Locating Ghana



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The Volta Dam in Ghana



Displaced Families



Resettlement Policies

- Created 52 Rural Townships
- Provided Communal Facilities
- Built Core Houses with Concrete Walls
- Promoted Mechanized Agriculture
- Cash Compensation

Volta Resettlement Scheme

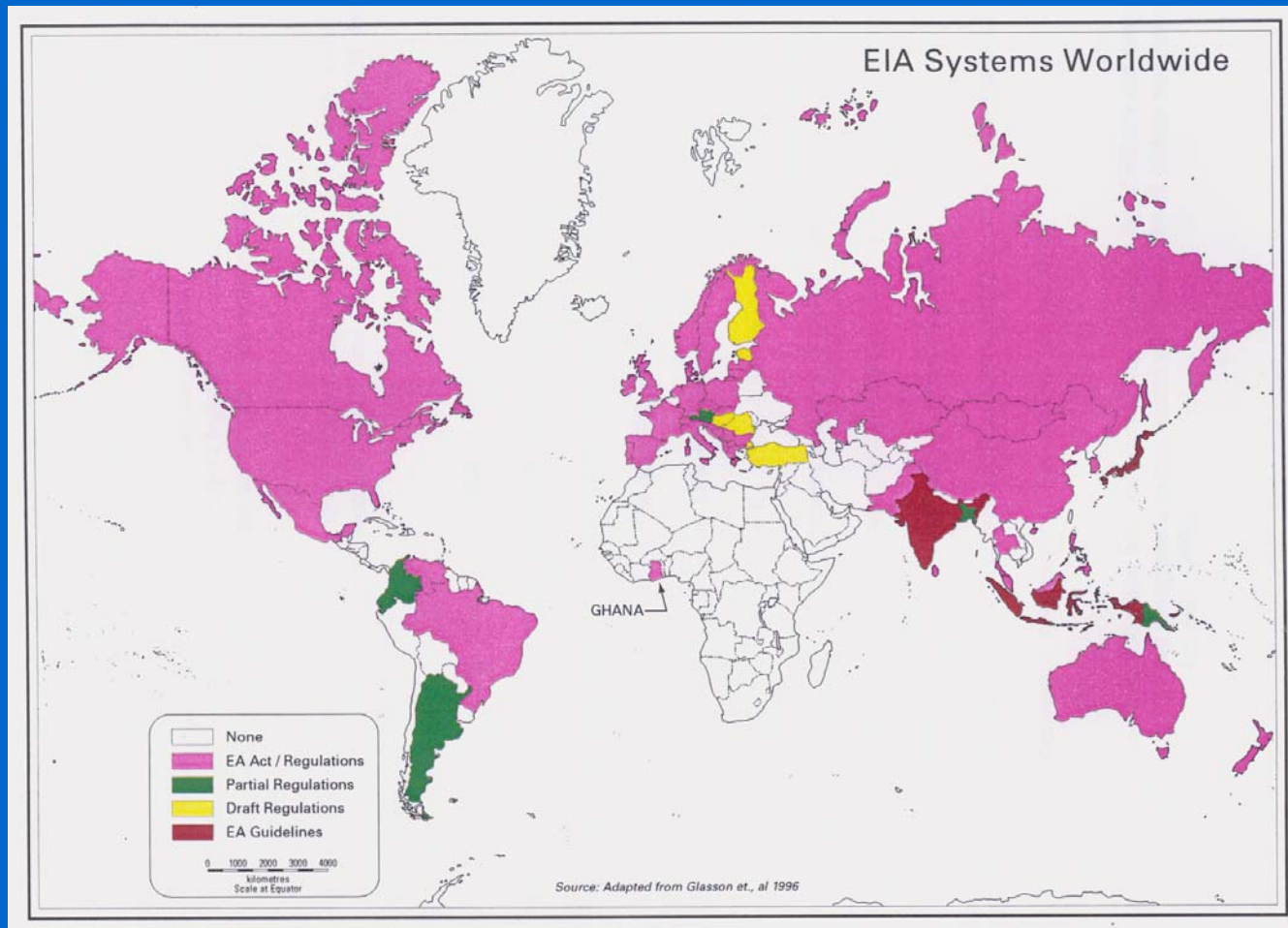


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Post-resettlement Impacts

- Productive Agric Land Submerged
- Mechanized Agriculture was a Disaster
- Acute Cases of Water-related Diseases
- Land Litigations Persist
- Social Problems

EIA Comes to Ghana



Status of EIA in Developing Countries

Region	Countries	EIA Systems
Africa	52	1
Asia/Pacific	24	12
Caribbean	11	-
Latin America	20	7
Middle East	14	-
Total	121	20

Motivation

- Differences in Socio-economic and Institutional Conditions
- Theoretical Underpinnings (*da Vinci*)

Theoretical Orientations of EIA

THEORY

Rational

Incremental

Transactive

Advocacy

Radical

CENTRAL THEME

Objective Analysis

Piecemeal Gradualism

Interpersonal Dialogue

Adversarial

Spontaneous Activism

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Appropriate Development Strategies

- Basic Needs Approach
- Self-Reliance
- Popular Participation

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Contentious Issues

- The Need to Involve Local People and Indigenous Ecological Knowledge (IEK)
- Supported by WCS 1980 and ES 1992

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Defining IEK

A Body of Knowledge Built Up By A Group
of People Through Centuries of Living In
Close Contact With Nature

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IEK Terminologies

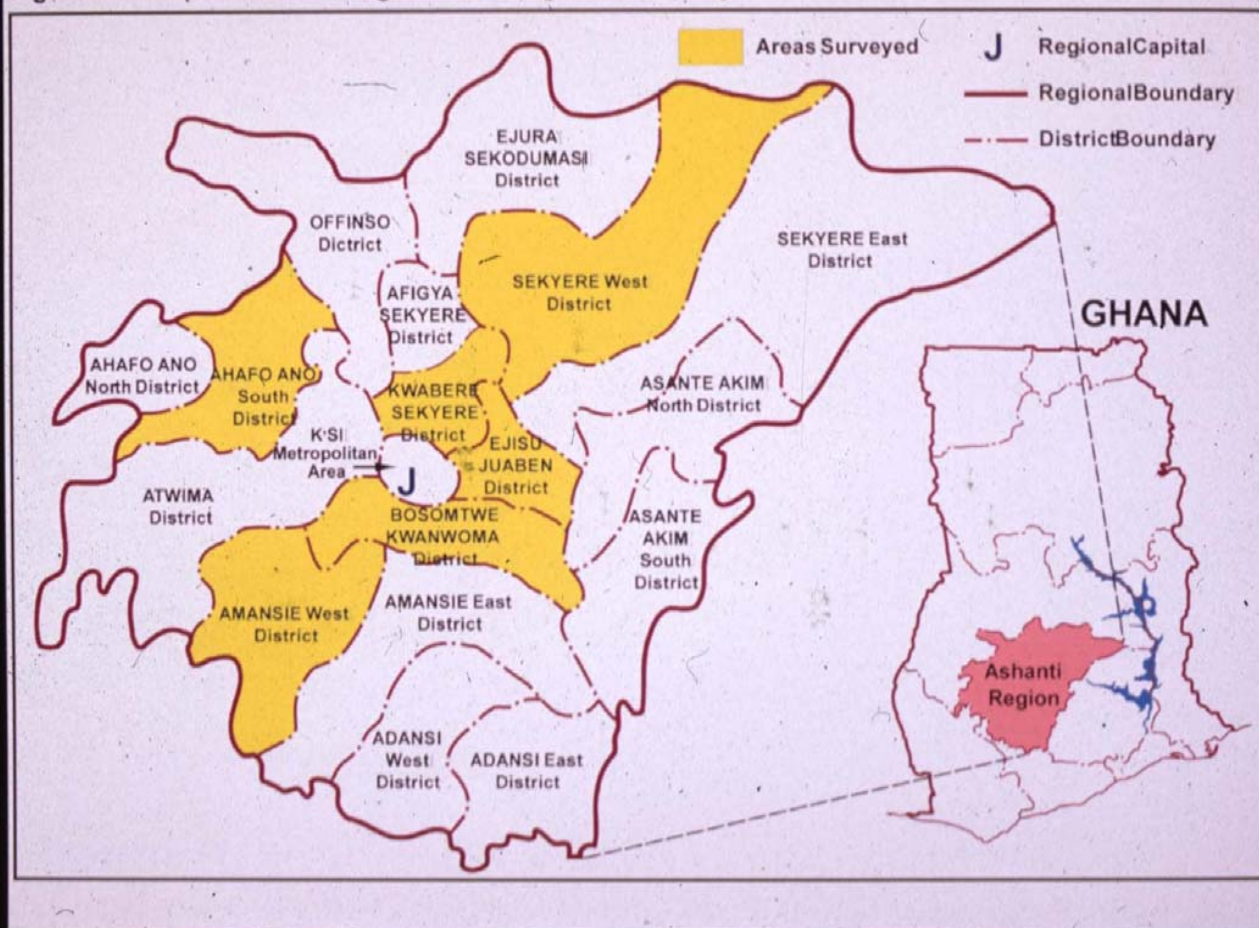
- Rural People's Knowledge
- Marginalized Knowledge
- Local Oppressed Knowledge
- Folk Ecology
- Ethno-ecology

Indigenous Ecological Knowledge

Characteristics	Western Science	Indigenous Knowledge
Data Creation	Reductionism	Holistic
Explanation	Scientific Inquiry	Experiential Beliefs, Values
Classifications	Universal	Specific context
Recognition	Copyrights	Absent
Hegemony	Dominant	Subordinate

Study Area

Figure: 3.1 Map of Ashanti Region: Showing Areas Surveyed



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Research Goal

- Explore the Desirability of Incorporating Rural People's Experiential Knowledge in EIA Studies

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Objectives

- Review the Effectiveness of EIA Methods
- Rural People's Experiential Knowledge
- Ways to Incorporate their Knowledge in EIA Studies

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Research Methods

- Individual & Group Interviews
- Community-Based Concept Mapping
- Content Analysis of EIA Reports
- Field Observations

Research Methods



Group Interview





RESEARCH FINDINGS & IMPLICATIONS

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Objective #1

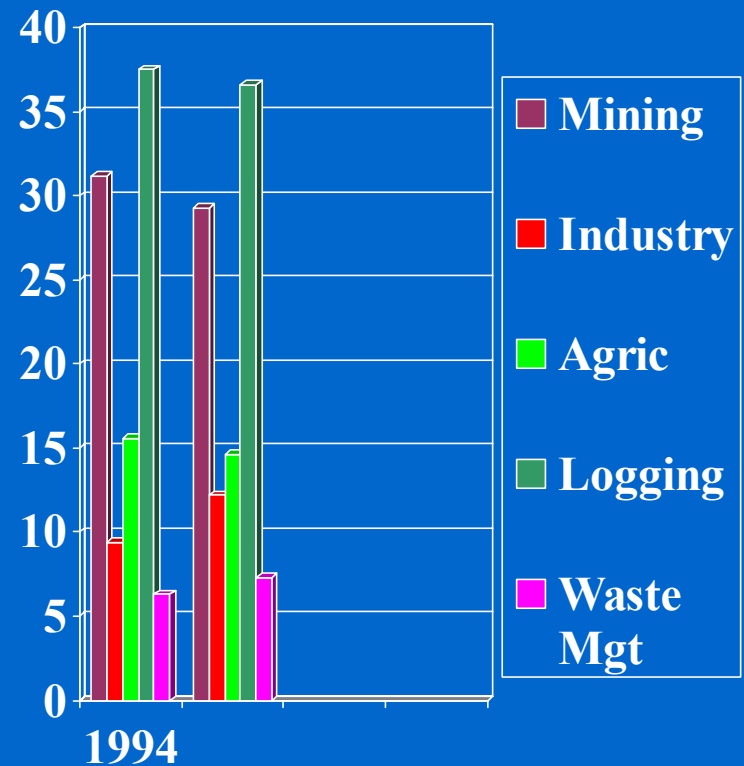
Review Effectiveness of EIA Methods

EIA Studies (1994-95)

SECTOR	1994	1995
Mining	10	12
Agriculture	3	5
Industry	5	6
Waste Mgt	2	3
Logging	12	15
TOTAL	32	41

EIA Studies (1994-1995)

- Mining
- Industry
- Agriculture
- Logging
- Waste Management



Summary of Methods Used in Predicting Impacts

- Trend Extrapolation
- Expert Opinion (Delphi)
- Checklists
- Matrices (Leopold, Peterson etc.)
- Quantitative Models
- Qualitative Models (Scenarios)

EIA - Public Notice

The Environmental Protection Agency (EPA) has received an Environmental Impact Statement on a proposed Gold Mining Facility at Tarkwa as required under Act 490 section 12(1)

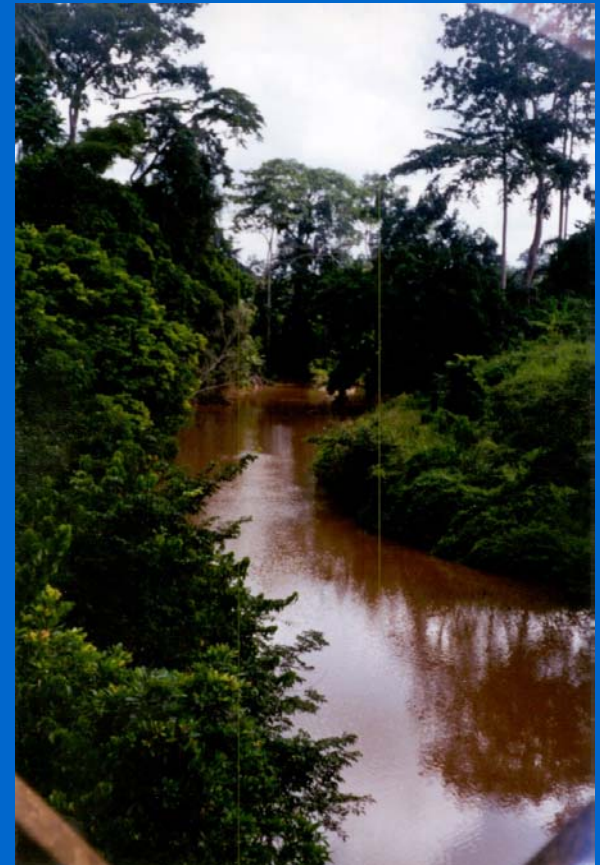
Copies of the EIS are available at the EPA Head Office, Accra, and the Western Regional Office.

Any person(s) having an interest or concern relating to the potential impacts of the proposed project shall within 21 days from the publication of this notice, submit in writing such concerns to the EPA Office.

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Impact of Mining

River Birim has been diverted three times



Using Polluted River



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Destruction of Agricultural Lands



Watershed Degradation



Watershed Degradation



Land Degradation



Water Pollution



Constraints to EIA Procedure

Key Constraints to EIA and Planning in Ghana

CONSTRAINTS	TOTAL RANKING
Local EIA Experts	10
Environmental Awareness	7
Ignorance and Illiteracy	4
Inappropriate EIA Method	4
Base line Data	14
Intervenor Funding	4
Land Management Problems	3
Institutional Problems	8
Other	2
TOTAL FREQUENCY	60

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Critically Absent Data

- Groundwater & Wetland Ecosystems
- Soil, Water, and Air Quality
- Inventory of Pollutant Emission
- Noise Pollution Levels

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Key Findings

- EIA Studies Conducted Mostly by Foreign Consultants
- Approvals Highly Centralized (in Accra)
- Absence of Data is a Serious Limitation

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Objective #2

Explore Rural People's Experiential Knowledge

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Categories of Rural People Interviewed

- Indigenous/Traditional Healers
- Indigenous Farmers
- Hunters & Gatherers
- Wood Carvers
- Pottery Makers

Indigenous Healing



Indigenous Healer



Indigenous Healers

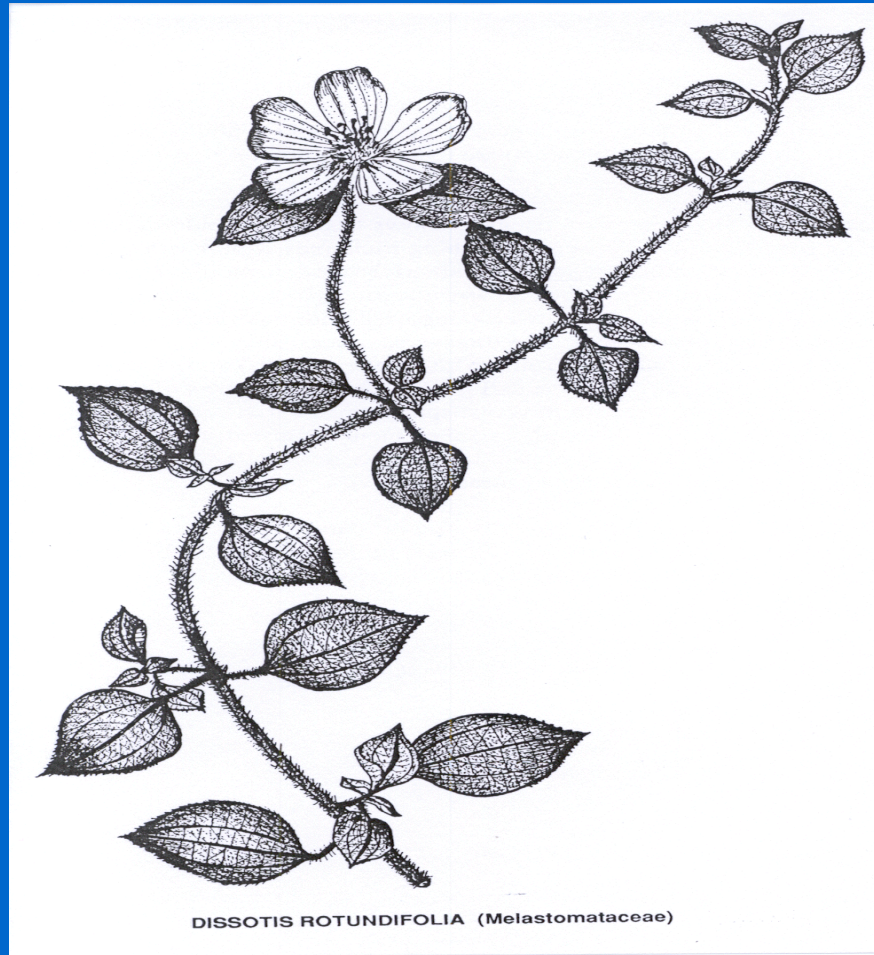
- Use Plants, Animals, and Mineral Substances
- Methods Based On Socio-cultural and Religious Beliefs of Local People
- 68% No Formal Education
- 52% Use Between 10-20 Plant Species
- 8% Use Between 31-50 Plant Species

Melastomataceae (*Borekete*)

Uses:

Asthmatic

Cough



Indigenous Farmers



Indigenous Farmers

- Farming is Largely Based On Local Values, Beliefs, Attitudes & Biophysical Conditions
- 62% No Formal Education
- Often Plant 6-12 Crop Species
- Identified Precursors of Climatic and Weather Conditions

Wood Carving



Adinkra Cloth Making



Pottery



Pottery



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Organization of IEK

- Taxonomic (*Names and Uses*)
- Spatial Distribution (*Mapping*)
- Temporal Events (*Seasonal*)
- Social (*Values attached*)

Key Findings

- 68% Have No Formal Education
- 98% Not Aware of EIA Studies
- Possess Experiential Knowledge

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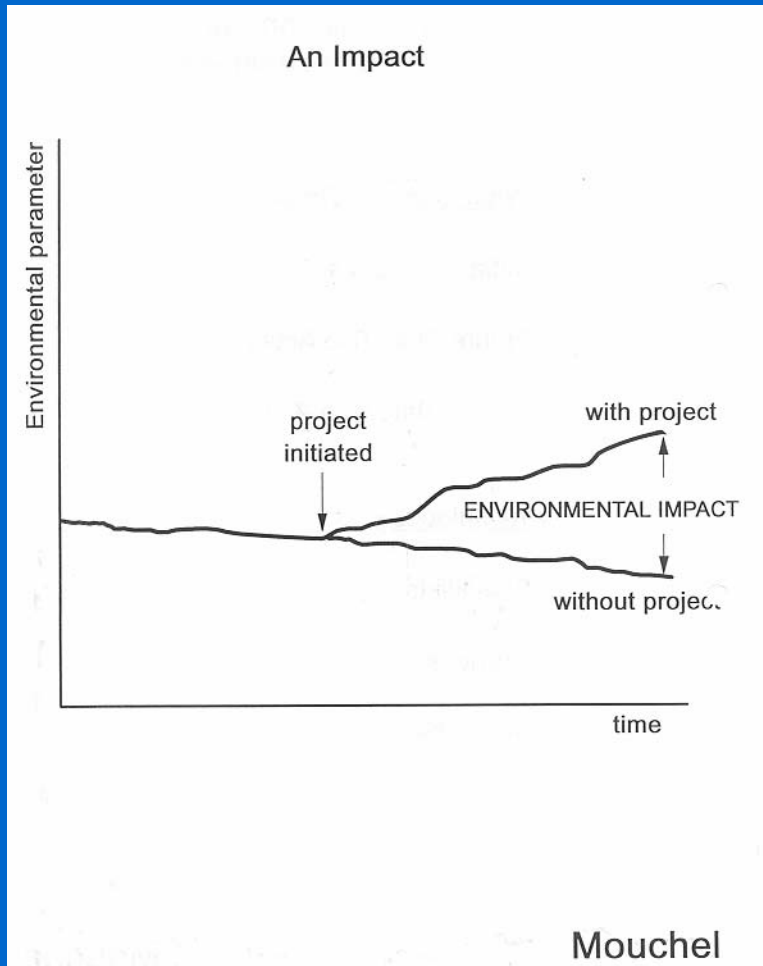
Objective #3

Explore Ways to Incorporate Rural People's
Experiential Knowledge in EIA Studies

Potential Contribution to EIA

EIA PROCESS	ROLE OF INDIGENOUS KNOWLEDGE
Screening	Cultural Context/Values
Scoping	Ecosystem behavior
Public Consultations	Sacred/taboo days
EIS Report	Past, Present & future Ecosystem Behavior
Public Notice	Indigenous Leaders
EIS Review	Understand Local Ecosystem
Monitoring	Ecosystem Behavior

Environmental Impact



Difference between the measured condition of a variable with and without the project!

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Impact Significance

- Local Values, Norms and Beliefs
- Expressed Public Concerns
- Statistical Significance
- Ecosystem Functioning
- Environmental Standards

• • • **Integrating Indigenous Knowledge into EIA**

- Technical Dictionaries and Training Manuals
- Community-Based Concept Mapping (GIS)
- EIA Advisory Boards
- Decentralize Approval Powers
- Information Offices
- Monitoring Team

Limitations of IEK

- Lack of Systematic Records
- Entrenched Attitude Towards IEK
- Language Barrier
- Continuing Loss

Good News

- Potential to Complement Western Science
- Encourages Bottom-up Decision-making
- Part of the Solution to the Continuing Loss of IEK

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Conclusion

- Adapt EIA to Suit Local Conditions
- Work as Missionaries
- Cross-cultural Studies
- Appreciate Diversity of Opinions and People