Develop - Sustain - Impact

KOTA HANTU, TRANSISI ENERGI YANG BERKEADILAN, DAN UPAYA MENUJU PERTUMBUHAN BERKELANJUTAN

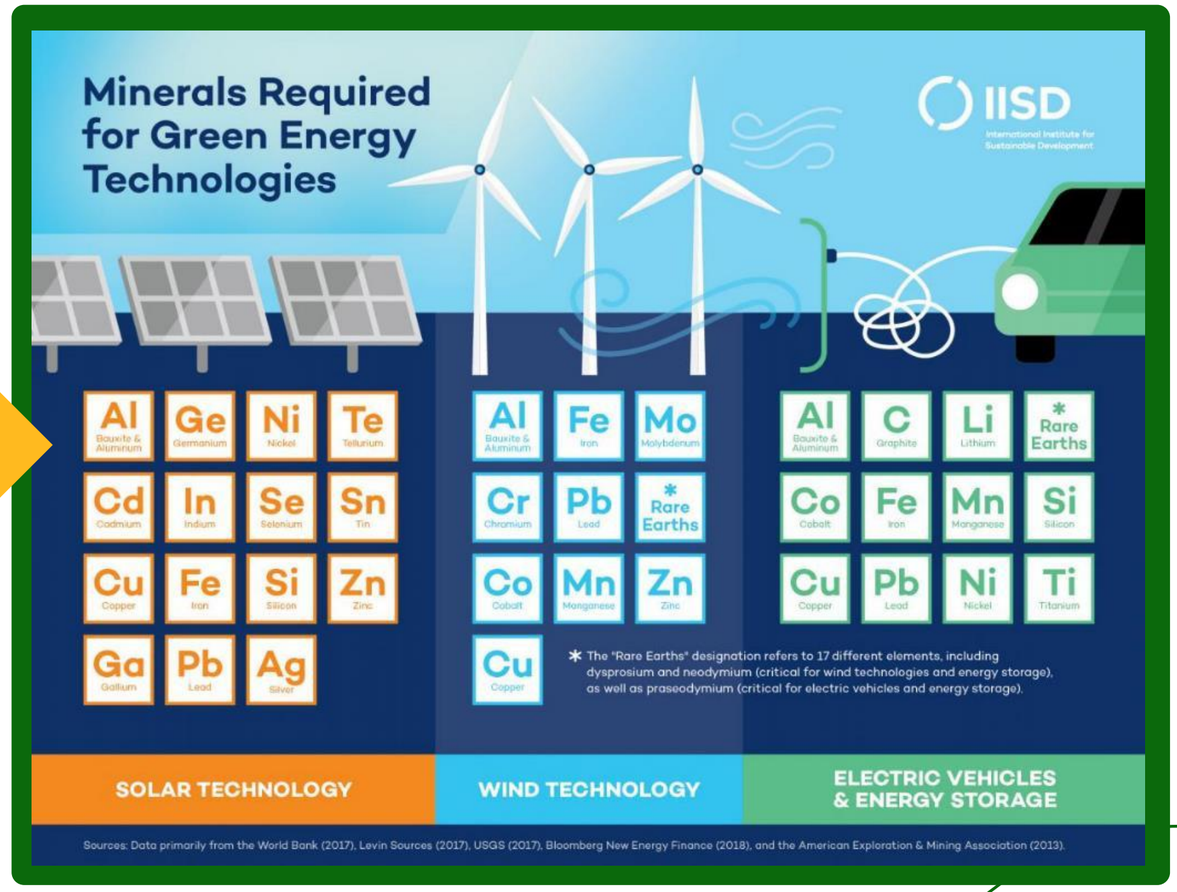
Disampaikan pada SIRD Seri ke-84: Menolak Kota Hantu: Memastikan Kesejahteraan dan Keberlanjutan Masyarakat Lewat Penutupan Tambang Terpadu
Jumat, 22 Agustus 2025

REZKI SYAHRIR, PHD.

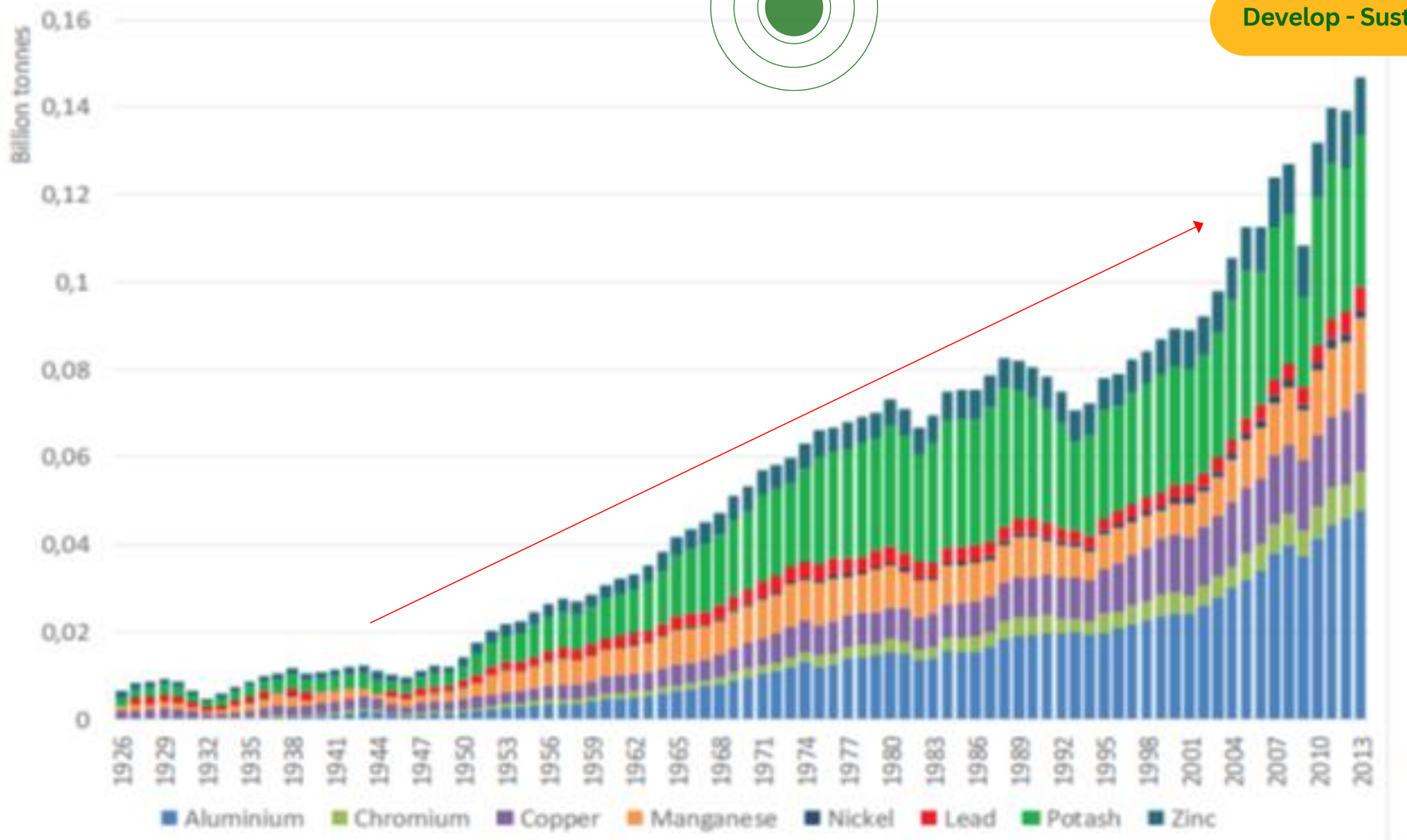
INTRODUCTION



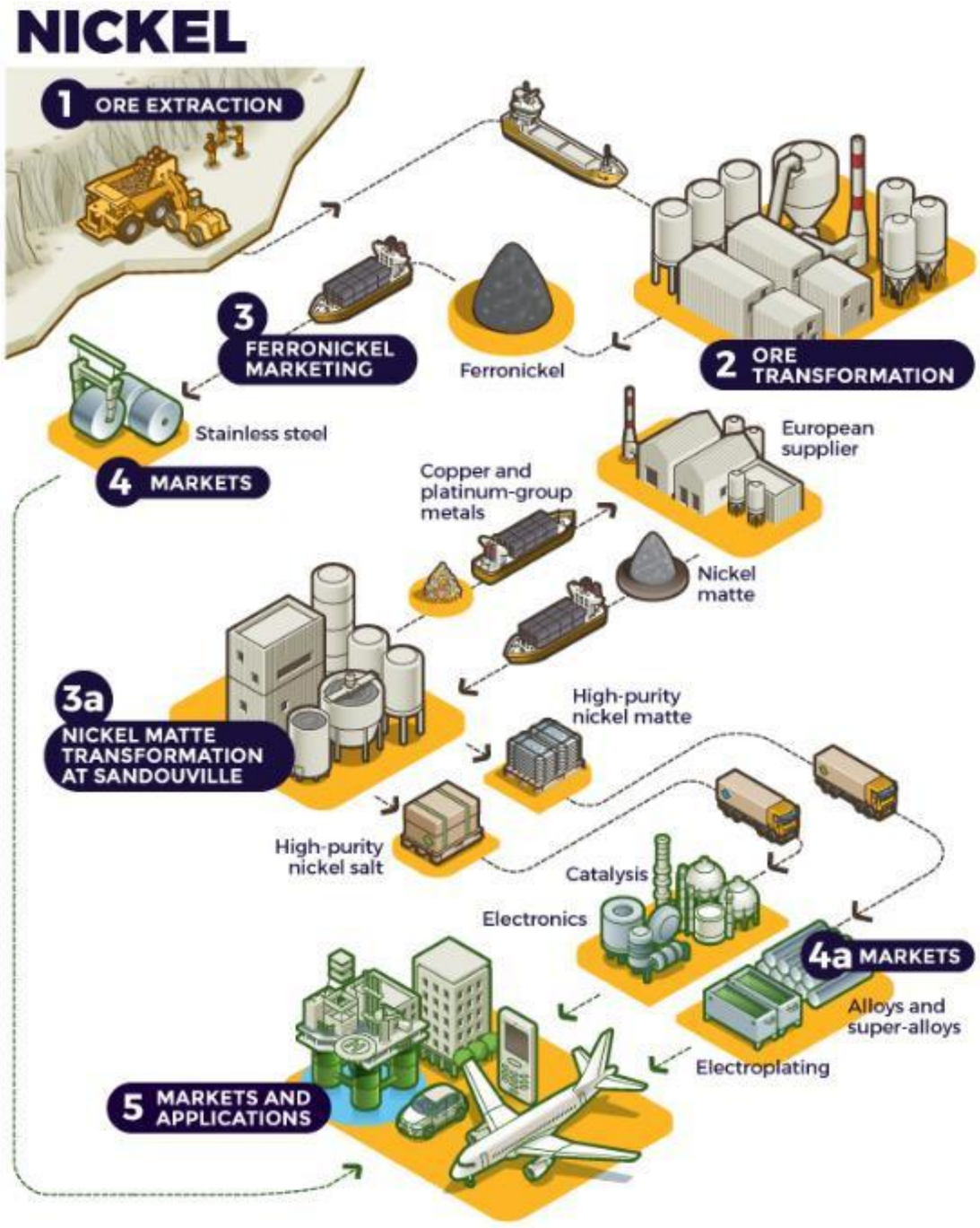




TANTANGAN: TRANSFORMASI KE ENERGI HIJAU YANG BERKELANJUTAN, BAGAIMANA MEMASTIKAN JUST TRANSITION?



PELUANG: KOMODITAS SUMBERDAYA ALAM BANYAK DIHASILKAN DARI BUMI KALIMANTAN







https://www.cnbcindonesia.com/market/20220518124945-17-339825/ramai-ramai-taipan-batu-bara-ekspansi-ke-nikel-mobil-listrik
https://www.hpalnickel.com/home/en#sec-content-4

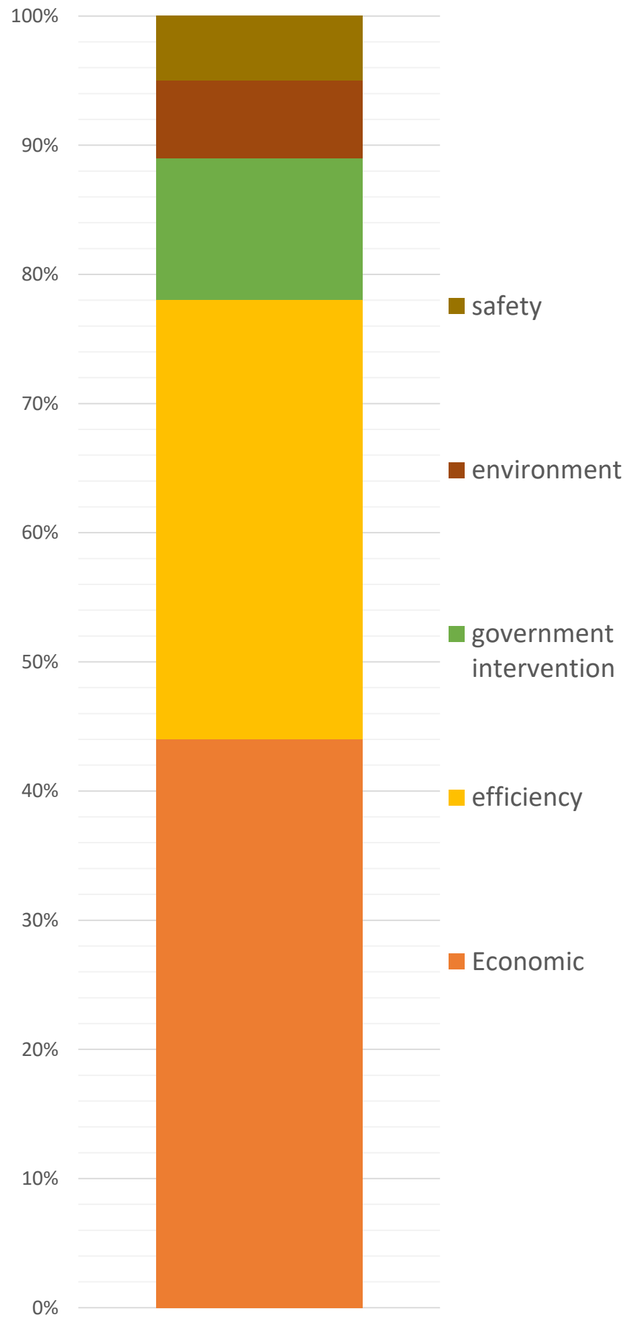
Develop - Sustain - Impact

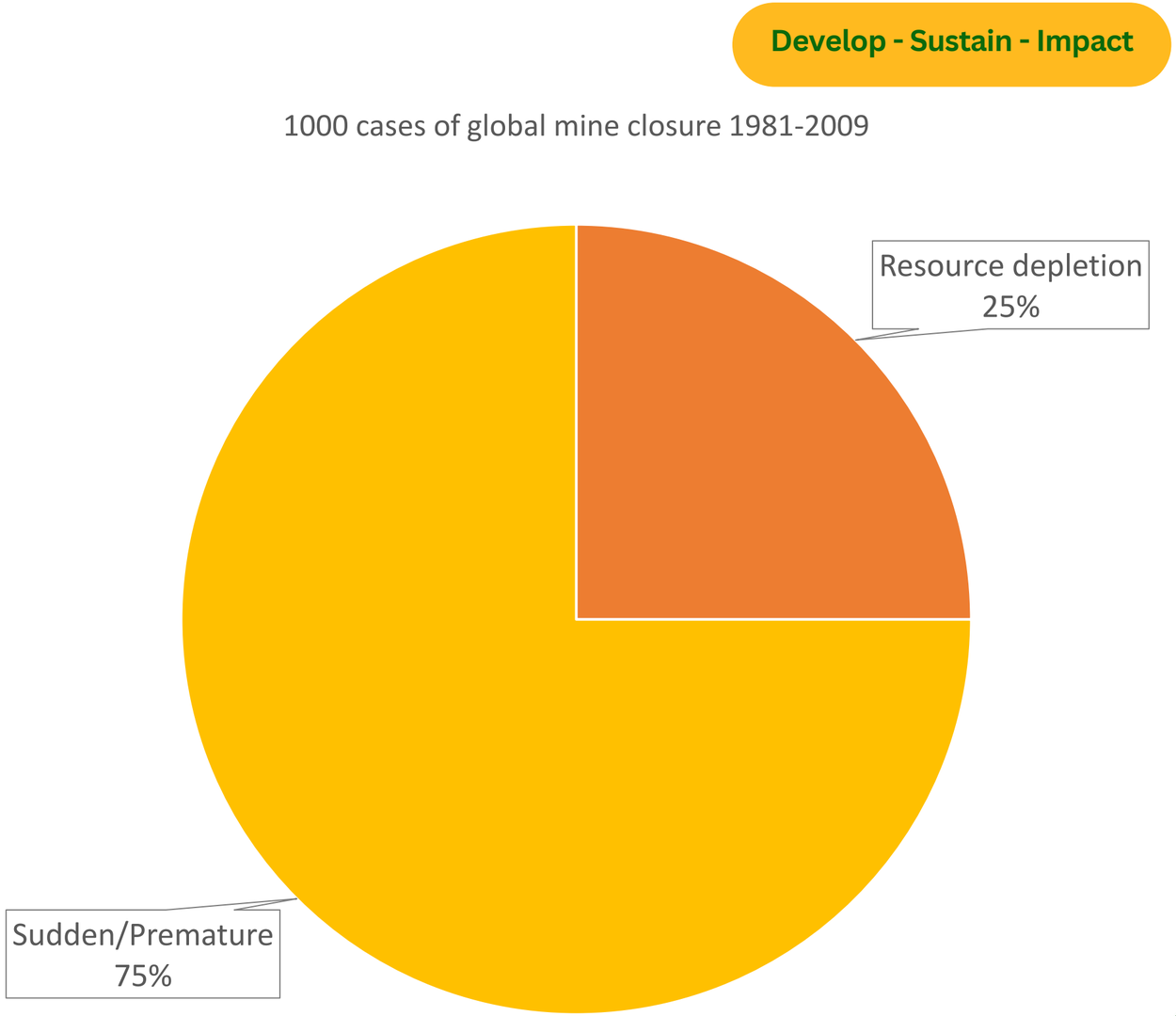
ISU PENUTUPAN DAN PASCATAMBANG



	"reklamasi tambang"	"penutupan tambang"	"pascatambang"
Anytime	591	566	1,660
Since 2018	339	277	1,060

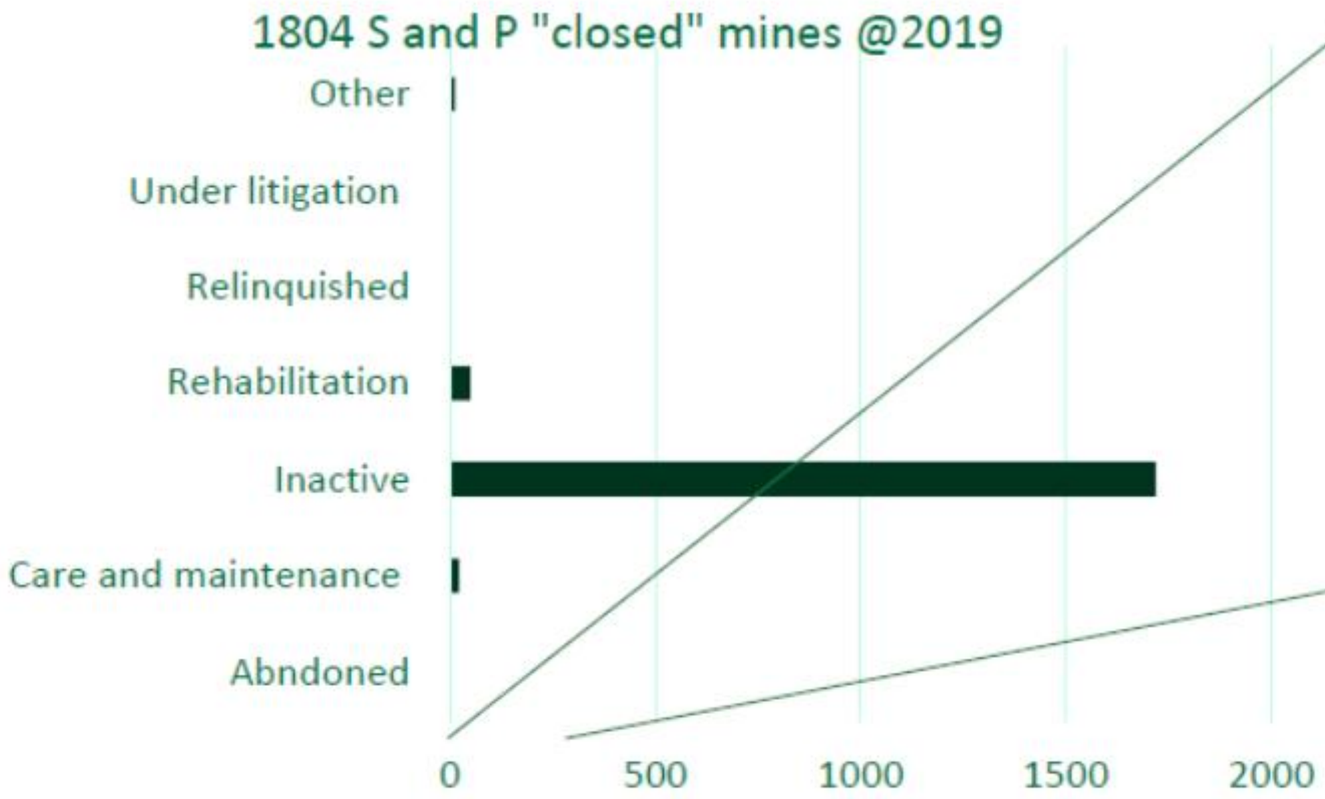
Develop - Sustain - Impact

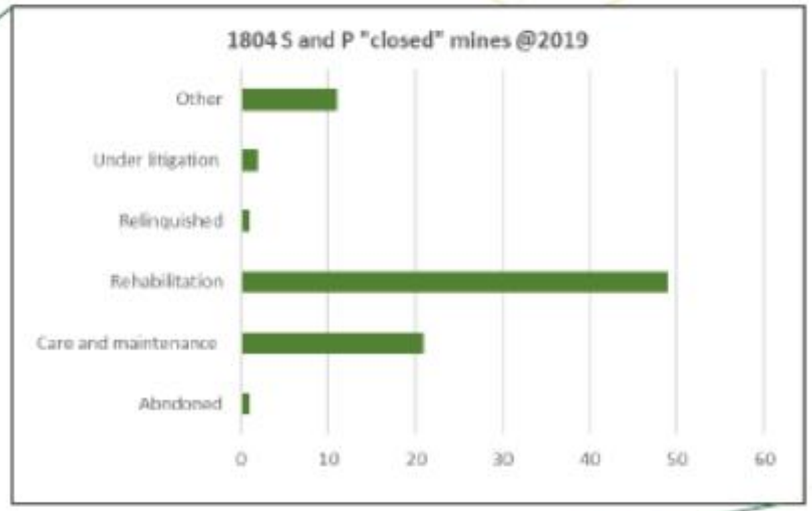




PENGHENTIAN ATAU PENUTUPAN TAMBANG BELUM TENTU MEMENUHI EKSPEKTRASI TRANSISI PERTUMBUHAN EKONOMI HIJAU DAN KONSERVASI LINGKUNGAN

Develop - Sustain - Impact





Source: Littleboy et al., (2021), data extracted from the S and P global market intelligence database into the Sustainable Mineral Institute-complex orebody database

(SUDDEN) MINE CLOSURE AND SOCIOECONOMIC TRANSITION IN MINING REGIONS

Develop - Sustain - Impact

	Outcome	Commodity	Country	Mining industry		Sufficient quantitative data	Sudden/ premature closure	Source
				Began	(Significantly) ended			
Novoshakhtinsk	Successful	Coal	Russia	1900s	1997	Yes	n/a	Haney and Shkaratan (2003)
The Ruhr	Successful	Coal	Germany	1950	2010s	Yes	No	Sheldon et al. (2018); Taylor (2015)
Sussex, New Brunswick	Successful	Potash	Canada	1983	2016	Yes	Yes	Ritter (2001); Campbell (2017a)
Singkep Island	Unsuccessful	Tin	Indonesia	1812	1992	Yes	Yes	Syahrir et al. (2020)
Appalachia	Unsuccessful	Coal	USA	1800s	2010s	n/a	Yes	Sheldon et al. (2018); (Perdue & Pavela, 2012)
Outokumpu	Unsuccessful	Copper	Finland	1913	1989	n/a	No	OECD (2019b)
Blyvooruitzicht	Unsuccessful	Gold	South Africa	1942	2013	Yes	Yes	International Federation for Human Rights (2017); Mpanza and Moolla (2019)

Develop - Sustain - Impact

STUDI KASUS:
THE LOST SINGKEP



WHY SINGKEP?

Develop - Sustain - Impact

- It used to rely heavily on mining
- A very good example for observing the development of a mineral rich region and learn from its experience

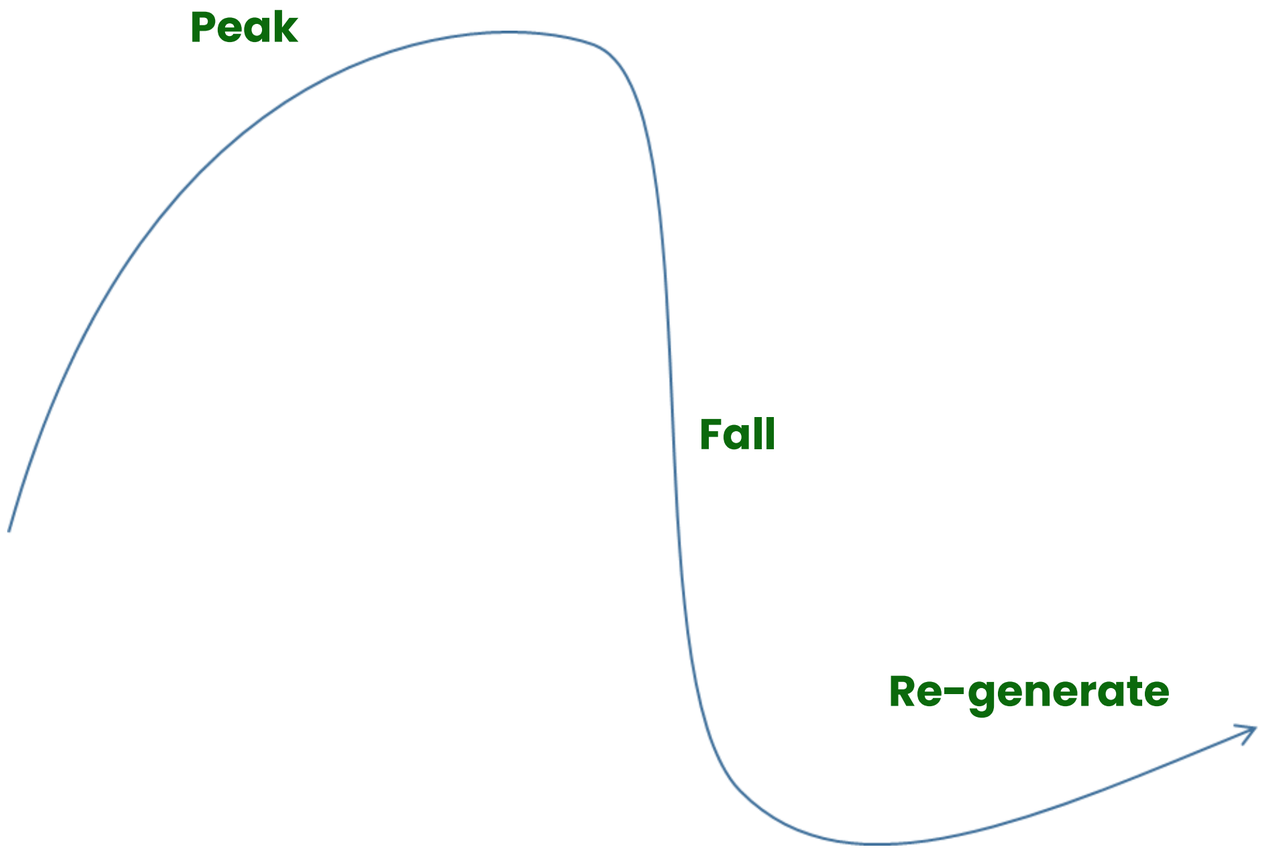
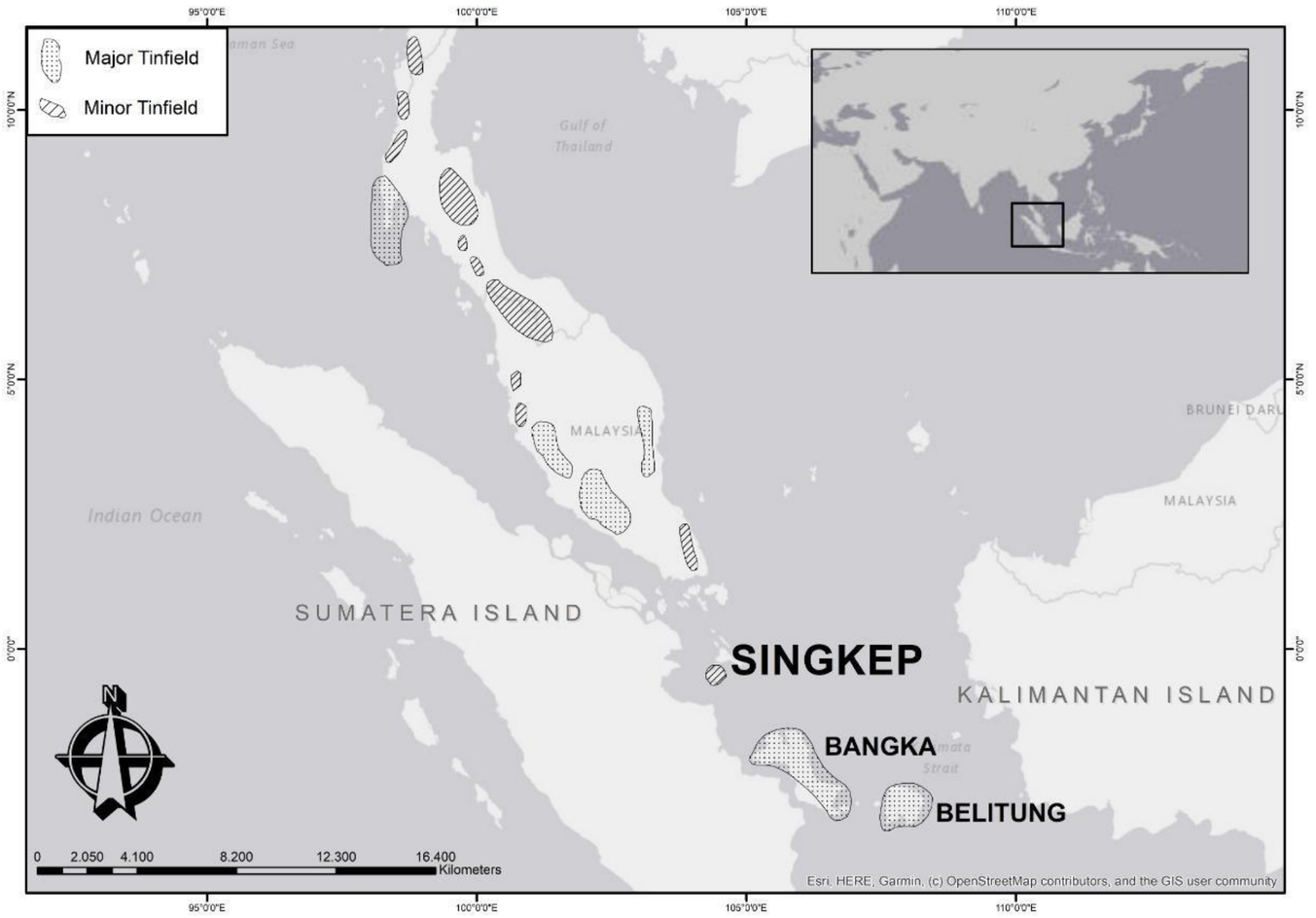


Illustration of Regional economic development of Singkep



Bangka, Belitung, and Singkep: Tin Production 1852-1913
(in *piculs*)

Year	Bangka	Belitung	Singkep
1852	79,318		
1853	86,618	652	
1854	80,019	926	
1855	64,129	1,367	
1856	100,656	3,357	
1857	74,668	1,837	
1858	96,476	4,507	
1859	90,984	2,310	
1860	82,810	4,000	
1861	86,504	6,509	
1862	70,385	5,091	
1863	95,982	10,317	
1864	80,958	11,690	
1865	69,006	**	
1866	79,314	17,873	
1867	70,285	25,076	
1868	66,210	32,970	
1869	66,584	30,316	
1870	73,500	36,167	
1871	67,391	47,320	
1872	68,148	49,851	
1873	68,427	54,372	
1874	76,516	50,980	
1875	66,097	62,871	
1876	62,912	62,063	
1877	44,907	59,533	
1878	72,529	61,794	
1879	77,616	93,496	
1880	72,685	84,634	
1881	64,190	78,928	
1882	73,996	66,331	
1883	65,019	70,081	
1884	74,510	70,975	
1885	76,552	61,357	
1886	77,090	81,053	
1887	84,397	89,193	
1888	65,964	77,840	
1889	89,691	79,194	
1890	107,190	96,279	
1891	93,623	96,488	499
1892	121,736	106,246	1,393
1893	119,513	82,720	2,736
1894	129,791	78,594	4,323
1895	169,197	82,424	13,012
1896	148,122	94,923	15,826
1897	163,541	92,449	12,108
1898	192,973	87,825	11,280
1899	185,974	91,912	11,117
1900	202,728	81,020	9,265
1901	171,134	76,145	10,977
1902	171,214	79,244	9,163
1903	185,692	76,234	6,853
1904	148,987	64,266	4,124
1905	145,298	71,707	5,375
1906	190,031	75,854	7,028
1907	191,930	62,310	6,299
1908	204,191	66,491	6,441
1909	261,146	66,685	6,872
1910	269,272	69,501	6,560
1911	250,495	73,538	7,594
1912	244,749	67,319	10,283
1913	255,035	72,103	10,874

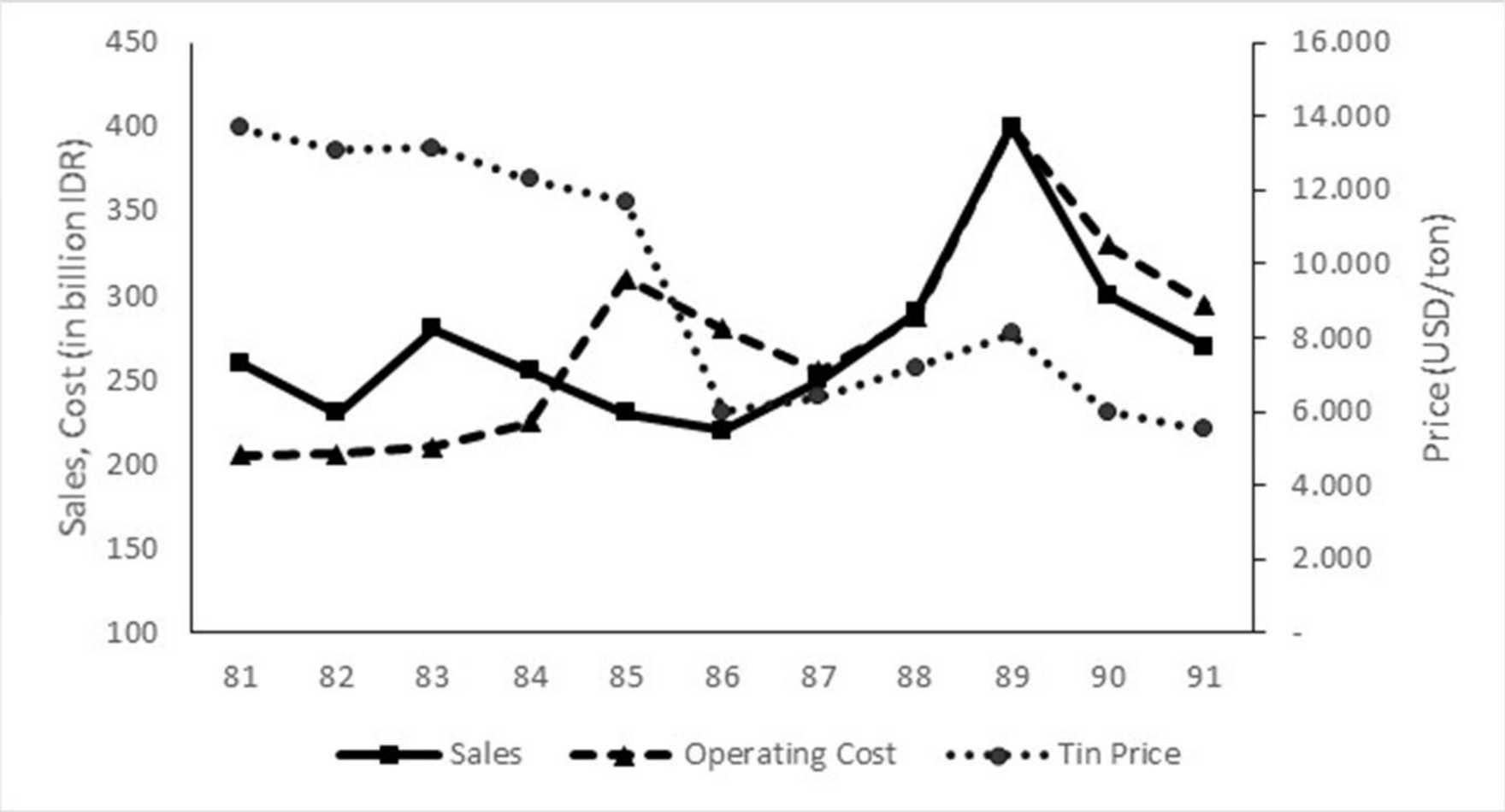
** Because the tin accounting years were changed, there is no entry for 1865 for Belitung.

Source: *Gedenkboek Billiton* (1927), Vol. II; ANRI Bangka 3B6, Gen. Report 1852, cited in Mary F. Somers Heidhues, *Bangka Tin and Mentok Pepper* (Singapore: ISEAS, 1992), p. 80

AMARJIT KAUR & FRITS DIEHL (1996)

THE LOST SINGKEP, KEPULAUAN RIAU

Develop - Sustain - Impact



UPTS: Price, sales, and operating cost 1981-1991

Adapted from: Mangkusubroto (2018)

KERUSAKAN LINGKUNGAN DAN INFRASTRUKTUR

Develop - Sustain - Impact









PERMASALAHAN TENAGA KERJA

Develop - Sustain - Impact



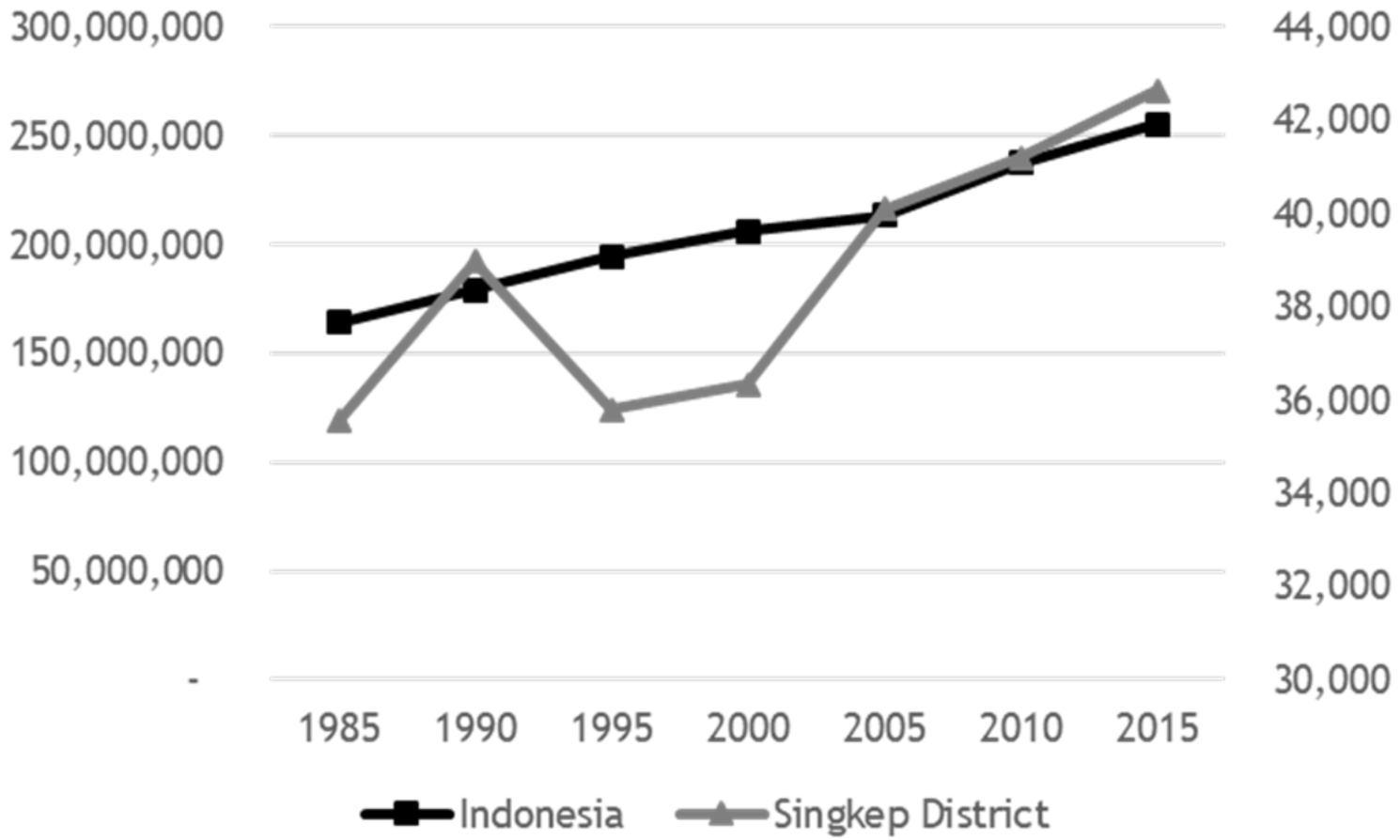


MAIN SOCIO AND ECONOMIC CHANGES AFTER THE MINE CLOSURE

- **Most of the benefits disappeared when the mine ended**
- **Some of the benefits turned into long-term losses**

Active Mining	After the Closure
Employment Opportunities	Unemployment
Economic Contributions	Economic Recession
Assets (Infrastructures and facilities)	Liabilities (Infrastructures and facilities)

KEHILANGAN POPULASI



Source:
Riau Islands regency in figures 1985, 1990, 1995, 2000; Lingga regency in figures 2006, 2016; Statistics Indonesia: population of Indonesia results of the 1985 & 2005 intercensal population survey.



School children run past an old mine guesthouse which is falling apart from looting in Blyvooruitzicht, a mining town in the Carletonville on the West Rand. The town and mine assets fell victim to thieves after the Blyvooruitzicht Gold Mine was closed. Photo: Thulani Mbele. Source: Source: Kaur & Diehl, 1996



Source: Kevin Crowley
https://twitter.com/crowleykev/status/710090165843271681



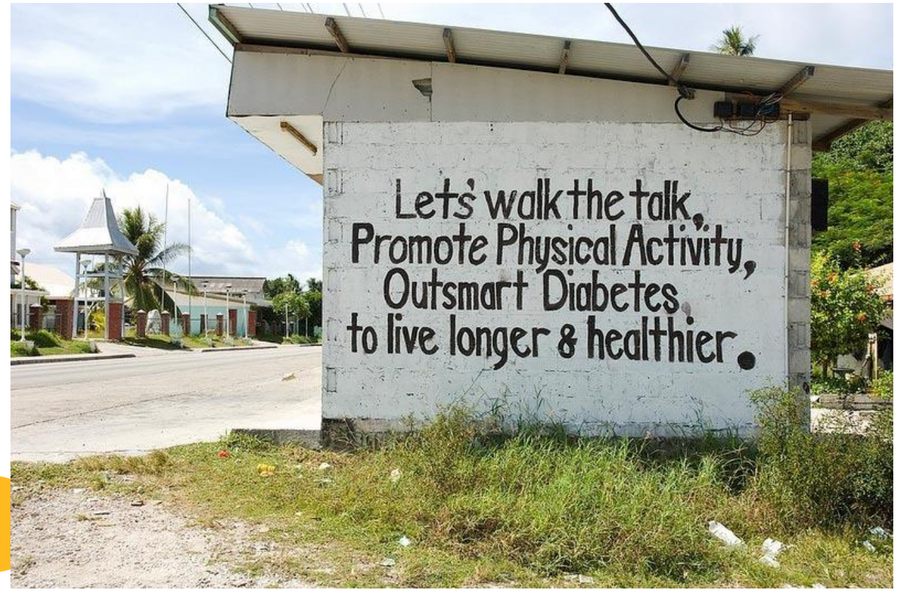
Source: https://www.business-humanrights.org/en/south-africa-withdrawal-of-gold-mining-impacts-on-community-in-blyvooruitzicht-mine-village Photo credit: FIDH

BLYVOORUITZICHT, SOUTH AFRICA (GOLD MINING 1942 - 2013)

NAURU (PHOSPHATE MINING 1900-2000)



Source: https://www.roughguides.com/gallery/the-worlds-least-visited-countries/#/10





Participants of a walk against Diabetes and for general fitness around Nauru airport. Photo by Lorrie Graham. Source: https://www.flickr.com/photos/dfataustralianaid/10709038046/in/album-72157637432576923/

Various billboards, health warnings etc in Nauru. Photo by Lorrie Graham. Source: https://www.flickr.com/photos/dfataustralianaid/10709103574/in/album-72157637432576923/

Develop - Sustain - Impact

GHOST TOWN VS SUSTAINABLE GROWTH



MENGHINDARI ‘GHOST TOWN’: FAKTOR YANG MEMPENGARUHI KESUKSESAN TRANSISI MENUJU PEMBANGUNAN BERKELANJUTAN

Ketergantungan terhadap sumberdaya mineral dan diversifikasi ekonomi

Kualitas lingkungan / degradasi lahan

Ketergantungan keterampilan terhadap aktifitas ekstraktif

Kualitas SDM

Syahrir et al., 2020, 2021

IMPACTS VS SUSTAINABILITY

Develop - Sustain - Impact

- Reducing poverty
- No hunger
- Improving the quality of education
- High economic growth and welfare
- Good health and well being

Mining Contribution

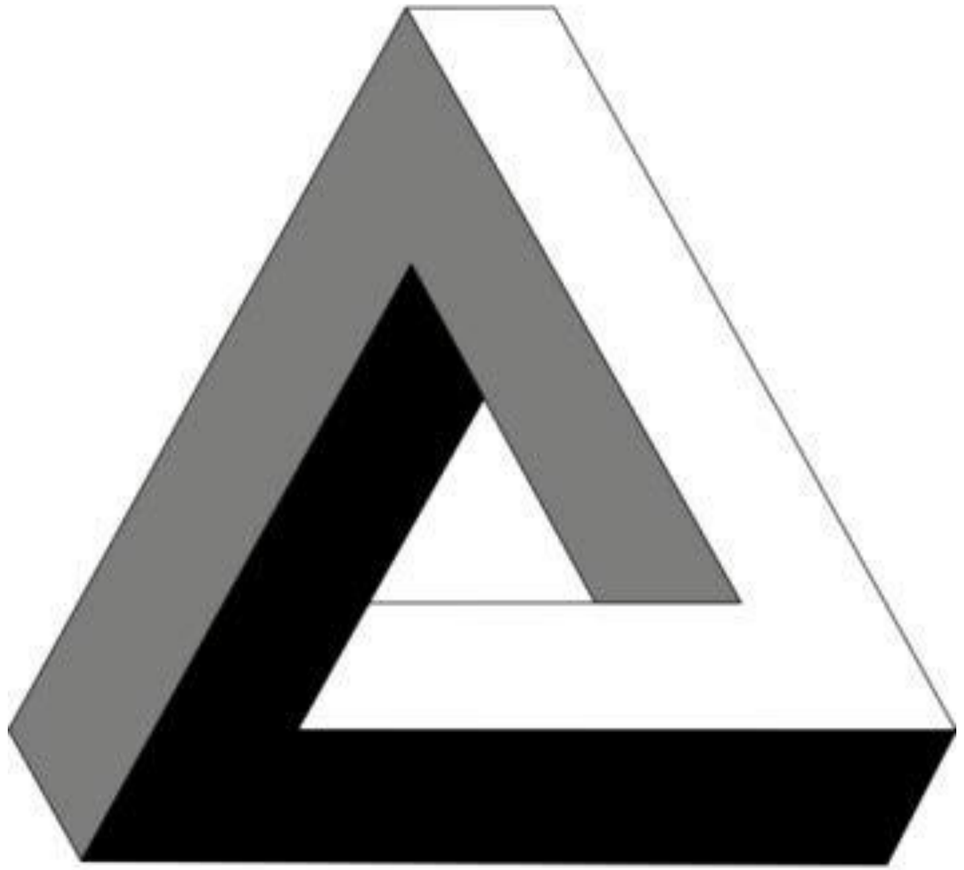
Sustainability Concern

- Heavily rely on non-renewable economic
- Minimal economic diversification
- An uncompetitive society
- Failure of socio-economic transformation

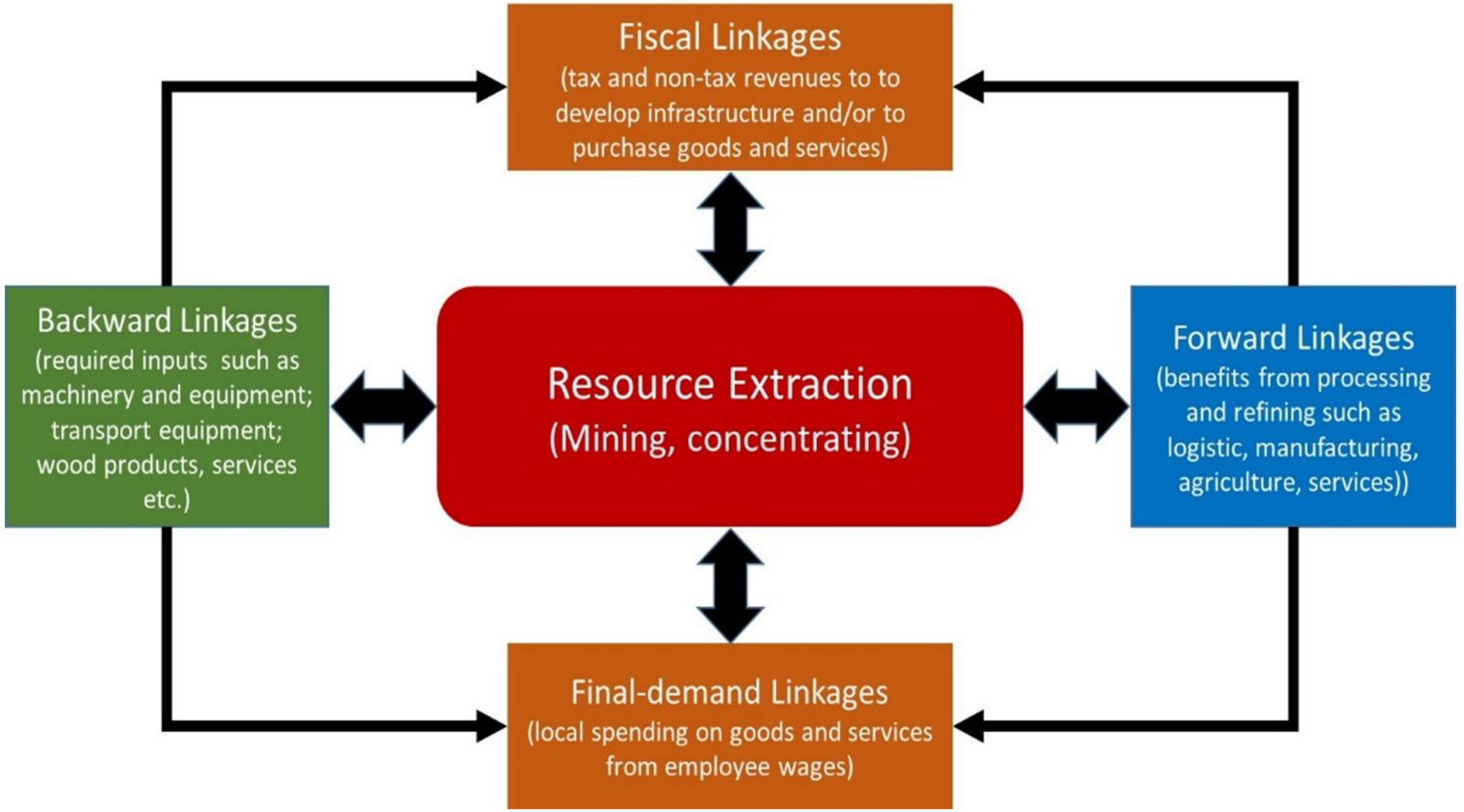
THE PARADOX

the more dominant
the role of the
company or industry,
the more dependent
the local community
or region

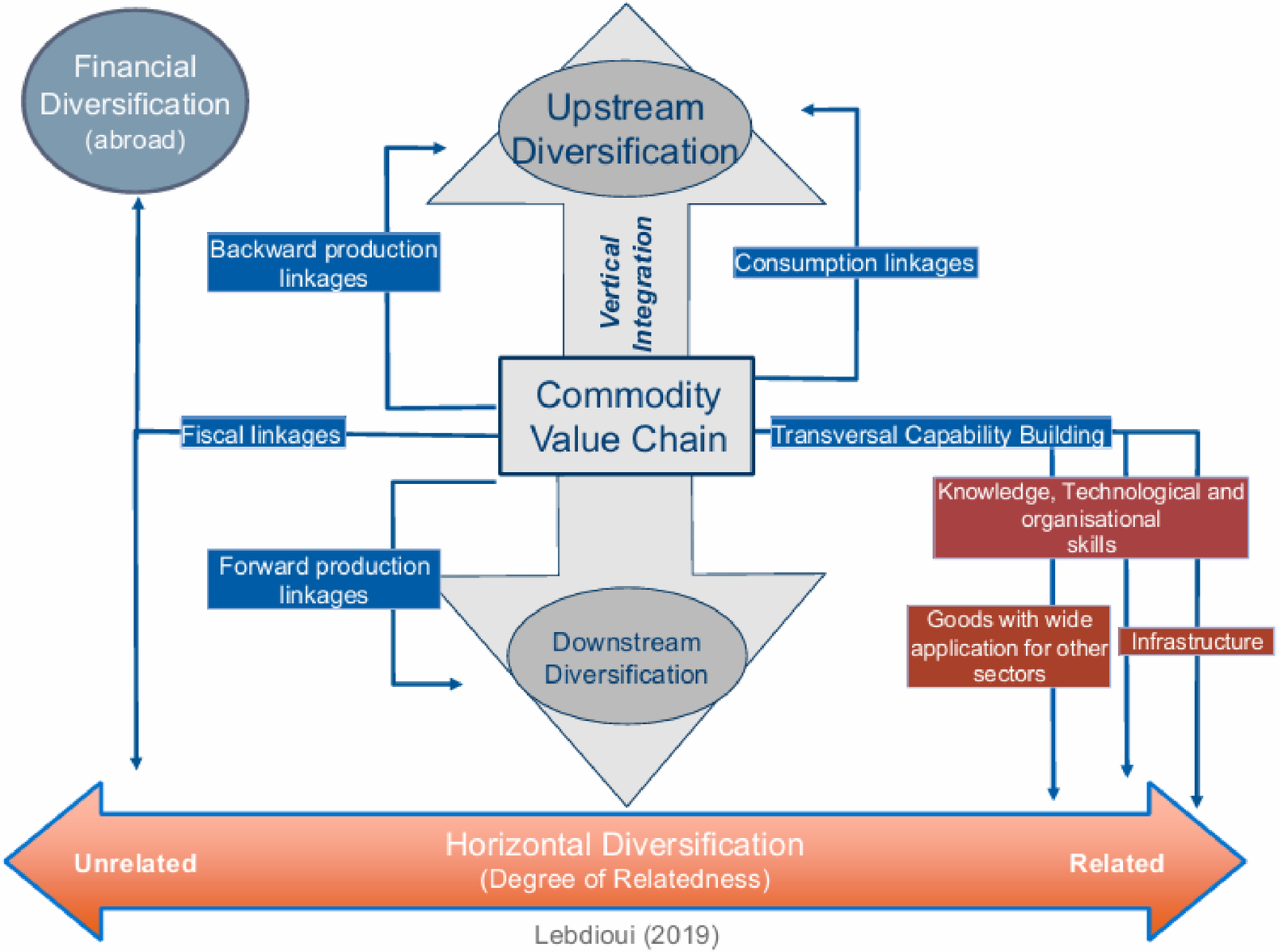
Objectives: independent, strong and resilient communities?



ECONOMIC LINKAGES OF RESOURCE-BASED INDUSTRY



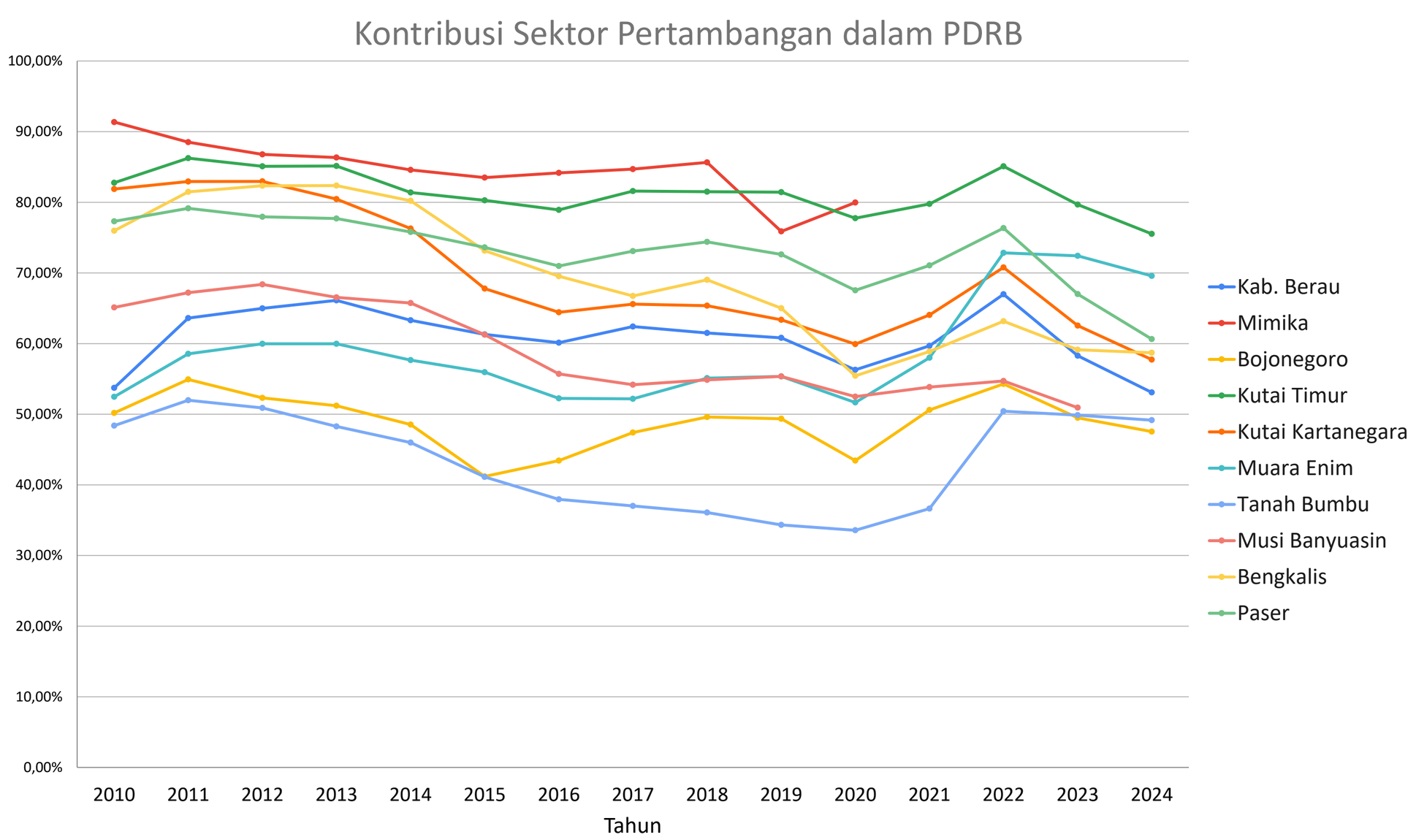
Taxonomy of Diversification strategies using linkage theories



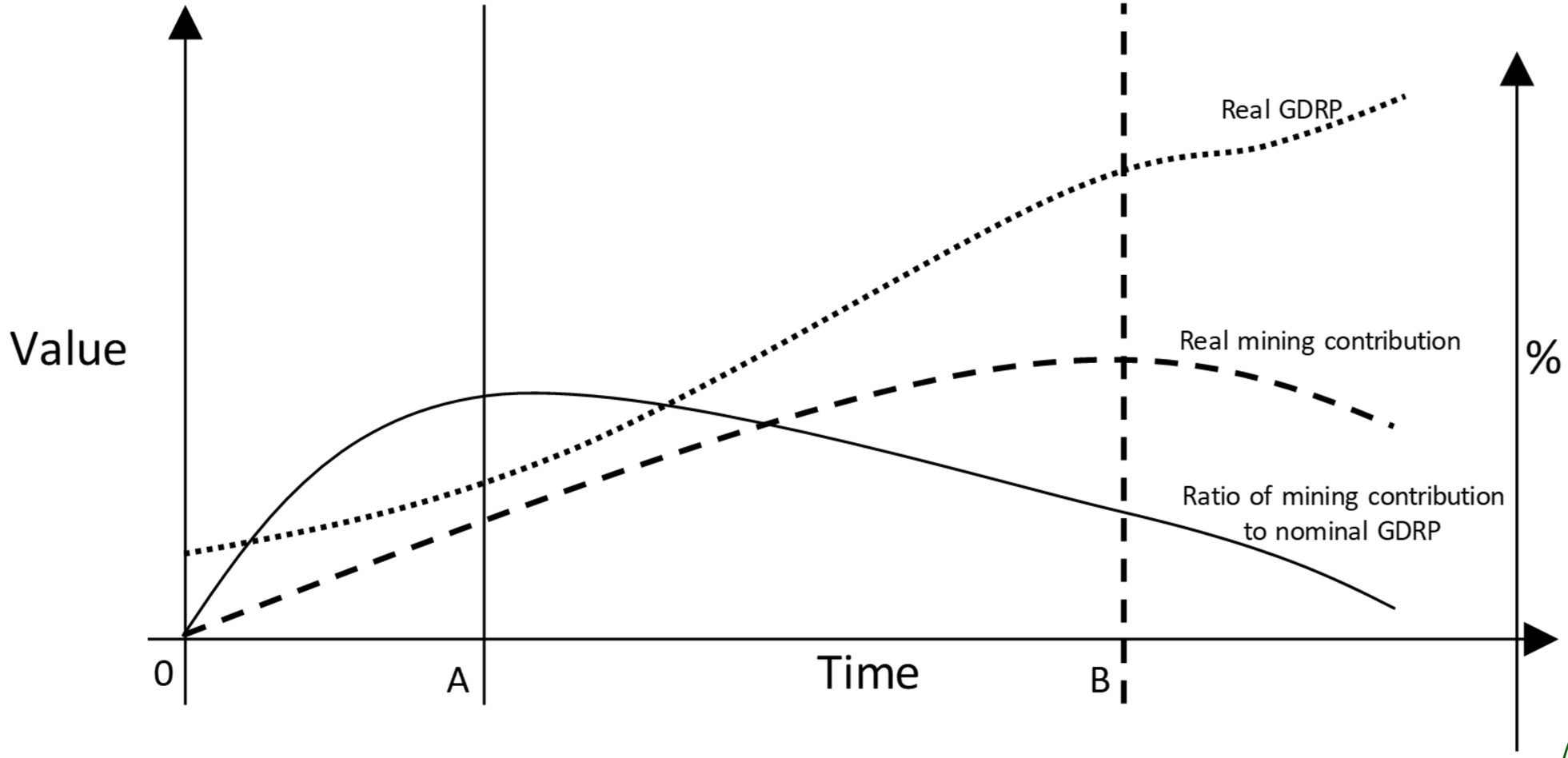
Lebdioui (2019)



REFLEKSI DAN CATATAN PENUTUP

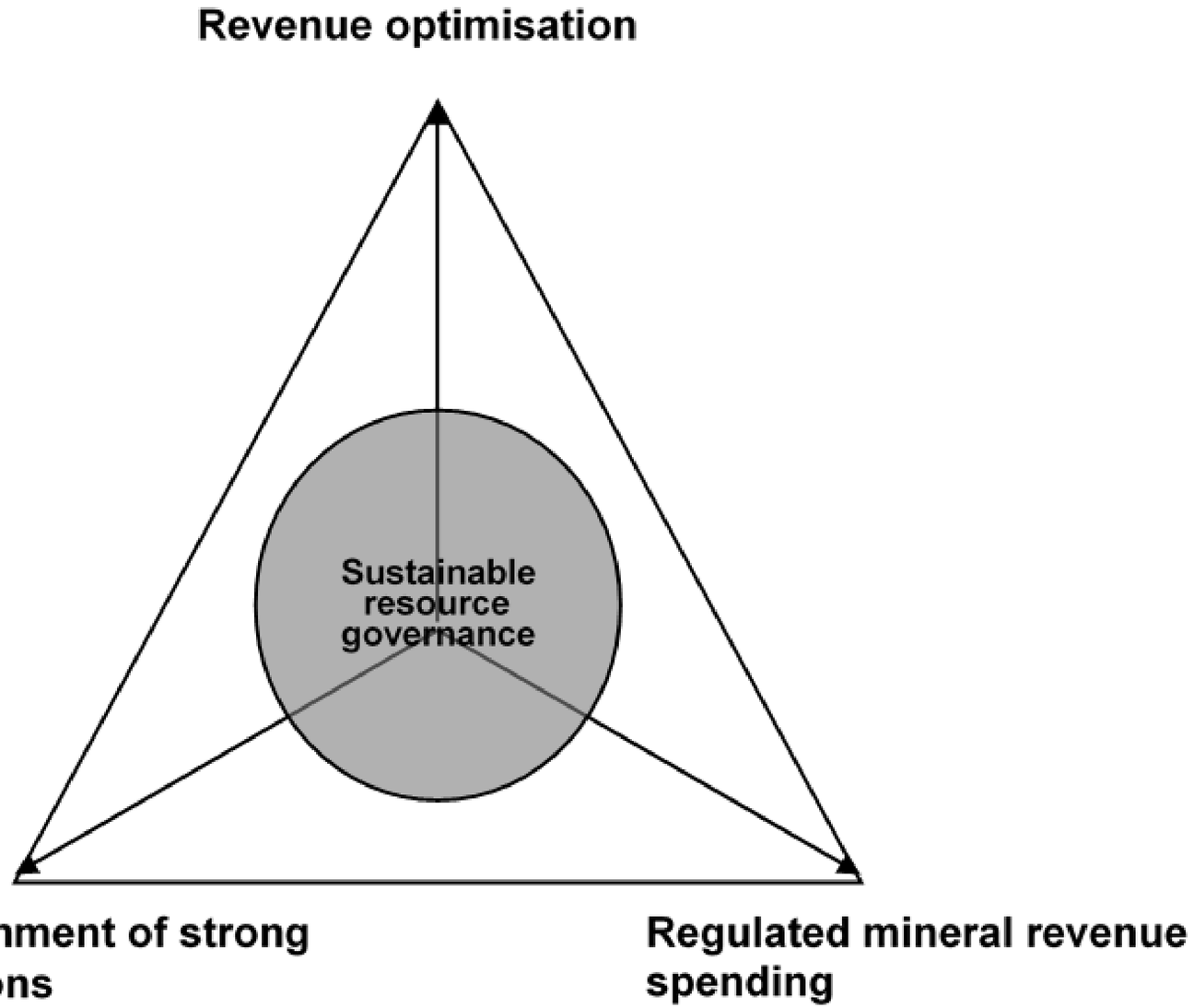

Kontribusi Sektor Pertambangan dalam PDRB
100,00%
90,00%
80,00%
70,00%
60,00%
50,00%
40,00%
30,00%
20,00%
10,00%
0,00%
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
Tahun
Kab. Berau
Mimika
Bojonegoro
Kutai Timur
Kutai Kartanegara
Muara Enim
Tanah Bumbu
Musi Banyuasin
Bengkalis
Paser

The trend of real mining contribution and mining contribution percentage to nominal GRDP (mining dependency) in the framework of sustainable development in the mining and minerals sector

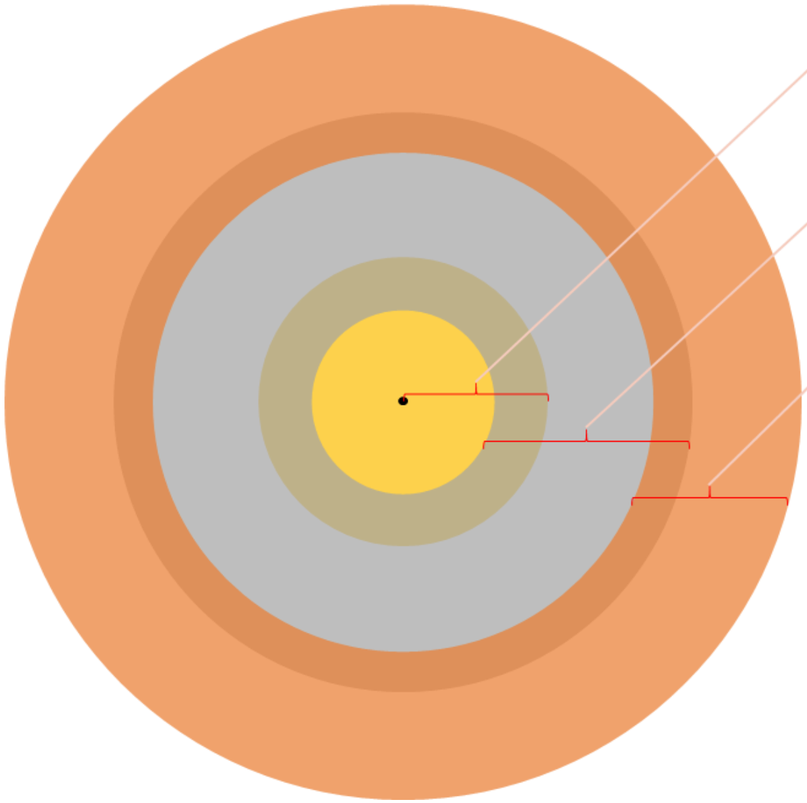


Source: Syahrir, 2021

Sustainable resource governance: Mengatasi dilema pengembangan ekonomi, kesejahteraan sosial, dan kelestarian lingkungan



Memaksimalkan manfaat sosial-ekonomi-lingkungan secara berkelanjutan



Local (mine site/ community level)

- Environmental remediation and social impacts mitigation
- CSR programmes during the active mining
- Enforcement of ESIA and establish ongoing community engagement
- Community capacity building

Regional (district, regency, across regency and province)

- Strengthening the regional government (role and capacity)
- Regional diversification programmes and policy planning
- Prevention of pollution, rehabilitation of land after mining
- Shared-use to mining infrastructure and early hand-over
- Optimisation of use of mining facilities to improve local workforce skills
- Ongoing community engagement
- Progressive closure and contingency plan.

National (country and across province)

- Improve the state's fiscal capacity in promoting regional economic diversification through downstream integration and formalisation of ASMs
- Introduce a heavily regulated distribution and allocation policy for adequate mineral revenue spending
- Promote strong institutions involved in resource governance



Develop - Sustain - Impact

THANK YOU

REZKI SYAHRIR, PHD

+62 274 895059

+62 813 9143 9133 (Admin)

iism.or.id

admin@iism.or.id

MINERIUM *Resource Sustainability*
Jl. Bendosari Nglingi, Ngelo, Harjobinangun, Pakem,
Kabupaten Sleman, Daerah Istimewa Yogyakarta