

---

## THE DIRECT ECONOMIC AND FISCAL IMPACT OF TIN IN BANGKA BELITUNG ISLAND PROVINCE, INDONESIA, 2004-2013

Darol Arkum  
Mudrajad Kuncoro  
Muhadjir Darwin

---

### ABSTRACT

*As the largest tin producer provincial in the world, does the tin mining sector have direct economic and fiscal impact in the Bangka Belitung Island Province? This study focuses on the tin mining sector and addresses to what extent this sector has direct economic and fiscal impact of tin in the Bangka Belitung Island Province. This research aims to conduct a statistic descriptive, using indicators: labor, production, export, value added, land and building tax, royalty, landrent over the period of 2004-2013. The study finding shows that tin mining have not delivered direct economic impact for the Bangka Belitung Islands Province. The impact of tin mining in the 7 regencies in Bangka Belitung Island directly employed an estimated only 4,319 people (0.83%) in the period of 2004-2013. The tin export value over the period of 2004-2013 is estimated at US\$ 11.7 billion. The investment of tin mining industry received in the period of 2004-2013 were Rp 1.03 trillion. The value added of tin mining is also not a significant to GDRP of regencies in the Bangka Belitung Island Province. Tin mining revenues in the Bangka Belitung Province Island have increased and part of the fiscal revenue from mining has been submitted by the national government to local government as a tin producer region. However, the findings of the fiscal impact indicated that the income of tin mining sector received by the regencies in the Bangka Belitung Island Province from the revenue sharing fund (landrent and royalty), land and building tax is not significant compared to the revenue received by the national government. The study provides policy recommendation that the development of the mining industry needs to consider the economic and fiscal impact. To achieve this, the national government must reform regulation related to fiscal decentralization policy in the mining sector.*

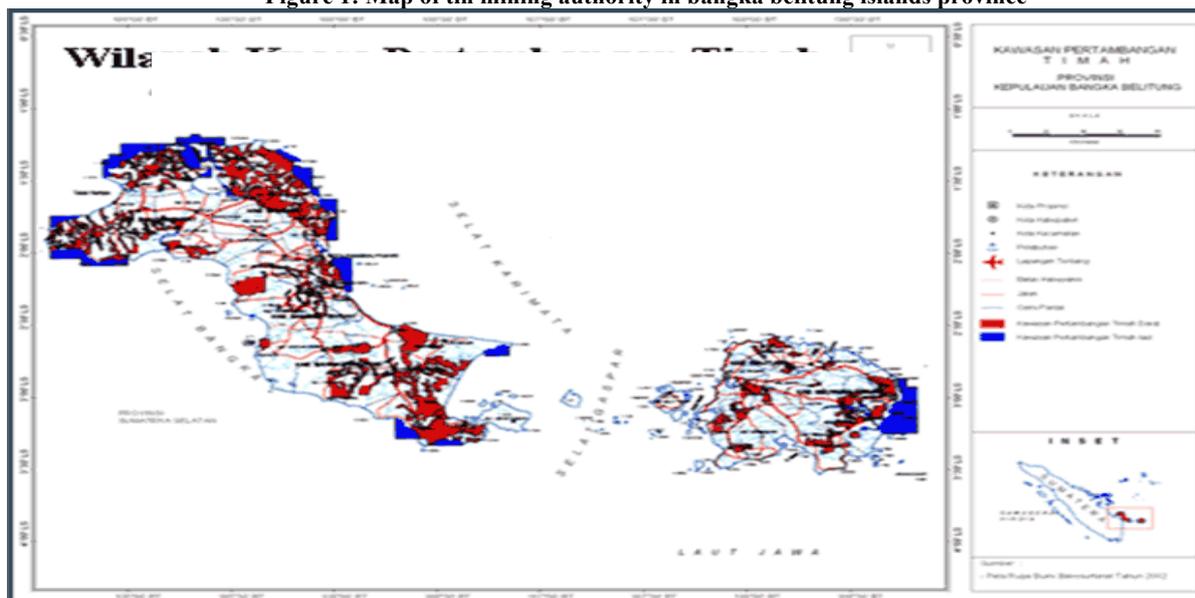
Keywords: natural resources, tin mining sector, production, export, value added, labor, land and building tax, royalty, landrent.

---

### INTRODUCTION

In general, development of the tin mining industry have created to macroeconomic benefits either directly or indirectly. The macroeconomic benefits derived from the mining sector include regional economic development, optimal utilization of natural resources, increased state revenues from taxes and non-taxes, create new jobs opportunities, improving the investment of domestic and foreign (Word Bank, 2012, World Gold Council , 2013). Bangka Belitung Island Province is an area in Indonesia which has the largest natural resource of tin after China. Tin mining has contributed significantly to GRDP of Bangka Belitung Islands Province (BPS, 2014).

Figure 1: Map of tin mining authority in bangka belitung islands province



Source PT. Timah Tbk (2014)

This study will present the focus of discussion on the analysis of the direct economic and fiscal impact of tin mining on the economic development of the Bangka Belitung Islands Province. There are four indicators to measure of direct economic and fiscal impacts in tin mining: (1) direct labor, (2) export value, (3) investment value, (4) value added of tin mining industry (WB, 2012; PWC, 2013). The fiscal impact analysis of the tin mining industry is measured by the revenue sharing fund indicator (landrent and royalty) as well as land and building tax.

## LITERATURE REVIEW

Industrial activity must have backward linkages (forward linkages). The concept of linkage is not static but dynamic is a mutable relationship, sometimes weakening and sometimes increasing over time. The effect of the line relationships produced by a product as an investment power is regulated in motion through an input-output relationship. Backward linkages lead to new investments in the provision of input facilities and future linkages for investment in the use of output facilities (Hirschman, 1981: 65).

In the 1990s, in response to increasing global condemnation, the mining industry has adopted the principles and standards of sustainable development through corporate social responsibility program initiatives. This approach not only proposes dramatic changes in the mining company's operating practices, but also suggests a great vision of the mining industry as a catalyst for long-term regional economic growth (McMahon, 2010: 10).

Quality management in the management of non-renewable natural resources is one of the main issues in the debate on sustainable development. The reasons, among others, the limited nature of the availability of natural resources will lead to problems such as community access to natural resources, environmental impacts, economic and social impacts on local communities related to mining activities. Development is not just an increase in economic growth but rather has broad dimensions such as addressing social problems such as unemployment, poverty, income distribution and structural imbalances (Kuncoro, 2010: 1-2).

In the context of the mining sector (Hosoi, 2004) argues that there are two models of mining development: the traditional enclave model and the new sustainable development model. The traditional enclave model refers to the period from the 1960s to the 1980s, where mining activities are dominated by a handful of companies and certain nations. They make policies centrally and do not take into consideration local or environmental considerations (Hosoi, 2004; Leith, 2003: 79). In addition, the traditional enclave model prioritizes the benefits of these projects. While the model of "new sustainable development" only began to be recognized in the 1990s when mining activities were conducted by companies with local communities and central and local governments through a pattern of cooperation. Hosoi emphasizes that this model not only conducts the development and progress of the mining business but also the efforts of local communities and companies can be done after the mine closes.

In the view of Hosoi (2004), all relevant parties (central government, corporations, local governments and communities) should discuss everything covering all phases of mining industry activities ranging from contracts, exploration and up to mine closure. Hosoi's model for the sustainable development of the mining sector is as follows:

**Table 1: Traditional enclave versus sustainable development model in mining sector development**

<i>Traditional Enclave</i>	<i>Sustainable Development</i>
<ul style="list-style-type: none"> <li>• Negotiations and agreements between central government and mining companies.</li> <li>• Taxes and royalties are all accepted by the central government.</li> <li>• Compensation for individuals.</li> <li>• Training is dedicated to the needs of mining companies.</li> <li>• Job position filled by new arrivals.</li> <li>• Input is sourced from the outside community.</li> </ul>	<ul style="list-style-type: none"> <li>• Negotiations and agreements including the community and local / local authorities.</li> <li>• The central government divides taxes and royalties.</li> <li>• Compensation of infrastructure for the community.</li> <li>• Training is extended to benefit communities and mining companies.</li> <li>• Mining services to the community.</li> <li>• The position of employment for the community is not just for outsiders.</li> <li>• Input is sourced from local and regional communities.</li> </ul>

Sumber: Hosoi (2004)

Mining has the potential to create wealth in resource-rich countries. However, many conditions must be met to achieve these goals in order to generate benefits for host countries. The value of exports, foreign direct investment and GDP growth are some of the major contributions of the mining sector to the national economy. However, most of the mineral resources exported abroad and processes to add value to minerals are done in other countries, so the multiplier effect is severely limited to the local economy (Crowson, 2010: 29). The main source of profit for the economy is just taxes and royalties. At the local level, large infrastructure is needed in mining projects, such as roads and power stations that can benefit local economies and local communities. Mining requires manpower during the construction, production and operation phases, thus becoming a source of local employment as well as training for employees to improve their skills.

The ILO's research findings shows that the large-scale mining industry as a whole employs approximately 0.5% of formal workers or about 11 million people worldwide (ILO, 2015). The work on this scale mining is in developing countries, and according to World Bank, the total number of workers is about 2 million (IFC & IBRD, 2002).

World Bank (2004) and Singawinata (2006) who conducted mining research in Indonesia where the number of local labor is more than the number of foreign workers (expatriates). One important factor that makes the mining sector to be able to withstand relatively stable employee numbers is due to the characteristics of the industry itself which is largely a long-term investment project operating within a 10 to 30 year period.

World Bank (2015) finds that the production process of people's mining activities is an important source of livelihood in some countries in Africa. As many as 21 countries in Africa are estimated to employ more than 100,000 people of mining people. While in Ghana and Tanzania there are above more than 1 million people who work in this sector. Both countries are estimated to have a people mining of 13.4 million people (UNECA, 2011). Meanwhile, according to the ILO (1999), as many as 3 to 3.7 million people in Africa are estimated to be involved in small-scale mining activities. The latest report from the United Nations (2011) estimates that 8.1 million people in Africa are involved in people's mining activities.

## METHODOLOGY

### 1. Direct Economic Impact Analysis

Analysis of direct economic impacts is measured through gross value added (GVA) and labor utilization. GVA analysis uses 2 primary and secondary measurement indicators (see Table 2). Gross Value Added (GVA) is a key measure of tin contribution to economic output. Gross Value Added (GVA) measures the value of goods and services generated through company activity in excavation, refining and lead activities. Revenue is derived from taxes and non-tariff revenue revenues to measure the contribution of tin to public finances.

**Table 2: Direct economic and fiscal impact indicators**

Primer	Sekunder
Supply <ul style="list-style-type: none"> <li>▪ Value Added</li> <li>▪ Labor</li> <li>▪ Income derived from taxes and not taxes</li> </ul>	<ul style="list-style-type: none"> <li>▪ Investment</li> <li>▪ Export</li> </ul>

Source: *World Gold Council* (2013)

Table 1 describes the analytical approach based on the scope of the study. This study highlights the value chain element of lead to the economic and fiscal contribution associated with tin supply activities.

The direct economic and fiscal impacts of tin mining were obtained from tin mining companies in the Bangka Belitung Islands Province. To calculate the direct impact of tin is carried out in the following method:

#### 1. Gross Value Added (GVA)

Gross Value Added (GVA) tin mining is a measure of added value through the economic activities of tin mining companies. This can be calculated using one of two approaches:

- a. income approach by calculating the amount of gross operating profit, labor cost and amortization and depreciation
- b. the production approach in which Gross Value Added (GVA) is the revenue from tin mine production is reduced consumption (ie input costs and raw materials purchased directly). Estimated value added of tin mining production in this study using income approach with the formula:

$$\text{Direct GVA} = \text{gross business profit} + \text{employee cost} + \text{amortization} + \text{depreciation}$$

Where:

$$\text{Gross profit} = \text{revenue} - \text{operating costs}$$

$$\text{Labor cost} = \text{labor cost (percentage of production cost)} \times \text{operating cost}$$

$$\text{Depreciation} + \text{amortization} = \text{depreciation and amortization (percentage of production cost)} \times \text{production cost.}$$

## 2. Labor

The labor of the tin mining sector is used to measure the direct economic contribution of tin mining. This analysis is used to know explore the employment in the tin mining industry sector. Data source was obtained from tin mining companies in Bangka Belitung Islands Province, Central Bureau of Statistics and Manpower Office of Regency in Bangka Belitung Islands Province.

## 3. Investment

The amount of investment is calculated using the following formula: Total investment = operating expenses + expenditures to expand current business or build new business.

## 4. Export

Data on the volume and value of tin exports were obtained from tin mining companies and from the Central Bureau of Statistics as well as the Ministry of Energy and Mineral Resources.

## 2. Fiscal Impact Analysis

The fiscal impact analysis is measured using the revenue sharing fund (landrent and royalty) and Land and Building Tax received by the district can be contrasted with the total GRDP of the district in the province of Bangka Belitung Islands during the period 2004-2013. The data are obtained from the primary sources, namely from the financial reports of local government districts in the Province of Bangka Belitung Islands publications from the Directorate General of Taxes and Finance, Ministry of Finance of the Republic of Indonesia.

## EMPIRICAL FINDINGS

### 1. Direct Economic Impact Analysis of Tin Mining Industry

#### 1.1 Labor

PT. Timah is the largest company in managing the tin mining industry in the province of Bangka Belitung Islands. The contribution of PT. Timah to job has increased between the period 2004-2013. The number jobs in the PT. Timah activities supported 4,319 people (see Table 2). The composition of total jobs during the period 2009-2013 shows the local jobs working in the tin mining industry of 3,324 people (76%) and expatriate 1,034 people (23%) (see Table 3).

**Table 3: Direct impact of labor on pt. timah tbk in bangka belitung islands province 2004-2013**

Year	Workers
2004	4.603
2005	4.348
2006	4.022
2007	4.023
2008	4.400
2009	4.570
2010	4.123
2011	3.948
2012	4.498
2013	4.652
<b>Avarege</b>	<b>4.319</b>

Source: PT. Timah Tbk (2004-2013)

**Table 4: Local workers and expatriate at pt. timah tbk in bangka belitung islands province 2009-2013**

Year	Local Workers	Percentage of Total Workers	Expatriate	Percentage of Total Workers	Total of Workers
2009	3.478	76	1.092	24	4.570
2010	3.162	77	961	23	4.123
2011	2.988	76	960	24	3.948
2012	3.439	76	1.059	24	4.498
2013	3.555	76	1.097	24	4.652
<b>Average</b>	<b>3.324</b>	<b>76</b>	<b>1.034</b>	<b>23</b>	<b>4.358</b>

Source: PT. Timah Tbk (2004-2013)

During the period 2009-2013, the number of workers in the company of PT. Tin is consistently around 4,000 people. This figure shows hardly any employees fired by the company in each year. The local employees is 76% far greater than expatriates of 23% of the total workforce in the company. The appointment of local employees is based on long-term contracts by the company.

The contribution of PT Timah to job creation has increased. During the period of 2004-2013, the total direct labor generated by the tin mining industry absorbed 0.83% of the total workforce in the Bangka Belitung Islands Province region. The amount is distributed to all districts and cities. This shows a fairly positive effect that tin mines have provided employment in the regions (see Table 4).

**Table 5: Number of labor and formal workers in pt. timah tbk in bangka belitung islands province 2004-2013**

Year	Workers	PT Timah Workers	Percentage
2004	435.916	4.603	1,05
2005	446.174	4.348	0,97
2006	431.328	4.022	0,92
2007	475.006	4.023	0,84
2008	494.655	4.400	0,88
2009	506.284	4.570	0,90
2010	585.136	4.123	0,70
2011	589.634	3.948	0,66
2012	583.102	4.498	0,77
2013	626.786	4.652	0,74

Source: PT. Timah Tbk (2004-2013); Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

In addition, smelter industries engaged in the processing and refining of tin mining and their contribution in which they operate and employment. In Bangka Belitung Islands Province there are 20 smelters employing around 3,000 workers directly related to the processing and refining of the tin. Such *employees include* those who: transportation personnel, warehouse personnel, laundry personnel, administrative staff, and processing or smelting personnel (see Table 6).

**Table 6: Number of labor and formal workers in smelter company in province of bangka belitung islands province period 2004-2013**

Year	Workers	Smelter Workers	Percentage
2004	435.916	3.149	0,72
2005	446.174	3.036	0,68
2006	431.328	3.041	0,70
2007	475.006	3.001	0,63
2008	494.655	2.960	0,59
2009	506.284	2.883	0,56
2010	585.136	2.546	0,43
2011	589.634	2.512	0,42
2012	583.102	2.286	0,39

Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

Tables 4 and 5 indicates that the smelter company has contributed to employment in Bangka Belitung over the period 2004-2013. The smelter company in Bangka Belitung directly employ employed 25,414 workers or 5.68% of the total workforce. The largest employment occurred in 2004 of 3,149 people and increased in 2005 and 2006 amounted to 3,036 workers and 3,041 workers. However, in the over period 2007-2012 has decreased due to the rapid decline of tin production in Bangka Belitung Island Province. It benefits to many manufacturing *companies* to look for ways to increase their productivity and *efficiency* while still *cutting costs*

In addition, The smelter companies supported jobs in Bangka Belitung Islands Province is above the PT. Timah Tbk. During over the period 2004-2012, the smelter company supported 25,414 jobs or 5.68% of the total workforce. This figure is lower than the total workforce of PT. Tin is 0.83% of total workforce in the same period.

Besides that It is show that the amount of tin mining work is also derived from unconventional mines (TI). In 2001, estimated 5,257 unconventional mines operating in Bangka and 734 in Belitung. Unconventional mines have contributed significantly supported 207,000 workers in Bangka Belitung Island Province. Unconventional workers in tin mining sector about 60% of the workforce comes from immigrant communities (Erman, 2013).

## 1.2. Tin Export Volume and Value

In the period 2004-2013, Bangka Belitung Islands Province produce 493,354 Metric Tons or 79.89% of the total national's tin production (80%) or 11.58% of the world's tin. The statistic shows the tin production in Bangka Belitung Islands province occurred in 2007 which amounted to 58,325 metric tons. Since then, Bangka Belitung's tin increased 327.360 metric tons in 2013. This production contributes from tin producers in the world such as China, Malaysia, Peru, Thailand, Brazil and Bolivia reaching a total production of 344,800 metric tons. The share of tin production in Bangka Belitung reaches about 11.58% of the world's tin. Total tin production volume of Bangka Belitung Islands Province in the period 2004-2013 above Malaysia, Peru, Thailand, Brazil and Bolivia (see Table 7).

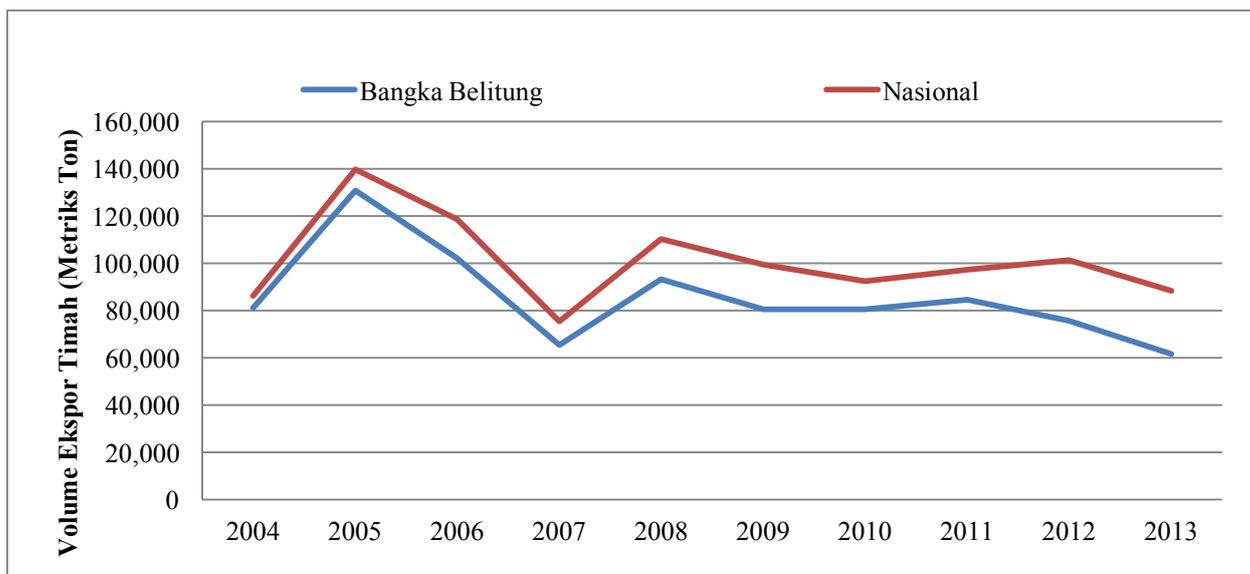
**Table 7: Indonesia's tin production and tin producers countries in the world 2004-2013 (in metric tons)**

Country	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
China	95.000	94.000	102.300	104.000	96.000	86.945	96.635	160.000	152.000	158.100
Indonesia	99.500	137.600	133.000	103.000	96.100	45.086	40.413	52.300	55.400	63.100
Malaysia	27.000	29.000	24.000	23.000	26.000	36.407	38.737	40.300	37.800	32.680
Peru	41.400	42.100	38.500	39.000	39.000	33.920	36.052	25.400	30.200	24.410
Thailand	19.000	20.000	20.000	20.000	20.000	19.300	23.505	22.900	23.900	22.990
Brazil	12.500	11.000	9.300	11.800	13.000	8.690	9.945	11.350	10.007	14.580
Bolivia	17.600	18.400	17.700	1.600	17.300	11.805	11.520	10.800	10.965	11.500
Total Production	312.000	352.100	344.800	302.400	307.400	242.153	256.807	323.050	320.272	327.360

Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

The tin export volume of Bangka Belitung Islands Province over the period 2004-2013 fluctuated. In 2005, the export volume of tin amounted to 130,856,189 metric tons. Since then, the tin export volume fluctuated. The production increased to an estimated 65,377 metric tons in 2007 and decreased amounted to 93,095 metric tons in 2008. Meanwhile, the national's tin increase to 302,400 metric tons in 2007 and decreasing amounted to 327,360 metric tons in 2013 (see Figure 2).

**Figure 2: Volume of tin export in bangka belitung islands province 2004-2013**



Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

The export of non oil and gas was contributed mainly by increase in export and lead production in the Bangka Belitung Islands Province over period 2004-2013. Tin mining was still the largest export commodity of Bangka Belitung Islands Province during the period of the year (BI, 2004-2013).

The export of tin for the period of 2004-2013 amounted to 11,717,501,182 US \$ or 81.32% of the total national's tin export amounted to US \$ 14,802,067,201. In 2011, the tin export value of Bangka Belitung Province was increased amounted to 2,089,000,718 US \$ or 86% of the value of tin export. Later on, the tin export value decreased amounted to 573,108,580 US \$ (54% of the export value of national tin) in 2004. In the period of 2004-2005, the value of tin exports increased from 573,108,580 US \$ (54% of the total national tin export value) in 2004 to 850,352,004 US \$ (93% of total national tin export value) in 2005. Generally, the value of tin export influenced not only by exchange rates but international tin prices.

**Table 8: Tin export in bangka belitung island province and indonesia 2004-2013**

Year	Bangka Belitung (US\$)	Indonesia (US\$)	Percentage
2004	573.108.580	608.697.570	94,15
2005	850.352.004	911.370.180	93,30
2006	779.566.989	913.347.720	85,35
2007	873.749.177	1.011.201.945	86,41
2008	1.620.115.419	1.961.310.440	82,60
2009	1.014.407.494	1.245.462.230	81,45
2010	1.014.407.494	1.709.154.594	59,35
2011	2.089.000.718	2.430.393.072	85,95
2012	1.527.871.347	2.051.365.331	74,48
2013	1.374.921.960	1.959.764.119	70,16
Total	11.717.501.182	14.802.067.201	81,32

Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

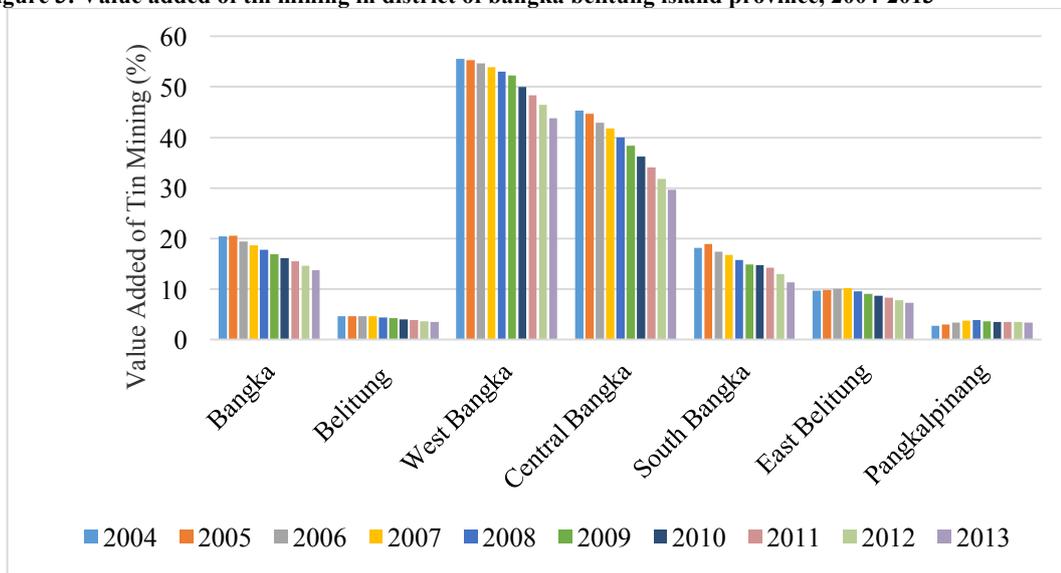
In 2006, the value of tin export of Bangka Belitung Islands has decreased. The value of tin exports in this year only provided a value of 779,566,989 US \$. However, over the period 2007-2013 the value of tin exports continued to increase. In 2007, the export value of tin amounted to 873,749,177 US \$ to 1,374,921,960 US \$ in 2013. The increase of tin exports in Bangka Belitung during this period has been estimated as the effect of the disconnection of some of the leaders of the unconventional tin mining company from the bondage law, causing the mining of Inconventional Tin mining to flare up, which in turn leads to an increase in excavation volume as well as an increase in export volume especially to Singapore (BI, 2007).

In 2008, the value of tin exports in Bangka Belitung was increased due to law enforcement in illegal mining activities. The Government issued the Decree of the Minister of Trade No.4 of 2007 concerning Provisions on the Export of Tin Bars, which requires the verification of the origin of the exported metal raw materials to maintain the quality of tin products, to ensure the clarity of origin of raw materials, and to curb the payment of royalties to the state (Report of PT Timah, 2008).

**1.3. Value Added**

The significance of tin industry has developed significantly to GRDP in Bangka Belitung Islands Province. In over the period 2004-2013, the contribution of tin industry to GRDP has decreased from 0.59% in 2004 to 0.42% in 2013. It is estimated that the greatest contribution is from West Bangka (49.68% of GRDP), Central Bangka (35.97% of GRDP). For these regencies, tin mining is one of most significant sources of wealth in creation of the economic development. Meanwhile, the contribution of value added from tin metal followed by Pangkalpinang (3.58% of GRDP) and Belitung (4.03% of GRDP) (see Figure 3).

**Figure 3: Value added of tin mining in district of Bangka Belitung island province, 2004-2013**



Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

The average of value added of tin industry has decreased dramatically until 2004-2012. The value added of tin metal 22.40% 2004 and 16.08% 2013. This indicates that the company has not been able to create sustainable value added of tin metal producers to develop their local supply chains.

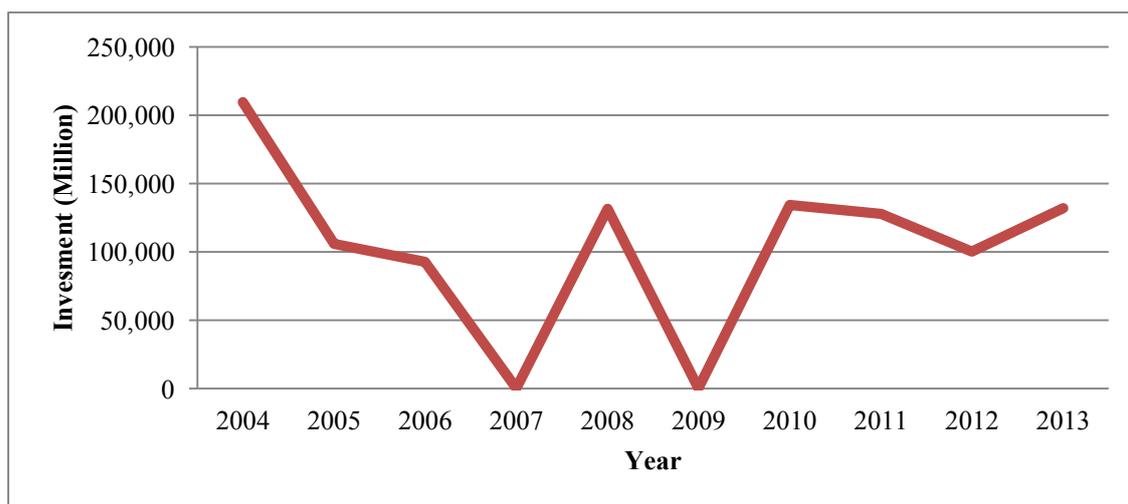
The value added of tin mining has declined from over the period 2004-2013, mainly due to prices pressures, smuggling, illegal mining, corruption, weak law enforcement. This reduces the national incomes from royalties and affected to the tin prices (BPK RI, 2007). The practice of tin smuggling to avoid paying export royalties to countries as largest tin producer.

In addition, the rampant illegal mining led to the emergence of smelter. Smelters produce unbranded and low quality tin metal that is exported in Singapore. In Bangka Belitung there are 20 smelters that export unbranded tin to Singapore. This reduces the national revenues from royalties and affects world tin prices (BPK RI, 2007).

**1.4. Investment in Tin Mining**

The investment of the tin mining industry in the Bangka Belitung Islands Province during the period of 2004-2013 amounted to 1,033,014 Million. In 2004, investment of tin mining amounted to 204,217 million has decreased to 131,975 million in 2013. (see Figure 4).

**Figure 4: Investment in Tin Mining Period 2004-2013**



Source: BKPM Province Kep. Bangka Belitung (2003-2016); PT. Timah Tbk (2003-2016)

The investment in tin has declined in 2007 amounted to 65.86 million. The investment has declined from its peak in 2007, mainly due to government policies that loosen local governments to manage tin natural resources since the issuance of Decree of the Minister of Industry and Trade no. 558 / MPP / Kep / 12/1998 on General Provisions in the Export Sector by declaring tin as a non-strategic commodity. In response to This policy the local government of Bangka Regency provided wide opportunities for the development of tin smelter industry in the region.

The performance of investment in tin mining has been experience turmoil. *Many factors affect* performance of tin mining investment in Bangka Belitung that both tin price declines in world markets and regulatory uncertainty surrounding the impact of regional autonomy policies imposed by the central government (PT Timah, 2004-2013). The regulatory uncertainty has affected the investment in tin mining industry by PT. Timah as the largest tin producer.

The findings of this research indicate that the performance of tin mining investment has been influenced by many factors: global economic conditions, regulatory uncertainty issued by the central government and local governments, law enforcement by the authorities in tin mining policy.

## 2. Fiscal Impact Analysis of Tin Mining

### 2.1. Impact on National Revenues

During the period 2004-2013, fiscal contribution of tin has played a significant to national revenues. PT Timah (Persero) Tbk as the largest tin mining company has contributed significantly to the payment of taxes, royalties and dividends to the Government of the Republic of Indonesia (see Table 9).

**Table 9: Contribution of tin mining to state revenue period 2004-2013 (million rupiah)**

Uraian	Year									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
<b>Direct Tax</b>										
Ph Company (Ps 5 & 29)	1.193	129.706	87.185	283.684	1.186.282	436.547	210.283	31.636	390.073	198.902
Ph Worker (Ps 1/26)	20.328	26.886	28.134	24.987	104.937	45.689	51.073	67.281	67.247	49.729
BDR (Ps 23 & 6)	2.573	4.086	2.509	5.323	47.566	30.152	7.568	21.231	62.269	8.311
BB	815	12.784	14.564	18.309	19.852	48.743	2.309	25.548	36.058	61.102
<b>Total of Direct Tax</b>	<b>150.351</b>	<b>173.461</b>	<b>132.393</b>	<b>332.302</b>	<b>1.358.636</b>	<b>561.132</b>	<b>292.014</b>	<b>430.421</b>	<b>555.646</b>	<b>318.044</b>
PN	596	1.883	17.431	17.231	6.845	6.903	9.688	41.857	50.477	35.169
Export Tax	0	0	16	0	0	0	0	0	0	0
Revenue Stamp	23	45	51	56	58	30	30	90	51	52
Revenue Imported	49	13	10	602	628	2.466	506	339	2.296	833
<b>Total of Indirect Tax</b>	<b>668</b>	<b>1.941</b>	<b>33.228</b>	<b>1.789</b>	<b>7.532</b>	<b>9.399</b>	<b>10.224</b>	<b>42.285</b>	<b>52.824</b>	<b>36.054</b>
Divident	45.285	54.698	32.993	67.648	579.992	436.267	101.969	308.079	291.454	140.266

<b>Tin Mining Contribution</b>	13.783	0	0	0	0	0	0	0	0	0
Income Tax Contribution	13.783	13.752	1.458	13.002	13.522	13.124	13.288	16.403	18.381	19.993
Royalty	54.429	97.827	90.944	248.601	257.194	199.117	224.277	237.973	208.003	187.212
Mineral Product	0	0	0	0	0	0	0	0	0	0
Underground	49	426	764	224	378	1.886	1.072	737	136	1.868
Production	16.108	18.258	14.166	32.492	25.134	20.079	1.763	31.085	19.598	29.363
<b>Total of Non Tax</b>	<b>8.437</b>	<b>130.255</b>	<b>120.453</b>	<b>294.318</b>	<b>296.228</b>	<b>234.205</b>	<b>256.267</b>	<b>286.197</b>	<b>247.342</b>	<b>238.436</b>
<b>Total of State Revenue</b>	<b>280.673</b>	<b>360.355</b>	<b>319.066</b>	<b>712.158</b>	<b>2.242.388</b>	<b>1.241.004</b>	<b>660.474</b>	<b>1.066.983</b>	<b>1.147.265</b>	<b>7.328</b>

Source: Annual Report of PT. Timah (2004-2013)

During the period 2004-2013, the total contribution of tin companies to the national revenues of Rp. 8,763,166 million. The largest contribution comes from corporate income tax of Rp. 2,955,491 million and a dividend of Rp. 2,085,651 million and Royalty of Rp. 1,805,577 million. Table 6 shows that the contribution of tin to the national revenues has increased from 2006-2008. The largest contribution increase occurred in 2007-2008 from 712,158 million to 2,242,388 million. The rise in tin prices reached the highest peak and the exchange rate of the rupiah against the US dollar higher than the previous year boosted the sales increase, although the sales volume has decreased then compared to the previous year.

The biggest problem related to the contribution of tin mining to state revenues is the illegal tin mining. The practice of illegal tin mining have negative impact not only on environmental damage but also on the non-optimal state revenue. The annual production amount from illegal mining (42,000 MT / year) is estimated to exceed PT Timah Tbk (40,000 MT / year) as the largest tin ore miner in Indonesia (BPK, 2008).

**Table 10: World metal production and tin ores of the year 2011**

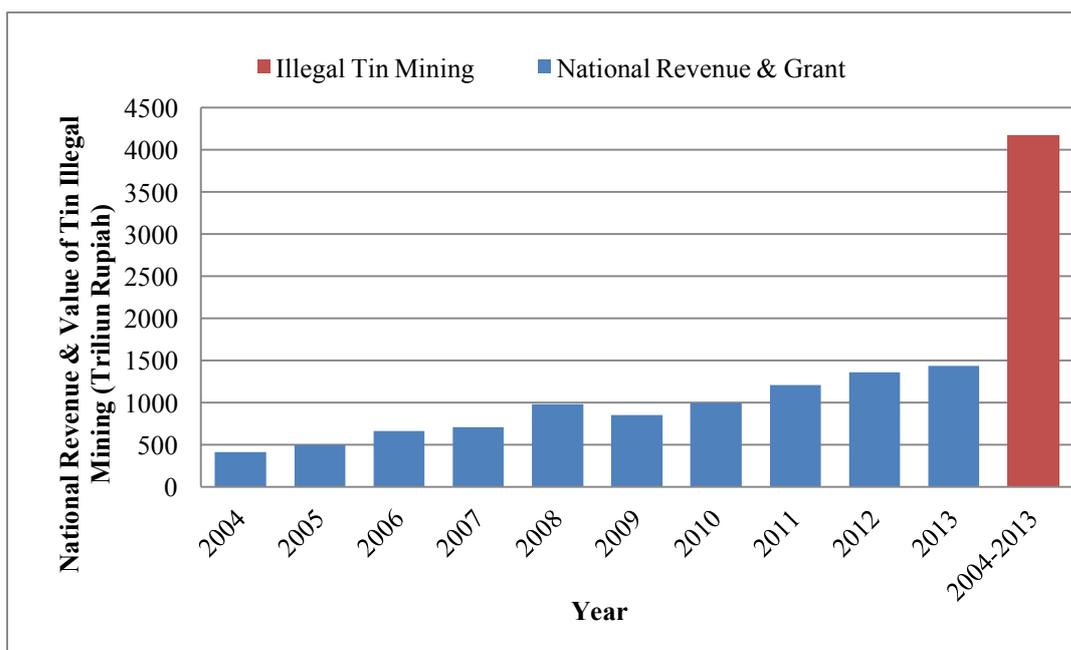
Country	Estimated Production 2011 (Ton)		Ratio (%)
	Tin Ore	Tin Metal	
China	91,6		
<b>Illegal</b>	<b>13,3</b>		
Total China	104,9	165	64%
Indonesia	42		
<b>Illegal</b>	<b>52</b>		
Total Indonesia	94	54,1	173%
Malaysia	3,1	40	8%
Peru	29,4	30,1	98%
Thailand	0,5	23	2%
Bolivia	20,3	14,7	138%
Brazil	8,8	7,4	119%

Source: Annual Report of PT. Timah (2004-2013)

During the period 2004-2013, revenue losses by state owned tin mining from illegal mining activities and tin smuggling amounted to Rp. 4,171 trillion (see Table 5). It turned out that the value of illegal tin smuggled out of the country during the period 2004-2013 amounted to 45.95% of total national revenues and grants of Rp. 9,080.4 trillion (see Figure 5).

Large-scale mining can have negative consequences on governance and macroeconomic development. In fact, If poorly managed, a large and profitable mining sector can have negative consequences on governance and macroeconomic development. Its often substantial fiscal incomes derived from mining can create a cycle of corruption and inefficient governance in mineral-dependent economies. Mining incomes can get diverted for personal or political gain, eventually draining rather than supporting state budgets. At the same time, dominant mining sector can lead to a positive shock (boom), which potentially lead to Dutch disease. Mining revenues may be diverted for the personal or political interests of political leaders or provide off-balance sheet financing for political campaigns or military expenses that ultimately deplete the carrying capacity of the state budget. (Weber-Fahr, Monika, 2013: 443-453).

**Figure 5: National revenues, grants and illegal tin value period 2004-2013**



Source: Ministry of Finance and ICW (2004-2013)

The contribution of tin mining sector plays less important role in national revenue. As table 8 indicates that the contribution of the tin mining sector to the Indonesian economy can be seen from the sector's input to national revenues. Share of tin mining to national incomes amounted to 0,00088 % of total national revenue and grant In over the period 2004-2013 . The decline in the contribution of tin to the national incomes is influenced by both production and the price of tin in the world market which in turn has an impact on the contribution to national revenues.

**Table 11: Contribution of pt. timah to national revenue and grants period 2004-2013**

Year	National Revenue and Grant (Billion)	Contribution Tin Mining to State (million)	Share of Tin to State Revenue
2004	407,9	280,673	0,00007
2005	495	360,355	0,00007
2006	659,1	319,066	0,00005
2007	706,1	712,158	0,0001
2008	979,3	2,242,388	0,0002
2009	847,1	1,241,004	0,0001
2010	992,2	660,474	0,00007
2011	1.205,30	1,066,983	0,00009
2012	1.357,40	1,147,265	0,00008
2013	1.432,50	732,800	0,00005
Total	4.051,44	3,065,526	0,00088

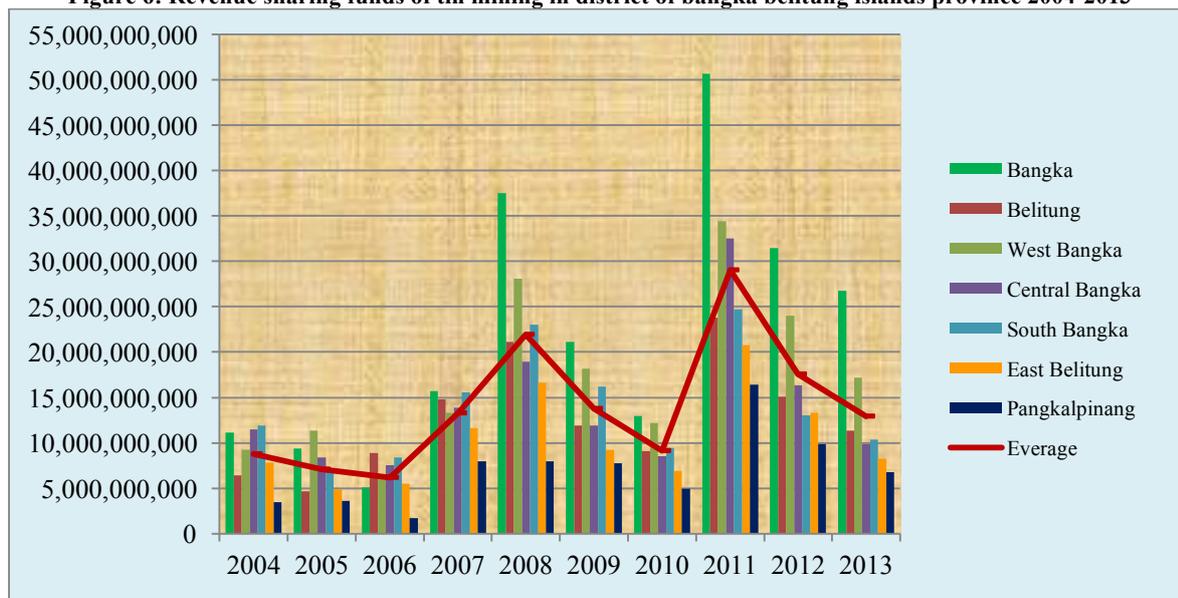
Source: PT. Timah Tbk and the Ministry of Finance (2004-2013)

## 2. Impact on Regional Income

### 2.1 General Mining Profit Sharing Revenue

Based on the figure 6, the revenue-sharing fund received by each district has fluctuated. During the period of 2004-2013, the district greatest liability for tin mining landrent and royalties occurs in West Bangka and Bangka, at an average value of Rp67,609,431,369.00 and Rp50,990,580,927.00. Both district have relatively high royalty rates, and high levels of tin production. Meanwhile, Pangkalpinang is the district that receives the lowest liability for tin mining at an average value of Rp32,943,457,964.00.

Figure 6: Revenue sharing funds of tin mining in district of bangka belitung islands province 2004-2013



Source: Local Government Financial Report audited, 2004-2013

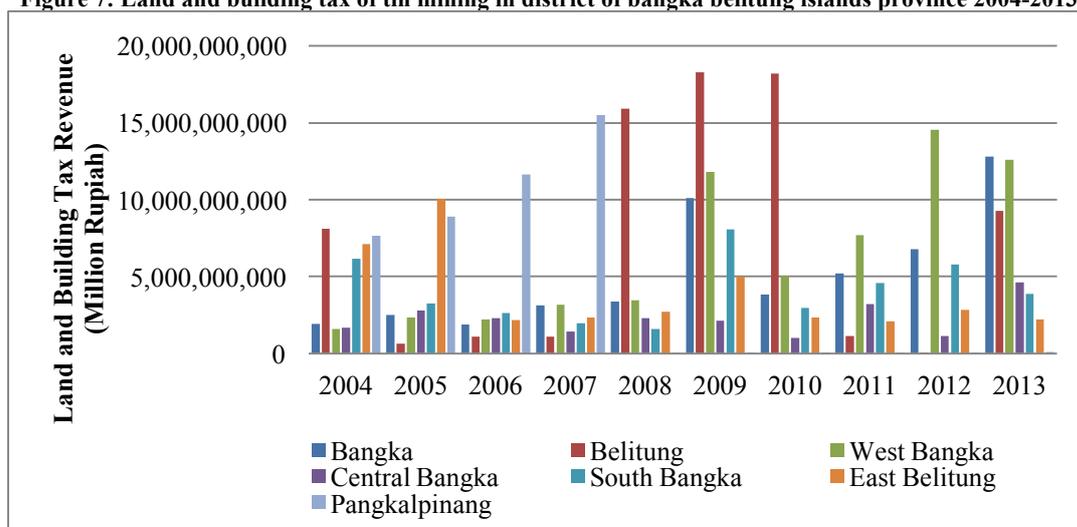
The amount of revenue received from the central government received by the Government of Bangka, West Bangka and Central Bangka in the period 2004-2013 is due to the fact that these three regions are tin mining regions with the largest ownership of Mining Authority (KP) in the Bangka Belitung Island Province compared with than other district.

The total revenue-sharing funds received by all districts during 2004-2013 amounted to Rp2,011,905,108,230.00, at an average revenue per year of Rp287,415,015,461.00. Total revenue-sharing funds received by all districts was highest in 2011, with an average revenue of Rp75,614,572,008.00 per district. Meanwhile, the lowest revenue in 2007 with an average value of revenue of Rp24.860.302.850,00 per district.

#### 4.2.2.2 Land and Building Tax Revenue (PBB).

Land and buiding tax revenue from tin mining during the period 2004-2013 increased by an average of 15.9 percent. In that period, the highest revenue of Land and Building Tax Revenue occurs in Belitung at Rp 73.752.817.345, West Bangka at Rp 64.469.068.836, and Bangka at Rp 51.524.076.256. The large contribution of the three districts in Land and Building Tax Revenue is due to the extent of the Mining Authority in the district. While Central Bangka, East Belitung, and South Bangka are the lowest revenue of Land and Building Tax Revenue at Rp22,632,801,407, Rp38,884,141,163 and Rp40,972,020,211 respectively (see Figure 7).

Figure 7: Land and building tax of tin mining in district of bangka belitung islands province 2004-2013



Source: Central Bureau of Statistics of Bangka Belitung (2004-2012)

Based on Figure 7 every year the Land and Building Tax Revenue of tin mining fluctuate. Fluctuation in revenue of each district in the Bangka Belitung Islands Province Region during the period other than due to the area of the mining area is also caused by the decline in PBB revenue of tin mining caused by the decrease of revenue from Land and Building Tax Revenue area and the production of tin.

Total revenues from tin revenues submitted by the central government to regional governments in the Provinces of Bangka Belitung Islands Province from Revenue Sharing and Land and Building Taxes for the period 2004-2013 were only 0.41% while the central government received 99.59% (see Table 9). This means that the natural wealth of tin owned by the Provincial Government of Bangka Belitung Islands is enjoyed by the central government and foreign companies.

**Table 12: Tin mining revenues in bangka belitung island province and central government 2004-2013**

Year	Central Government (Million Rupiah)	Bangka Belitung (Million Rupiah)	Percent
2004	280.673	34.194	12,18
2005	360.355	30.531	8,47
2006	319.066	23.936	7,50
2007	712.158	28.665	4,03
2008	2.242.388	29.435	1,31
2009	1.241.004	55.474	4,47
2010	660.474	33.469	5,07
2011	1.066.983	23.940	2,24
2012	1.147.265	31.198	2,72
2013	732.800	45.471	6,21
Total	8.763.166	336.317	0,41

Source: Ministry of Finance (2004-2013); CPC (2004-2013); BPS (2004-2013)

The districts regencies that have the greatest revenue from tin mining during the period 2004-2013 are Bangka at 7.01% and West Bangka at 5.83%. West Belitung and Pangkalpinang received total revenues of 3.86% and 2.73% (see Table 6.13).

**Table 13: Tin mining revenues of district in bangka belitung islands province 2004-2013**

Districts	Revenue of Tin (Million)	Percent of National Income
Bangka	563.829	7,01
Belitung	396.574	4,93
West Bangka	468.628	5,83
Central Bangka	353.292	4,40
South Bangka	352.122	4,38
East Belitung	310.614	3,86
Pangkalpinang	219.426	2,73

Source: Ministry of Finance (2004-2013); CPC (2004-2013); BPS (2004-2013)

At the same time, tin mining activities has created a negative environmental damage, both during the tin mining operation and after the mine has closed usually create a negative *environmental impact*, both during the *mining activity* and after the *mine* has closed. The area of critical land reaches 1,642,214 ha and 1,712.65 ha, or 5.2% and 0.1% of the land area of Bangka Belitung Island Province (BPK, 2008).

## CONCLUSIONS AND POLICY RECOMMENDATION

Based on descriptive statistical analysis with presentating in the form of reviews, tables, and graphs, findings of direct economic and fiscal impacts can be summarized as follows. The direct economic impact of tin mining activities in Bangka Belitung island province can be analyzed from labor contribution, export value, investment, and added value. First, large-scale formal directly contributed an estimated 4,319 people (0.83% of total workforce) in over the period 2004-2013. The medium and small-scale mining industries contributed estimated 25,414 people (5.68% of total workforce). In addition, there are unconventional mining units working in the tin mining sector comprising a mining community of 207,000 people. Second, the value of tin export in the period of 2004-2013 amounted to US \$ 11.7 billion or 81.32% of the total national tin exports of US \$ 14.8 billion. Third, the investment in tin mining industry during the period of 2004-2013 amounted to Rp 1.03 trillion with a trend trend and tend to decline. Fourth, the added value of tin to GRDP for the period of 2004-2013 is West Bangka on average 49.68%, Central Bangka on average 35.97% and South Bangka on average 14.38%. Meanwhile, East Belitung, Belitung, and Pangkalpinang have average value added to the lowest GRDP of 8.71%, 4.03% and 3.58% respectively.

The findings of the fiscal impact of tin mining activities in the Bangka Belitung Islands Province can be analyzed from the amount of the Revenue Sharing (Landrent & royalty) and the Land and Building Tax Revenue.

1. Contribution of tin mining activities to the national economy during the period of 2004-2013 amounted to Rp 8.7 trillion (0.0083% of total national revenues). While the contribution of tin mining to the regional revenues only Rp 2.2 trillion (8.6%). Total regional revenues of tin mining revenue from regency incomes was 33.14%.
2. During the period of 2004-2013, national revenues from landrent and royalty amounted to Rp 1.9 trillion. District receiving tin mining revenue in the form of landrent and royalty are Bangka Regency amounted to Rp 493.56 billion, Belitung Rp 287.43 billion, West Bangka Rp 378.65, Central Bangka Rp 312.07 billion, South Bangka Rp 293.67 billion, East Belitung Rp 250.74 billion, and Pangkalpinang City Rp 170.72 billion.
3. In over the period 2004-2013, Land and Building Tax Revenue of tin mining activity in Indonesia generated 240 billion. The greatest liability for land and building tax revenues occurs in Belitung Rp 73.7 billion, West Bangka Rp 64.4 billion, Bangka Rp 51.5 billion, Central Bangka Rp 22.6 billion, East Belitung Rp 38.8 billion and South Bangka Rp 40.9 billion.

The findings of this study indicate that the income of tin mining activities received by regional governments in Bangka Belitung Islands province is relatively small compared to the revenue received by the central government. Thus, the recommendation is the central government must make major changes related to fiscal decentralization policy in the mining sector.

## REFERENCES

- Badan Pemeriksa Keuangan, Hasil Pemeriksaan atas Pengendalian Kerusakan Pertambangan Umum dan Penerimaan Royalti Tahun 2003-2007 [Supreme Audit Board, Results of Examination of General Mining Damage Control and Royalty Reception of the Year 2003-2007]
- Badan Pusat Statistik. *Bangka Belitung Dalam Angka 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013* [Bangka Belitung Province in Figure, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013].
- Crowson, P. (2009). The Resource Curse: A Modern Myth?, in J.P. Richards (Ed.), *Mining, Society, and a Sustainable World*. Berlin Heidelberg: Springer-Verlag.
- Departemen Keuangan. Laporan Tahunan dan Keuangan 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 [Department of Finance, Annual Report and Financials 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013]
- Departemen Pertambangan dan Energi, Laporan Tahunan dan Keuangan 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013 [Department of Mines and Energy, Annual Report and Financials 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013]
- Erman, E. (2013). Dampak Penambangan Timah dan Repon Masyarakat Lokal [The Impact of Tin Mining and Local Communities Respond], LIPI. Jakarta
- Hirschman, Albert O. (1981). A generalised linkage approach to development with special reference to staples. In *Essays in Trespassing: Economics to Politics and Beyond*, Cambridge University Press
- Hosoi, Yoshitaka. (2004). "Regeneration and Activation of The Mining Town After Mine Closure". Paper, Akita University. Unpublished.
- ILO. (1999). *Social and Labour Issues in Small-scale Mines: Report for Discussion at the Tripartite Meeting on Social and Labour Issues in Small-scale Mines*.
- International Labour Organization, Geneva. (2011). *Key Indicators of the Labour Market*. International Labour Organization, Geneva.
- IFC & IBRD. (2002). 'The World Bank Group and Mining', *Mining, Environment and Development*, UNCTAD.
- Indonesia Corruption Watch. (2014). *Membongkar Mafia Ekspor Timah Ilegal Indonesia [Dismantling to The Mafia of Tin Illegal Export in Indonesia]*. Retrieved from November 2, 2015, from [www.antikorupsi.org](http://www.antikorupsi.org).
- Kuncoro, Mudrajad. (2010). *Growth With Development: Capaian 2008-2013 Visi Kaltim 2018 [Growth With Development Achievements 2008-2013 and Vision East Kalimantan 2018]*. Jakarta: Kalima
- McMahon, Gary. (2010). *The World Bank's Evolutionary Approach to Mining Sector Reform*, DC: The World Bank
- PricewaterhouseCoopers (2013) *The Direct Economic Impact of Gold*, United Kingdom
- PT. Timah Tbk. (2004). *Laporan Tahunan PT. Timah [Annual Report] 2004*, Pangkalpinang.
- PT. Timah Tbk. (2005). *Laporan Tahunan PT. Timah [Annual Report] 2005*, Pangkalpinang.
- PT. Timah Tbk. (2006). *Laporan Tahunan PT. Timah [Annual Report] 2006*, Pangkalpinang.
- PT. Timah Tbk. (2007). *Laporan Tahunan PT. Timah [Annual Report] 2007*, Pangkalpinang.
- PT. Timah Tbk. (2008). *Laporan Tahunan PT. Timah [Annual Report] 2008*, Pangkalpinang.
- PT. Timah Tbk. (2009). *Laporan Tahunan PT. Timah [Annual Report] 2009*, Pangkalpinang.
- PT. Timah Tbk. (2010). *Laporan Tahunan PT. Timah [Annual Report] 2010*, Pangkalpinang.
- PT. Timah Tbk. (2011). *Laporan Tahunan PT. Timah [Annual Report] 2011*, Pangkalpinang.
- PT. Timah Tbk. (2012). *Laporan Tahunan PT. Timah [Annual Report] 2012*, Pangkalpinang.
- PT. Timah Tbk. (2013). *Laporan Tahunan PT. Timah [Annual Report] 2013*, Pangkalpinang.
- Singawinata Indra Pradana, 2006. *Decentralization And Local Development In Indonesia: A Case Study Of Mining Transnational Corporation*, Graduate School Of Asia Pacific Studies Ritsumeikan Asia Pacific University Japan.
- UNECA (ed.) (2011): *Minerals and Africa's Development : The International Study Group*
- Weber-Fahr, M., John E. Strongman, Ramani Kunanayagam, Gary McMahon dan Christopher Sheldon. 2002. *A Sourcebook for Poverty Reduction Strategies volume 2: Macroeconomics and Sectoral Approaches*. World Bank.

- World Bank. (2003). *Final Report of the Extractive Industries Review*. Washington, DC: World Bank.
- World Bank. (2003). *Extractive Industries and Sustainable Development An Evaluation of World Bank Group Experience*, Washington, DC: World Bank.
- World Bank. (2003). *Extractive Industries and Sustainable Development An Evaluation of World Bank Group Experience*, Washington, DC: World Bank.
- World Bank. (2005). *Improving the Investment Climate for Sustainable Mining Development*. Washington, DC: World Bank.
- World Bank. (2012). *Mining: World Bank Support to Mining Sector Reform*. Washington, DC: World Bank.
- World Bank. (2015). *The Local Economic Impacts of Resource Abundance What Have We Learned?* Washington, DC: World Bank

Darol Arkum  
*Ph.D Candidate*  
*Faculty of Policy Studies, Gadjah Mada University*  
*E-mail address: ilhamnirusydi@yahoo.com*

Mudrajad Kuncoro  
*Professor in Economics*  
*Faculty of Economics and Business, Gadjah Mada University*  
*E-mail address: profmudrajadk@gmail.com*

Muhadjir Darwin  
*Professor in Public Management and Public Policy*  
*Faculty of Policy Studies, Gadjah Mada University*  
*E-mail address: muhadjir.darwin@gmail.com*