SUSTAINABILITY AND DEVELOPMENT

(An Overview of Nigeria Experience)

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CONTENTS

- Definition of term.
- Environmental Resources.
- Approaches to Sustainable Development.
- The Nigeria Experience.
- Conclusion.

Definition/Concept of term

- Development that meets the needs of present generations without compromising the ability of future generations to meet their own needs (Brundtland Commision, 1987)
- Supports strong socio- economic development for people.
- Especially people with low standard of living.
- It underlines also, the importance of protecting the natural resources and the environment.
- Requires a synergy between technology, application and the environment.

Definition Contd.

- Sustainable development can mean different things to many people. E.g.
- The environmental groups place premium on environmentally oriented factors.
- The economic group is another with emphasis on social and economic pillars.
- The persistent ambiguity has not diminished the use of the term or its application .
- Hence the relevance of the topic today.

Definition of Term Contd.

- Government and Private sectors tend to use the term sustainable development (Robinson, 2004).
- Academic and NGOs are prone to the term sustainability (Robinson, 2004).
- One school of thought places emphasis on three pillars (social, economical and ecological aspects (Mebratu 1998, Pezzoli, 1997).
- The other school holds onto the relationship between humanity and nature (Gibson, 2002).
- The preferred term “sustainability” focuses attention on the ability of humans to continue to live with environmental constraints (Robinson, 2004).

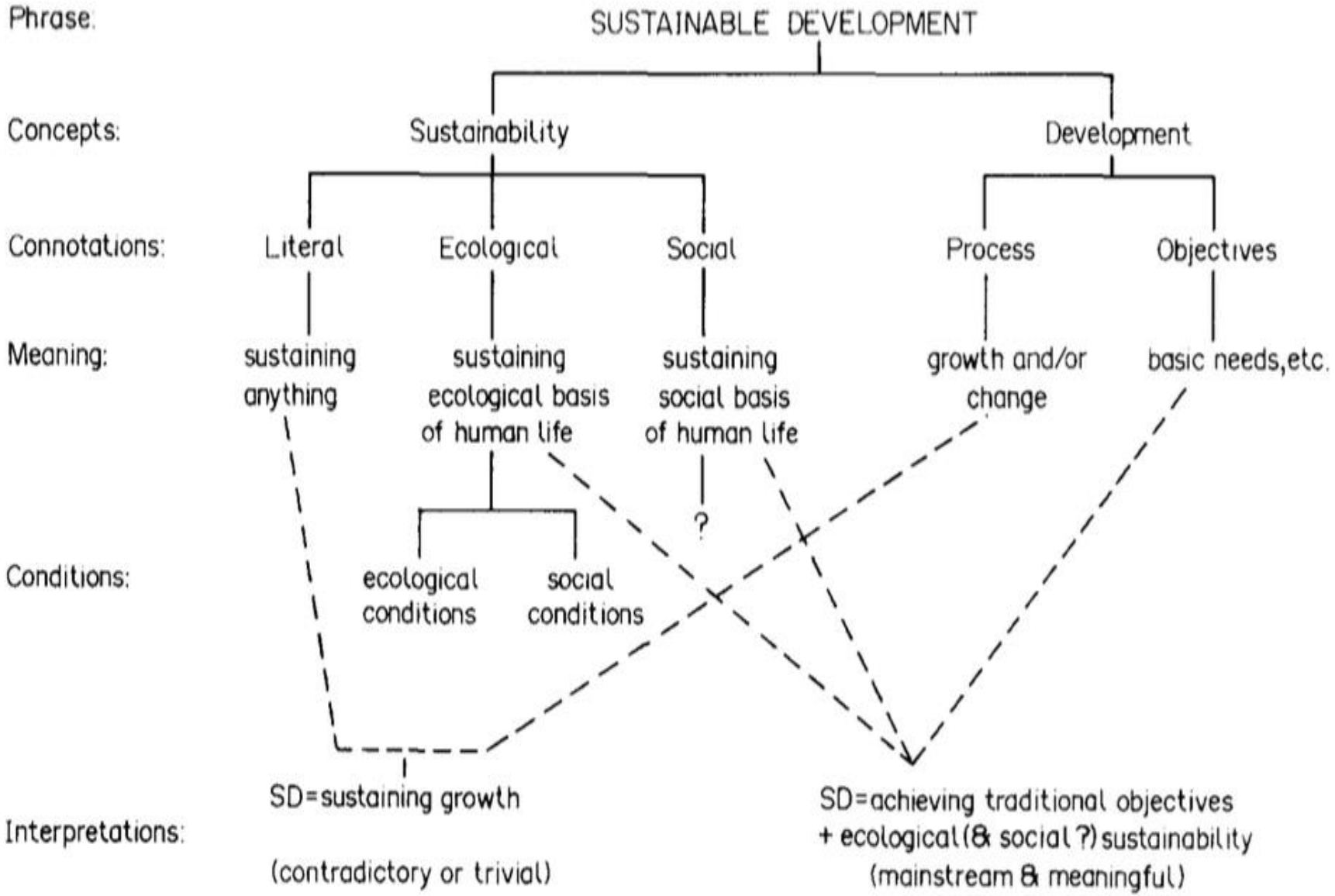


Fig.1: Terms of Sustainable Development (Source: Lélé, 1991)

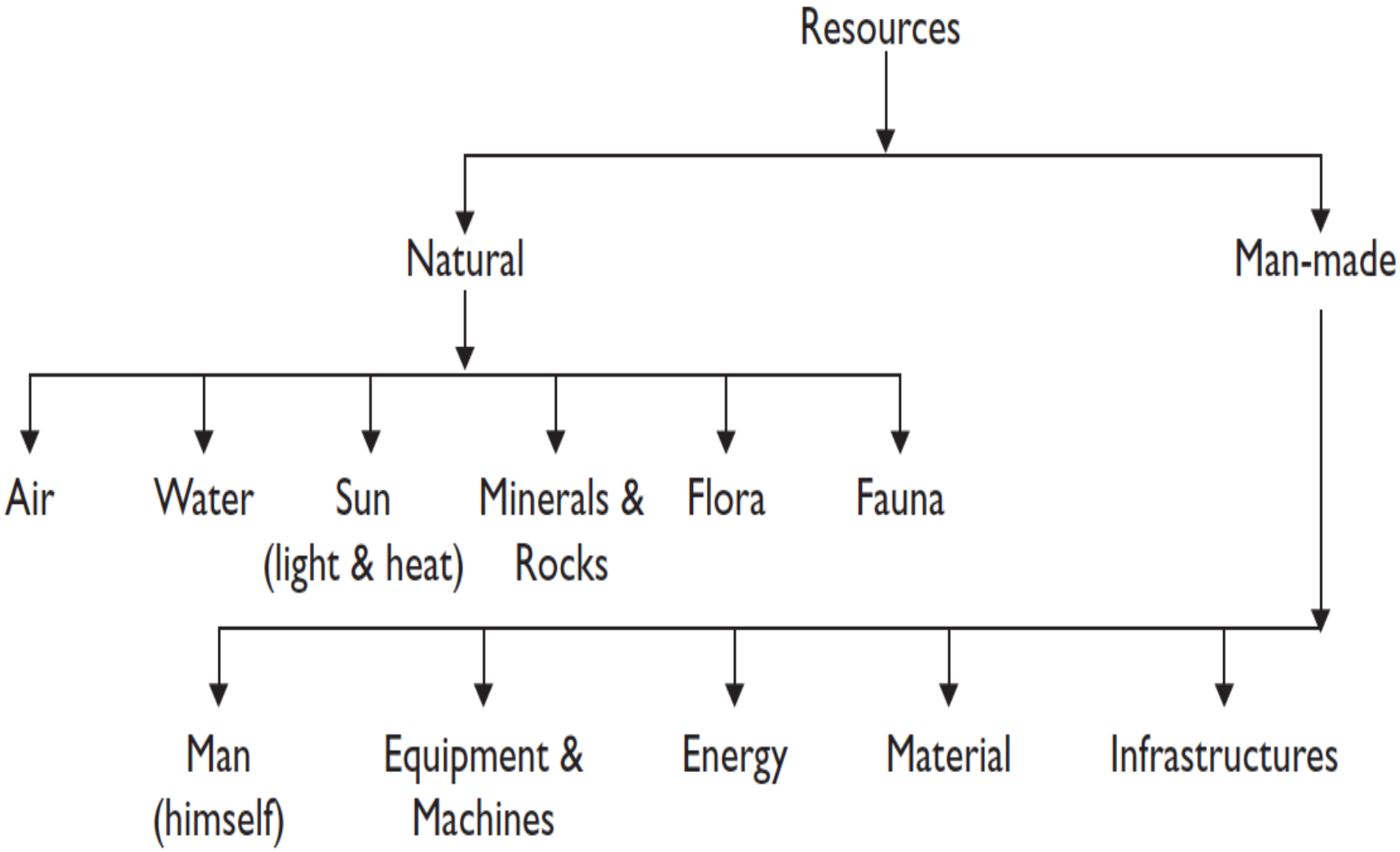


Fig.2: Resources Classification (Adapted from Tatiya 2011)

Sustainable development lies in the effective utilization of these resources

FACTORS THAT MAY IMPACT SUSTAINABLE DEVELOPMENT

- Population
- Urbanization
- Industrialization
- Economic Drive
- Leadership

Population Trends

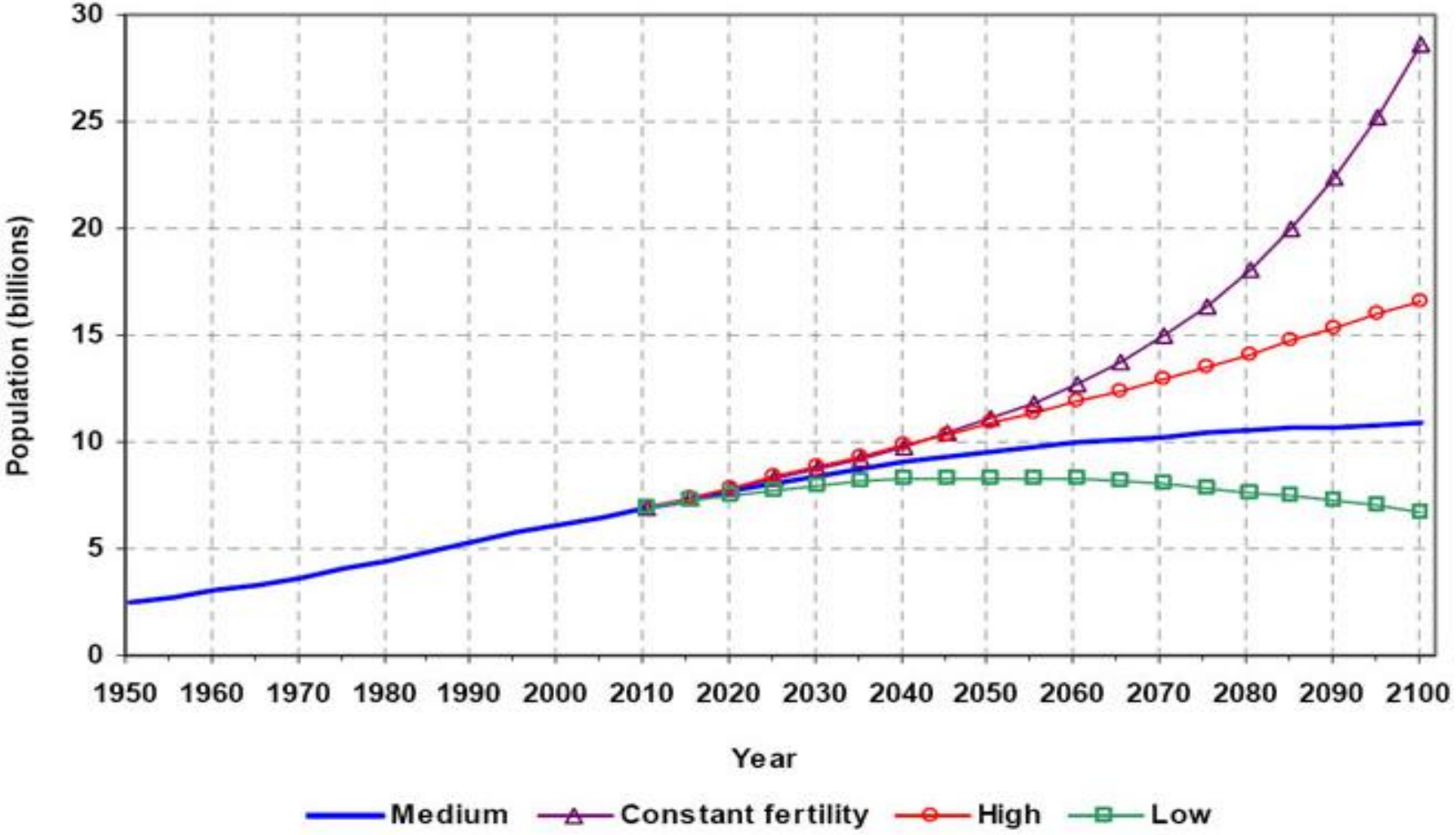


Fig.3: World Population Based on Different Projections (Source: Population Division of the Department of Economic and Social Affairs of the UN, 2012)

Projections and Facts from Population Trends

- **World population in mid-2013 is 7.2 billion.**
- **Projected to increase by ~1 billion in the next 12 years (UN Population Estimates, Medium variant 2012).**
- **Dramatic growth expected in least developed countries.**
- **Population projected to double from 898 million (2013) to 1.8 billion (2015) to 2.9 billion (2100).**
- **Population of 35 countries among the least developed countries could triple or more.**
- **Population of Burundi, Malawi, Mali, Niger, Nigeria, Uganda, United Republic of Tanzania and Uganda projected to increase at least five-fold in 2100.**

Relationship Between Population and Water Use

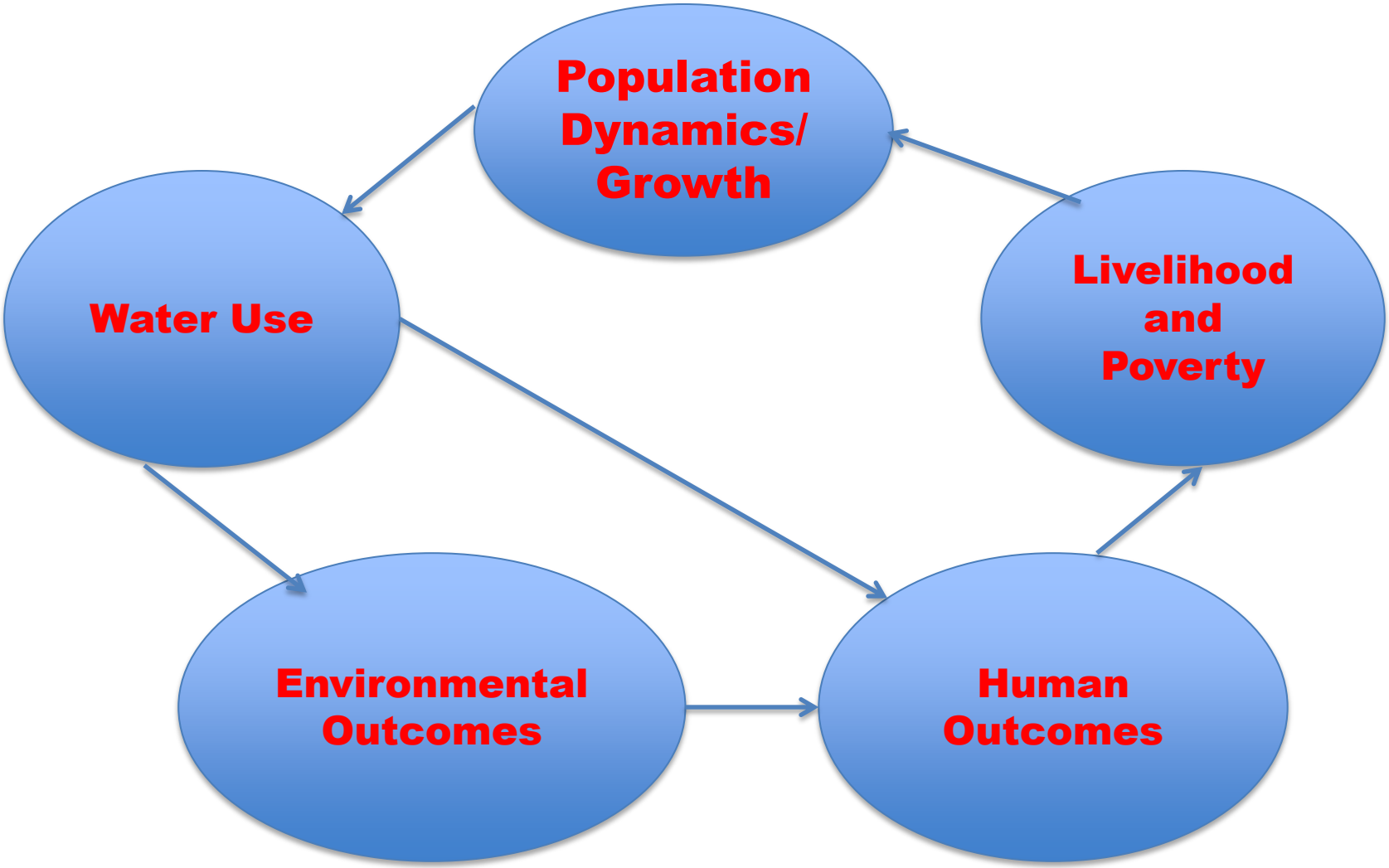


Fig.4: Water Use and Population (Source: UNFPA 2014)

Population Dynamics/Growth

- People mobility,
- Urbanization density,
- Distribution,
- Morbidity,
- Mortality,
- Fertility

Water Use

- Agriculture,
- Irrigation,
- Industry,
- Household use,
- Sanitation and Waste Disposal,
- Fish Farming

Livelihood and Poverty

- Access to Water and Sanitation,
- Women's Burden of Fetching Water,
- Social and Political Stability,
- Food Shortages,
- Slowed Economic Growth

Environmental Outcomes

- Depletion of Surface and Ground water,
- Land and Ecosystem Degradation,
- Declining Fisheries,
- Disaster and Risk Management

Human Outcomes

- **Limited Food Production,**
- **Conflicts Over Water,**
- **Increasing Distances to Water Resources**

Fig 5A: A Bird Struggling for water
(Source: twinklingtinawrites.blogshots.com

Fig 5B: A Young Boy Struggling for water to drink
(Source: www.nato.int)

URBANIZATION

Fig. 6: A Typical City at Night (Source: www.earthhabitat.com)

Fig.7: An Expanded City (Source: www.earthhabitat.com)

URBANIZATION

- **Increasing proportion of a nation's population living and working in urban areas (Satterthwaite, 2012) .**
- **It brings strong developmental advantages.**
- **A reflection of economic success.**
- **All richest nations are highly urbanized .**
- **Poorest nations are predominantly rural (Satterthwaite, 2012).**
- **Urbanization needs to be managed to support sustainability.**

Urbanization and Sustainable Development

- Causes pollution.
- Air pollution - emissions from cars, industries.
- Water – increase run off due to road, buildings and pavements. Groundwater extraction and drop in water table.
- Loss of ecological balance due to discharge from industries and other activities into rivers.
- Soil contamination – By discharge of oils, organics, man made chemicals and trash.

Fig.8: Savar, a Suburb area very close to the capital city of Bangladesh (Source: www.groundreport.com)

INDUSTRIALIZATION

- **Large-scale introduction of manufacturing, advanced technical enterprises.**
- **Usually in an area that was previously underdeveloped economically.**
- **Rapid industrialization is now the global trend to catch up with the developed countries.**
- **Overall goal is a healthy national economy and a developed nation.**
- **Negative impact is on the use of natural resources in an unplanned way.**

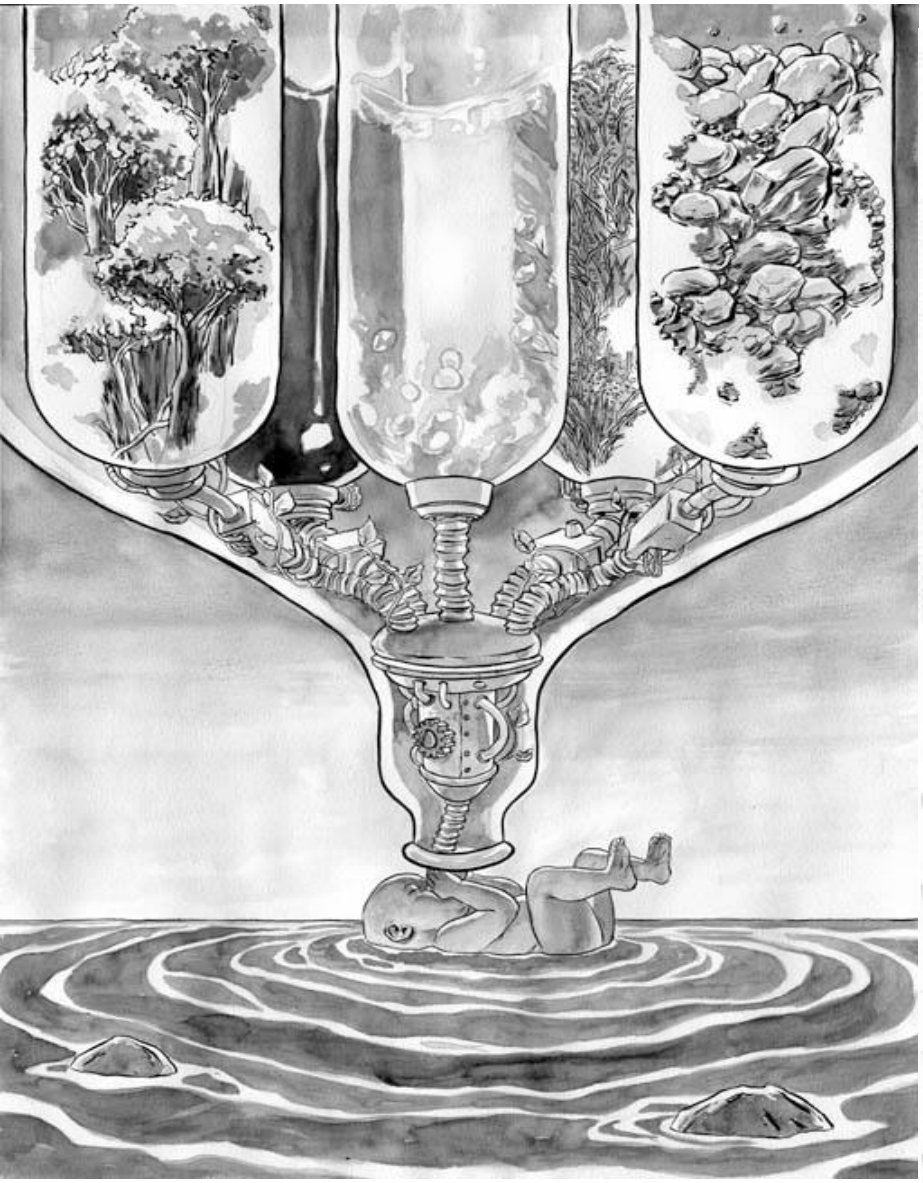


Fig.9A: Industrialization and the environment (www.blospot.com)

Fig.9B: Pollution from Industries

(www. blogspot.com)

Fig.9C: Impact on Surface water

(www.blospot.com)

Industrialization and Sustained Development

- **Natural resources base imposes a growing constraint on industrialization especially agriculture (Weatherspoon, 1995).**

- **Dislocates large population from traditional livelihood.**

- **Attempt to solve one problem usually leads to other problems.**

- **“I want it all and the all that I get better be good” syndrome (Weatherspoon, 1995).**

LEADERSHIP

- **Leadership (corporate and government) can influence sustainable development (Grooms and Reid-Martinez, 2011).**

- **Leadership provides direction and the enabling environment for sustainable development.**

- **Leaders understand organizational structures, moral and ethics (Fullan, 2005).**

- **Leadership is one of the key factors in change or continuity (Hargreaves and Fink, 2003).**

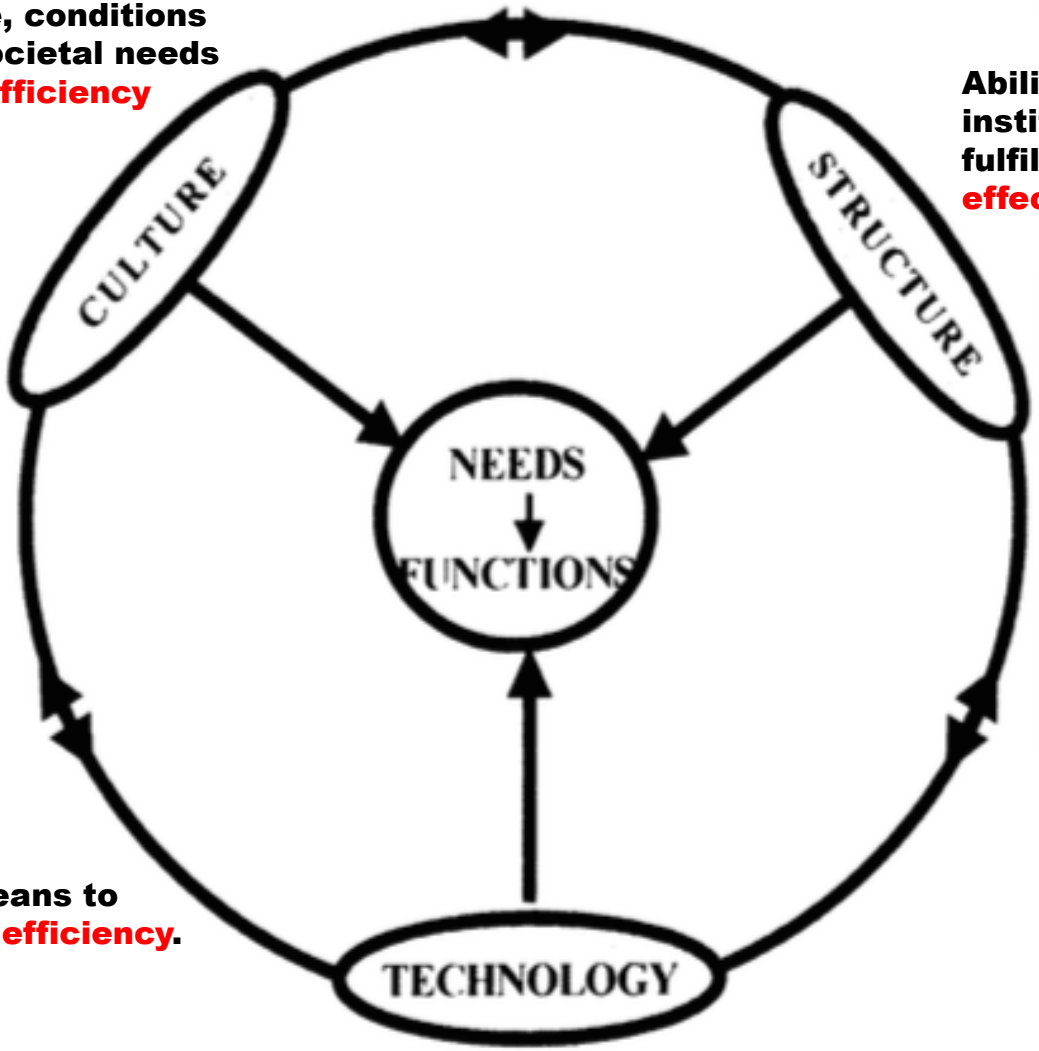
Leadership and Sustainable Development

Leadership provides the following (Hargreaves and Fink, 2004) :

- **Spreads the message of sustainability (promotes diversity).**
- **Supports and Sustains policies that are sustainable (activist).**
- **Supports sustainable technology (resourceful).**
- **Socially just.**
- **Conflicts resolution.**

Justifying nature, conditions and volume of societal needs to be fulfilled: **sufficiency**

Ability of the economic and institutional organization to fulfill justified needs: **effectiveness**.



Technical means to fulfill needs: **efficiency**.

Fig 10: Interconnection of culture, structure and technology (Source: Jansen, 2003)

Table 1: Sustainable Development on Culture, Structure and Technology

	Optimisation	Improvement	Renewal
Culture	Carefulness, thriftiness, disciplined	Ambitious, pro-active initiative taking	Visionary, sweeping, integral
Structure	Cost saving, regulative, image building	Sectoral co-operative, chain principle, progressive regulation	'inter–inter' co-operative, niche-policies
Technology	Recycling, energy efficient, emission, preventive	Process/product redesign, material choice	New systems for functions and needs

Source: Jansen, 2003

TOWARDS SUSTAINABLE DEVELOPMENT

- **Continuation of the current trends is unsustainable (Robinson, 2004).**

- **On the Biophysical approach, the following should be encouraged:**

1. **Eco-efficiency**
2. **Dematrialization**
3. **Design for environment.**
4. **Industrial ecology**
5. **Biomimicry.**

Towards Sustainable Development (contd.)

- **In terms of Policies**

1. **Integrative concept, across fields, areas and sectors, and scales.**

2. **New form of social learning (Robinson, 2004).**

3. **Engaging community.**

4. **Education (Jansen, 2003)**

In summary sustainability efforts should:

- **Encourage the use of resources within the biophysical carrying capacity of the planet.**

- **Economic growth and agenda to provide an adequate material standard of living for all, and**

- **Social balance providing systems of governance that propagate the values that people want to live by (Robinson and Tinker, 1997).**

THE NIGERIA EXPERIENCE

Fig 11A: Map of Nigeria (www.mappictures.com)

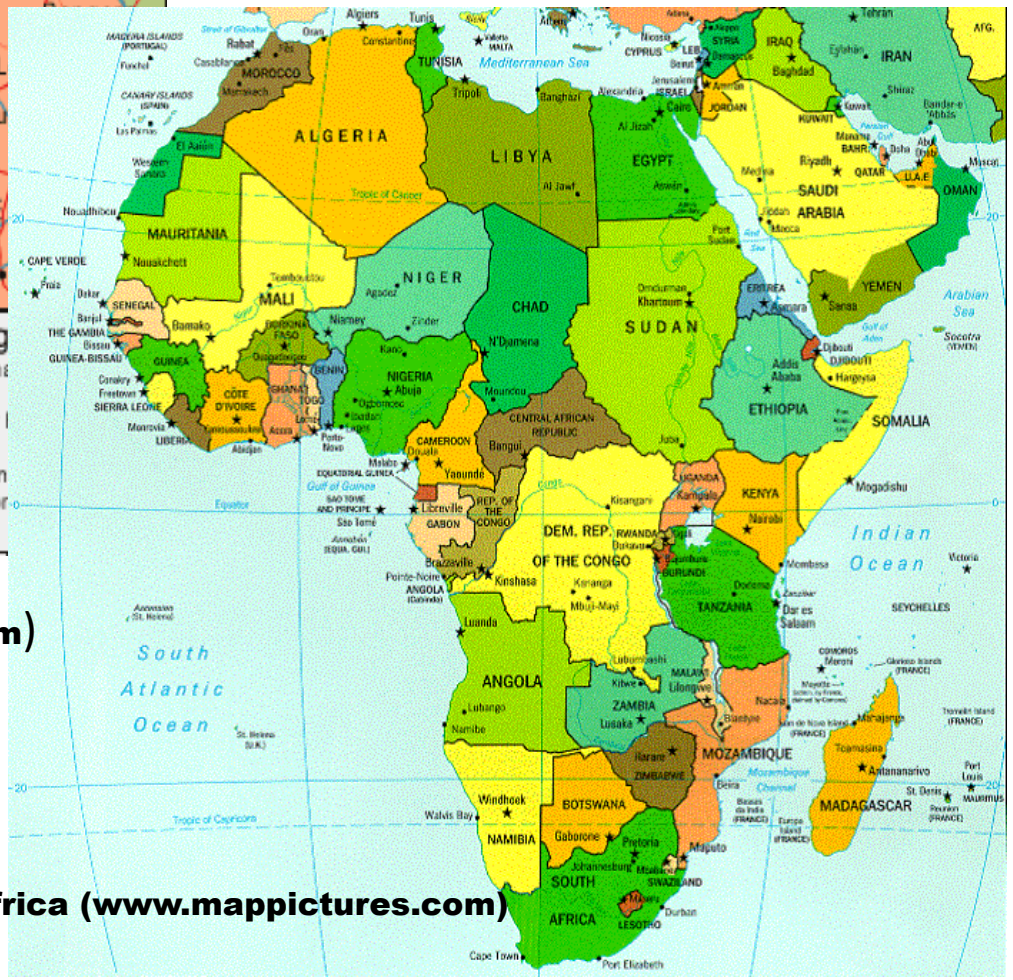


Fig 11A: Map of Africa (www.mappictures.com)

LAGOS – THE NATION'S HEARTBEAT

Fig .12A: Map of Lagos (www.mapzones.com)

Fig .12B: The geographic layout of Lagos (www.mapzones.com)

LAGOS – BACKGROUND INFORMATION

- **Former capital of Nigeria and lies within latitudes 6° 23' N and 6° 41' N and longitudes 2° 42' E and 3° 42' E**

- **The smallest state but the most populous with an estimated population > 10 million inhabitants.**

- **Water and wetlands cover ~ 40% of the land mass.**

- **Water is the most significant topographic feature.**

- **At least 12% is subject to seasonal flooding.**

Lagos Contd.

- Most of the land in Lagos has an elevation of < 15 m above sea level.
- Land surfaces generally slopes from north to south and is particularly low lying in the island.
- Large parts of the mainland is built on a slightly higher north-south ridge.
- Climate is the wet equatorial type influenced by nearness to the equator.
- There are two main seasons: rainy and dry seasons (April-Oct., Oct –March).

Lagos contd.

- Mean annual rainfall varies across the state (e.g. within the mainland ~ 1750 mm, extreme west - Badagry, ~ 1636 mm, extreme north 1676 mm.
- Constant high temp, with mean monthly max. ~ 30^{o}C.
- Humidity is generally high all year.
- The more developed part is the Island and Mainland.
- These areas constitute the Metropolitan Lagos.

Lagos Contd

- **Accounts for ~70% of the nation's industrial and commercial establishments.**
- **The Island and Mainland Lagos house the two major sea ports.**
- **The busiest international airport in the nation is in the metropolis.**
- **Lagos is now being called by some as a MEGA city (being projected as the 3rd largest city in the world).**
- **Various challenges with regards to sustainable development.**

Challenges

- **Pollution – water pollution**
- **Flooding due to topography which retards discharge of surface run into the sea.**
- **Poor management of existing infrastructure.**
- **Lack of proper development framework.**
- **The mega city project.**
- **Resource management.**

Sand Mining in Lagos

- Sand mining is a form of open – cast mining.
- Provides sand for the construction industry.
- Needs to be effectively managed.
- Accelerated coastal environmental degradation (.
- Altered morphology of streams and collapse of stream banks (Masalu, 2002)
- Impact the stability of bridges (Masalu, 2002)

Fig. 13A

Fig. 13A

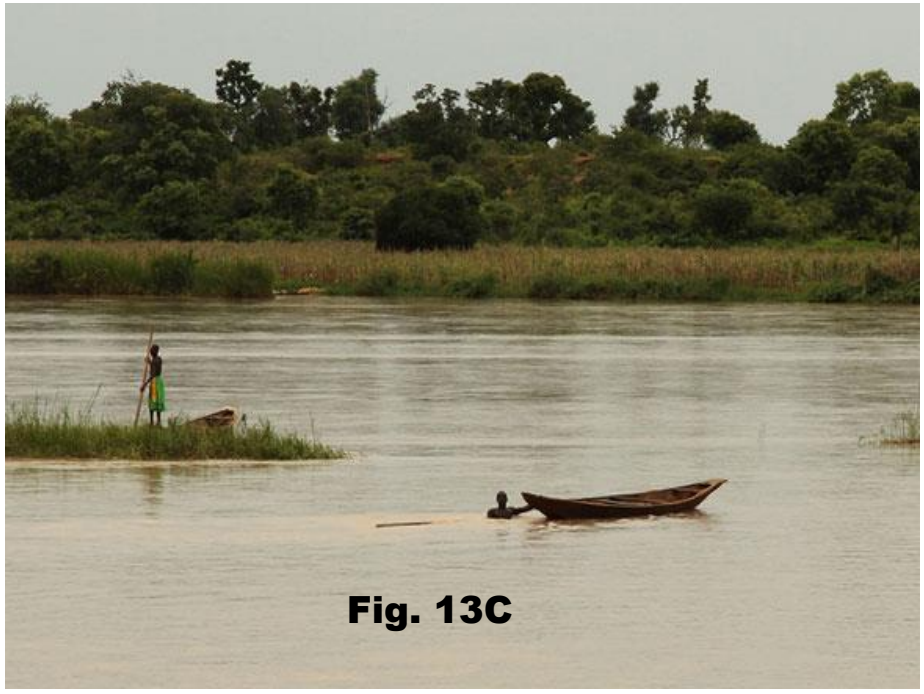


Fig. 13C

Fig. 13D

Fig 14: Sand Mining, as a Business venture

Fig 15: Completely modified topography

Fig 16: Typical Coastal Degradation as at today (www.lagosissues.com)

CONCLUSION

- **Economic growth and development are essential to humanity.**
- **Natural resources should be managed in appropriate manner.**
- **Developing countries should have workable framework for sustainable development.**
- **Developed countries should show are more pragmatic approach in leadership issues.**

REFERENCES

Fullan, M. (2005). Leadership & sustainability: Systems thinkers in action. Thousand Oaks: Corwin Press

Gibson, R., (2002): Specification of Sustainability-based Environmental Assessment Criteria and Implications for Determining "Significance" in Environmental Assessment. Canadian Environmental Assessment Agency, Ottawa.

Grooms, L. D., and Reid-Martinez, K., (2011): Sustainable Leadership Development: A Conceptual Model of a Cross-Cultural Blended Learning Program, Int. J. of Leadership Studies, Vol. 6 Issue 3, pp 412 – 429.

Hargreaves, A., and Fink, D. (2003): The seven principles of sustainable leadership. Retrieved from http://www2.bc.edu/~hargrean/docs/seven_principles.pdf

Hargreaves, A., and Fink, D. (2004). The seven principles of sustainable leadership [Electronic version]. Educational Leadership, 61(7), 8-13.

Lélé, S. M., (1991): Sustainable Development: A critical review, World Development, Vol. 19, Issue 6, pp 607 – 621.

Mebratu, D., (1998): Sustainability and sustainable development: historical and conceptual review, Environmental Impact Assessment Review 18, 493–520.

Pezzoli, K., (1997): Sustainable development: a trans disciplinary overview of the literature. J. of Environmental Planning and Management, Vol. 40, Issue 5, pp 549 – 574.

Robinson, J., (2004): Squaring the circle? Some thoughts on the idea of sustainable development, Ecological Economics, Vol. 46, Issue 4, pp 369 – 384.

REFERENCES

Jansen, L., (2003): The Challenge of Sustainable Development, J. of Cleaner Production, Vol. 11, pp 231 – 245.

Masalu, D. C. P. (2002): Coastal Erosion and Its Social and Environmental Aspects in tanzania: A Case Study in Illegal Sand Mining, Coastal Management, Vol. 30: pp 347 – 359.

Robinson, J., and Tinker, J., (1997): Reconciling ecological, economic, and social imperatives: a new conceptual framework. In: Schrecker, T. (Ed.), Surviving Globalism: Social and Environmental Dimensions. Macmillan, St. Martin's Press, London, New York, pp. 71– 94.

Satterthwaite, (2012): Urbanization and Sustainable Development, retrieved from http://www.un.org/en/development/desa/population/pdf/commission/2008/keynote/satterthwaite-text.pdf

Tatiya, R. R. (2011): Elements of Industrial Hazards, CRC Press, pp 310 – 311.

UNFPA (2014): United Nation Population Fund, www.unfpa.org accessed 16/11/2014.

Weatherspoon, D. D.,, (1995): Industrialization and Sustainable Development, are we ready? Discussion, J. of Ag and Economics, Vol. 27, No. 1, pp 39 – 42.

THANK YOU ALL