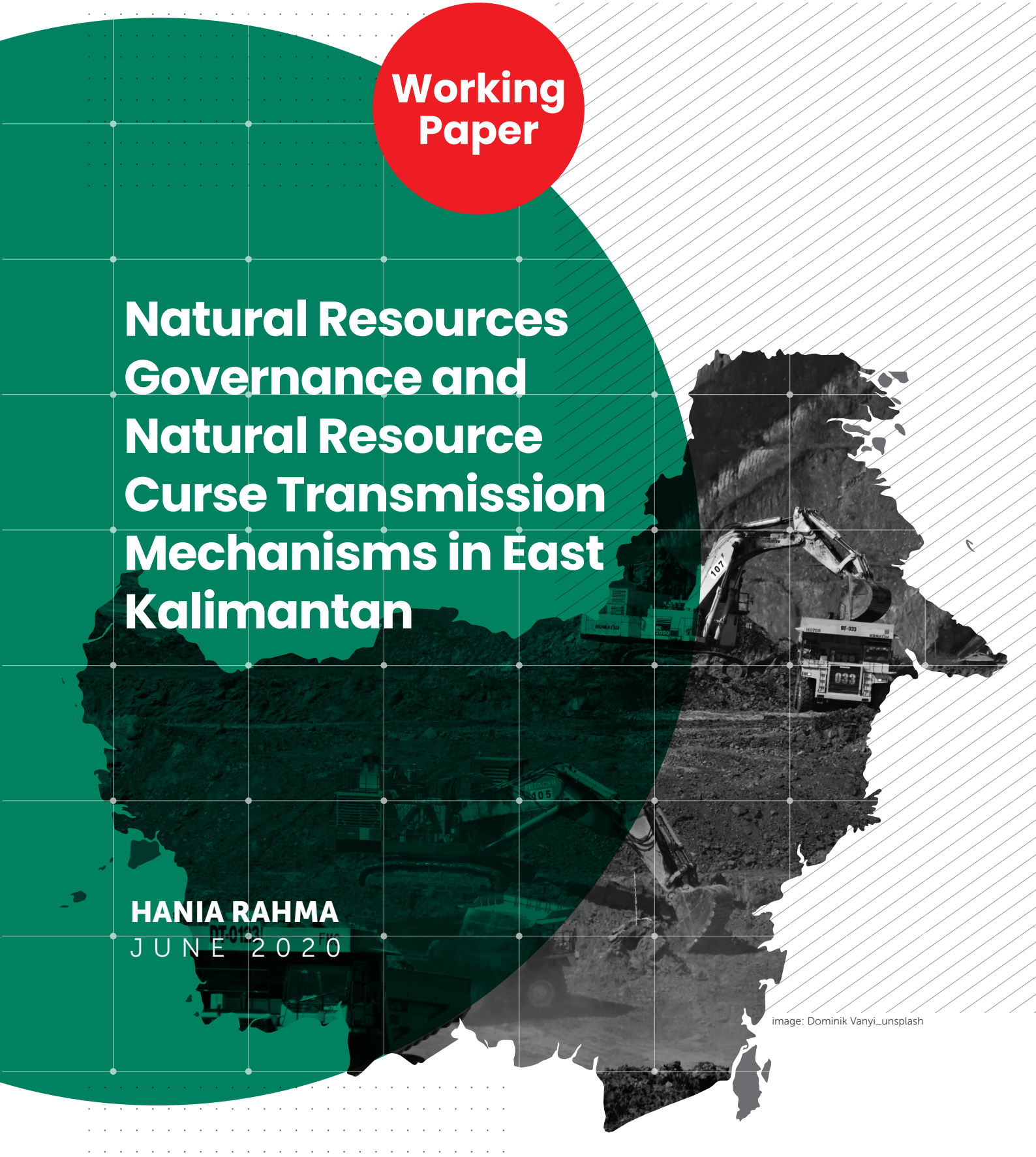
KPK Komisi Pemberantasan Korupsi

auriga

Working Paper

# Natural Resources Governance and Natural Resource Curse Transmission Mechanisms in East Kalimantan



HANIA RAHMA

JUNE 2020

image: Dominik Vanyi_unsplash

YAYASAN AURIGA NUSANTARA

This Working Paper constitutes the outcome of a study by researchers and academics commissioned by Auriga Nusantara and the Corruption Eradication Commission (KPK) with support from the Government of Norway. In the event of any material or source in this paper not meeting predetermined rules and standards of writing, responsibility resides with the author and outside the institutional liability of Auriga Nusantara and the Corruption Eradication Commission (KPK). 

Citation: Hania Rahma, *Natural Resources Governance and Natural Resource Curse Transmission Mechanisms in East Kalimantan,* Working Paper 6/2020, Auriga Nusantara, Jakarta, 2020.



**Editorial Team:**
Mumu Muhajir
Erwin Natosmal Oemar
Putut Aryo Saputro
C. Bregas Pranoto

**Layout & design:** : Nur Alfi Hidayat
**Cover** : Auriga Nusantara

**Auriga Nusantara**
auriga.or.id

# ABSTRACT

Several pieces of research have found the phenomenon known as the natural resource curse occurring at regional levels in Indonesia, but none have explored how this phenomenon occurs. This research aims to identify, map and analyze links between key variables to explain natural resource curse transmission mechanisms. By taking the case of East Kalimantan province, this research uses a structural analysis method based on integrated analytical participatory scenario planning.

The results of analyses using MicMac software show that governance variables, i.e., regional head integrity, level of corruption, mining licensing transparency, integrity of government bureaucracy, mining oligarchy, mining operations monitoring, and law enforcement are key variables in natural resource curse transmission mechanisms. With their capacity to influence other variables, these variables are the determiners of whether or not a region with abundant mining resources will experience the phenomenon known as the natural resource curse.

Key words: natural resource curse, East Kalimantan, MicMac


## Hania Rahma

Born in Jakarta on 15 October 1965. Graduate in Social Affairs and Economy from the IPB University Faculty of Agriculture in Bogor in 1988. Graduated from the University of Indonesia Faculty of Economy and Business Economic Planning and Development Policy (MPKP) Master's Program in 2003. Completed a doctorate in three years from the IPB University Faculty of Economy and Management Regional and Rural Development Planning Science (PWD) Study Program (2016-2019). Began her career as a researcher with the Center for Policy and Implementation Studies (1989-1999), National Program Manager for the UNDP Partnership for Local Economic Development Programme (2001-2003). From 2003 she lectured in the University of Indonesia Faculty of Economy and Business Economic Planning and Development Policy (MPKP) Master's Program. From 2005-2010 she was an editor with the Economic Policy Journal. She was Local Economic Development Specialist with the World Bank Urban Sector Development Reform Program (USDRP). Since 2017, she has been an LSP-KPK Anti-Corruption Extension Officer and Certified Competence Assessor with the National Professional Certification Board (BNSP).

image: Auriga Nusantara

# CONTENT

# TABLE



# DIAGRAM



# CHART



# FIGURE

# I. Introduction

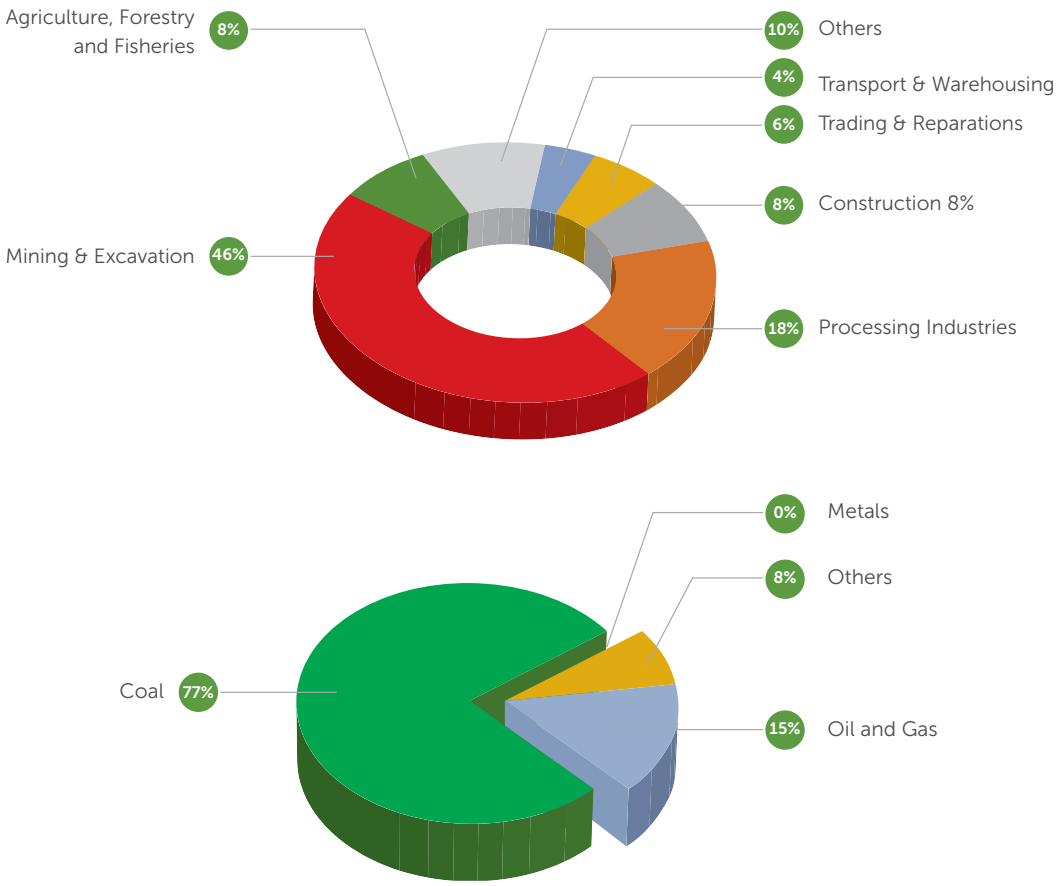
Natural resources sectors still play a vital role in Indonesia's economy by providing 10.7% of national Gross Domestic Product (GDP) in 2019. Among natural resources subsectors, mining and excavation had the largest contribution at 71.9%, far above other sectors, i.e., forestry at 5.6% and fisheries at 22.5%.[1] Seen geographically, of all provinces in Indonesia, East Kalimantan was the largest contributor of mining and excavation sector Gross Domestic Product (GDP) at 26.2%.

The East Kalimantan economy is reliant on natural resources, and particularly the mining sector. In 2018, 45.5 percent of East Kalimantan's Gross Regional Domestic Product (GRDP) came from the mining and excavation sector. This figure was far above the mining sector's contribution to national GDP at only 7.8 percent. Meanwhile, other natural resources subsectors in East Kalimantan, i.e., forestry and fisheries contributed only 7.9 percent of its GRDP. Within the mining sector itself, the largest GRDP contributing commodity was coal at 77 percent, whereas oil and gas and other commodities contributed 15.1 percent and 7.8 percent respectively.[2]

[1] Central Statistics Agency, Indonesia's National Earnings 2015-2019, Central Statistics Agency, Jakarta, 2020.

[2] Central Statistics Agency, Gross Regional Domestic Product of Provinces in Indonesia by Field 2015-2019, Central Statistics Agency, Jakarta, 2020.

**Diagram 1.**
**Economic structure (above), and mining sector commodity contributions to East Kalimantan GRDP in 2018[3]**




Natural resources also play a significant role in regional government revenues in East Kalimantan. This role can be seen from the sums of Natural Resources Revenue Sharing Funds (DBH-SDA) regional governments receive as a part of the fiscal balancing funds from central to regional governments. Of total regional (provincial and district/municipal) government earnings of IDR 35.8 trillion in East Kalimantan in 2019, 30.6% or IDR 10.96 trillion was sourced from DBH-SDA (see Diagram 2). This was far higher than the average of only 3% across regions in Indonesia that year. Of these DBH-SDA funds, 97% were contributions from the mining sector: mineral and coal (66%), natural gas (22%), and oil (9%) as shown in Diagram 3.

[3] Ibid.

**Diagram 2.**
**Sources of regional revenue in East Kalimantan, 2019[4]**

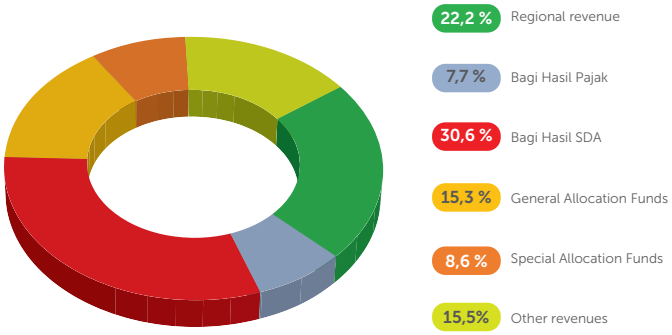
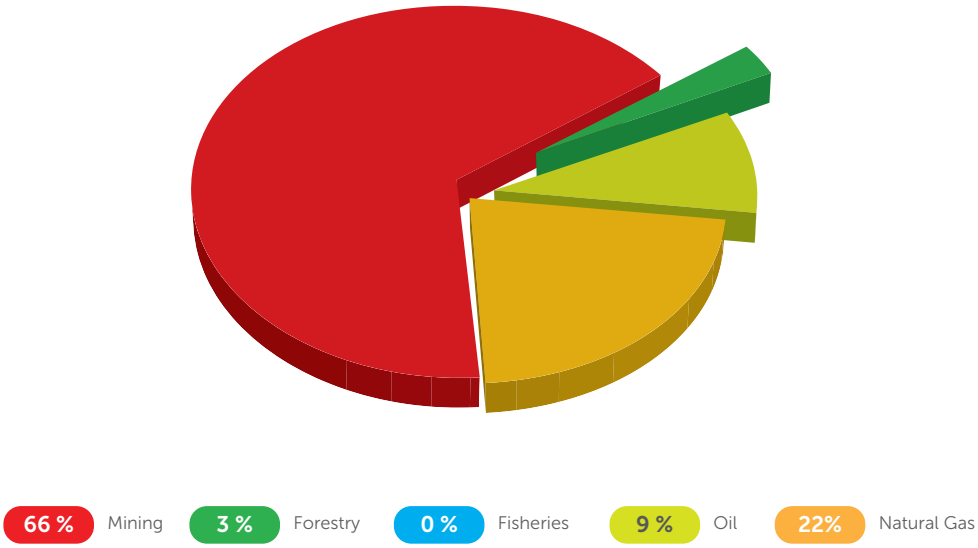



**Diagram 3.**
**Natural resource sector contributions to DBH-SDA revenues in East Kalimantan, 2019[5]**




[4] Central Statistics Agency, District/Municipal Government Financial Statistics 2018-2019: Book 2 Bali, Nusa Tenggara, Kalimantan, Sulawesi, Maluku, Papua, Central Statistics Agency, Jakarta, 2020.

[5] Audit Board, Central Government Financial Report 2019 Audit Report, Audit Board, Jakarta, 2020.

The mining sector in East Kalimantan is dominated by minerals, particularly coal. The province even contributes around 40 percent of total national coal production, 60 percent of which is destined for export markets. Coal concessions in East Kalimantan cover 40.39 percent of the total provincial area. These figures show the vital role of natural resources sectors, and particularly mining as sources of development funds for districts in East Kalimantan, which are expected to be able to create high levels of prosperity for communities and actualize inclusive and sustainable development.

In reality, an area having abundant natural resources is no guarantee of its people's prosperity. This phenomenon, known as the "paradox of plenty", illustrates a situation where a country or region with abundant natural resources is unable to demonstrate high levels of development performance relative to other countries or regions with limited natural resources. This phenomenon is also known as the "natural resource curse".

Research on the natural resource paradox in Indonesia was conducted by Rosser[6] who stated that on a national level, Indonesia succeeded in overcoming the natural resource curse during the New Order regime. Similarly, research by Stevens[7] stated that Indonesia, along with Botswana, Chile, Malaysia and Norway, was able to avoid this phenomenon. However, the same does not apply at the regional level. The use of national aggregate indicators for a country as vast and diverse as Indonesia, either for its natural resource riches or development performance, seems to have obscured natural resource curse realities in the regions.

Research by Komarulzaman and Alisjahbana[8] and Martawardaya *et al*.[9] found the natural resource curse occurring at regional levels in Indonesia. However, neither piece of research gauged the extent to which the phenomenon was occurring in each region. Recent research by Rahma[10] also found the natural resource curse phenomenon at the regional level in Indonesia. Connecting regional

dependence indices to natural resources with a sustainable development index, Rahma calculated an index that gauged the relative natural resource curse level for each province. This index, called the *Regional Resource Curse Index* (RRCI), indicates the inability of regions to utilize their natural resource riches to create sustainable development.

Rahma's research showed East Kalimantan having the highest natural resource curse index value among natural resource-rich provinces. This means East Kalimantan experiences the greatest natural resource curse relative to all other provinces in Indonesia. The research also concluded that high natural resource curse index values occur in regions that have the following conditions: 1) high levels of corruption; 2) low regional head capacity and integrity; 3) lack of development in economic sectors other than natural resources subsectors; 4) high levels of deviation in mining business licensing; and 5)

6 Rosser, Andrew, Why Did Indonesia Overcome the Resource Curse? IDS Working Paper 222, March 2004, Institute of Development Studies, Brighton (England), 2004.

7 Stevens, P., The Resource Curse Revisited, Energy, Environment and Resources, The Royal Institute of International Affairs, 2005.

8 Komarulzaman, A. and Alisjahbana, A.S, Testing the Natural Resource Curse Hypothesis in Indonesia: Evidence at the Regional Level. Working Paper in Economics and Development Studies, Center for Economics and Development Studies, Department of Economics, Padjadjaran University, 2006.

9 Martawardaya, Berly, Triyono, B., Fadli, H., The Natural Resource Curse in Indonesia. Newsletter Edition I, September 2016. Jakarta (ID), Article 33.

10 Rahma, Hania, The Natural Resource Curse Phenomenon in Regional Development in Indonesia, Doctoral dissertation, Faculty of Economics and Management, IPB University, Bogor, 2019.

inadequate budget allocations for increasing human capital and supporting economic activity.

The next questions were: Which variables can further explain the natural resource curse in East Kalimantan? How are these variables linked to each other? Which strategic variables do natural resource-rich districts in the province need to consider in order to escape their natural resource curse? This paper aims to identify and map the roles of variables in natural resource curse transmission mechanisms in East Kalimantan, starting from variables relating to natural resources governance to variables that can become indicators of outcomes from natural resources utilization. Mapping the positions and roles of these variables can hopefully be made the foundation for efforts to overcome the natural resource curse di East Kalimantan and other natural resource-rich regions.

# II. Review of Theory and Methodology

## A. Review of theory

Natural resources problems are multidimensional in nature, not only in economic and environmental issues, but also in social and political spheres, and even a nation's security and resilience. Natural resources degradation contributes to poverty, migration, resource competition, weak social institutions and other issues that drive conflicts, such as ethnic clashes and insurrections in developing countries.[11]

A pessimistic view of natural resources began to develop in the 1980s with a paradox where the discovery of natural gas in the Netherlands caused manufacturing industries there to go into decline.[12] The term for this phenomenon, known as the "Dutch disease", was later developed by Gelb[13] who conducted an analysis on the influence of oil rents on economies in his book entitled "Windfalls: Blessing or Curse". It was from Gelb that natural resource curse theses originated. Meanwhile, the term *natural resource curse* was officially introduced by Auty[14] whose research found that natural resource-rich countries are unable to use those resources to drive their economies and have slower economic growth than countries with fewer natural resources.

The natural resource curse has been observed empirically in several countries after Sachs and Warner[15] first discovered the phenomenon in 1991. Their research concluded that there is a negative relationship between a country's natural resource riches and its economic growth performance. This means countries whose economies depend on the viability of their natural resources tend to experience lower economic growth than those with limited natural resources. The same conclusion has been put forward by researchers from several countries, including Borge *et al.*,[16] Douglas and Walker,[17] Humphreys *et al.*,[18]

11 Parthermore and Rogers. 2010. Sustaining Security, How Natural Resources Influence National Security. Center for New American Security.

12 Corden, W. Max, and Neary, J. Peter. 1982. Booming Sector and De-Industrialization in a Small Open Economy. The Economic Journal, 92(368):825-848.

13 Gelb. 1988. Windfall Gains: Blessing or Curse? Oxford: Oxford University Press.

14 Auty, R.M. 1993. Sustaining Development in Mineral Economies: The Resource Curse Thesis. London: Routledge.

15 Sachs, Jeffrey D. and Warner, Andrew M. 1995. Natural Resource Abundance and Economic Growth.National Bureau of Economic Research Working Paper, No. 5398, Cambridge, MA.

16 Borge, L.E., Parmer, P., Torvik, R., Local Natural Resource Curse? Journal of Public Economics, 2015, 131:101- 114.

17 Douglas, S. and Walker, A., Coal Mining and the Resource Curse in the Eastern United States, Journal of Regional Science, 2016, 0(0):1-23.

18 Humphreys, M., Jeffrey, D.S. and Joseph, E.S., Escaping the Resource Curse, Columbia University Press, New York (US), 2007

Pendergast *et al.*,[19] Pessoa,[20] Torvik[21] and Zhan.[22]

In the context of Indonesia, research by Rahma[23] shows high reliance on natural resources does not guarantee a region's capacity to actalize high sustainable development performance. This research also concluded that the more a region is economically and fiscally dependent on natural resources, the more vulnerable it is to the natural resource curse. Further, regions with higher sustainable development indices tend to be more likely to escape the natural resource curse.

Robinson *et al.*,[24] Leite and Weidmann,[25] and Bulte *et al.*[26] stated that the natural resource curse occurs due to a dependence on natural resources leading a country or region toward poor government administration and weak political institutions causing the spread of rent seeking behavior and corruption, and ultimately constraining economic growth. Poor institutional quality was also cited by Mehlum *et al.*,[27] and Tornell and Lane[28] as a factor driving the natural resource curse. According to their research, the natural resource curse is often found in natural resource-rich countries and occurs because their poor institutional quality drives corruption. In his research on relationships between natural resources and rent seeking, Barbier[29] found that in many developing countries, government revenues from natural resources are generally not channeled back into productive investments. Natural resource rents are frequently lost due to corruption, inefficient bureaucracy, and policies aimed at benefiting certain interest groups.

Research by Karabegovic[30] supported the finding that economic institutions, such as laws on transparency and accountability, determine whether natural resources are a blessing or a curse for a country or region. In his opinion, countries with higher quality economic institutions are more able to manage revenues from their natural resources and channel them into positive economic growth. Effective and strong institutions will reduce incentives for rent seeking and corruption, and beyond that, can lessen opportunities for the natural resource curse to occur.

In relation to politics, natural resource rent increases also provide governing administrations with greater opportunities and incentives to pay their political supporters in order to retain power. As

19 Pendergast, S.M., Judith, A.C. and Van-Kooten, C., Corruption, Development and the Curse of Natural Resources. Canadian Journal of Political Science, 2011, 44(2): 411-437.

20 Pessoa, A., Natural Resources and Institutions: the "Natural Resource Curse", Revisited. MPRA Paper No. 8640, 2008.

21 Torvik, R, Natural Resources, Rent Seeking and Welfare. Journal of Development Economics, 2008, 67:455- 470.

22 Zhan, J.V., Natural Resources and Corruption: Empirical Evidence from China, Paper Prepared for Presentation at the 2011 Annual Meeting of American Political Science Association, 2011.

23 Rahma, Hania, The Natural Resource Curse Phenomenon in Regional Development in Indonesia, 2019, Op. cit., pp. 58-62.

24 Robinson, J.A., Torvik, R. and Verdier, T., Political Foundations of the Resource Curse. Journal of Development Economics, 2006, 79:447-468.

25 Leite, C. and Weidmann, J, Does Mother Nature Corrupt? IMF Working Paper 99/85, 1999.

26 Bulte, E.H., Damania, R. and Deacon, R.T., Resource Intensity, Institutions, and Development. World Development, 2005, 33(7): 1029-1044.

27 Mehlum, H., Karl M, Ragnar T., Institutions and the Resource Curse. The Economic Journal, 2006, 116:1–20.

28 Tornell, A., Lane, P. R.,The Voracity Effect. American Economic Review, 1999, 89:22-46.

29 Barbier, E. B., The Role of Natural Resources in Economic Development. Australian Economic Papers, 2003, 42(2): 253-72.

30 Karabegovic, A, Institutions, Economic Growth and the Curse of Natural Resources, Studies in Mining Policy, Fraser Institute, 2009.

long as leaders equate power with access to natural resource rents, then leaders and politicians will be willing to pay or spend large sums of money now to remain in power in the future.

Research linking the natural resource curse with rent seeking and corruption by Pendergast *et al.*[31] concluded that abundant natural resources, especially oil, minerals, and metals, become a curse as they increase rent seeking and corruption, which ultimately have negative impacts on standards of living and prosperity. Zhan[32] found that broken local political institutions increase the tendency of the government aparatus to be corrupt and make mineral resource riches a curse rather than a blessing.

## B. Methodology

Identifying important variables and analyzing the links between them for overcoming the natural resource curse in East Kalimantan, used a prospective analysis method based on integrated analytical participatory scenario planning[33], namely MicMac (Matrix of Crossed Impact Multiplications Applied to a Classification). This method of structural analysis was developed by Godet *et al*.[34] and Godet.[35]

MicMac has an advantage in building interactions between these important variables by categorizing them as variables that carry influence (*influence variables*) and variables that are dependent on other variables (*dependence variables*), either directly through a matrix of direct influence (MDI) or indirectly through a matrix of direct and indirect influence (MDII). The cross-matrix operational principle of MicMac in filtering influence variables and dependence variables was carried out through Lefebvre's method. MicMac, as shown in Chart 1, produces four main classifications of variables on a map comprising four quadrants: influence variables, relay variables, dependence variables, and autonomous variables.[36] Delgado-Serrano *et al*.[37] added regulator variables, which are located at the center of the four quadrants.

[31] Pendergast, S.M., Judith, A.C. and Van-Kooten, C., Corruption, Development and the Curse of Natural Resources, Canadian Journal of Political Science, 2011, 44(2): 411-437.

[32] Zhan, 2011., Op. cit.

[33] Sratiega, A., Participatory Policy Making in Foresight Studies at the Regional Level: A Methodological Approach, Regional Science Inquiry Journal, 2013, 5(1): 145-161.

[34] Godet, M., Arcade, J., Meunier, F. and Roubelat, F., Structural Analysis with the MICMAC Method and Actors' Strategy with MACTOR Method, Futures Research Methodology, American Council for the United Nations University: The Millennium Project, 1999.

[35] Godet, M., Creating Futures: Scenario Planning as a Strategic Management Tool, Economica, London, 2006.

[36] Fauzi, Akhmad, Teknik Analisis Keberlanjutan (Sustainability Analysis Techniques), PT Gramedia Pustaka Utama, Jakarta, 2019.

[37] Delgado-Serrano MM, Ambrosio-Albalá M, Amador F., Exploring Prospective Structural Analysis to Assess the Relevance of Rural Territorial Development in Spain and Nicaragua. Cuadernos de Desarrollo Rural, 2015, 12:35-56.

**Chart 1**

**Categorization of variables based on their levels of influence and dependence.**

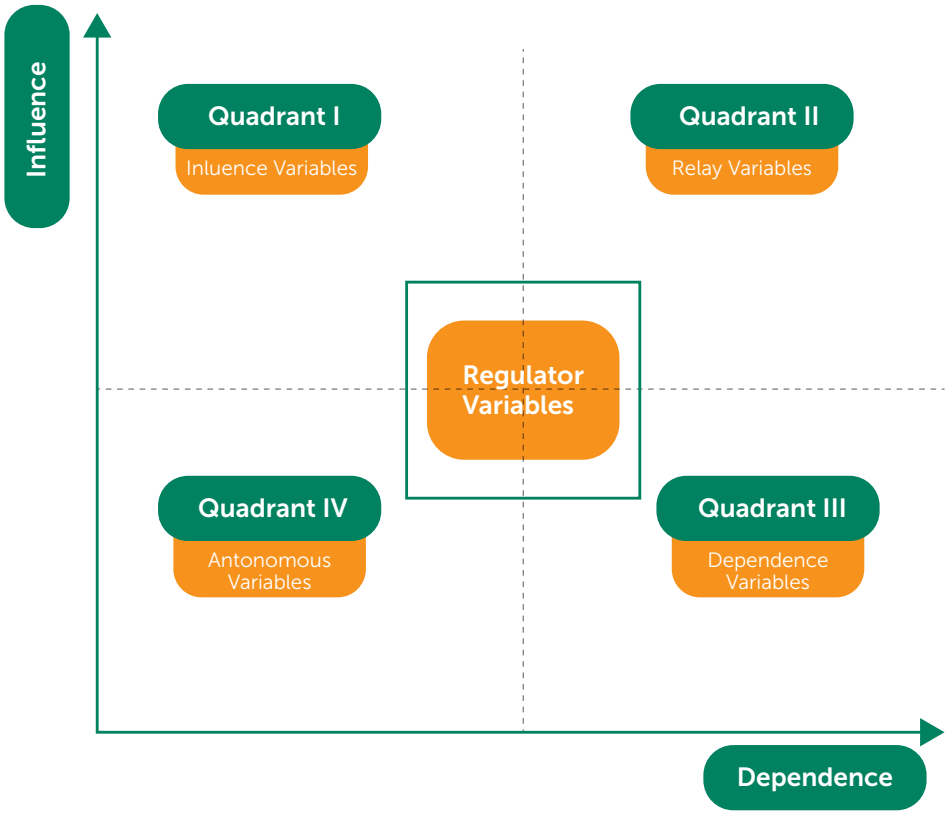



**Table 1.**

**Categories, roles and implications of variables in the MicMac system.[38]**

| Type of variable | Status and role | Implications |
|---|---|---|
| Influence variables | Highly influential with little dependence | Crucial elements in a system because they can act as system keys. Influence from other variables on these variables is not transmitted into the system. |
| Relay variables | Influential but highly dependent, describing unstable variables | Describe the instability of a system. Any change occurring in these variables has serious consequences for other variables within the system. |

[38] Summarized from Fauzi, Akhmad. 2019., Op. cit., pp. 30-31.

| Type of variable | Status and role | Implications |
|---|---|---|
| Dependence variables | Have little influence but high dependence | These variables are quite sensitive to changes occurring in influence and relay variables. |
| Autonomous variables | Little influence, high dependence | Have low potential to produce change. These variables can also be called excluded as they will not stop the system working or use the system. |
| Regulator variables | Have medium influence and dependence | Act a levers. |

Variables were identified using most of the data gathered by Rahma[39] from focus group discussions (FGDs) held with regional-level stakeholders involved in and associated with mineral and coal natural resources management in East Kalimantan province. The data was then supplemented with assessments from a number of academics and practitioners with a deep understanding of mineral and coal mining issues in order to enrich the information required.

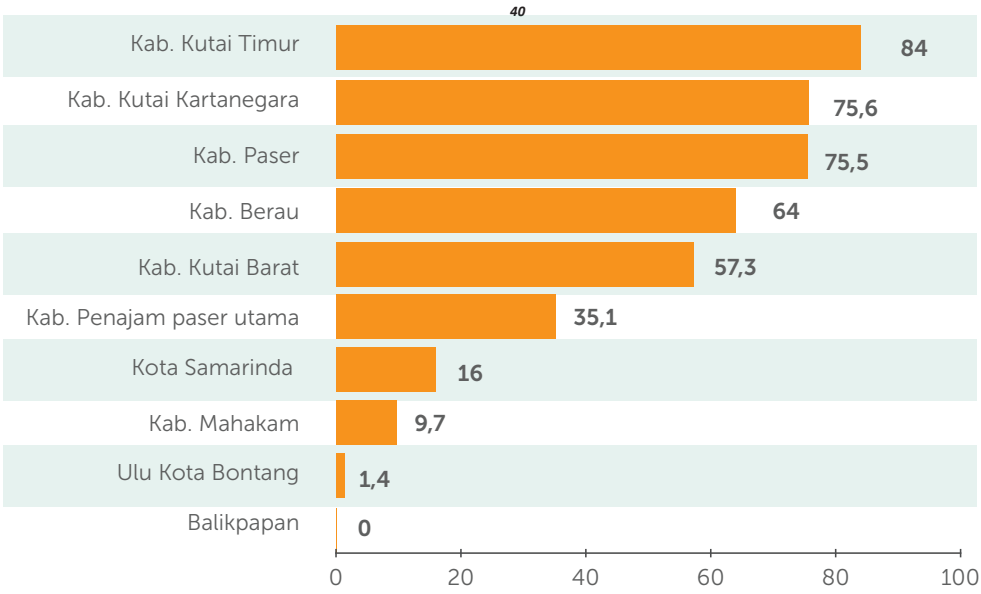
The final outcomes of this MicMac analysis were the identification and mapping of a number of strategic variables in an effort to overcome the natural resource curse in East Kalimantan.

[39] Rahma, 2019., *Op. cit.*

# III. Results and Analysis

The levels of both economic and fiscal dependence on the mining sector are extremely high for districts in East Kalimantan. Economies in half of districts/municipalities in East Kalimantan are more than 50 percent dependent on the mining sector (Table 2). The highest level of dependence is in East Kutai district (84%), followed by Kutai Kartanegara district (75.6%) and Paser district (75.5%).

**Table 2.**
**Mining sector contributions as percentage of GRDP in districts and municipalities in East Kalimantan 2017.**




[40] Central Statistics Agency, Regional GRDP Review by District/Municipality 2013-2017, Central Statistics Agency, Jakarta, 2018.

Districts and municipalities that are highly dependent on natural resources also have high levels of fiscal dependence. In 2019 budgets, natural resource revenue sharing funds (DBH-SDA) contributed an average 33.9 percent of revenues in district/municipal government budgets in East Kalimantan. This figure was 3.5 times higher than the 9.9% average for regional own-source revenues (PAD). The largest recipient of DBH-SDA funds was Kutai Kartanegara district at 22.7% of the total amount received by all districts/municipalities in East Kalimantan, followed by East Kutai district (15.4%) and Berau district (10.7%).

## A. Mapping of variables

Based on the study of theory and reinforced by focus group discussion (FGD) outcomes and expert evaluations, 24 variables were identified as being important variables relating to natural resource curse transmission mechanisms (see Table 3). These variables represent a number of dimensions, i.e., institutional dimensions (9 variables), economic dimensions (8 variables), social dimensions (4 variables), and environmental dimensions (3 variables).

**Table 3.**
**Important variables in natural resource curse mechanisms in East Kalimantan.**

| Label | Variabel | Label | Variabel |
|---|---|---|---|
| Institutional Dimensions | | Economic Dimensions | |
| IKD | Regional head capacity and integrity | IUP | Number of mining business licenses (IUP) |
| BIR | Capacity and integrity of government bureaucracy | AREA | Size of mining concession area |
| KOR | Level of corruption | PRO | Mining production reported to government |
| OLI | Oligarchies in mining businesses | ROY | Regional government revenue from mining sector |
| LAW | Law enforcement against violations in mining business and management | BEK | Regional government spending on economic support |
| OPD | Coordination and synergy between regional government organizations in mining governance | BMM | Regional government spending on human capital |
| CONTR | Monitoring and control of mining activities | EKONT | Growth in sectors outside mining |
| TRP | Mining licensing system transparency | EKO | Regional economic growth |
| PML | Local community participation and involvement | | |

| Social Dimensions | | Environmental Dimensions | |
|---|---|---|---|
| KMM | Quality of regional human capital | CNC | Number of clean and clear mining business licenses (IUPs) |
| EMP | Employment | REKL | Post-mining reclamation realization |
| POV | Poverty level | KLH | Environmental quality |
| KONF | Conflict between business and communities in mining areas | | |

The FGDs and expert evaluations also generated cross-impact MDI (matrix of direct influence) scores. These MDI matrix scores were mode values from scores given by each FGD participant and expert as presented in Table 4. The scores were processed using MicMac software to analyze the roles of variables in natural resource curse transmission mechanisms, by analyzing the strength of influence each variable has on other variables.

**Table 4.**

**Matrix of direct links between variables in natural resource curse transmission mechanisms.**

| | 1 : IUP | 2 : AREA | 3 : KLH | 4 : REKL | 5 : KOR | 6 : OLI | 7 : TRP | 8 : CNC | 9 : IKD | 10 : BIR | 11 : PML | 12 : PRO | 13 : ROY | 14 : CONTR | 15 : ENT | 16 : INVMM | 17 : INVEKO | 18 : OPD | 19 : LAW | 20 : POV | 21 : KMM | 22 : EMPL | 23 : EKO | 24 : KONF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 : IUP | 0 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 1 |
| 2 : AREA | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 2 | 1 |
| 3 : KLH | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 4 : REKL | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 3 |
| 5 : KOR | 3 | 2 | 1 | 2 | 0 | 2 | 1 | 3 | 0 | 0 | 0 | 3 | 2 | 3 | 2 | 3 | 3 | 0 | 1 | 2 | 1 | 0 | 1 | 1 |
| 6 : OLI | 2 | 3 | 3 | 1 | 3 | 0 | 2 | 2 | 3 | 2 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 1 | 1 |
| 7 : TRP | 2 | 2 | 1 | 1 | 3 | 3 | 0 | 3 | 1 | 2 | 1 | 3 | 3 | 2 | 0 | 1 | 1 | 3 | 2 | 0 | 0 | 0 | 0 | 1 |
| 8 : CNC | 0 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 9 : IKD | 3 | 3 | 0 | 0 | 3 | 2 | 2 | 1 | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 1 | 0 | 1 | 1 | 1 |
| 10 : BIR | 2 | 2 | 0 | 0 | 3 | 0 | 2 | 1 | 0 | 0 | 1 | 2 | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 0 | 0 | 1 |
| 11 : PML | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 1 | 0 | 2 |
| 12 : PRO | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| 13 : ROY | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 2 | 2 | 1 | 1 | 0 |
| 14 : CONTR | 3 | 3 | 2 | 3 | 3 | 1 | 3 | 2 | 1 | 2 | 2 | 3 | 2 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 1 |
| 15 : ENT | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 2 | 0 | 3 | 3 | 0 |
| 16 : INVMM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 1 | 3 | 2 | 2 | 1 |

| | 1 : IUP | 2 : AREA | 3 : KLH | 4 : REKL | 5 : KOR | 6 : OLI | 7 : TRP | 8 : CNC | 9 : IKD | 10 : BIR | 11 : PML | 12 : PRO | 13 : ROY | 14 : CONTR | 15 : ENT | 16 : INVMM | 17 : INVEKO | 18 : OPD | 19 : LAW | 20 : POV | 21 : KMM | 22 : EMPL | 23 : EKO | 24 : KONF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 : INVEKO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 2 | 2 | 3 | 3 | 0 |
| 18 : OPD | 2 | 2 | 2 | 2 | 1 | 1 | 2 | 2 | 0 | 1 | 1 | 1 | 2 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 19 : LAW | 1 | 1 | 2 | 3 | 3 | 2 | 2 | 3 | 2 | 2 | 0 | 2 | 2 | 2 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 20 : POV | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 |
| 21 : KMM | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 3 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 1 | 3 | 0 | 3 | 3 | 0 |
| 22 : EMPL | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 3 | 2 | 0 | 3 | 0 |
| 23 : EKO | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 3 | 3 | 3 | 0 | 0 |
| 24 : KONF | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |



The outcomes of MDI matrix processing (Table 4) using MicMac software are presented in the quadrant map in Chart 2 which shows the positions and roles of each variable in natural resource curse transmission mechanisms. The figure clarifies the positions of variables relative to other variables by grouping them into four categories based on their strength of direct influence and direct dependence. These categories are influence variables, relay variables, dependence variables and autonomous variables.

**Chart 2.**
**Category map of variables' roles in natural resource curse transmission mechanisms.**

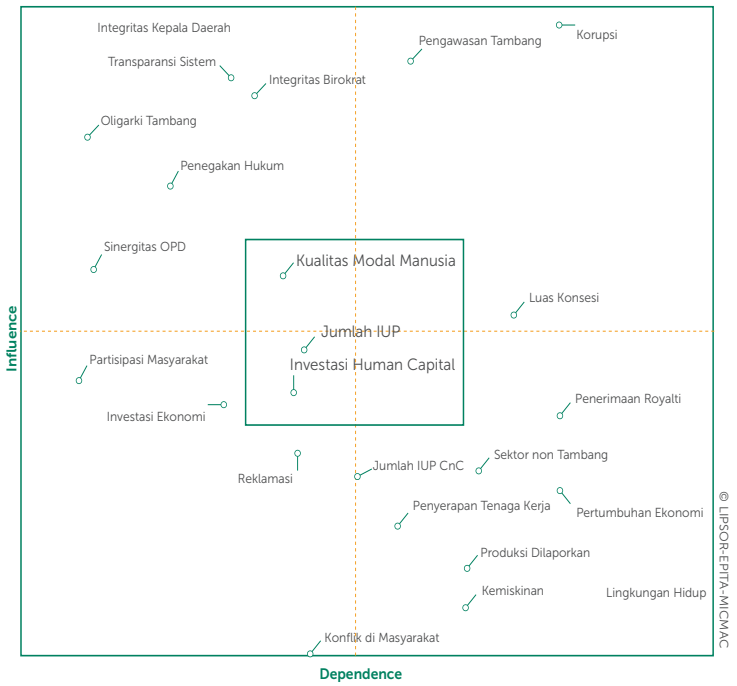


Chart 2 shows 24 identified variables divided into five groups: 1) influence variables (6 variables), 2) relay variables (3 variables), 3) dependence variables (8 variables), 4) autonomous variables (4 variables), and 5) regulatory variables (3 variables). The six influence variables have high levels of influence, and low levels of dependence on other variables within the system. This means these six variables play vital roles in determining whether or not a region will experience a natural resource curse. These roles are played by influencing other variables that are measures of regional development performance from the utilization of natural resources. These six variables are: 1) regional head integrity; 2) mining business licensing system; 3) mining business oligarchies; 4) law enforcement; 5) capacity and integrity of government bureaucracy; and 6) synergy between central and regional government organizations.

Relay variables are another group with influence over other variables. Nevertheless, variables in this group are also highly dependent on the influential strength of influence variables, and any changes to variables in this group will be determined by changes occurring in the influence variables group. There are three variables in this quadrant: 1) level of corruption; 2) level of oversight over mining operations; and 3) area of mining concessions.

Interestingly, all the influence variables and two of the three relay variables (corruption and oversight) constitute variables from the institutional dimension that are generally positioned in the upstream part of the overall mining management system. The fact that all six influence variables and two relay variables are institutional is highly appropriate as these variables have been the sources of poor natural resources governance, with potential to constrain regional development performance and community prosperity. In many pieces of research, institutional variables, both political and economic, are named as factors explaining how a country's natural resource riches fail to create prosperity in the country's society.

In the dependence variables group there are eight variables in the output position, so variables in this group are also called output variables. This means, changes to these eight output variables, either increases or decreases, will be determined by changes occurring in influence variables and relay variables. Five of these variables are from the economic dimension, namely: 1) number of clean & clear IUP mining business licenses; 2) mining royalty receipts; 3) reported production; 4) economic growth in sectors other than mining; and 5) economic growth. Other variables are employment of labor and poverty level from the social dimension, as well as environmental quality from the environmental dimension.

There are four variables in the autonomous variables group: 1) community participation; 2) investment in economic support; 3) post-mining reclamation realization; and 4) community conflicts. These variables have low potential to influence natural resource curse transmission systems. Also, changes to autonomous variables are not influenced greatly by changes occurring within the systems but are affected more by factors external to the systems. It is highly possible there are hidden variables not identified in the FGDs. Three other variables fall within the regulatory variable category, namely: number of IUPs, investments in human capital, and quality of human capital. Having medium levels of influence and dependence on other variables, these three variables act as levers in

natural resource curse transmission systems.

MicMac also ranks variables by level of influence and dependence, as shown in Table 5. The five highest-ranking variables in terms of influence in natural resource curse transmission mechanisms in regions are: 1) regional head integrity; 2) level of corruption; 3) mining licensing transparency; 4) mining operations oversight; and 5) mining oligarchy. Meanwhile, the five highest-ranking variables in terms of dependence on other variables are: 1) environmental quality; 2) royalty receipts; 3) regional economic growth; 4) reported mining production; and 5) poverty level.

**Table 5.**
**Classifications of variables by level of influence and dependence in natural resource curse transmission systems.**

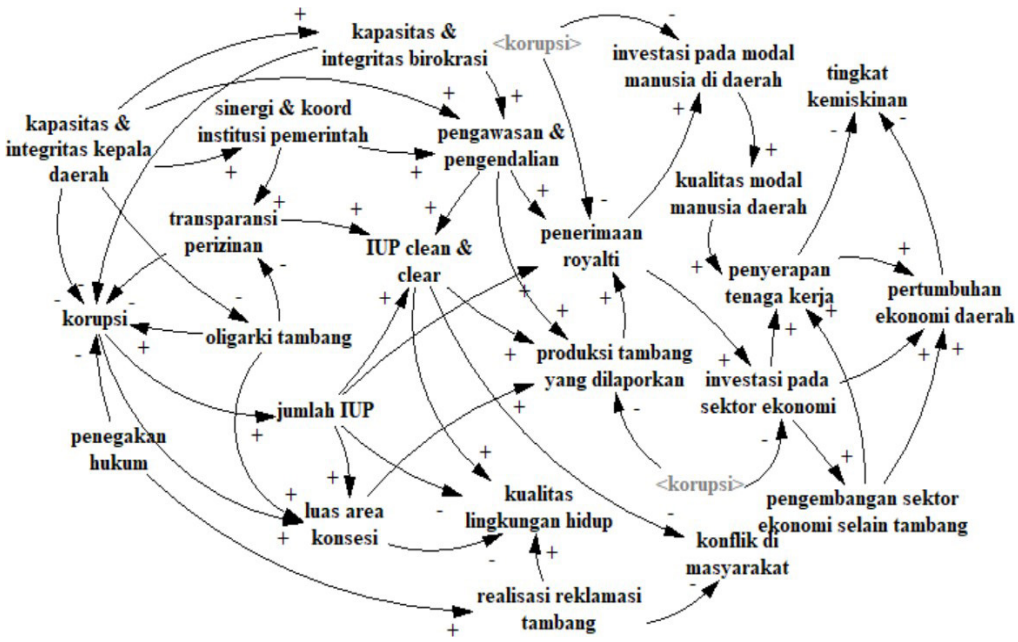
| Classification by level of influence | | Classification by level of dependence | |
|---|---|---|---|
| Rank | Variabel | Rank | Variabel |
| 1 | Regional head integrity | 1 | Environmental quality |
| 2 | Level of corruption | 2 | Royalty receipts |
| 3 | Mining licensing transparency | 3 | Economic growth |
| 4 | Mining operations oversight | 4 | Reported production |
| 5 | Mining oligarchy | 5 | Poverty level |
| 6 | Integrity of government bureaucracy | 6 | Level of corruption |
| 7 | Law enforcement | 7 | Area of mining concessions |
| 8 | Regional government office coordination and synergy | 8 | Non-mining sector developments |
| 9 | Quality of human capital | 9 | Employment of local labor |
| 10 | Area of mining concessions | 10 | Mining operations oversight |
| 11 | Number of IUPs | 11 | IUPs with CnC status |
| 12 | Local community participation | 12 | Number of IUPs |
| 13 | Investment in human capital | 13 | Investment in human capital |
| 14 | Economic support investments | 14 | Quality of human capital |
| 15 | Royalty receipts | 15 | Community conflicts |
| 16 | Post-mining reclamation realization | 16 | Post-mining reclamation realization |
| 17 | Regional economic growth | 17 | Integrity of government bureaucracy |
| 18 | IUPs with CnC status | 18 | Economic support investments |
| 19 | Non-mining sector developments | 19 | Mining licensing transparency |
| 20 | Employment of local labor | 20 | Law enforcement |

| Classification by level of influence | | Classification by level of dependence | |
|---|---|---|---|
| Rank | Variabel | Rank | Variabel |
| 21 | Reported production | 21 | Regional government office coordination and synergy |
| 22 | Poverty level | 22 | Mining oligarchy |
| 23 | Environmental quality | 23 | Local community participation |
| 24 | Community conflicts | 24 | Regional head integrity |

## B. Inter-variable link analysis

Where Table 5 provides only a limited explanation of the positions and roles of each variable, Figure 1 shows their inter-variable relationships (influencing or being influenced) in natural resource curse transmission mechanisms. Figure 1 is a reprocessing of the matrix generated by MicMac making it easier to read and understand. The inter-variable relationships displayed in the figure are only those with a very strong or strong influence on other variables. Plus signs reflect one-way cause and effect relationships, whereas minus signs indicate inverse relationships.

**Figure 1.**
**Direct links between variables in natural resource curse transmission mechanisms.**



From Figure 1 it is apparent that the five variables with the highest levels of influence, as shown in Table 5, have the following direct influences:

1. Regional head integrity has a direct influence on: 1) integrity of government bureaucracy (+); 2) level of mining operation oversight and control (+); 3) existence of mining oligarchies (-); 4) level of corruption in the region (-); and 5) coordination and synergy between government institutions (+).
2. Level of corruption has a direct influence on: 1) number of IUP licenses issued (+); 2) area of mining concessions (+); 3) reported mining production (-); 4) royalty receipts (-); 5) investment in human capital (-); and 6) investment in economic sector support (-).
3. Mining licensing transparency has a direct influence on: 1) level of corruption (-); and 2) number of IUPs with clean and clear status (+).
4. Level of mining operation oversight and control has a direct influence on: 1) number of IUPs with clean and clear status (+); 2) reported mining production (+); and 3) royalty receipts (+).
5. Mining oligarchies have a direct influence on: 1) mining licensing transparency (-); 2) level of corruption (+); and 3) area of mining concessions (+).

For the five variables with the highest levels of dependence, as shown in Table 5, their direct dependence relationships with other variables are as follows:

1. Environmental quality is directly influenced by: 1) number of IUPs (-); 2) area of mining concessions; and 3) mine reclamation realization (+).
2. Royalty receipts are directly influenced by: 1) number of IUPs (+); 2) reported mining production; 3) oversight and control (+); and 4) level of corruption (-).
3. Regional economic growth is directly influenced by: 1) growth in economic sectors outside mining (+); 2) employment of local labor (+); and 3) investments in economic sector support.
4. Reported mining production is directly influenced by: 1) area of mining concessions (+); 2) level of corruption (-); 3) number of IUPs with clean and clear status; and 4) mining operations oversight and control (+).
5. Poverty level is directly influenced by: 1) employment of local labor; and 2) regional economic growth

## C. Portrait of governance and corruption in natural resources sectors

This section discusses some facts relating to mining resources governance that have a strong influence on natural resource curse transmission systems, as shown in Table 5, namely: regional head integrity, level of corruption, mining licensing transparency, level of mining operations oversight, and mining oligarchies. An analysis was conducted by comparing conditions in provinces with high and low natural resource curse index values. Natural resource curse levels (high and low) were

taken from Regional Resource Curse Index (RRCI) figures from the results of calculations by Rahma.[41]

Of 20 provinces with significant mining resource riches relative to other provinces, 15 had high natural resource curse index values, and 5 had low index values.

**Table 6.**
**Averages for regional head integrity and number of corruptors in the state apparatus in provinces with high and low RRCI index values.**

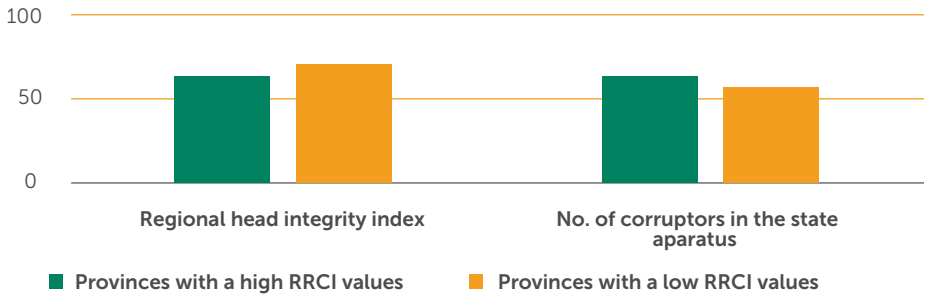



Table 6 compares regional head integrity and level of corruption in provinces with high and low natural resource curse index values. Regional head integrity uses the regional head capacity and integrity index from the Jakarta-based Regional Autonomy Implementation Monitoring Committee (KPPOD),[42] whereas level of corruption is projected from figures for 2016 on numbers of civil servants with corruptor status (KOR) from the Civil Service Agency (BKN). Table 6 shows that regional head integrity is lower, and levels of corruption are higher in the group of provinces with high natural resource curse index values. The regional head capacity and integrity index value for East Kalimantan was 64.53; below the national average of 66.63.

Regional head integrity can also be seen from their involvement in corruption cases. Nationally, Indonesia Corruption Watch[43] recorded at least 115 cases with 326 people named as suspects in natural resource-related corruption during 2010-2017. Of three natural resources sectors, the highest number of corruption cases was in the plantations sector with 52, followed by forestry with 43, and mining with 20. Despite the mining sector not having the highest number of regional heads implicated in corruption, the sums involved were enormous, and far higher than those for other sectors and other natural resource commodities. Losses arising as a result of corruption in natural resources sectors are expected to be limitless because corruption will not cease until natural resources have stopped being exploited.

Corruption Eradication Commission (KPK) data shows East Kalimantan to be among the provinces with the highest numbers of regional

[41] Rahma, Hania. 2019. Op. cit.

[42] Regional Autonomy Implementation Monitoring Committee (KPPOD), Regional Economic Governance 2016, Regional Autonomy Implementation Monitoring Committee, Jakarta, 2017.

[43] SAH, Total of 326 Natural Resource Corruption Suspects during 2010-2017, CNN Indonesia, 27 April 2018, accessed from: https://www.cnnindonesia.com/nasional/20180427144107-20-294128/total-326-orang-jadi-tersangka-korupsi-sda-selama-2010-2017

heads implicated in natural resource-related corruption cases. From 2006 to 2020, eight regional heads and deputy regional heads were implicated in corruption cases by the KPK. Most of these cases related to natural resources, with corruption in oil palm estate development programs, corruption in releasing land for oil palm plantations, corruption involving shares in PT Kutai Timur Energy, bribery for plantation licenses, and coal mining licensing not following correct procedures. The remaining cases involved bribery in infrastructure projects, misappropriation of social aid funds and regional government projects.

An Organization for Economic Cooperation and Development (OECD)[44] report stressed that corruption risk can arise at several points along supply chains, starting from the decision-making phase for extraction activities up to the use of revenues from products extracted. Types of violations include bribing government officials, embezzlement, misappropriation and diversion of public funds, abuse of authority, influence exchange, favoritism, extorsion, bribing domestic officials, and greasing palms for favors.

The high levels of corruption in natural resources sectors correspond with findings by Kolstad *et al*.,[45] who showed the huge revenue potential of natural resource exploitation can drive extremely high levels of rent seeking behavior and corruption when there is very poor institutional regulation of natural resources management. Such situations are found in many regions in Indonesia with indications of campaign funds used by candidates in regional head elections coming from donations by parties directly or indirectly involved with the mining sector. The Mining Advocacy Network (JATAM) stated that General Elections Commission campaign expenditure reports show 86 percent of all campaign fund donations to one of the pairs vying for election as president and vice president originating from parties involved in mining oligarchies. The close ties between mining industry players and political elites are viewed as having the potential to give rise to "political bondage".[46]

Other issues thought to be causes of the natural resource curse in regions in Indonesia are weak policy regulation and the low quality of political institutions. According to KPK data, all corruption cases in natural resources sectors involving regional heads, bureaucrats and private parties in the center and regions relate to poor natural resources governance including governance in the mining sector. Decentralization policy, which delegated mining management authority to the regions, afforded regional governments the authority to issue mining licenses. Since the onset of decentralization, the number of licenses rose from 750 in 2001 to more than 10,000 in 2010, 40 percent of which were coal mining licenses.[47]

In its research report, Greenpeace, *et al*.[48] said the former District Head of Kutai Kartanegara, the richest district in East Kalimantan and even Indonesia, Rita Widyasari had issued 254 Mining Business Licenses (IUPs) for coal while she held office leading her to be dubbed "the coal queen"

[44] Organization of Economic and Cooperation Development (OECD), Corruption in the Extractive Value Chain: Typology of Risks, Mitigation Measures & Incentives, Organization of Economic and Cooperation Development, Paris, 2016.

[45] Kolstad, I., Tina, S., Aled, W., Corruption in Natural Resource Management: An Introduction, U4 Brief, CHR Michelsen Institute (CMI), 2018, accessed from www.U4.no.

[46] JATAM. 2019. Extractive Oligarchies and Falling Living Standards. Jakarta (ID): Mining Advocacy Network.

[47] Corruption Eradication Commission (KPK), Mineral and Coal Mining Coordination and Supervision, Corruption Eradication Commission and Publish What You Pay, Jakarta, 2017.

[48] Greenpeace, JATAM, ICW, and Auriga, Coalruption: Political Elites in the Coal Business Maelstrom, Jakarta, 2019.

by the local media. In June 2017, the district had a total of 625 IUP holders, or almost 40 percent of the 1,404 IUP holders across all regions of East Kalimantan province. Rita Widyasari was completing her second term and preparing her campaign to become East Kalimantan Governor in 2018 when she was named a suspect by KPK and later arrested and found guilty of corruption.

A KPK Corruption Prevention Supervision study[49] also found approximately 44.3 percent of all 11,188 mineral and coal IUP licenses covering a total area of 16.6 million hectares in 2014 had non-clean and clear (CnC) status. As much as 88.7 percent and 62.9 percent of IUP land area in conservation forest and protection forest respectively had non-CnC status. In total, the area of mineral and coal concessions still in conservation forest and protection forest estates was almost 6.3 million hectares or around 15 percent of all mineral and coal concessions in forest estates. Mineral and coal concessions in conversion and protection forest estates are mainly distributed across the Papua, East Kalimantan, West Papua and Aceh regions.

The opaque provision of mining business licenses and weak oversight of mining operations have caused sharp increases in numbers of IUPs and mineral and coal mining concession area and led to overlapping licenses. Another indication of the messiness of mining governance in the regions is data irregularities on the area of natural resources concessions in East Kalimantan. Data from the *Kaltimkece.id*[50] webpage shows the total area of natural resources concessions in East Kalimantan to be 13.83 million hectares, comprising 5.138 million hectares of mining concessions, 5.620 million hectares of forest concessions, and 3.096 million hectares of oil palm plantation concessions. This figure exceeds the total terrestrial area of East Kalimantan province, which is only 12.70 million hectares.

As there are indications of 4.5 million hectares of overlapping concessions, the net area of concessions was corrected to 9.33 million hectares, or approximately 73 percent of the total terrestrial area of East Kalimantan province. This area is controlled by 1,434 mining companies, 104 forest companies, and 375 oil palm plantation companies. This means only 27 percent of the terestrial area in East Kalimantan province, or around 3.37 million hectares is not subject to control by concession holding companies. This reinforces suspicions of chaos in natural resources governance being rooted in low levels of integrity among regional heads and government bureaucrats, and opaque mining licensing systems.

JATAM[51] research found the coal extraction regime in East Kalimantan has propped up leaders at both district and provincial levels and given rise to and established political oligarchs. Winters[52] described these political oligarchs as actors who command and control concentrations of material resources to defend and enhance personal wealth and exclusive social position. Oligarchs in East Kalimantan emerged and grew with the appearance of certain political parties in the New Order regime. From the "*reformasi*" era until now, oligarchs in extractive industries have grown in number and stature with regional autonomy and changes

[49] KPK, Coal License Arrangements under KPK Coordination and Supervision, Corruption Eradication Commission, Jakarta, 2017.

[50] Maulana, S, Who Controls East Kalimantan? Kaltimkece.id, 5 March 2019, downloaded on 10 September 2019 from https://kaltimkece.id/warta/lingkungan/siapa-penguasa-tanah-kaltim.

[51] JATAM, 2019., Op. cit.

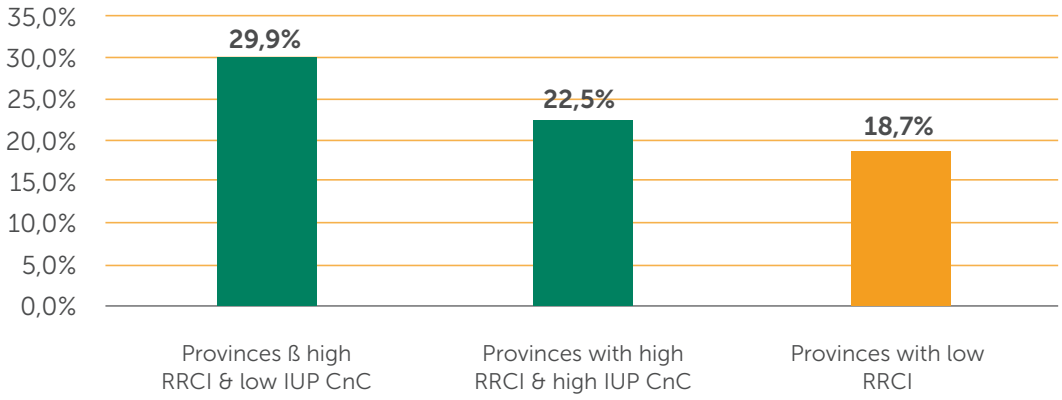
[52] Winters. J. A., Oligarchy, Gramedia Pustaka Utama, Jakarta, 2011.

in the national political map along with the appearance of new political party leaders in the regions.

## D. Impacts on the environment and community life

Exploration and exploitation activities that deviate from and break rules have given rise to negative environmental impacts around mining areas, have the potential to degrade landscapes, and frequently lead to social conflicts. In provinces with high natural resource curse index values and low numbers of IUPs with clean and clear (CnC) status, an average 29.9 percent of all villages in those provinces suffer from floods and landslides (see Table 7). This percentage is higher than in other provinces with high numbers of IUPs with CnC status. The figure is also far higher than the average for provinces with low natural resource curse index values, at only 18.7 percent. Flooding and landslides can indicate an accumulation of environmental problems resulting from mining activities.

**Table 7.**
**Average percentages of villages suffering floods and landslides.**




*Source: Central Statistics Agency (2017), processed.*

Environmental preservation and safety are in fact regulated under Law No. 4/2009 on Mineral and Coal Mining. The regulation stipulates that every IUP license or KK/PKP2B work contract holding company is obligated to deposit reclamation and post-mining guarantee funds with amounts set by the license issuer. In reality, a report by PWYP[53] stated that based on data for June 2018 from

[53] Publish What You Pay (PWYP) Indonesia, Indonesia Pushes for Monitoring and Law Enforcement in Post-Mining Reclamation Implementation, PWYP Indonesia, Jakarta, 2019. Downloaded on 20 August 2019. Available from: https://pwypindonesia.org/id/pwyp-indonesia-dorong-penguatan-pengawasan-dan-penegakan-hukum-dalam-pelaksanaan-reklamasi-paskatambang/

the Ministry of Energy and Mineral Resources' Directorate General for Mineral and Coal, as many as 1,569 IUP holders or 60 percent of all 2,579 domestic investment IUP holders had not deposited reclamation guarantee funds. Of this total, the highest number of these IUP holders, at 176, was in Southeast Sulawesi province, followed by East Kalimantan with 147 and Central Kalimantan with 118.

In addition to non-compliance in depositing reclamation and post-mining funds, data from the Directorate General for Mineral and Coal also records 8 million hectares of open mining pits yet to be reclaimed. Meanwhile, JATAM data records 3,033 open coal mining pits abandoned without reclamation or rehabilitation by companies holding IUP/KK/PKP2B licenses across Indonesia, even though Article 2 paragraphs (1) and (2) of Government Regulation No. 78/2010 on Post-Mining Reclamation clearly states that IUP and IUPK exploration and production operations license holders are obligated to carry out post-mining reclamation. Open mining pits containing toxins and hazardous heavy metals are distributed throughout 12 provinces in Indonesia. The highest number of abandoned coal mining pits is in East Kalimantan at 1,754, followed by South Kalimantan (814), and South Sumatra (163).[54] This has resulted in chronic environmental degradation and serious damage to buildings located in areas around mining pits.

The East Kalimantan Provincial Energy and Mineral Resources Office presented different data saying that based on 81 company reports, there were 314 abandoned mines up until December 2016. However, a survey using Landsat imagery showed 632 giant, hazardous, water-filled open coal mining pits, or twice the number reported. Of this number, 264 pits, or 42 percent were in Kutai Kartanegara district.[55]

The abandoning of open mining pits has taken the lives of many villagers living in areas near mining estates. JATAM data notes that from 2014-2018, as many as 140 people across Indonesia, mostly children, drowned in abandoned open mining pits that had not been reclaimed. The highest number of fatalities was in Bangka Belitung province with 57, followed by East Kalimantan with 32.[56]

The low level of compliance among IUP operations license holders in depositing reclamation guarantee funds shows mining governance in Indonesia is facing serious issues. In other words, this situation reflects the bad mining business licensing system in Indonesia and its weak mining operations monitoring system because no significant action is taken against IUP companies that violate mining management regulations.

Even though environmental protection and management are also regulated under Government Regulation No. 46/2017 on Environmental Economic Interests and Law No. 4/2009 on Mineral and Coal Mining, in reality the levels of environmental destruction taking place in mining estates completely overshadow any restoration efforts. Despite not showing specific budgets for restoration of environmental degradation, the portions of budgets provincial and district/municipal governments allocate to the environment can reflect how much attention

[54] Whisnupaksa Kridhangkara, 143 Children Die in Vain in Open Mining Pits, Solopos, 20 March 2019, accessed at https://www.solopos.com/143-anak-mati-sia-sia-di-lubang-tambang-979216.

[55] Apriando, T. 2017. Who Owns Indonesia's Deadly Abandoned Coal Mines? Mongabay, 25th May 2017. Accessed on 21 October 2019 from https://news.mongabay.com/2017/05/who-owns-indonesias- deadly-abandoned-coal-mines/

[56] Whisnupaksa Kridhangkara, 2019, *Op. cit.*

they pay to trying to repair and enhance environmental quality in their regions. In East Kalimantan province, where 41.77 percent of budgets come from DBH-SDA revenue sharing funds from oil, gas and mineral mining, only 1.95 percent of total regional revenues are allocated for environmental spending. It appears high DBH-SDA revenue receipts in provinces are not always proportional to efforts to allocate spending for the environment.


Image: Dominik Vanyi_unsplash

# IV. Conclusions and Recommendations

Natural resources governance is an essential component in determining whether or not the natural resources a region possesses will bring progress and prosperity to its people. Results of the MicMac analysis identified governance variables, i.e., regional head integrity, level of corruption, mining licensing transparency, integrity of government bureaucracy, existence of mining oligarchies, oversight of mining operations, and law enforcement as key variables in natural resource curse transmission mechanisms. With their ability to influence other variables, these variables can be strategic in determining whether or not a region with abundant mining resources will experience the phenomenon known as the natural resource curse.

Therefore, efforts to prevent or help regions escape from the natural resource curse should start by improving upstream variables in their natural resources governance systems. Electing regional leaders with integrity, creating clean and honest bureaucracies, preventing the growth of mining oligarchies, improving oversight of extractive mining operations, and enforcing the law should be the main priorities so improvements can be made downstream, especially in managing revenues from natural resources.

For planning long-term sustainable development, regional road maps should be designed for carrying out structural transitions from a mining-based to more sustainable non-mining-based economies and accelerate an energy transition from coal to clean and renewable energy. The restoration of environmental quality in and around mining areas should be driven by greater courage to enforce the law against mining businesspeople who violate their reclamation obligations.

AURIGA NUSANTARA

**SEKRETARIAT GAKKUM-SDA**
Jl. Siaga II No. 42A, Pejaten Barat
Jakarta Selatan