# MEKONG ECONOMIC RESEARCH NETWORK

# Policy Options Deal with Resources Booms in Lao PDR

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**Abstract**

Resource booms can have both positive and negative impacts on an economy. However, empirical studies shows that resource-rich country suffers from slow growth comparing with resources-poor country due to mainly Dutch disease effect, conflicts and rent seeking.

Laos is resource-rich economy in term of mining and hydropower. However, there is very few studies on this issue. In addition, until now Lao government does not have relevant policy option to deal with this issue. Thus, it is important to investigate the policy option to prevent Dutch disease in Laos. This policy paper is trying to investigate the policy option for Laos. It is important to consider the policy option as follows. (1) Diversify the economy; (2) Well management of fiscal policy and monetary policy; (3) Balancing budget; (4) Reducing external borrowing; (5) Rapid repayment of debt; (6) Setting up fund for future expenditure.

## 1. Introduction

Resource booms provide an important source of financing for low-income, developing countries. A boom can also negatively affect the economy, this phenomenon is called the Dutch disease and occurs when capital inflows lead to real exchange-rate appreciation that negatively impacts the production of tradable goods (Corden and Neary, 1982).

The national development goal of Laos is to no longer be categorized as a less developed country (LDC) by 2020 (GoL, 2004). In order to overcome poor infrastructure, human resources, and productivity, the government of Laos has enthusiastically promoted foreign direct investment (FDI). The foreign direct investment inflows in 2007 were estimated at about US$950 million, a 60% increase over the previous year. About 90% of the FDI was linked to the resource industry and accounted for most of the increase.

However, the resources sector could have a negative long-term impact on the Lao economy if non-booming sectors, namely agriculture and industry, must compete internationally under real exchange-rate appreciation (Benjamin et al. (1989), Devarajan et al. (1993), Usui (1996), and Levy (2007).

Despite the massive impact of foreign capital flows and the general boom in the Lao resource sector, there is no policy brief on coping with negative impact of resources sectors.

Therefore, the main objective is to find policy option for mitigating the negative impact of resource sector. I will conduct the literature reviews from previous sources and interview the key policy makers.

## 2. Lao economy performance and resources development

### 2.1. Lao economy performance

Laos has achieved high rates of economic growth since its transition to a market economy. Economic growth averaged about 8% over 2011–2013 and has enhanced the industrialization process. In addition, Laos also maintain macroeconomic stability in term of controlling inflation and exchange rate. The inflation was low and exchange rate was stable. The industrial sector has grown by more than 10% since 2002 as the importance of the agricultural sector has declined. In 2013 GDP was distributed across the agricultural (25.2%), industrial (28.0%) and service (38.9%) sectors and others (7.9%). As labor force participation in the industrial sector has increased, it has stimulated productivity growth, which is reflected in rising real GDP per capita, from US$243 in 1990–1995 to US$1329 in 2011–2013 (Table 2-1).

This rapid economic growth could not have been achieved without macroeconomic stability. Over 2011-2013, the average inflation rate was held to single digit, a huge improvement over the average inflation rate of 57% during 1996–2000. The exchange rate was also stable during this period.

**Table 2-1. Macroeconomic development in Laos, 1990–2011**

| Macroconomic Indicator | 2011-2013 | 2006-2010 | 2001-2005 | 1996-2000 | 1990-1995 |
|---|---|---|---|---|---|
| Population growth (%) | 2.04 | 2.16 | 1.58 | 2.07 | 2.71 |
| GDP growth (%) | 7.98 | 7.98 | 6.24 | 6.17 | 6.28 |
| GDP per capita (constant 2000 US$) | 1329 | 841 | 371 | 302 | 243 |
| GDP per capita growth (%) | 6.10 | 5.90 | 4.58 | 4.00 | 3.44 |
| Money supply growth (%) | 31.90 | 38.34 | 20.18 | 66.04 | 30.92 |
| Inflation, CPI (%) | 5.92 | 4.98 | 10.31 | 57.00 | 15.27 |
| Trade balance /GDP (%) | -0.30 | -0.59 | -10.43 | -17.03 | -13.02 |
| External debt stock (% of GDP) | 76.50 | 101.10 | 129.86 | 152.99 | 160.25 |
| Budget deficit/GDP (%)-including grants | -2.85 | -2.53 | -4.13 | -4.87 | -7.95 |
| Budget deficit/GDP (%)-excluding grants | -9.26 | -6.05 | -6.04 | -8.88 | -11.52 |
| Exchange rate (kip per US$) | 8018 | 9056 | 10164 | 4094 | 727 |

Sources: World Bank online database 'World Development Indicators. Asian Development Bank (ADB).

Even though Laos has been maintaining high economic growth, low inflation and a stable exchange rate, serious macroeconomic challenges remain. First, Laos has faced chronic twin deficits in government and trade balances. Over 2011–2013, the budget and trade deficit accounted for about 9.26% (excluding grants) and 0.62% of GDP, respectively. The budget deficit is mainly financed by official development assistance (ODA), while the trade deficit is financed by foreign direct investment (FDI) and remittances. The fiscal situation is not strong in Laos, and continued increases in budget deficits could accelerate inflation and lower the value of the kip (Lao currency), potentially leading to the type of economic instability experienced during the Asian financial crisis. Second, there is a huge gap between savings and investment. The savings rate is low because average income is low due to the underdevelopment of the financial sector. The banking sector is inhabited by the state commercial banks, which are not fully performing important banking functions.[1] Third, Laos also faces a high external debt burden. Accumulated external

[1]More details about financial issues, and monetary and exchange rate policies in Laos are discussed in Kyophilavong (2010).

debt accounted for more than 76% of GDP in 2011–2013. If Laos becomes too dependent upon foreign finance, potential difficulties meeting its debt obligations could cause an external debt crisis and lead to macroeconomic instability. Fourthly, as the dependence of the Lao economy is on the resource sector[2] this could have a negative long-term impact in the form of Dutch disease, which is characterized by the following four features: (1) real exchange rate appreciation; (2) declining input in non-booming sectors; (3) declining exports and output in non-booming sectors; and finally, (4) declining real GDP (Corden, 1984; Corden and Neary, 1982).

### 2.2. Natural resources development

Laos is rich in resources in term of water for hydropower development and mining. According to the World Energy Council, there is still potential to develop 18 GW of hydropower capacity in Laos, which is equivalent to around 63 TWh per year assuming a 40% capacity factor. There are 14 operational projects and 12 projects under construction (see in appendix 1-2).

Lao PDR's electricity generation history started in 1971 with the commissioning of the Nam Ngum Dam. The dam had an installed capacity at that time of just 30 Megawatts (MW), increasing to 150 MW by 1987. As of the early 1990's, only twenty per cent of Nam Ngum's generation was consumed domestically (primarily for supply to Vientiane) and the balance was exported to Thailand. Lao PDR's second dam at Xeset in Southern Lao PDR was commissioned in 1991 with a capacity of 20 MW.

[2] According to the World Bank (2014), the resources sector contributed about 2.83 percentage points to the growth rate over 2008 to 2013. The resources sector accounted for about 60% of all exports in 2013, a share that is expected to increase under expected ongoing development in the hydroelectricity and mining sectors. Revenues from resource sectors as a share of total revenues rose to 2.6% of GDP in 2010, a share that is expected to rise under continued growth in the sector.

The first Lao PDR independent power producers (IPPs) concession for the development of a hydropower project was issued by the GOL in 1991. The Shlapak Group was given the mandate at that time to develop the Nam Ngum II site and to operate it for a set period. The issue of this concession marked a point when the GOL realized that to develop its hydropower resources fully it would require input from the private sector under a new policy.

Most hydro power projects, particularly the large ones, are independent power producers (IPPs) projects for export and the majority of export projects are developed in order to supply Thailand. Export projects are backed by a MoU between Government of Lao PDR (GoL) and Governments of interested countries (mainly Thailand with a target of 7,000 MW of capacity dedicated to export by 2050). An agreement with Vietnam also exist for electricity exports of up to 3,000 MW by 2020, while in the case of Cambodia the agreement on cooperation only provides for a small capacity (around 15 MW).

Revenues to the Lao PDR government come from many different sources, including: land fees, royalties, profit tax, turnover tax, personal income tax, dividend withholding tax, import and export duties, fees (buying and selling of shares, license fee, technical service fee), contributions to funds (environmental protection fund, community development, human resources, sustainable development and project monitoring fund). Apart from taxes and royalties, the government also receives dividend payments from those hydropower operations in which it holds an equity stake.

Laos is rich in mineral resources. There are more than 500 mineral deposits in Laos (World Bank. 2004). There are two biggest mining projects in Laos. Phu Bia Mining

Limited (90% owned by PanAust, Limited and 10% by the GOL) and Lane Xang Minerals Limited (90% owned by MMG Limited and 10% by the GOL). Each company has sufficient mineral resources for at least 10 years production, has maintained or added to their resource base annually, has a successful track record of discovering new mineral occurrences and spends US$25 to US$45 million annually on Lao exploration and evaluation of discoveries. This can be expected to sustain the level of production and tax-royalty revenue. In 2001, there were 48 companies investing in the mining sector in the Lao PDR. As of March 2012, there are 290 projects, including prospection of 107 projects, exploration of 125 projects and mining of 58 projects.

Mining sector have contributed more than 2 percent to the country's approximately 7 percent real growth rate annually between 2005 and 2013. On the fiscal side, the combined mining and hydro contribution to total government revenues is expected to grow by more than 20 percent over the same period. Resource tax revenue (profit tax and royalties from mining, and other resource revenue) increased in percent of GDP since around FY2005/06 and peaked off at around 3.0% of GDP in FY2007/2008. However, resource tax revenue increased to 2.5% of GDP in FY2010/11 partly due to favorable gold and copper prices in the international markets (see appendix 3).

**3. Literature Survey**

Before discussion on policy options, it is important to discuss on characteristics of mining and empirical studies from other countries.

First, mining market is volatile. The markets for primary products, including mineral commodities are known for their instability. Price variations of 30% or more within a year or two are not uncommon. Market instability makes it difficult for developing

countries to count on revenues from the mineral sector, and hampers the effective planning needed for economic development. Second, local communities tend to bear most of the environmental and other social costs associated with mining, while the benefits flow largely to the central government and elsewhere. Third, mining is often an enclave activity. Needed supplies are imported, and little value added is carried out domestically, as ores and concentrates are exported for processing abroad. Fourth, mining requires few workers, and many of those it does employ ( particularly the more skilled workers) come from abroad. As a result, the host country gets little from mining besides the monetary benefits flowing from corporate taxation and royalties.

As empirical studies suggest, natural resource rich countries have suffered from low economic growth compared to natural resource scare countries (Sachs and Warner, 1995; 1997; 1999; Papyrakis and Gerlagh, 2004; Leite and Weidmann,1999; Corden, 1981, 1982 and 1984; Corden and Neary, 1982). There are six main reasons for slow growth as follows.

(1) Dutch disease

(2) Insufficient economic diversification

(3) Rent seeking and conflicts

(4) Corruption and undermined political institutions

(5) Overconfidence and loose economic policies

(6) Debt overhang

There is rich literature on the Dutch disease. There is a limited amount of research on this phenomenon in Laos. There are only two studies related with impact of mining sector in Laos. Kyophilavong and Toyoda (2008) use a macroeconomic model to investigate the impact of foreign capital inflows in the mining and hydroelectricity

sectors. Kyophilavong et al (2013). Warr (2006) uses a 1-2-3 CGE model with a multi-household framework to investigate the impact of hydropower generation investment in Laos. In addition, Warr et al (2013) used CGE model with multi household framework to investigate the impact of resource revenues on poverty in Laos. Therefore, policy option will be drawn from studies in Laos and studies from foreign countries. I will divide policy option by experience from Asia, Africa, Latin America and other part of the world. In addition, policy option from developing countries and developed countries will be divided in order to have clear policy option.

**4. Lesson Learns from other Countries**

To date, five main channels of transmission from natural resource abundance to slow economic growth have been suggested in the literature (Sachs and Warner, 1995; 1997; 1999; Papyrakis and Gerlagh, 2004; Leite and Weidmann,1999; Corden, 1981, 1982 and 1984; Corden and Neary, 1982).

**Channel 1: The Dutch disease**

Natural resource abundance often results in an overvaluation of the national currency. This is a symptom of the Dutch disease: A natural resource boom and the associated surge in raw-material exports drive up the real exchange rate (or real wages), thus hurting other exports (Corden, 1984). Moreover, recurrent booms and busts tend to increase exchange rate volatility (Gylfason et al., 1999; Gylfason, 2000).

The most common macroeconomic effect associated with natural resource booms is known in the literature as Dutch Disease. The effects of Dutch disease on the

economy are mainly (1) spending effects; and (2) resources movement effect (Corden, 1984). Spending effect refers to increasing government spending on non-tradable sector when government gain high windfall from booming sector. By increasing government expenditure on non-tradable sector, it leads to excess demand for non-tradable sector and increase the price of non-tradable sector relative to price of tradable sector.[3] As a result, it leads to appreciation of real exchange rate. Sachs and Warner (2001) present empirical evidence suggesting that countries rich in natural resources tend to have higher price levels, and as a result their non-natural resource based goods are uncompetitive and cannot be exported. They, therefore, miss out on the benefits of export-led growth from which many other developing countries poorly endowed with natural resources have benefited. The resource movement effect refers to the movement of resources of tradable sectors including labor and capital to booming sectors because it increase profitability in booming sector and lead to increase price of factor products of booming sector. As a result, tradable sector is contracted due to reducing factor products of trade with the rest of the world are good for growth.

**Channel 2: Insufficient economic diversification**

The resource-rich economy leads to crowing out non-resources sector production and non-resource export due to resource movement effects and appreciation of real exchange rate. Therefore, it is difficult to diversify the economy from resources sectors. Diversification economy is important for long run development because it could build industries and manufacturing when resources sector run out and it is also important for competitiveness and innovation for long run development. However,

[3] In this context, real exchange rate defines as the price of non-tradable sector relative to tradable sector.

most of resources-rich country suffers from slow growth because it is insufficient to diversify economy. One of the most of important reasons is that it is lack of policy and strategy to support and diversify non-resource sector.

**Channel 3: Rent seeking and conflicts**

Huge natural resource rents, especially in conjunction with ill-defined property rights, imperfect or missing markets, and lax legal structures in many developing countries and emerging market economies, may lead to rampant rent seeking behavior on the part of producers, thus diverting resources away from more socially fruitful economic activity (Auty, 1993;  2001).

The combination of abundant natural resources, missing markets, and weak institutions may have quite destructive consequences. In extreme cases, civil wars break out – such as Africa's diamond wars – which not only divert factors of production from socially productive uses but also destroy societal institutions and the rule of law. In other, less extreme cases, the struggle for huge resource rents may lead to a concentration of economic and political power in the hands of elites that, once in power, use the rent to skew the distribution of income and wealth in their favor as well as to placate their political supporters and thus secure their hold on power, with inequality, stunted or weakened democracy, and slow growth as a result (Karl, 1997).

Furthermore, abundant natural resources may imbue people with a false sense of security and lead governments to lose sight of the need for good and growth-friendly

economic management, including free trade, bureaucratic efficiency, and institutional quality (Sachs and Warner, 1999).

Overspending is associated with the idea that different constituencies do not internalize the full cost of their spending requests, as they only pay a small fraction of the additional tax burden. This problem is not specific to resource rich economies, but instead is present in all countries. However, in resource rich economies, where non-resource taxes are typically low and resource rents are large, it could be argued that this force could in theory be more powerful.

**Channel 4: Lack of fostering education and human capital**

Natural resource abundance or intensity may reduce private and public incentives to accumulate human capital due to a high level of non-wage income – e.g., dividends, social spending, low taxes. Awash in cash, natural-resource-rich nations may be tempted to underestimate the long-run value of education. Of course, the rent stream from abundant natural resources may enable nations to give a high priority to education – as in Botswana, for instance, where government expenditure on education relative to national income is among the highest in the world. Even so, empirical evidence shows that, across countries, school enrolment at all levels is inversely related to natural resource abundance or intensity, as measured by the share of the labor force engaged in primary production (Gylfason, Herbertsson, and Zoega, 1999).

There is also evidence that, across countries, public expenditures on education relative to national income, expected years of schooling, and school enrolment are

all inversely related to natural resource abundance (Gylfason, 2001). Once again, abundant natural capital appears to crowd out human capital. This matters because more and better education is good for growth.

**Channel 5: Saving, investment, and physical capital**

Natural resource abundance may blunt private and public incentives to save and invest and thereby impede economic growth. Specifically, when the share of output that accrues to the owners of natural resources rises, the demand for capital falls, and this leads to lower real interest rates and less rapid growth (Gylfason, 2001). Moreover, if mature institutions are conducive to an efficient use of resources, including natural resources, and if poorly developed institutions are not, then natural resource abundance may also retard the development of financial institutions in particular and hence discourage saving, investment and economic growth through that channel as well. As in the case of education, it is not solely the volume of investment that counts because quality i.e., efficiency is also of great importance. Unproductive investments – white elephants! – may seem unproblematic to governments or individuals who are flush with cash thanks to nature's bounty.

**Channel 5: Macroeconomic instability**

Natural capital seems to crowd out financial capital. It is possible that heavy dependence on natural resources actually hinders the development of the financial sector and also growth, as appears plausible, but other possibilities also exist; in particular, some unspecified third factor may inhibit both financial development and economic growth.

Keynesian Economic Theory says that an increase in the budget deficit causes an increase in the real interest rate that results in the crowding out of private investment and a high prices overall. When monetary deficits are financed, the financing means that there is an excess demand in the economy, which creates inflation. According to a study by Sergent and Wallace (1981), the governments that run persistent deficits have to sooner or later finance those deficits with increasing money creation that produces inflation in the long run.

## 6. Policy deal with natural resource in other countries

### 6.1. Chile experiences

The experiences of Chile are particularly interesting. Chile is small, open economies with a relatively heavy reliance on natural resources.

Chile is the world's prime producer and exporter of copper, yet, while its share of world copper exports has increased, it has undergone astonishing economic development in real terms and in comparison with the rest of Latin America. In the period 1986-1998 Chile had growth rates averaging 7.3 per cent, similar to those of the Asian tigers. While profiting from its copper wealth, Chile has managed to diversify its economy and develop innovative industries. In 1973, mining made up 89 per cent of Chilean exports, while in 2001 only 41 per cent of exports were mining products (Contreras. 2003). Chile's successful diversification is illustrated by the growth of other export industries, notably wine and fruit production and development, and salmon farming, where Chile is now the world's second largest exporter.

**Macroeconomic management: Fiscal Stability and Prudence**

The experiences of Chile alike demonstrate the value of fiscal prudence, supported by overall macroeconomic stability. Governments in Chile has refrained from spending indiscriminately to satisfy political pressures and establish potential popularity gains, and have been largely able to run balanced budgets. Coupled with debt payments in the first years, and later establishment of resource funds, fiscal prudence appears to have helped prevent inflation and "Dutch disease" effects related to oil and copper booms.

In Chile, cautious fiscal policy has been one of the central pillars of copper revenue management. Government has maintained a cyclically adjusted budget surplus. This was first implemented through an implicit fiscal rule, and from 2001 with an explicit fiscal surplus target (structural revenues – expenditure) of 1 per cent of GDP. The surplus target was cut to 0.5 per cent in May 2007, freeing funds to increase spending on education (OECD, 2007) and reflecting the improved debt levels. Central government debt has come down from 45 per cent in 1990 to only 4 per cent in 2007. The budget surplus target is now enacted in law and where surplus earnings are allocated to the Economic and Social Stabilisation Fund, the Pensions Reserve Fund and the Contingency Unemployment Programme. The two funds are invested by the Central Bank, though the responsibility lies with the government. Investments can be made both nationally and internationally, but the government is realising the virtues of investing the funds abroad, both in preventing "Dutch disease" and avoiding overinvestment on the local financial market.

In addition, Chile continued to draw the bulk of their revenues from non-resource sources, thus maintaining a reliable source of government revenue, independent of

commodity price volatility. While copper revenues have been important, the Chilean state received on average 72 per cent of its income from tax revenues between 1994 and 2006 and efforts are being made to increase tax efficiency and lower the rate of tax evasion.

**Sector-specific management and Industrial Policy**

While maintaining fiscal prudence, Chile chose to direct spending to areas contributing to further diversified growth, notably human resources, infrastructure and innovation.

Chile also made more direct efforts to diversify their economy and to support industries associated with the natural-resource sector – such as engineering and supply – as well as non-resource sectors.

Crucial to this relative success has been the fact that local human capital levels were already high when state-owned companies were founded, and particularly that these companies have not become vehicles for private profiteering and rent-seeking, while controlling institutions and the civil service have been of a high quality both in terms of competence and integrity.

**Institutions**

Chile has reliable private-sector institutions such as property rights, an independent judiciary, a civil service reputed for its integrity and competence, and independent institutions functioning as checks and balances.

The quality of the civil service has been seen as one of Chile's strong points. The reputation of the bureaucracy in Chile as a low-corruption country developed in the 20th century and was thus already present before the high growth period.The political stability is the key and has been underlined by the co-operative behaviour of the country's political parties.

In sum, the experiences from Chile give some indication of the kinds of policies which would be useful also in developing and emerging resource-rich countries. The relevance of fiscal prudence and a stable macroeconomic policy framework has been amply demonstrated in the literature and is confirmed by the case studies of Chile. Fiscal rules have helped avoid some of the political pressures to spend more. Stabilisation and future generation funds could also be useful in developing economies, especially when the absorption capacity is small, and the potential foreign exchange inflows so large that they are bound to put pressure on the exchange rate. Productive investments in infrastructure and human capital – as well as the strengthening of institutions – can be a better long-term solution. Technical capacity building, institutional and governance strengthening, and improved business relations are shown the key for policy development.

### 6.2 Botswana

Botswana is typical of the countries that are endowed with abundant natural resources. The discovery of diamonds in the late 1960s led to the development of three mines over next decade and a half that have made Botswana the world's foremost producer of diamonds. Botswana has experienced the most remarkable economic performance in the region.

The average growth rate since the 1980s has been 7.8 percent, about 40 percent of which can be explained by mining, though recent economic diversification has slightly reduced that contribution. In 2002 Botswana exported some US$ 2 billion of diamonds, nickel, copper, gold, and other resources—over 80 percent of its total exports.

The reason Botswana has nevertheless achieved marked growth to date seems to be that it has sound institutions and good governance. It has been applauded for its good governance, political stability, and strong fiscal discipline (Acemoglu et al, 2002). Four aspects of governance seem to be particularly important for natural resource management. First, voice and accountability, measured by the political process, civil liberties, and political rights, indicates the ability to discipline those in authority for resource extraction. Second, government effectiveness, measured by the quality of public services and the competence of civil servants, also needs to be high. Mineral revenues has followed an implicit self disciplinary rule, the Sustainable Budget Index (SBI), under which any mineral revenue is supposed to finance "investment expenditure," defined as development expenditure and recurrent spending on education and health. Other recurrent spending is funded from non-mineral revenues. In addition, there is a government asset fund, the Pula Fund, where financial assets are invested only on a long-term basis in a transparent and accountable manner. Third, because natural resource development must of necessity involve a long-term relationship with private parties, market-unfriendly policies like price controls and excessive regulatory burdens are undesirable. In the mining sector, the government of Botswana retains 50 percent of the shares in Botswana, the largest diamond firm in the country, and the Ministry of Minerals, Energy and Water Resources has direct responsibility generally for natural resource regulation and management. Finally, anticorruption policies are essential for fair and

transparent distribution of resource benefits. The budgetary and procurement process is relatively transparent. An independent anticorruption authority has created and has made sound anticorruption framework to be conducive to proper resource management in Botswana. In sum, Good governance is one key to determine the degree to which natural resources can contribute to economic development in case of Botswana- specifically a strong public voice with accountability, high government effectiveness, good regulation, and powerful anticorruption policies tends to link natural resources with high economic growth.

## 7. Policy options

On the basis of lessons learned from other countries and the macroeconomic situation in Laos, we propose four strategies to mitigate or avoid the Dutch disease in Laos.

### (1) Diversify the economy

It is important to promote non-resources sector in FDI and support SMEs development. It is important to increase competitiveness of non-resources sector and improve doing business climate in order to reduce cost and increase competitiveness.

### (2) Well management of fiscal policy and monetary policy

It is important to continue to concentrate on the current reform in public financial management with the aim to increase fiscal discipline including transparency and accountability. It is important to establish a well functioning financial management mechanism for the revenue from natural resources, of which appropriate shares for saving and investment for the long term is to be taken into account. It is

important to maintain an appropriate budget deficit (no more than 5 % of GDP) in particular to avoid a debt trap.

It is important to well manage money supply in accordance with the need for economic growth and ensure macroeconomic stability in particular inflation rate must be less than GDP growth rate. It is important to continue to develop the monetary framework in consistency with regional in particular ASEAN monetary integration framework. It is important to develop a prudent exchange rate policy for the purpose of stimulating export of non-booming sectors.

**(3) Balancing budget**

Given that rising windfall expenditures accelerate real exchange-rate appreciation that then negatively affects the production in sectors that are not booming, policymakers need to strive to balance the budget and promote the production of tradable goods without neglecting important investments.

**(4) Reducing external borrowing**

Countries with rapid-growth sectors can more easily attract international finance. Increased foreign borrowing during the boom times has a major impact on tradable goods as a result of real exchange-rate appreciation. Therefore, Laos needs to reduce foreign borrowing during the resource boom. Any prospective borrowing should be spent on human resources, infrastructure, and health care development projects.

**(5) Rapid repayment of debt**

Laos has a high level of external debt, so any increase in domestic spending leads to real exchange-rate appreciation that negatively impacts non-boom sectors. Rapid repayment of any debts following the eventual receipt of the windfall cannot be neglected.

**(6) Setting up fund for future expenditure**

the windfall revenues from this rapid growth sector will not flow in definitely; setting up a windfall mining fund to set aside resources for emergency times and external shock is thus crucial.

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