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Integrated Eco-Village Model for Sustainable Construction

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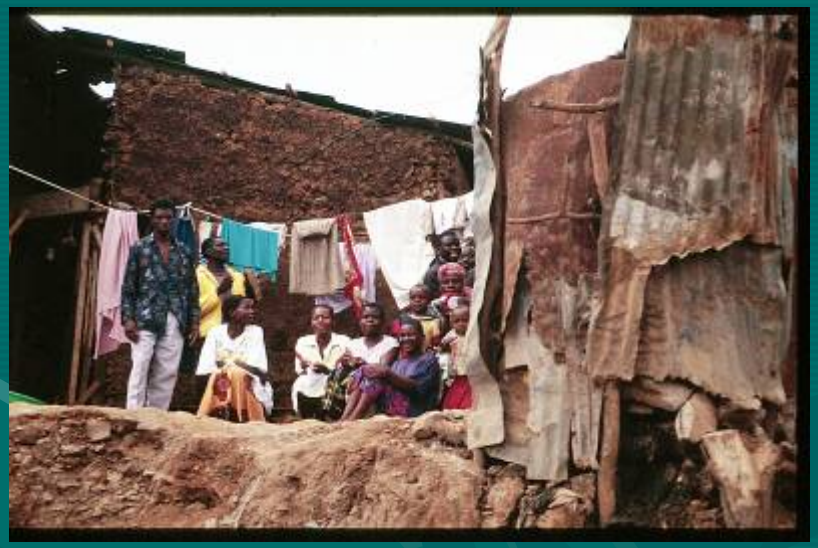
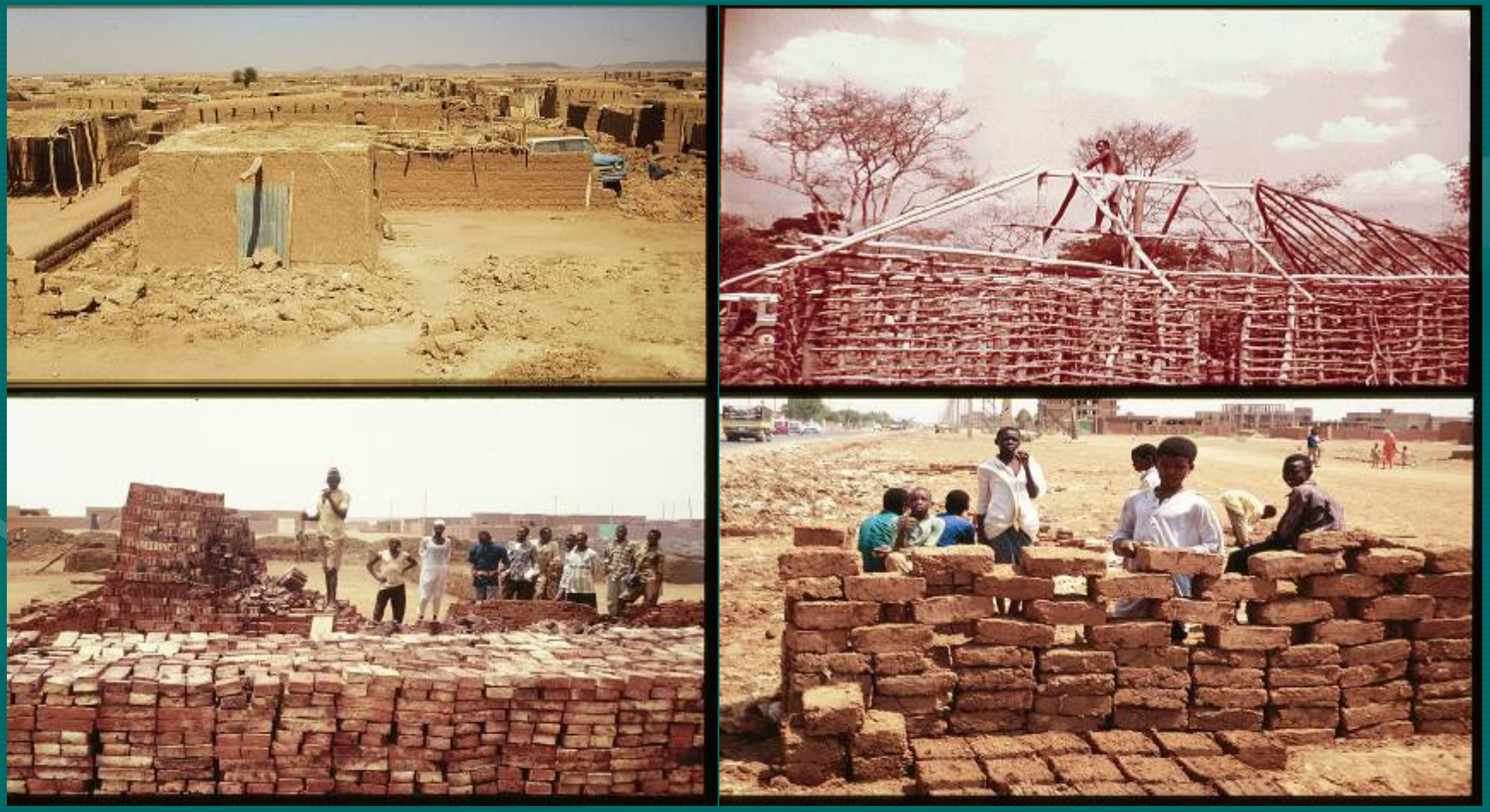
Housing Problem in Displaced Areas

More than 5 millions people are living in this way without potable water supply and sanitation services.



Traditional Construction



Modern technology for sustainable construction

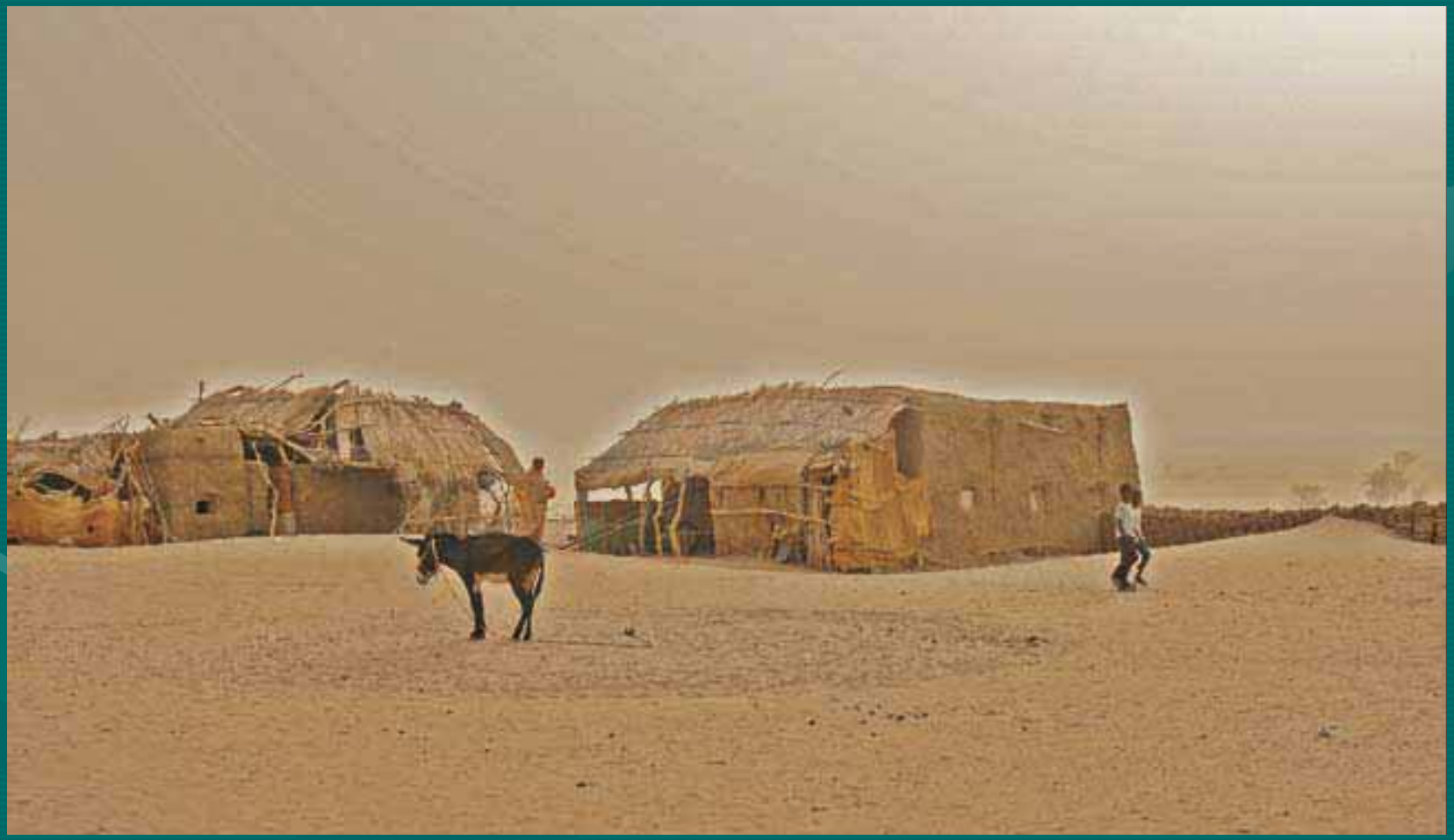
Construction Industry

- The construction industry is one of the most complex industries. It is a major contributor to the environmental crises through resource depletion, energy consumption, air pollution and generation of waste.
- There is need to develop and apply techniques and methods to achieve the goals of sustainability by cleaner technology.

HABITAT II

- In June 1996 the United Nations Conference on Human Settlements , Head of governments agreed to improve the living condition of millions of poor and low income people , recognizing the importance of construction industry in delivering adequate housing and infrastructure.

Impact of Environmental Crisis on Rural Areas



Impact of Construction on the Environment

1. Land degradation.
2. Impact on forest resources
3. Consumption of natural resources
4. Air pollution
5. Generation of wastes

Non-Environmentally Friendly Construction

Promoting Cleaner technology

1. Present Situation
2. Technology Development
3. Choice of Technology
4. Ecologically Sound Design

Eco-Building Requirements

1. Harmony with the environment
2. Institutional support
3. The research and development (R&D)
4. 4.Exchange of information
5. Regulatory measures (*Eco-codes*)

Safety and Health in construction ethics

1. Building material producer should take measures to avoid the production of hazardous material.
2. Architecture should specify safe materials and design the indoor environment.
3. Contractors and the owner of buildings should insure the use of safe materials.
4. Research institutions should work towards bridging the knowledge gap regarding health aspects.
5. Workers should assume a greater roll in self monitoring
6. Government roll to play in controlling health and safety hazards

Integrated Eco-Village for Sustainable Construction (Sustainability and Eco Efficiency)

- The idea of the sustainability stems mainly from forestry: ***don't use excess timber from woods than the wood can produce.***
- Sustainable development was first defined in 1987 ***Brutland Report*** and in 1992 in the Rio declaration (***Agenda 21***).
- Sustainable development is an economic activity which fulfils the need of today's generation without putting risk on the possibilities of future generation.

Integrated Eco-Village for Sustainable Construction (Eco-Habitat)

This is based on earth stabilized bricks which is tune the indoor environment in milled status. Each eco-habitat can be supplied with all infrastructure in terms of water supply and eco sanitation to meet the ***MDG's*** principles in terms of supply portable water and facilitate sanitation. Eco-sanitation is useful for this model of habitat by using the generated methane gas for cooking as well as reuse of grey water for irrigation and the composted waste for fertilization producing organic food and fodders.

Justification of Eco-Village Initiative in Sudan

1. More than 5 millions internally & internationally displaced persons (***IDPs)*** living in camps.
2. Using of wood fired bricks in constructions causing depletion.
3. Comprehensive peace agreement (***CPA***).
4. Traditional soil constructions is used in 80% with the buildings in Sudan.

Pre-Requisite Eco-Village Model

1. Capacity building.
2. Availability of machine.
3. Availability of stabilizing agents.
4. Feasible slope roofing system.
5. Eco-Sanitation and Eco-Pharmacist.

Eco-Village Model Appraising

1. ***Building material.***
2. Slope roofing system.
3. Water supply and sanitation.
4. Organic food and organic fodders production.
5. Clean energy source.
6. Socio economic transfer.
7. Earth stabilized road foundation.
8. Accessibility of implementation of global principles.
9. Cost effectiveness.

Monitoring the Eco-Village

Settlement of IDPs will effect daily lives which can build:

1. Economic development.
2. Social development.
3. Cultural development
4. Education development.
5. Environmental protection.
6. Political stabilization.

Recommendations

1. Formulating national coding system for eco-buildings.
2. Encourage R & D .
3. Enhance the capacity of young experts with eco-buildings.
4. Support government institutions to enable them for controlling this type of buildings.
5. Activate the role of private sectors in eco-buildings investments.
6. Inviting international community to support the concept approach of integrated eco-village in terms of capacity building and research for developing the concept.

Thank you for your attention