Discuss how Dexing Copper Mine affect the Environment
&
Evaluate the Ecological Rehabilitation of the Tailing Bank

Group 6 presentation

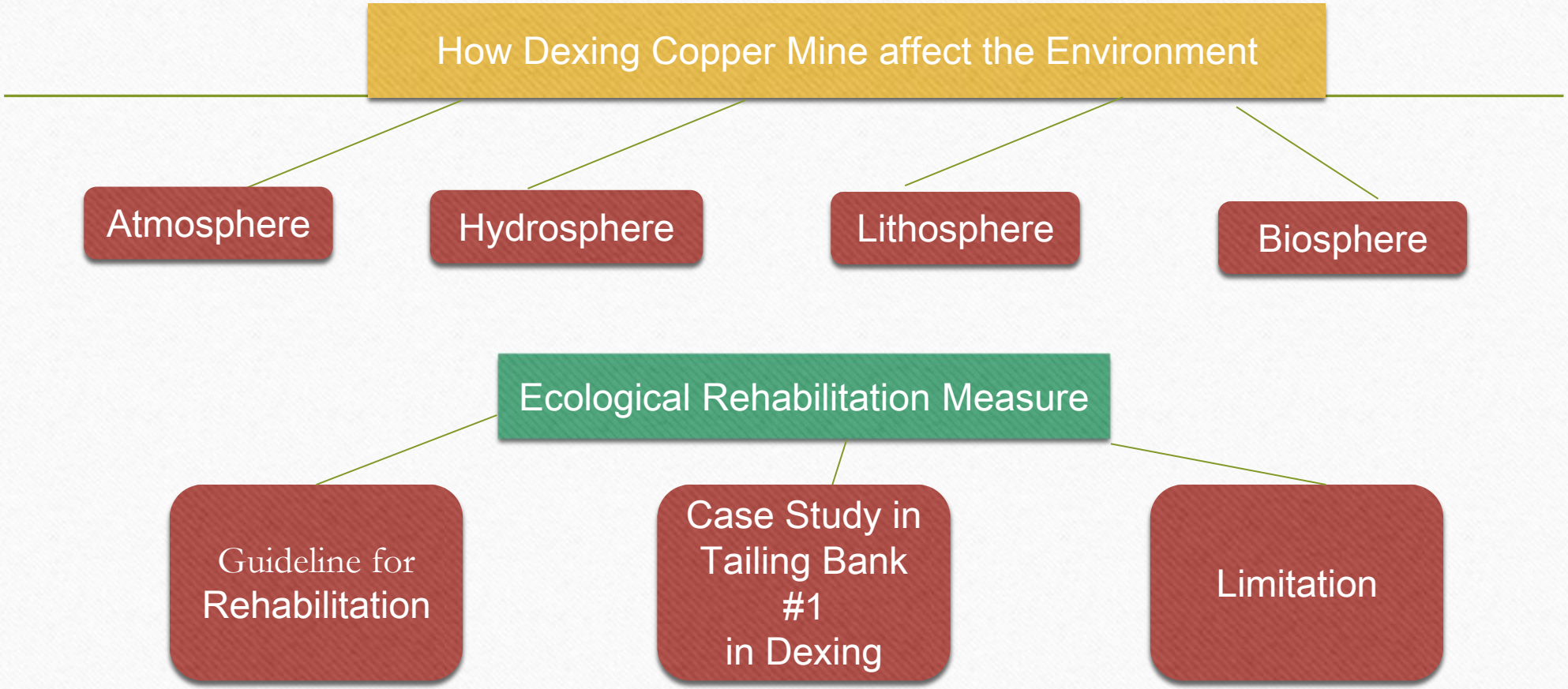
7 Jan 2015

VIDEO

RECAP YOUR MEMORY

Introduction- Dexing copper mine

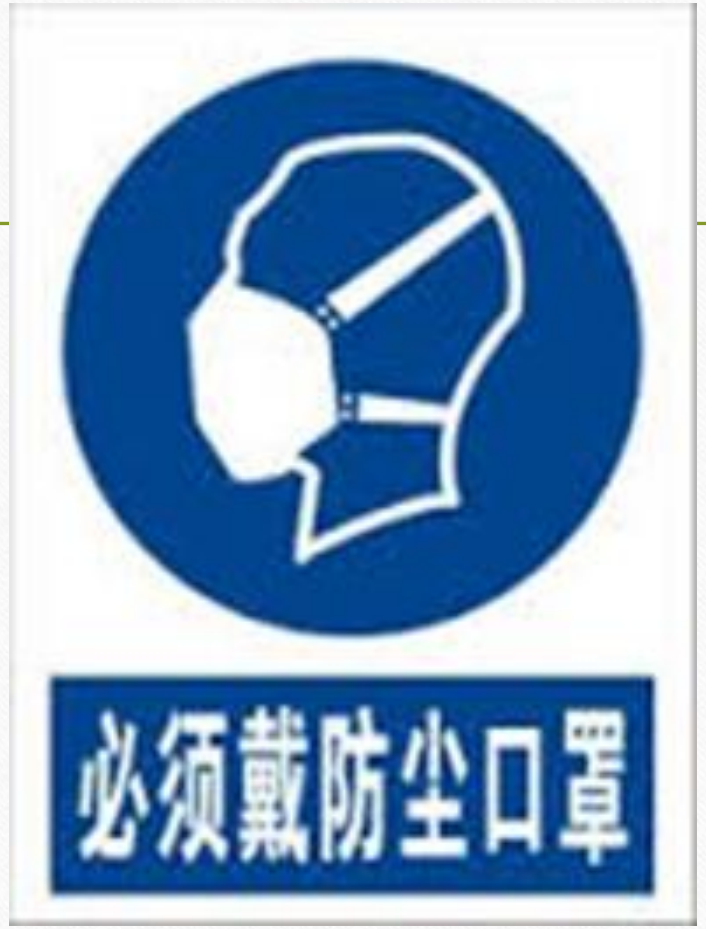
Flow of presentation



Impact on Atmosphere

Air Pollution

(i.e SO_2, CO_2)



Toxic Gas Emission

(Process of Purification)

Hydrosphere

① **Geographical Location**
Huaiyu Mountains 懷玉山

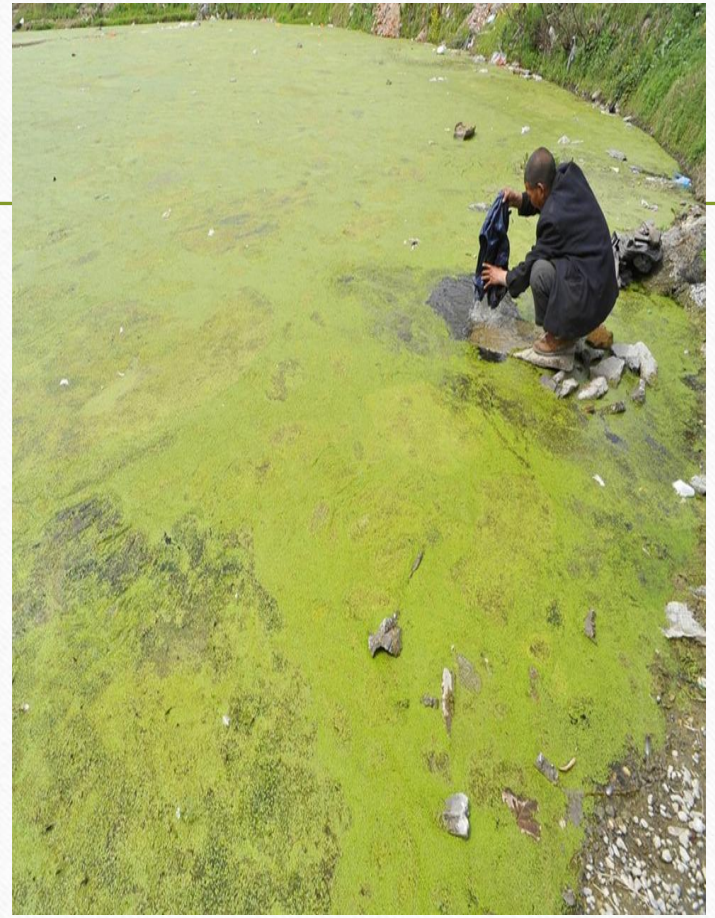
② **Rivers**
1. Xin River 信江
2. Le An River 樂安江

③ **Nearby industries**
1. Yung Ping Copper Industry
2. Guixi Smeltery Factory

Impact on Hydrosphere

Acidic river water

(Surface mining)



Eutrophication

Water source for residential use >> adversely affect public health

Impact on Lithosphere

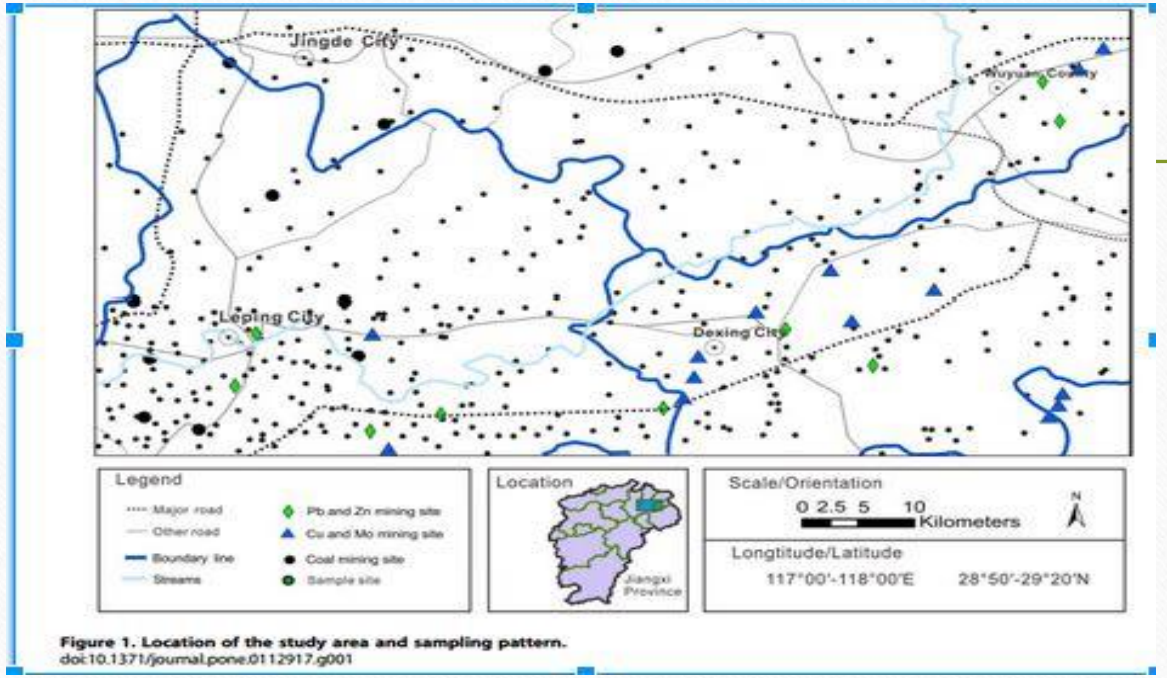


Figure 1. Location of the study area and sampling pattern.
doi:10.1371/journal.pone.0112917.g001

Indicators of soil contamination
As, Cd, Cr, Cu, Hg, Pb, and Zn (trace elements)
Near site areas
Enriched in Cd, Cu, Pb, and Zn

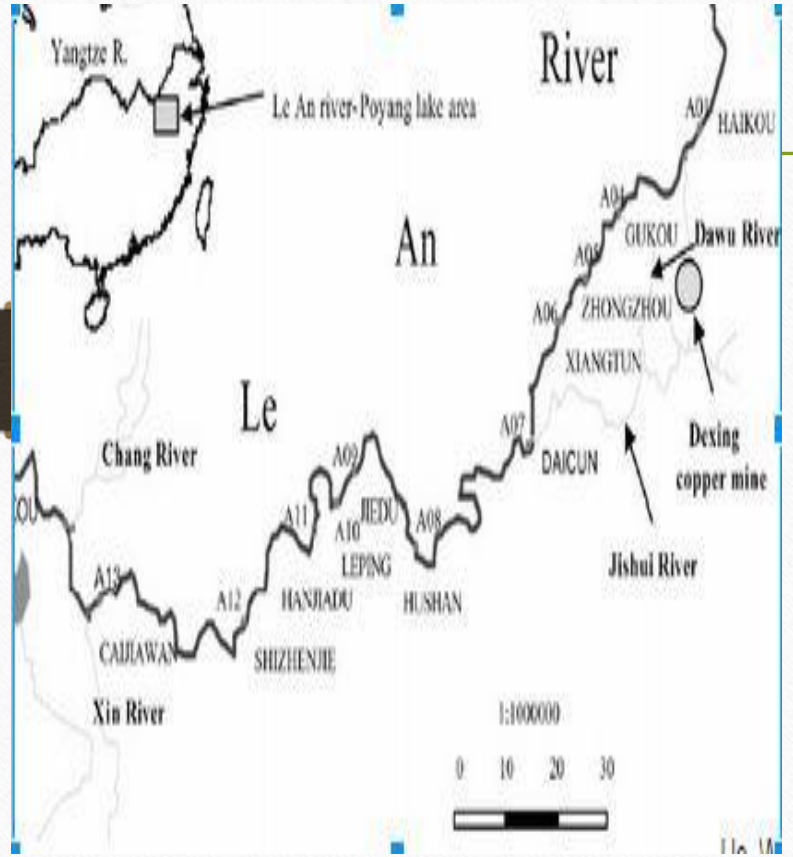
Soil Contamination and degradation

Mining waste and tailings with heavy metals created

Processes of oxidation and leaching by rainwater

Increase in wind and water erosion

Impact on Biosphere



Vegetation contamination

Low pH
(Highly acidic soil environment)

Result in nutrient deficiency

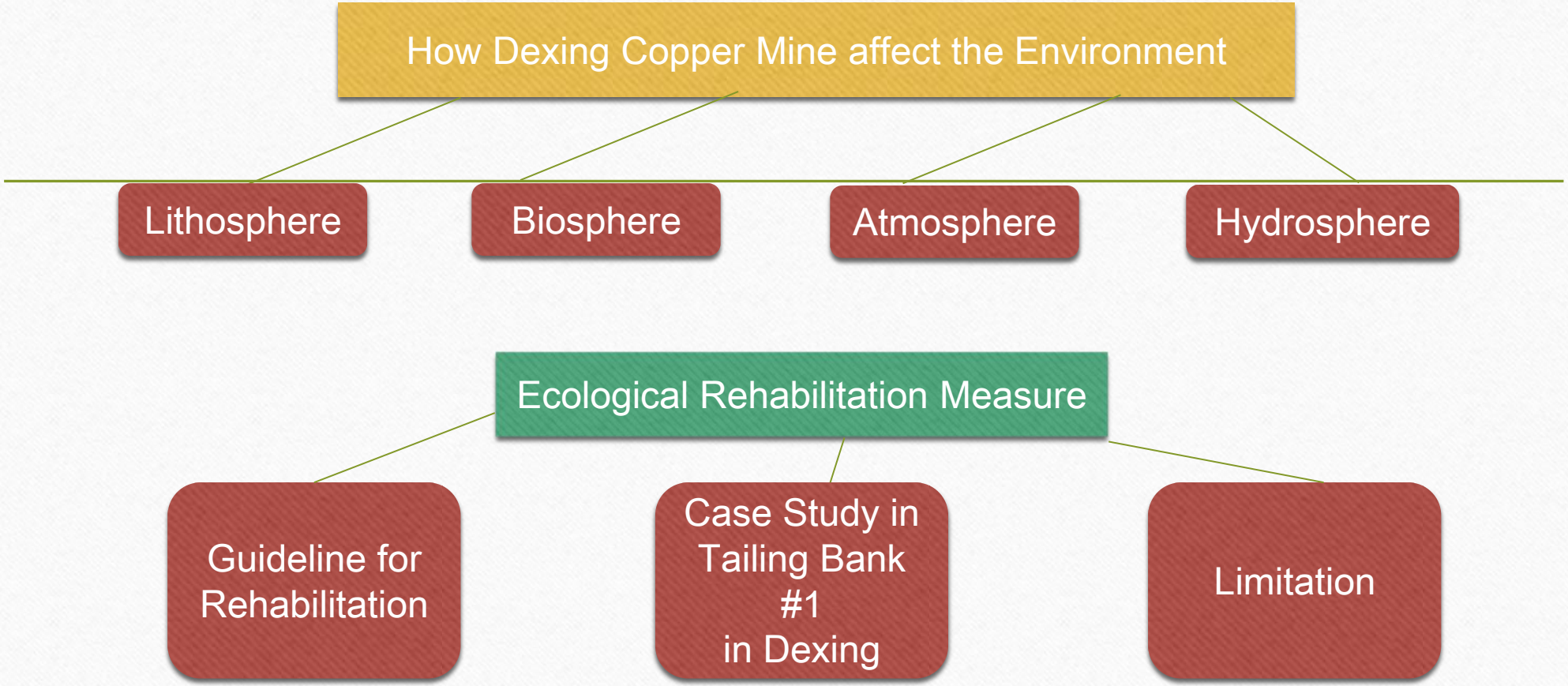
vegetation degradation

Aquatic system degradation

Le An River (pollutants)

Heavy leaching of heavy metals

Toxicity -> death of species -> collapse of ecosystem


How Dexing Copper Mine affect the Environment
Lithosphere
Biosphere
Atmosphere
Hydrosphere
Ecological Rehabilitation Measure
Guideline for Rehabilitation
Case Study in Tailing Bank #1 in Dexing
Limitation

Guideline for Rehabilitation

4 Basic Principles

- Residential or institutional land use transformation

  (宜“建”礦山土地)

- Agriculture /pastoral land use transformation

  (宜“農”礦山土地)

- Land use to rebuilding ecosystem

  (宜“林”礦山土地)

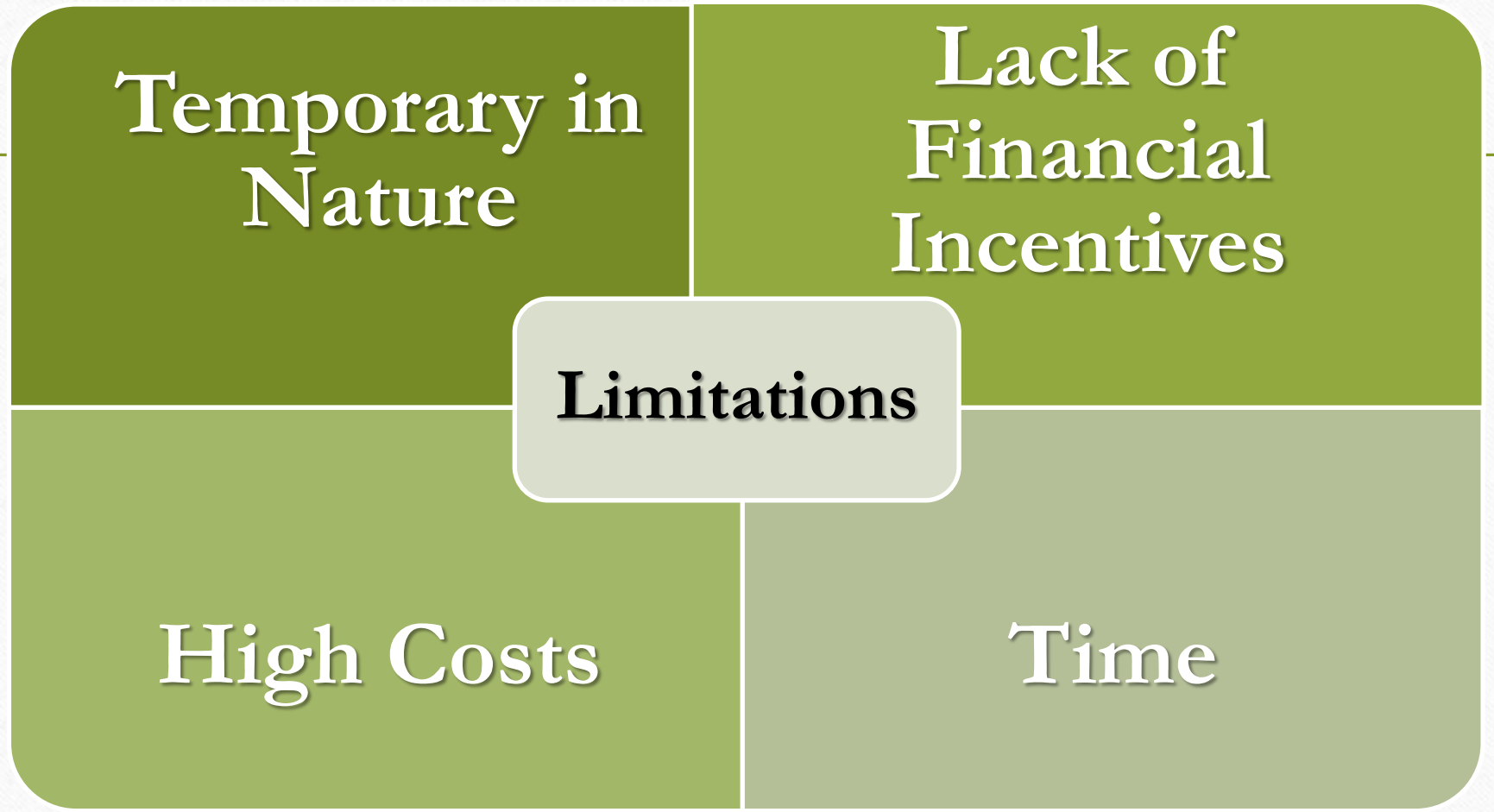
- Land use for education/ preservation

  (宜“園”礦山土地)

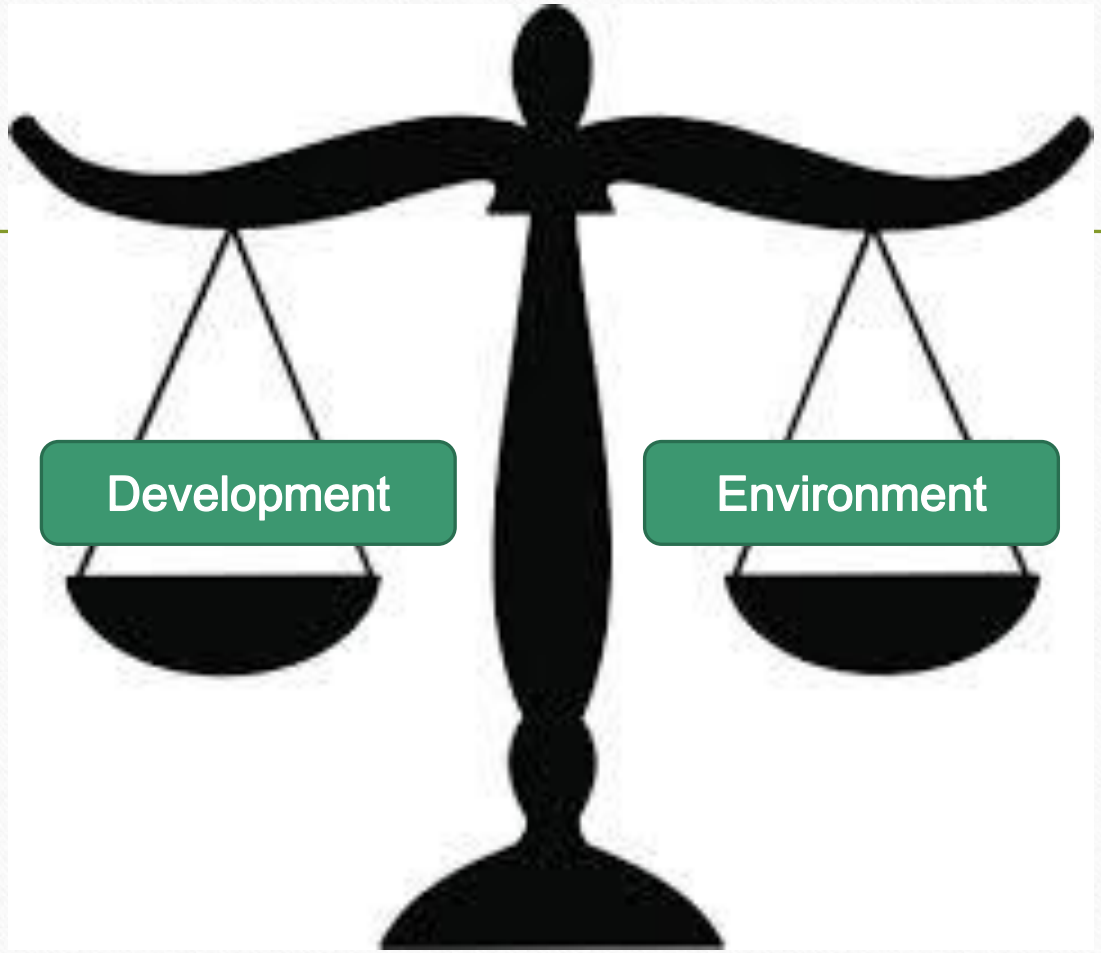
Case Study- Tailing bank No.1 （1號尾礦）

宜“建”礦山土地	宜“農”礦山土地	宜“林”礦山土地	宜“園”礦山土地
Power generation station (55,000 to 60,000 kwh DAILY) Mineral Recovery plant (15 billions recovered from waste rock and waste water)	Bioleaching plant was fulfilled on August 1993 Primary design was finished on April 1994 (anticipated annual production of 2000 t cathode copper)	No.1 tailing pond of the Dexing Copper Mine turned to green field (Almost 80%!!)	**“The first national green mining"** pilot units in 2011 (granted by the Ministry of Land and Resources)

Limitation


Temporary in Nature
Lack of Financial Incentives
Limitations
High Costs
Time

Conclusion




Q
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