

# Aceh Growth Diagnostic



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July 2009

Identifying the binding constraints to growth in a post-conflict and post-disaster environment



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# Aceh Growth Diagnostic

Identifying the binding constraints to growth in  
a post-conflict and post-disaster environment

**Investing in Indonesia's Institutions**  
for Inclusive and Sustainable Development



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# Foreword

Aceh is currently at a crossroad. As tsunami reconstruction winds down, the construction boom linked to the reconstruction effort is coming to an end and with it the high growth rates experienced by certain sectors of the economy (e.g. construction, trade and transport) during the reconstruction period. This natural economic slowdown has been compounded by the negative impact of the global financial crisis, together with the fact that Aceh's economy has not entirely recovered from the negative impact of the 30-year conflict.

The end of hostilities in 2005 and the maintenance of this peace are in themselves great achievements. Many societies fall back into conflict within a few years of a peace agreement. In Aceh, despite some concerns in the run-up to the legislative election in April 2009, security has improved dramatically. Yet while this is a welcome development and shows the deep commitment of both Indonesian and Acehnese leaders and citizens to the peace process, the remnants of the conflict still hamper economic development in the province.

This report shows that some investors still perceive Aceh as a risky place to do business, despite being relatively peaceful for almost four years. Security incidents, relatively common in post-conflict environments, deter businesses and individuals from investing in Aceh, robbing the economy of necessary capital and innovation. Other consequences of the conflict, including forms of illegal taxation, also hurt investment. The Government of Aceh is aware that until businesses and people change their perceptions of security in Aceh and feel confident that they can reap the full benefits of their investments, little investment will be forthcoming. As a result, growth in the province will be limited and efforts to reduce poverty less effective.

There are other problems affecting Aceh's economy. These include the business environment, access to capital and the quality of infrastructure. This report seeks to show how these different factors affect investment and growth, and provides recommendations on how the Government might prioritize and sequence policy changes to improve the investment climate.

While the conflict and post-conflict environments adversely affect investment and growth, it is also true that rising prosperity will be necessary if peace is to be maintained. But the conflict that affected Aceh cannot be simplified into an issue of simply jobs and inequality. Its roots were far more complex and maintaining peace will take more than economic growth. Nonetheless, we believe that when people have stable and satisfying work and regular incomes, the costs of engaging in violence increase. As such, addressing constraints to growth and investment will be important not only in allowing the province to grow and the Acehnese to enjoy better standards of living, but also in helping them live more peacefully and limit the likelihood of a return to violence.



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# Glossary of Terms

APKO	Association of Coffee Businessmen (Asosiasi Pengusaha Kopi)
ARLS	Aceh Reintegration and Livelihood Survey
ARI	Asia Research Institute
ATAP	Aceh Triple-A Project
BI	Bank of Indonesia
BPS	Central Bureau of Statistics (Biro Pusat Statistik)
CSIRO	Australia's Commonwealth Scientific and Industrial Research Organization
DAU	General Allocation Fund (Dana Alokasi Umum)
DBS	Development Business Services
DFID	Department for International Development
GAM	Free Aceh Movement (Gerakan Aceh Merdeka)
GDP	Gross Domestic Product
GER	Gross Enrollment Rate
GoA	Government of Aceh
GoI	Government of Indonesia
GRDP	Gross Regional Domestic Product
GwH	Gigawatt Hour
IAIN	National Islamic Institute (Institut Agama Islam Negeri)
ICAIOS	International Conference on Aceh and Indian Ocean Studies
ICG	International Consultative Group
IFC	International Finance Corporation
IOM	International Organization for Migration
IOO	Investment Outreach Office
KDP	Kecamatan Development Program
KPM	Business Empowerment Credit Program
KPPOD	Regional Autonomy Watch Committee (Komite Pemantauan Pelaksanaan Otonomi Daerah)
KTP	Identity Card (Kartu Tanda Penduduk)
KUR	People's Business Credit (Kredit Usaha Rakyat)
kVA	Kilo Volt Ampere
LDR	Loan to Deposit Ratio
LOGA	The Law on Governing Aceh
MIGA	Multilateral Investment Guarantee Agency
MoU	Memorandum of Understanding
MSME	Micro, Small and Medium Enterprises
MSR	Multi Stakeholder Review
NAD	Aceh Province (Nanggroe Aceh Darussalam)
NER	Nett Enrollment Rate
NGO	Non Government Organization
NPL	Non Performing Loan
PEG	Poverty Elasticities of Growth
PER	People's Economic Empowerment Program (Pemberdayaan Ekonomi Rakyat)
PLN	State-Owned Electricity Utility Company (Perusahaan Listrik Negara)

PMA	Foreign Investment (Penanaman Modal Asing)
PMDN	Domestic Investment (Penanaman Modal Dalam Negeri)
Pusdatin	Database and Information Center (Pusat Data dan Informasi)
RPJMD	Regional Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Daerah)
RUPTL	Electricity Supply Plan (Rencana Usaha Penyediaan Tenaga Listrik)
R&D	Research and Development
SAF	Special Autonomy Fund
Sakernas	National Labor Survey (Survey Tenaga Kerja Nasional)
SMA	Senior High School (Sekolah Menengah Atas)
SME	Small Medium Enterprise
Suseans	National Social Economic Survey (Survey Sosial Ekonomi Nasional)
TAF	The Asia Foundation
TNA	Aceh National Army (Tentara Negara Aceh)
TNI	Indonesia National Army (Tentara Nasional Indonesia)
UN	United Nations



# Executive Summary

**Constraints to investment and growth need to be addressed urgently as the end of reconstruction has brought back pre-tsunami low levels of economic growth.** Aceh's economy declined by over 8 percent in 2008, with the non-oil and gas economy growing by a meager 1.9 percent, well below over 6 percent at the national level. Growth in Aceh post-tsunami has been dominated by sectors closely linked to the reconstruction effort, such as construction, trade and transport. As the reconstruction effort draws to a close, growth in these sectors has slowed, while the slack has not been taken up by other sectors in the economy (e.g. agriculture, manufacturing). At a time when known oil and gas reserves are rapidly depleting and the post-tsunami reconstruction program no longer drives growth, there is a need for the private sector to become an engine of growth, improving productivity and reshaping the productive sector away from oil and gas, and helping Aceh transition to a modern economy.

**Using the growth diagnostic framework, this report identifies the lack of reliable electricity supply as a binding constraint to investment and growth in Aceh.** Businesses in Aceh report that electricity supply is interrupted on average 4.3 times per week, more than double the number of interruptions suffered by the rest of the country. In particular, manufacturing and agro-processing suffer adversely when electricity is cut, making some of the smaller businesses that cannot operate their own generators non-viable. In addition to improving the reliability of energy supplies from the Sumatra Interconnection System, the GoA could consider renewing efforts to attract private sector investment in the energy sector by (i) revising pricing of privately generated electricity to be distributed through PLN, (ii) promoting private sector participation in the generation of electricity from renewable energy sources (geothermal, local biomass, solar energy), and (iii) exploring the possibility of public-private partnerships to attract cost effective power producers.

**The most binding constraint to investment and growth in Aceh are illegal extortion and security concerns of potential investors. This should be the focus of local authorities in their efforts to attract investment to Aceh.** The remnants of conflict in Aceh continue to hamper growth. Conflicts can have a fundamental impact on the political, social and economic institutions that underlie growth. These impacts affect the ways in which economies function in the post-conflict period. In addition to their direct destructive effects, they undermine the security of individuals and communities in ways that change behavior, preferences and institutional functioning. Security concerns and negative perceptions outside Aceh seem to act as a powerful deterrent to investment in the province. Illegal extortion and security issues are perceived as significant constraints by businesses: 9.3 percent of them report security and the ease of settling conflicts as a constraint in Aceh, as opposed to 4 percent in other provinces. The districts where most violent incidents have occurred since the MoU tend to be those where firms' performance has been worse. Almost one in four businesses reports paying for extra security. Perceptions of increased risk can also translate into a lack of credit to the private sector. All this increases the uncertainty of doing

business in Aceh. Businesses are trying to overcome this uncertainty by teaming up with local businesses or networks that can offer protection and a sense of security, although this may not always be possible.

**Addressing the security concerns of potential investors and combating illegal extortion and payments will need a two-pronged strategy: strengthening the rule of law in the province and addressing the underlying causes of violence and security threats.** To strengthen the rule of law, the local authorities should improve the capacity of the police to investigate and solve crimes, as well as the capacity of the judiciary system to prosecute and sentence criminals. This is likely to require significant political capital, for which it is equally important to build the necessary constituencies that will support these reforms, through the involvement of civil society and the private sector in discussions and the monitoring of the security situation. In order to address the underlying causes of violence and security threats, local authorities should support economic growth and development in conflict-affected areas, focusing on at-risk and vulnerable groups. If there is only assistance for ex-combatants then this is likely to be less effective and create additional grievances and jealousies.

**An improved security situation and the removal of illegal payments and taxes are likely to result in increased investment and growth.** As costs related to security and illegal payments decline, firms and individuals will be able to assess costs and benefits of their investments with greater certainty and undertake these investments when clearly viable. Given the limited capacity and political capital that the local authorities will have to carry out these reforms, these should focus initially on sectors that result in inclusive growth through the creation of jobs and wide sharing of benefits.

**The inclusive nature of growth becomes particularly relevant in post-conflict situations.** Growth should be inclusive, broad-based across sectors and providing benefits to a majority of the workforce, notably the poor as producers. Inclusive growth in Aceh will come from growth in the sectors where a majority of the poor make a living, agriculture and fisheries. Inclusive growth will also derive from job creation in labor-intensive sectors, agri-business, other manufacturing and some services sectors, in particular trade and transport. Particularly in a post-conflict environment such as Aceh, equity concerns and ensuring that potential 'peace spoilers' have a stake in the economic and political stability of the province are crucial. Given that there are a large number of former combatants active in the agriculture sector, there is an additional rationale to focus on removing barriers to growth in agriculture and equipping the poor, through skills and access to assets, to benefit from growth.

**Inclusive and widespread growth that benefits the majority of the population, paying particular attention to the opportunities and grievances of potential 'peace-spoilers', should be part of any strategy to preserve peace in the province.** Promoting inclusive and widespread growth should be part of a broad strategy to address the issue of security and conflict. Addressing the identified constraints will benefit the population as a whole, increasing the ability of the poor and vulnerable in Aceh to benefit from growth. There are also particular interventions to ensure that growth is inclusive. These include continuing the focus on the agriculture sector (but improving the provision of public services, such as extension services, irrigation, etc.). It also includes redressing existing inequalities in both human and physical capital by improving the skill set of the poor in rural areas as well as interventions that facilitate the access to credit of individuals and small enterprises active in the agriculture and fisheries sectors. Spreading the benefits of growth will give more Acehnese a stake in peace and stability in the province, lowering security concerns and ultimately making any resumption of the conflict less likely.

# Introduction

**This report aims to analyze the factors constraining growth in Aceh.** At a time when known oil and gas reserves are rapidly depleting and the post-tsunami reconstruction program will soon end, there is a need for the private sector to become an engine of growth. A strong private sector can improve productivity and invest in traditional and non-traditional industries in the province, ultimately reshaping the productive sector away from oil and gas and aiding Aceh's transition towards a modern economy. Many of the problems that plague the province's economy have been extensively documented. The challenge for policy-makers, and what this report aims to partly address, is to understand which of these issues are the most pressing and which reforms are likely to bear the most fruit in terms of private sector development and growth.

**This report uses the Growth Diagnostic Framework developed by Hausmann, Rodrik, and Velasco (2005)** to identify, among the many problems that plague Aceh's economy and prevent its growth, which ones are the most binding and should be the immediate focus of economic policy: these are termed the binding constraints<sup>1</sup>. This framework is slightly revised to allow its use in a sub-national and post-conflict setting. There are some limitations to the use of this framework in such a setting. In a post-conflict setting, issues such as the social fabric, grievances emanating from the conflict or ensuring that potential 'peace spoilers' also benefit from growth become increasingly important, and are not easily addressed using a growth diagnostic framework. There are important constraints in terms of data availability at a sub-national level, more prominently the lack of reliable private sector investment data. To the extent possible, the report tries to address these challenges, realizing that it analyzes constraints to growth through a fairly narrow lens: that of constraints to private sector investment. Despite these challenges, this report is a valuable input to the political decision-making process, providing insights into what is constraining private sector investment and growth in Aceh, and the role that the post-conflict environment is playing in this. The report identifies the constraints to investment and growth by analyzing in different sections of the report whether constraints to investment arise from high costs or low access to credit, the inability to make a return on investments because of low social returns or low appropriability of returns.

**Economic growth is one of the main drivers behind poverty alleviation in many countries. But the impact of growth on poverty alleviation and the sustainability of that growth depend to a large degree on the pace and pattern of growth.** In Indonesia growth from the mid-1960s up to the financial crisis in 1997-98 was markedly pro-poor as a result of increased productivity in agriculture and the expansion of labor-intensive sectors (World Bank, 2006a). The structure of Aceh's economy — highly

<sup>1</sup> This approach is based on the argument that determinants of growth are complements rather than substitutes. Thus, all policy actions will not have the same effect on growth, since some determinants of growth are lagging relatively more than others. Binding constraints are these determinants of growth that are the furthest behind and that if relaxed, will generate the highest direct positive impact on growth performance.



on investment, particularly on private investment, do not exist, but the available evidence suggests very low levels. Investment as a share of GDP was about 13 percent in 2008 in Aceh, far lower than the national share of 24 percent. Investment credit, at less than 8 percent of GDP, is also low in Aceh compared with other provinces in Indonesia, as data from Bank Indonesia show.

**Public investment is important for growth in that it provides the public goods and services that the market will not provide or will provide in inadequate quantities.** These goods and services, such as public infrastructure, can benefit all economic agents with limited marginal costs of an extra user, creating positive externalities where the social returns are higher than the private returns of investment. As a result of these externalities, if it is left to the private sector to provide public goods and services, they will be underprovided and the outcome will be less than socially optimal. Infrastructure, education, health and security are some of the more obvious areas where governments have a key role to play. A recent study (Moreno-Dodson, 2008) by the World Bank conducted in a number of developing countries, including Indonesia, shows the positive relationship between public spending and growth, particularly when the allocation of spending focuses on providing public goods as opposed to subsidizing or providing private goods and inputs. The study also shows that public investment complements (and should not substitute for) private investment as a driver of growth.

**This report focuses on analyzing the constraints to private sector investment, while recognizing the crucial role that public investment plays in promoting growth,** most notably through the provision of public goods.<sup>4</sup> It assumes that when it comes to investing in businesses, the private sector is more effective than governments at generating the kind of innovation and productivity growth that are necessary for sustained growth rates. Governments are sub-optimal private investors. Private investors are likely to have better information because they are familiar with a specific business. Compared with private agents who are primarily profit driven, governments have a much broader set of objectives that may lead to an inefficient management of government-owned enterprises. Since these enterprises very often lack a hard budget constraint, this may lead them to invest in ways that are simply unprofitable. Public investment can crowd out private investment since businesses may fear unfair competition from government-owned enterprises. More importantly, given scarce resources and the need for improved public services delivery, governments should focus on providing those public services: modern infrastructure, better education, improved health services, etc.

**The conflict was partially responsible for Aceh's poor economic performance and, more importantly, the remnants of conflict may continue to hamper growth in the near future.**<sup>5</sup> The report explores the ways in which the prolonged conflict between the Free Aceh Movement (GAM) and the Government of Indonesia (GoI) has had an impact on growth and investment. Periods of armed violence have been a feature of Aceh's history since at least the colonial period (Reid, 2006), the most recent being the separatist conflict between GAM and the GoI. Violence has ebbed and flowed since 1976, resulting in somewhere between 12,000 and 20,000 deaths (Aspinall, 2009b) the displacement of over 100,000 people (IOM, 2008), widespread trauma (IOM/Harvard Medical School, 2007), and significant infrastructure damage (World Bank/KDP, 2007; MSR, 2009). Soon after the tsunami, the political situation in Aceh changed dramatically with the end of the conflict between GAM and the GoI. The conflict was brought to an end through the Helsinki Memorandum of Understanding, signed by GAM and the GoI on

4 The quality of public investment has been analyzed in different analytical pieces (World Bank, 2006b and 2008b) and to the extent that they are relevant, the findings have been incorporated into this analysis. There are concerns regarding the efficiency of spending and quality of public investment in the province. Local governments do not lack resources – but rather the experience to allocate them efficiently. Spending on public services (health, education, and infrastructure) is relatively high when compared to other provinces and the quality of services is broadly speaking on par with the rest of the country.

5 This report analyzes in depth the impact of the conflict on investment and growth. Although the conflict is at the center of many of Aceh's current woes, it is also important to acknowledge that Aceh is not the typical post-conflict environment. It is part of a fairly large country, which offers a high degree of both political and economic stability, as well as a large domestic market. In that sense, many of the issues that may affect other post-conflict economies (weak or failed state, donor and aid dependence) do to a large extent not apply to Aceh (see Barron, 2009).

15 August 2005. Nevertheless, the post-conflict period presents new challenges. At least 10,000 former combatants and civilian GAM face reintegration challenges (Barron and Burke, 2008). Nazamuddin (2008) argues that a key challenge to the reintegration of ex-combatants is employment, with 75 percent of GAM returnees still unemployed by 2006 (World Bank, 2006c), making them dependent on their relatives. While the vast majority has now returned to work, many are working in jobs related to tsunami reconstruction, creating potential downstream problems once such programs end (MSR, 2009). A recent rise in violence shows that the stability and peace of the region cannot be taken for granted (World Bank, 2009; ICG, 2009). This report attempts to untangle the multi-fold ways in which the conflict impacted on the structure of the Acehese economy and the ways in which the remnants of war continue to shape incentives for investment in the post-conflict period.

### **Box1 Disentangling the effects of the tsunami, reconstruction and end of conflict on growth**

Any analysis of Aceh's economy after the tsunami and the end of the conflict will face a challenge: the confluence of a series of dramatic events with a large impact on the economy, which makes the identification of causes and effects very difficult. This report, which attempts to analyze growth and the constraints to growth, faces the same problem. By 2004, the economy was in decline, due to the prolonged conflict and the depletion of gas reserves. In December 2004, a massive earthquake and tsunami devastated the province. Damage and losses, estimated at US\$4.5 billion, accounted for up to 80 percent of the region's GDP. An impressive relief and reconstruction effort started shortly after, with over US\$7 billion being spent in the province in a limited number of years. This resulted in backward linkages with the rest of the economy, particularly in some sectors such as trade, transport and construction. The end of the conflict in August 2005 enabled many Acehese to return to their daily activities and resume work. Analyzing the impact of any of these events on growth is complex, given the short period of time in which all of this occurred. This report will attempt to do so by using a series of indicators to identify areas of Aceh that were particularly affected by the tsunami, the reconstruction effort, or by conflict dynamics. Although imperfect, this approach has been used successfully in the past (e.g. World Bank, 2008b). However, results should be interpreted carefully bearing in mind the quality of data and the difficulties of disentangling the effects of these different events.

# Methodology

**This report follows the growth diagnostic framework developed by Hausmann, Rodrik, and Velasco (2005).** This section describes the methodology that will be used to identify the most binding constraints to growth, as well as the ways in which it has been adapted to Aceh's specific case. Growth diagnostics provide a framework for identifying, among the many problems that might plague an economy and prevent its growth, which one is, or which ones are, the most binding and which thus should be the immediate focus of economic policy. This approach acknowledges that specific country or regional contexts call for different policy actions to be adapted. Moreover, the approach acknowledges the fact that governments very often have a limited amount of political capital and cannot engage in wholesale reforms that are often counterproductive. The purpose of the diagnostic is to identify the binding constraint(s) on growth that are specific to the case being studied and that should be the target of reforms. There is no quantitative way to score all potential constraints according to how binding they are, but a combination of economic analysis and knowledge of the economic situation in the province can be used to identify the most binding constraint.<sup>6</sup> Understanding of the local socio-political context can also help in the prioritization of recommendations for reforms.

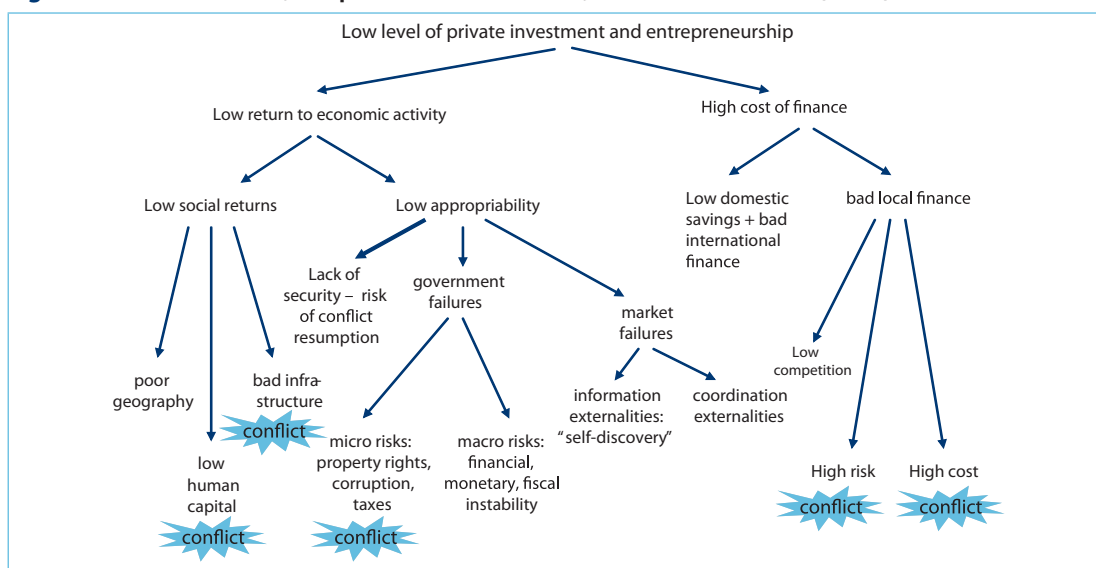
**The growth diagnostic framework can be used to better understand the ways in which the conflict affects investment and growth.** The choice of this particular methodology was driven in part by the desire of the team to test the widespread and intuitive perception that the conflict must be somehow related to the most binding constraints in Aceh. There is little disagreement that Aceh is still suffering economically from the direct and indirect consequences of the conflict, but it is necessary to specify the ways through which these consequences affect growth. The growth diagnostic approach allows for a consideration for each category of constraints to establish whether and how a category has been impacted by the conflict, and how the remnants of conflict continue to shape it. Is the conflict an issue for investment because in a post-conflict environment people fear for their security and that of their assets, or because some critical infrastructure has been damaged during the conflict, or simply because people believe that the conflict will reignite and they will lose all their investments? The growth diagnostic approach can help in providing a more local context relevant assessment of needs, which, in turn, can help improve policy recommendations.

**The framework needs to be adapted to Aceh to analyze constraints to growth at the sub-national level and in a post-conflict environment.** First, the framework was developed to analyze constraints to growth at the country level. Applying this framework at the sub-national level presents several theoretical and methodological challenges. It might well turn out that the binding constraint lies in an area over which the province does not have control, such as monetary policy or the exchange rate regime. In

<sup>6</sup> A more detailed description of the framework as well as the type of economic analysis that is used to identify the binding constraints can be found in Hausmann et al, 2008.

such a case, although the policies that cause the binding constraint are outside provincial control, the province can still act in order to mitigate the consequences with “second best” policies. There are less data available at the regional level than at the national level, which makes the analysis more difficult. However, the framework is relatively well suited for cases where good quality data are scarce. In order to analyze the impact of the conflict on investment, the conflict will be integrated in two different ways. The report analyzes the direct impact the conflict has on incentives to invest, as investors factor in the possibility of the conflict resuming, thereby lowering social returns to investment. Potential investors may associate Aceh with higher risk, particularly the risk of a resumption of the conflict, which in turn may translate into a higher discount factor that investors make on investments in Aceh or the rationing of credit by banks. The conflict can also impact the incentives of people to invest through a number of indirect ways as a result of lower human capital and neglected infrastructure, parallel governance and power structures that create tensions and security concerns, as well as a non-conducive business environment. There are issues of a post-conflict economy that cannot be fully captured using this framework, including the “multiplicity of competing political actors or the existence of competing state and non-state (traditional) institutions” (Ulloa, 2008). Yet the framework does provide a structured means to consider a range of potential mechanisms for how conflict and its remnants shape opportunities for investment and growth. The adapted framework is shown in Figure 2.

**Figure 2** The framework, adapted from Hausmann, Rodrik and Velasco (2005)



**The analysis follows a systematic approach to identify what could be constraining growth and investment.** The analysis starts from the top of the tree and then proceeds downwards, trying at each stage to identify what is constraining private sector investment. Each branch represents a potential “symptom” or “disease” of the economy that may explain low levels of private investment and entrepreneurship. It asks whether the binding constraint is low return to economic activity or high cost of credit. If the binding constraint is low returns, are social returns the problem (because of a lack of complementary factors such as good geography, human capital or infrastructure) or the difficulty of private agents to appropriate these returns (because of government or market failures)? If the issue is the high cost of credit, is the problem low savings or a bad domestic financial system where intermediation is inefficient? To identify the most binding constraint(s), one has to go through an iterative process: the growth diagnostic itself. The sections in this report correspond to the different branches in the tree analyzing what could be the binding constraints to growth in Aceh. This report argues that the conflict that affected Aceh for more

than a generation had a negative impact on growth in the province through a number of channels, illustrated in the table below.

**Table 1 How could the conflict affect the economy?**

Category	Mechanism
<b>1.Low human capital</b>	<ul style="list-style-type: none"> <li>• Human losses</li> <li>• Education system destroyed</li> <li>• Teachers absenteeism during conflict</li> <li>• Outdated skills</li> <li>• Forced inner migrations as a result of the conflict</li> <li>• Brain-drain</li> </ul>
<b>2.Bad infrastructure</b>	<ul style="list-style-type: none"> <li>• Bad local service delivery</li> <li>• Direct damages to infrastructure</li> <li>• Lack of maintenance</li> </ul>
<b>3.Micro risks</b>	<ul style="list-style-type: none"> <li>• Illegal “taxes” imposed on businesses because of extortion by former combatants</li> <li>• Weak government institutions</li> <li>• Corruption</li> </ul>
<b>4.High risk of credit</b>	<ul style="list-style-type: none"> <li>• Risk of expropriation/destruction if conflict resumes</li> <li>• Higher likelihood of economic downturn because of security situation</li> </ul>
<b>5. High cost of credit</b>	<ul style="list-style-type: none"> <li>• Illegal taxes</li> <li>• High cost of monitoring</li> </ul>

**The study uses qualitative as well as quantitative data sources to identify the binding constraint(s).**

Because of the tsunami and the conflict, Aceh has been extensively studied and there is a large literature available on the province. This study builds on much of this preexisting research, which was used to develop hypotheses and flesh out understandings of the quantitative findings. In terms of quantitative data, the study relies on standard data sources such as BPS (the Central Bureau of Statistics) and BI (Bank Indonesia) for most of the macroeconomic and financial indicators it employs. Although most of these data are available for Aceh, some indicators are missing or not reliable enough (see Box 2 for more details). The study also uses two Aceh specific datasets: The Asia Foundation / KPPOD Aceh local economic governance survey and the Aceh Reintegration and Livelihood Surveys (ARLS). These contain social and economic information at the firm or the individual level that help to unravel the micro-economic mechanisms that underlie the Acehnese economy, as well as focus on specific groups, for instance to investigate issues of inclusive growth.

**The focus of the analysis is on identifying constraints to inclusive growth.** This report is concerned with inclusive and sustainable growth. As such, the focus is on economic growth that is broad-based across sectors and includes the majority of the workforce, notably the poor as producers. Inclusiveness refers to equality of opportunity in terms of access to markets, resources, and an unbiased regulatory environment for businesses and individuals. Inclusive growth analysis focuses on both the pace as well as the pattern of growth, since sustained poverty reduction requires a type of growth that allows people to contribute to and benefit from economic growth. This involves looking into the poor’s employability, as well as the opportunities for them to be employed (World Bank, 2008f). Assessing the poor’s employability calls for an analysis of people’s stock of human capital (education and health), their ability to acquire skills and their ability to access labor markets where they can earn an income by using their skills. The second pillar of inclusive growth, employment opportunities, is the more classic study of economic growth relying on a private sector that can offer employment opportunities. Thus studying inclusive growth implies looking at the labor supply side (the poor and their skills), as well as the labor demand side (firms and investors). An inclusive growth framework to analyze constraints to growth could be particularly important in Aceh’s case, since systematic inequality of opportunity could derail the growth process through conflict (Commission on Growth and Development, 2008).

**A concern with inclusive growth translates into three main areas.** These are: a focus on those sectors that are labor intensive, such as agriculture or small retail; an assessment of the business environment and the opportunities for capture that it presents; and an understanding of how people were economically affected by the conflict at the individual level. The table below shows that by 2008 employment had declined by over 100,000 people. Agriculture and trade have been shedding labor, while other sectors are not able to create jobs at the same pace. Particularly worrying is the fact that a large share of employment created (transportation, construction) is closely linked to the reconstruction and also employs a large share of ex-combatants. The end of reconstruction may therefore be accompanied by a decline in employment in the province. Average monthly wages closely reflect value-added per worker in the sector, with agriculture and trade having the lowest value-added per worker (with the exception of services, which includes mostly public services). To a large extent, improvements in the livelihoods of those working in agriculture and small retail will have to come from moving out of these sectors into higher value activities. The following sections will review the evidence on constraints to growth, with particular attention to the constraints to inclusive growth.

**Table 2 Employment creation in Aceh**

*Number of jobs*

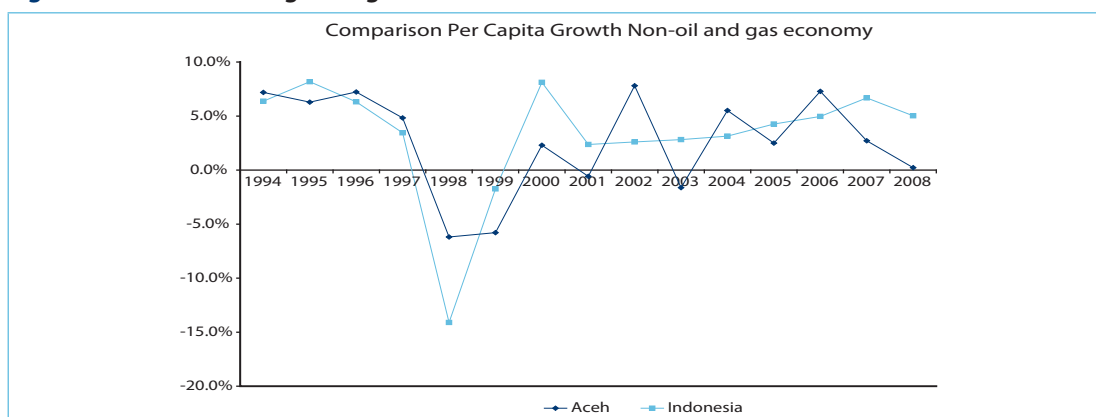
	2002	2004	2006	2008	<i>Av.growth 2002-08 (%)</i>	<i>Av. monthly wage 2008 (Rp million)</i>
Agriculture	1,081,568	906,046	866,334	876,092	-3.5	0.64
Mining	9,617	8,914	7,670	14,085	6.6	1.50
Industry	77,687	51,613	72,497	72,180	-1.2	0.92
Utilities	757	8,486	5,322	3,387	28.4	1.03
Construction	34,182	62,879	74,402	103,749	20.3	1.02
Trade	293,587	231,855	215,668	232,606	-3.8	0.90
Transportation	47,371	59,849	69,078	60,528	4.2	1.10
Finance	9,720	5,687	3,343	8,907	-1.4	1.92
Services	178,772	187,175	224,180	246,088	5.5	1.30
Total	1,733,261	1,522,504	1,538,494	1,617,622	-1.1	

Source: BPS and World Bank staff calculations.

# Understanding Investment and Growth in Aceh

**Aceh has had negative growth rates for most of this decade, partly as a result of depleting gas resources.** This section aims at providing a better understanding of patterns of growth and investment in Aceh, necessary for the diagnosis on constraints to growth and investment. Even when excluding oil and gas, a sector that has been shrinking rapidly, Aceh's economy grew at relatively low rates (and lower than the national average) up until the tsunami reconstruction effort started (Figure 3). The low growth rates of the non-oil and gas economy are partly a reflection of the conflict that was ravaging Aceh up until the tsunami. A relatively prosperous province of Indonesia in the 1970s and until the early 1980s, since then Aceh's economy has struggled to grow. While the rest of Indonesia recovered from the 1997 financial crisis, Aceh continued to post low or negative growth rates in most years, resulting in one of the highest poverty levels in the country, at 23.5 percent in 2008.

**Figure 3** Aceh has been growing at lower levels than Indonesia for most of the decade



Source: BPS and World Bank staff calculations.

**Aceh's economic performance pre-tsunami was marked both by the conflict and a decline in the gas reserves on Aceh's east coast.**<sup>7</sup> In 2003, oil and gas and related manufacturing accounted for over 50 percent of the region's GDP. This had fallen to less than 20 percent by 2008. The decline in gas production

<sup>7</sup> Known oil and gas reserves are rapidly depleting, but there has been little investment in new exploration. The oil, gas and mining sector has seen few new investments in over a decade in the whole of Indonesia, despite a sustained worldwide commodities boom. A recent note by the World Bank and IFC (2008) identifies what are some of the main impediments to the business environment in the sector. New discoveries in Aceh could provide additional revenue that, if spent wisely, would cushion the projected decline in funds from revenue sharing and the reconstruction effort.

has had a negative impact on industries that were reliant on the availability of cheap gas and located close to the gas fields, such as fertilizer, paper or chemicals. However, since the gas industry and linked industries around Lhokseumawe have few linkages with the rest of the economy,<sup>8</sup> the impact is likely to be felt primarily at the macro level. The share of agriculture, which accounted for 17 percent of GRDP in 2003, grew to 25 percent in 2008, significantly higher than the national share at 14 percent. About half of all agricultural production is food crops, with another 20 percent being non-food (estate) crops, in particular coffee, cacao, palm oil and a few other estate crops. Prior to the tsunami, non-food crops and fisheries accounted for most of the growth in the sector, while post-tsunami most of the growth in agriculture is coming from the non-food crops sector.

**Table 3 Economic growth in Aceh**

Percent

	2004	2005	2006	2007	2008*
Agriculture, forestry & fishery	6.0	-3.9	1.5	3.6	0.8
Mining and quarrying <sup>9</sup>	-24.0	-22.6	-2.6	-21.6	-44.7
Oil and gas	-24.4	-23.0	-4.3	-22.5	-47.0
Quarrying	7.3	0.8	78.8	2.0	-0.2
Manufacturing industry	-17.8	-22.3	-13.2	-10.1	-4.2
Oil and gas industry	-11.6	-26.2	-17.3	-16.7	-7.8
Non-oil and gas industry	-37.3	-5.1	1.1	8.6	3.6
Electricity, gas and water (utilities)	19.5	-2.0	12.0	23.7	12.7
Construction	0.9	-16.1	48.4	13.9	-0.9
Trade, hotels and restaurants	-2.6	6.6	7.4	1.7	4.6
Transport & communication	3.6	14.4	10.9	10.9	1.4
Financial	19.4	-9.5	11.7	6.0	5.2
Services	20.1	9.7	4.4	14.3	1.2
GDP Aceh	-9.6	-10.1	1.6	-2.5	-8.3
GDP Aceh w/o oil and gas	1.8	1.2	7.7	7.0	1.9
GDP Indonesia	5.0	5.7	5.5	6.3	5.9
GDP Indonesia w/o oil and gas	6.0	6.6	6.1	6.9	6.4

Source: BPS. \* Preliminary figures.

### **Aceh's post-tsunami economy has been dominated by the large influx of reconstruction funds.**

The bulk of growth in 2006 and 2007 took place in sectors closely linked to the reconstruction effort, such as construction, trade and transport, although agriculture has also grown in the past few years. As the reconstruction effort draws to a close, growth has started to slow down and preliminary figures for 2008 show a significant deceleration in sectors previously fuelled by the reconstruction effort, with the economy declining over 8 percent when including oil and gas. Non-oil and gas manufacturing remains relatively unimportant, accounting for less than 5 percent of GRDP (as compared with 22 percent at the national level). Manufacturing is primarily small scale and caters to the local market. There are only four

8 McGibbon (2006) argues that the efforts of the government to develop Aceh failed in that economic growth and development was concentrated in an enclave development around Lhokseumawe with few linkages to the rest of the province.

9 Aceh's economy has suffered tremendous shocks over the last few years. The tsunami, the large reconstruction effort and the rapid depletion of the oil and gas significantly complicate the elaboration of regional statistics, particularly on the production side. Some of the growth rates reported, such as the decline of almost 50 percent in oil and gas in 2008, do not seem to square well with data from other sources (such as production data from the Ministry of Energy and Mineral Resources). These inconsistencies may be the result of the deflators used to estimate growth rates. A comparison of the implied deflators at the Aceh and national level show large differences that may not be fully explained by differences in inflation levels. Using the same deflator in Aceh as in the rest of Indonesia would show a marked decline in agriculture and a somewhat slower decline in the mining sector in 2008. Despite potential inconsistencies in the GDP series, the broad trends discussed in this chapter remain valid.

relatively large companies in the industrial sector in Aceh, mostly linked to the availability of cheap gas (fertilizer, paper), as well as a cement factory near Banda Aceh. These are all capital-intensive industries with few linkages to the rest of the economy.

**Although the conflict affected the province as a whole, its intensity was localized and it therefore did not affect all areas equally.** The provincial capital and the west coast suffered least from the conflict, although even businesses in cities that were less exposed to the fighting suffered from extortion. Remote areas with a focus on agriculture, particularly in the interior, were more affected by the conflict, resulting in many farmers being unable to tend to their fields. The exploitation of gas suffered greatly in 2001 as the security situation deteriorated. The conflict is also likely to have had a different impact on factors of production that are used more or less intensively in different sectors. Skilled workers were better able to leave the province and look for opportunities outside Aceh, which may have had a greater impact on higher-value activities that need more skilled workers. Sectors that are more location specific, such as plantations, can be more easily targeted by armed groups, while extortion or vandalism are more difficult to exert on businesses that can easily relocate, such as traders or transport firms.

**Higher growth rates could drastically reduce poverty, especially if this growth is inclusive of the majority of the Acehnese.** Indonesia has experienced pro-poor growth since 1970 (World Bank, 2006a) but Aceh has been somehow left behind because its economy was growing slowly during the conflict years and because an important share of this growth was in the oil and gas sector. Not all types of growth are equally beneficial to the poor: for instance, economic growth relying on extraction industries rarely trickles down to the poor and improves their livelihoods. Pro-poor growth involves investing in human and physical assets and reducing transactions costs. Three major shifts in Indonesians' livelihoods have resulted from these changes and contributed to lifting many Indonesians out of poverty: livelihoods evolved from low-value agriculture to higher-value agriculture, from agriculture to non-agriculture and from rural- to urban-based activities (World Bank, 2006a). In Aceh, such changes along with higher growth rates could have tremendous positive consequences, as shown in Table 4. It illustrates nine scenarios with different per capita growth rates and poverty elasticities of growth<sup>10</sup> (PEG). The PEG measures how economic growth translates into poverty reduction. The values in the table range from the current Acehnese value, -1.4, to -2.6, which is the highest value reached by Indonesia during the 1984-99 period, and represents a best-case scenario (World Bank, 2008a and 2006a). Starting from a poverty rate of 23.5 percent, five years of growth averaging 2 percent per year and such that the PEG is -1.4 would bring poverty down to 20.4 percent. However, if growth were to reach 4 percent and the PEG -2, poverty would decline to 15.5 percent in 5 years.

**Table 4 Aceh's poverty rate projections in five years**

Percent

		Higher growth →		
		2%	4%	7%
More inclusive growth ↓	Growth rate			
	PEG			
	-1.4	20.39	17.62	14.03
	-2.0	19.16	15.49	11.06
-2.6	17.99	13.57	8.61	

Note: Using base level of 23.5% (2008 poverty level).

Source: World Bank estimates based on World Bank, 2006a and World Bank 2008a.

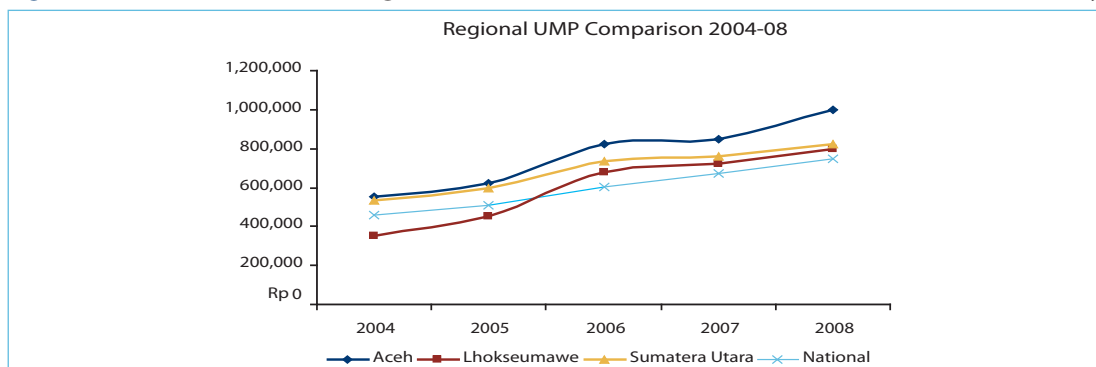
<sup>10</sup> Ratio of the percentage change in the poverty rate relative to the percentage change in per capita income. A -1.4 PEG means that one percentage point of growth translates into a 1.4 percent reduction of the poverty rate.

**Attracting private investment will be key to modernizing Aceh's economy, increasing its productivity and increasing the size of operations stemming from economies of scale.** Scarce data on relatively low volumes of private investment show a concentration in plantation development, fisheries, mining, trade and tourism sectors (ATAP, 2007; IFC, 2008). Almost 50 percent of all companies are in the agricultural sector, an indication of the province's comparative advantage. Most of the new investment in 2006 was also in the agricultural sector and to a lesser extent in trading. A large share of all businesses for which there is information had temporarily stopped operations by 2006, affected by the conflict and the tsunami. The low levels of private investment act as a barrier to growth. Aceh lags behind other provinces in terms of attracting investment and this leads to the province's relative poor growth performance. The credit-to-GDP ratio in Aceh is the second lowest in the country (see section on access to credit), illustrating the relatively low levels of private sector investment.

### Box 2 Investment data

There are no reliable data on private investment in Aceh, which presents a serious challenge for any type of analysis on investment. Data on private investment collected by Bank Indonesia, BPS and the investment board present serious inconsistencies and methodological issues, resulting in a lack of reliable official data of private investment for the province. Nonetheless, all available evidence points at relatively low investment levels. Recent research on Aceh's economy and its investment climate (IFC, 2008) builds on value chain analysis carried out in several commodities and highlights the lack of private investment necessary to improve the quality and quantity of production as well as increasing productivity. Gross Domestic Capital Formation data published by BPS would barely account for the large investment projects carried out with public funds as part of the reconstruction effort, suggesting very little private investment adding to the stock of capital in the province. Data by Bank Indonesia on credit show that Aceh has the second lowest credit/non oil and gas GDP ratio in the whole country, suggesting fairly low investment levels in the province. Of that credit, a large share goes to consumption, indicating a limited role for private investment in shaping the province's economy. Using the volume of bank credit as a proxy for investment has some shortcomings, an important one being that in low income countries banks are not the only source of loans for businesses, money-lenders, own profits or even family and friends are often important sources of capital for investment. However, the available evidence suggests that this may not be the case in Aceh. IFC (2007) shows that in 2006 almost 50 percent of all micro and small businesses that had taken loans, had done so from banks as opposed to informal lenders or family members. A different survey by the World Bank shows that in 2008 44 percent of households with loans had also obtained them from banks instead of other informal sources (Access to Finance Survey).

**A particular concern for inclusive growth is that most growth and jobs created in Aceh have been linked to the availability of reconstruction funds.** As the reconstruction effort comes to an end, many jobs will be lost. Agriculture is still the main employer in the province, accounting for over 50 percent of the workforce. As the province modernizes, agriculture is likely to continue shedding labor and coming closer to the national level (41 percent). The services and manufacturing sectors should become the main engines of job creation, but as in the rest of Indonesia, this is not happening (World Bank, forthcoming). There could be several reasons for low job creation in the non-farm sector, but high real wage increases in the services sectors could partly explain this. High wages are likely to affect Aceh even more, as price and wage increases have been higher than in the rest of the country in the aftermath of the tsunami (Figure 4). Although reforms in labor markets that could address some of the constraints for job creation are mostly beyond the jurisdiction of the provincial government, regional minimum wages are set at the provincial level. This provides the provincial government with the necessary leverage to avoid wage increases becoming a constraint on job creation.

**Figure 4 Provincial minimum wages in Aceh have increased more than in the rest of the country**

Source: BPS.

**An inclusive growth strategy will need to focus on revitalizing the agriculture sector and labor-intensive industries.** Crop diversification and ownership of a small off-farm business were key strategies of the Acehnese in escaping poverty in the aftermath of the tsunami (World Bank, 2008a). This is in line with the main pathways to escape poverty in much of Indonesia during the 1980s and 1990s (World Bank, 2006a). A characteristic of poverty alleviation in this period was the transition of people from rural to urban settings and the creation of off-farm jobs. To a large extent, this occurred through the urbanization of many rural areas and enhanced integration of rural areas with urban growth poles. The Government of Aceh can facilitate the linking of the rural poor to growth poles by improving rural infrastructure and access to markets as well as providing incentives for increased labor mobility between rural and urban areas. Increases in agricultural productivity are credited with contributing to the impressive poverty alleviation success in Indonesia from the 1970s until the 1997 financial crisis. Revitalization of the agricultural sector remains vital to ensure that Aceh's poor are able to benefit from growth, since almost 30 percent of Aceh's rural population was living below the poverty line in 2006 (World Bank, 2008a).

### Box 3 Revitalizing Aceh's agriculture

Agriculture still accounts for a large share of the province's non oil and gas GDP, providing employment to a large share of the population. Interest of both domestic and foreign investors in the province has focused on the agriculture sector, both for estate crops as well as agro-processing (IFC, 2008). GoA has developed a strategy for the development of the province's economy that focuses on support to a series of clusters of primary commodities. As such, there is little debate on the central role that agriculture will play in the province's economic development in the foreseeable future. *What will it take to revitalize agriculture and make it an engine of inclusive and sustainable growth in Aceh?*

As in the rest of Indonesia, there is an urgent need to *reorient public spending*, away from subsidizing private inputs (fertilizer, seeds, machinery and other agricultural inputs) and toward improving the provision of public services such as extension services, irrigation or facilitating access to markets (World Bank, forthcoming). The constraints identified to improving agricultural productivity are related to the lack of public services – extension services, access to land, access to markets and the deterioration of the irrigation system, rather than inability to purchase agricultural inputs. There is a rationale to assist poor households to rehabilitate the physical and human capital that was lost due to the tsunami or the conflict, but this needs to be limited and a greater focus should be given to providing the necessary public goods and services. Farmers also identified skills, access to technology and lack of credit as constraints to improving their productivity (World Bank, 2008a).

Potential investors have identified the *availability of fertile land* as a key asset in Aceh. At the same time, they also cite difficulties in securing access to the land and how this may deter investment. Although land tenure issues affect the whole of Indonesia, the problem is likely to be exacerbated in Aceh. Many land titles were lost due to the tsunami, there have been incidents with ex-combatants reclaiming land and much land is under undocumented customary titles, which investors may only find out after leasing the land. There is no central registry of land that investors can use to identify land that is available for commercial plantations, and negotiations often take place directly with the *bupati* of the district where the investment is being planned. As a start, the provincial authorities could coordinate land-use and land-titling information into a central unit, facilitating the access of investors to information.

*Lack of market information* (particularly price information) has often been identified as a key constraint to increasing the share of rents accruing to Acehnese producers from their production, often receiving market information only from one trader (clove, shrimps). Improving the access of farmers to such information, would enable producers to respond more quickly to market signals as well as ignite a supply response as a result of an increase in the returns to investments made.

The *quality of extension services* provided has also been identified as an area of concern. There is a widespread belief that decentralization has had a negative impact on the provision of extension services, since this function was largely transferred to local governments, which have not always provided the adequate staffing and level of extension services. This seems to be the case in Aceh also (IFC, 2008). Given the fact that this is a fairly decentralized area, it is fully in the hands of the provincial and local authorities to improve the provision of extension services.

There is an increased demand for higher value agricultural products such as horticulture or livestock, as a result of both increasing demand from domestic markets, as Indonesia becomes richer and the population demands a different type of food, and the emergence of global supply chains (supermarkets) that source higher value agriculture goods from developing countries. Benefiting from these new trends is not automatic, and recent research shows that it is often the larger and better educated farmers that are able to link up and benefit from this increased demand (World Bank, 2008e). The provincial government has a role to play, *re-orienting government support to help small farmers and farmers' groups to gain access to global value chains*, by (i) improving infrastructure, (ii) supporting farmer training to fulfill quality and safeguards requirements, (iii) providing farmers with the necessary skills to enter into negotiations with large supply chains and (iv) promoting the use of market based instruments to manage increased risks.

# The Conflict and Post-Conflict Environment in Aceh

**Analyzing constraints to growth in Aceh requires unpacking the multifold ways in which conflict affected the functioning of the economy, and the ways in which this in turn shapes growth patterns and institutions in the post-conflict era.** Understanding the links between conflict and growth is particularly important given that some argue that the ways in which Aceh's economy was managed was related to the insurgency in the province. The impact of the conflict on growth and development of the province has been, and continues to be, widespread and has been analyzed in detail in other pieces of research (Dawood and Sjafrizal, 1989; Nazamuddin, 2008). This study focuses on the impact of the conflict on constraints to private sector investment and economic growth from a relatively narrow perspective — but one that is key nonetheless. The study does not attempt to analyze in depth the effect that the conflict can have on growth through other channels — worsening the quality of government institutions or the breakdown of social networks to name a few.<sup>11</sup> Although this means that the resulting analysis and findings leave aside important elements in the relationship between conflict and growth, this is necessary to provide an improved understanding of the impact that the conflict has on investment decisions, and thereby impact on growth.

**Violent conflicts fundamentally impact on the political, social and economic institutions that underlie growth.** These impacts affect the ways that economies function in the post-conflict period. In addition to their direct destructive effects (destroyed infrastructure, people killed, populations who migrate outwards), they undermine the security of individuals and communities in ways that change behavior, preferences and institutional functioning (Bodea and Elbadawi, 2008). Investment behavior will also change. This tends to result in reduced savings, lower human capital accumulation and risky behavior (Lorentzen, McMillan and Wacziarg, 2006). Accessing credit may also become more difficult if banks or other credit providers become less likely to lend and/or only lend at higher rates (Nagarajan and McNulty, 2004). Chauvet, Collier and Hegre (2008) estimate that the average civil war costs a country US\$123 billion per year. Countries experiencing civil war suffer on average annual reductions in GDP of 2.0-2.2 percent (Collier, 1999; Hoeffler and Reynal-Querol, 2003; Restrepo et. al., 2008), reducing incomes by around 15 percent (Moser, 2006). In areas not experiencing full-fledged civil war, the costs of violent conflict on growth and poverty can also be immense. It is estimated that lost productivity from violent conflict and crime outside of war zones amounts globally to US\$ 95 billion per year (Geneva Declaration Secretariat, 2008).

**Such distortions tend to continue into the post-conflict period.** Dynamics typically associated with the end of a violent conflict — perceptions of continuing insecurity and sporadic violence, rapid growth in sectors previously held back by the conflict, difficulties associated with integrating members of rebel

<sup>11</sup> Some of this is analyzed in MSR (2009).

groups into the political and economic system — in turn alter the opportunities for, and barriers to, growth. As an example, recent research suggests that if Jamaica and Haiti were to reduce their homicide rates to the level of Costa Rica, they would see increases in growth rates of 5.4 percent per annum (UN Office on Drugs and Crime/ World Bank, 2007).

**The Aceh conflict was driven in part by competition over the province's natural resources and the authority to manage them.** Large reserves of natural gas were discovered off Aceh's shores in 1971, estimated to have the potential to generate US\$2-3 billion annually for 20-30 years.<sup>12</sup> Production began in 1977 and large royalties were paid to the Indonesian central government. Few locals were employed in the exploitation of the gas, which created resentment. Perceptions of the exploitation of Aceh's resources were used as a rallying cry to build a nascent independence movement, which included the claim that Aceh had been impoverished by Javanese rule and blamed hardships on the central government's misappropriation of the recently discovered natural gas (Ross, 2005, p. 40). Grievances against perceived exploitation of the gas fields fuelled GAM's struggle and tensions were heightened by cultural differences between the migrants and the Acehnese.<sup>13</sup> As Ross (2007, p. 36) argues, natural resources did not provide the means for GAM to rebel against the center but, rather, helped generate local grievances.<sup>14</sup> While Aceh's gas revenues are fast declining, the inclusion of the MoU's stipulation that Aceh would retain 70 percent of oil and gas revenues was of great symbolic importance to GAM leaders.

**Grievances over the exploitation of the gas fields fed into a broader narrative that Aceh was lagging economically behind other Indonesian provinces.** Such claims had a weak basis initially, as the province had a higher living standard than the rest of Indonesia for most of the 1970s (Hill and Wiedermann, 1989). But as the conflict became prolonged, such claims became self-fulfilling and perceptions of economic exploitation grew. The central government was increasingly reliant on Aceh's natural gas — in 1998, 9 percent of its total revenues came from this source (Ross 2005, p. 47) — and adopted increasingly harsh counter-insurgency measures to secure the operation of the gas fields (Sukma, 2004).

**The conflict had a negative impact on the accumulation of both physical and human capital.** Violent conflict tends to reduce the social returns on economic activities through its destructive impact on physical and human capital. Private and public infrastructure is often a deliberate target of those fighting in an attempt to cut supply routes and intimidate communities. The presence of violent conflict also makes it much harder to build new and repair damaged infrastructure. Violent conflict negatively impacts on human capital through speeding outward migration, reducing the incentives to invest in education (Steward and Fitzgerald, 2001), and damaging schools and universities. In Aceh, educational infrastructure was deliberately targeted during the conflict, with government troops seeking to destroy potential places of refuge for combatants, and GAM seeking to destroy what they saw as a major source of Indonesian propaganda. Moreover, violent conflict alters the skills that are valued in an economy: during the conflict these skills relate to fighting, but they become irrelevant in the post-conflict economy. Conversely, in the post-conflict environment much needed skills may be in short supply, as often the best-educated and richest were the first to migrate and escape the conflict.

**The conflict resulted in weaker government institutions, widespread corruption and weak rule-of-law.** Sustainable and inclusive growth requires public institutions that ensure that returns to investment can be appropriated by investors. Key government functions include protecting property rights and other regulatory measures that ensure efficient competition and effective market functioning. Violent conflict is often associated with governance failures in these areas. Violent conflict can weaken institutions and distort the market as the state becomes an instrument of predation and/or where the state loses its monopoly over the means of coercion (Bates, 2008). While the conflict in Aceh was driven

<sup>12</sup> This section draws heavily on Ross (2005).

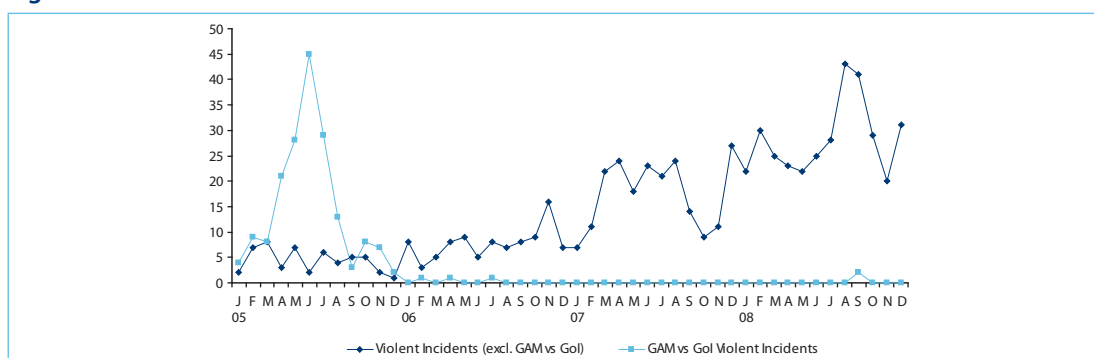
<sup>13</sup> Between 1974 and 1986, some 50,000 migrants from other parts of Indonesia came to Aceh (Hiorth, 1986).

<sup>14</sup> This causal explanation differs from that of Collier and Hoeffler (2004), who suggest that the presence of natural resources increases the likelihood of civil war by enabling rebel groups to finance the initial and ongoing costs of their rebellion.

in part by perceptions of ineffective state functioning (Barron and Clark, 2006), the conflict further eroded state institutions (McGibbon, 2006). The conflict was often used as an excuse for government lack of effectiveness, even when GAM or the conflict had little to do with it (Jones, 2005). The conflict also led to state resources being increasingly allocated through neo-patrimonial networks, which led to increased corruption as those elected sought to repay supporters (Clark and Palmer, 2008). The conflict offered opportunities for both parties to profit from illegal activities and weak rule-of-law (McCulloch, 2006; Olken and Barron, 2007). Local politicians and civil servants acted with impunity and siphoned off significant resources from the state budget (Sukma, 2001; Sulaiman, 2006; McGibbon, 2006), resulting in several high-level corruption cases involving local and provincial government officials.<sup>15</sup> In the post-conflict period, there is anecdotal evidence that corruption and illegal taxation practices have continued (Aspinall, 2009b).

**Ongoing security incidents and negative perceptions regarding risk outside Aceh act as a powerful deterrent to investment in the province.** Failure to provide security in conflict-affected areas tends to lower investment levels as potential investors factor in security risks, reducing investment in physical capital (Knight et al., 2005; Imai and Weinstein, 2000). Perceptions of poor security can continue in the post-conflict period. In part, this is because the risk of conflict resumption remains high in the initial post-conflict period. Collier et al. (2006), for example, claim that societies emerging from conflict have a 40 percent chance of falling back into conflict. In Aceh, PT Arun was often the target of attacks by GAM, having to halt operations in 2001, which probably contributed to higher risk perceptions. Post-conflict security concerns associated with security incidents can deter investment. New forms of violence include political violence, economic and criminal violence, community and informal justice, and post-conflict property-related disputes (Muggah, 2009, drawing on Chaudhary and Suhrke, 2008 and the Geneva Declaration Secretariat, 2008). In Aceh, after the peace agreement there was a period of relative calm, but after this initial period violence has been on the rise again, particularly during the build-up to the legislative elections in April 2009 (Figure 5). This may reduce the desire of businesses, within and outside of Aceh, to invest because of a fear that productive assets will be destroyed or made inoperable if violence escalates. IFC (2008) confirms this and reports political instability and security as two of the concerns cited by businesses considering investing in Aceh.

**Figure 5 Violence in Aceh – Jan 2005 to Dec 2008**



Source: Aceh Conflict Monitoring Update, World Bank.

This section has reviewed the mechanisms through which the conflict in Aceh may shape patterns of growth in the post-conflict period. The following sections will deepen the analysis of the relationship between the conflict and growth, analyzing constraints to investment and growth, and incorporating the characteristics of Aceh's conflict into the analysis.

<sup>15</sup> See Sulaiman and van Klinken (2007, p. 231) and Saraswati (2004).



# Access to Credit

**The growth diagnostic framework tests whether high cost, or lack, of credit is the binding constraint for private sector investment.** Given that businesses usually resort to banks to finance their activities, a lack of access to credit or its high cost can stifle growth. A financial system that does not provide the necessary working and investment capital to viable businesses could be a symptom of a broader disease and the analysis should look into the financing side of the economy to perform a comprehensive diagnosis. After describing the banking system in Aceh, this section analyzes whether credit is costly or difficult to access for businesses and the reasons behind this.

**Banking in Aceh is dominated by state-owned commercial banks.** Many private banks closed operations in the province after the 1997-98 financial crisis and the intensification of the conflict and they have started to return to the province only after the signing of the MoU in 2005. The banking sector in Aceh constitutes 18 commercial banks and 20 rural banks, most of them in both categories being public banks, which account for about 80 percent of all deposits. Commercial banks account for more than 97 percent of assets, deposits and loans (IFC, 2007). According to Bank Indonesia, as of September 2008, the total amount of deposits was Rp 20.5 trillion and the total amount of outstanding loans Rp 9.4 trillion. This corresponded to a loan-to-deposit ratio of 46 percent which is low for Indonesia. The non-performing loans ratio was 1.9 percent, lower than the national average. Sharia banking is still relatively small but its importance has been growing in recent years.

## a. Is financing a problem in Aceh?

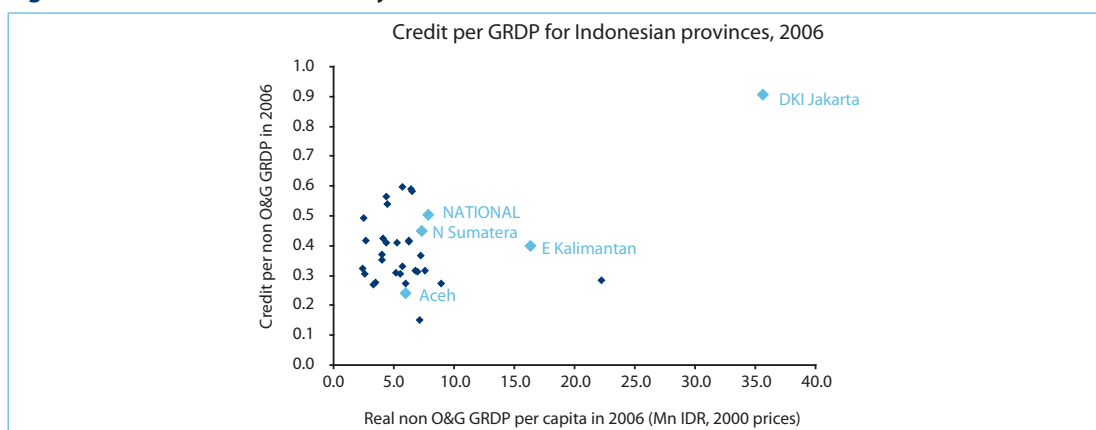
**Credit for investment is relatively low in Aceh.** The first question that needs to be answered is whether financing is a problem in Aceh. One way of looking at this is to find out whether credit, particularly investment credit, is low. The following plot shows investment credit as a share of GRDP<sup>16</sup> and per capita GRDP (as a proxy for development or income level). Investment credit as a share of non-oil and gas GRDP in Aceh is lower than in other provinces. In other words, the volume of loans extended by banks in Aceh is low relative to its level of development, as shown in the figure below<sup>17</sup>. In 2006, investment and working

16 Non-oil and gas GDP is used to avoid a large GDP that is driven by oil and gas, resulting in a low credit-to-GDP ratio at 'normal' credit levels. In order to ensure consistency, the oil and gas sector is subtracted from GDP data in other provinces.

17 A low level of bank credit may not necessarily translate into lower investment levels, if businesses are receiving loans from other non-bank sources (family, friends or traditional money lenders). Available evidence suggests that bank credit is a relevant metric to measure investment levels. Bank credit represents an important source of funding in Aceh: 43.9 percent of the households that have loans obtained them from banks. This number is higher than the national average: in Indonesia, only 28.3 percent of households have loans from banks. Given that Acehnese households rely relatively more on banks, the low volume of credit extended for investment and working capital appears to be even more striking (figures are World Bank estimates, based on the Access to Finance Survey, 2008).

capital credit represented 7.8 percent of GRDP in Aceh while the national average was 32.1 percent. The credit over GRDP figure was the second lowest for all the provinces in Indonesia. This might only reflect low demand for credit in the province, as the result of a lack of investment opportunities, but it could also be the result of a banking system that is not meeting the demand for credit from the private sector.

**Figure 6 Credit over GRDP is very low in Aceh**



Source: Bank Indonesia and World Bank staff calculations.

**Table 5 Investment and working capital credit as share of GRDP**

Percent

Investment and working capital credit as share of GRDP		
	2005	2006
Aceh	6.3	7.6
North Sumatera	32.3	35.3
Riau	16.3	18.4
East Kalimantan	13.2	15.3
Papua	3.2	7.2
Central Sulawesi	15.0	15.7
Maluku	26.7	16.1
<b>Sumatera</b>	<b>20.7</b>	<b>23.0</b>
<b>Java</b>	<b>35.7</b>	<b>38.9</b>
<b>Indonesia</b>	<b>29.0</b>	<b>32.1</b>

Source: Bank Indonesia and World Bank staff calculations.

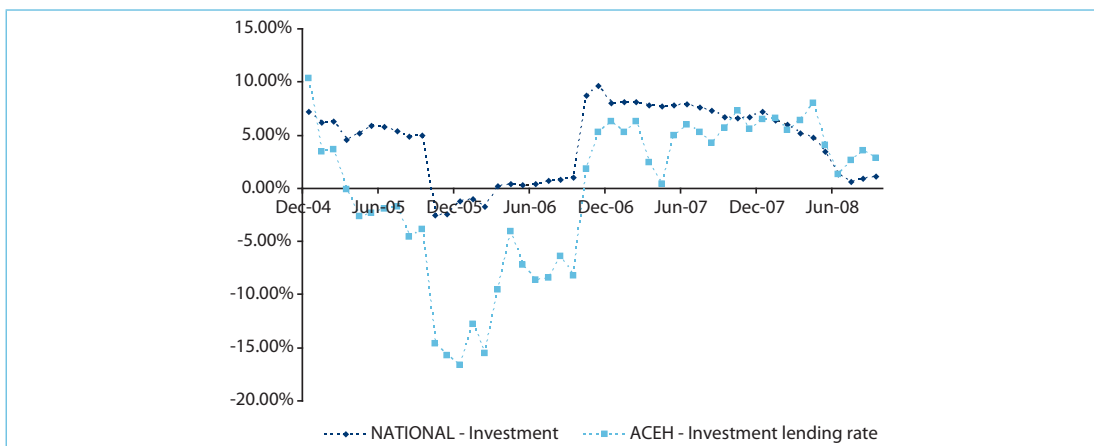
## b. Is the cost of capital high in Aceh?

**The cost of finance in Aceh is similar to the rest of Indonesia.** In September 2008, the real lending interest rate for investment loans in Aceh was 2.82 percent and the national average 1.05 percent.<sup>18</sup> Real interest rates have fluctuated significantly in the province since the tsunami. In 2005, all types of real lending interest rates were driven down by the high inflation that the province experienced as a result of the reconstruction effort, as illustrated in Figure 7. Interest rates went up again when inflation fell in subsequent years. The differences in the cost of capital is primarily the result of different inflation levels, while nominal interest rates charged in Aceh are broadly the same as in the rest of Indonesia, as shown in Figure 8. The same level of nominal interest rates was also confirmed in discussions with banks in Aceh

<sup>18</sup> Data on average interest rates might not be reliable in Aceh. Comparisons between Aceh and national rates are thus to be interpreted with care. Inflation data used to estimate real interest rates are for Banda Aceh only.

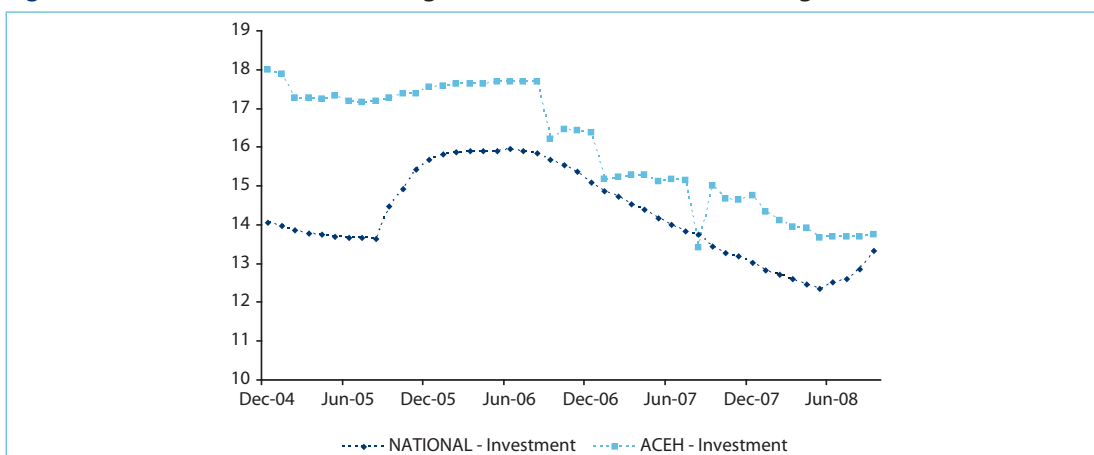
by the team. The inability of banks to actually cost the higher risks of doing business in Aceh compared with the rest of Indonesia may in itself be a constraint to extending credit to businesses, limiting banks to relatively safe operations, as discussed further below.

**Figure 7 Real investment lending rate in Aceh and national average**



Source: Bank Indonesia and World Bank staff calculations.

**Figure 8 Nominal investment lending rate in Aceh and national average**



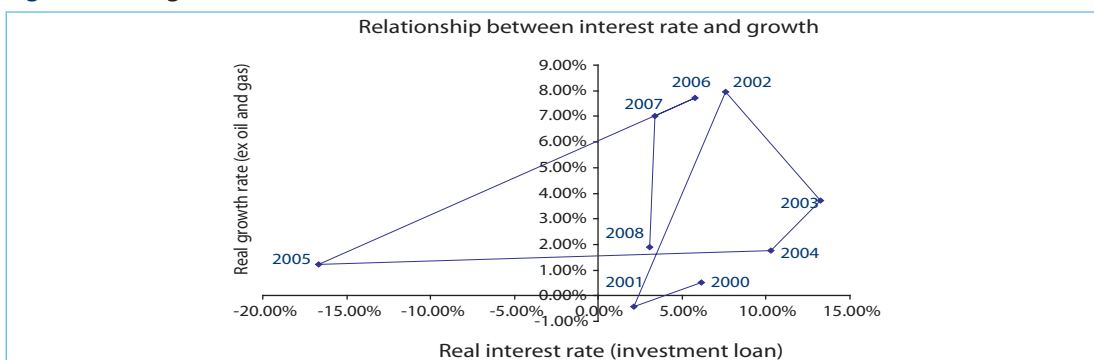
Source: Bank Indonesia and World Bank staff calculations.

**The cost of capital is not constraining growth and investment in Aceh.** Even if there are few differences between Aceh and the rest of Indonesia, it could still be the case that the cost of capital is constraining private investment and thus growth. This should lead to lower growth rates when interest rates are higher. However, in Aceh this is not the case: GRDP growth does not react to a lowering of the real interest rate. This observation indicates that the cost of credit is probably not a binding constraint to growth.<sup>19</sup> However, this finding should be interpreted carefully. First, the data series used is rather short and the growth rate might be responsive to changes in interest rates over longer periods of time. Second, this short period encompasses the tsunami and the subsequent recovery program that might distort the observations, for instance by causing inflation to be very high and thus real interest rates to be very low in 2005.

<sup>19</sup> These data are capturing the economic situation in the province prior to the onset of the current global financial crisis. As the impact of the credit crunch starts to show in the real economy, the statement above may need to be qualified.

**Recent evidence supports the idea that the cost of credit is not a binding constraint in Aceh.** The business empowerment credit program (*Kredit Pemberdayaan Pengusaha*) that started in October 2008 provides loans at the fixed subsidized rate of 8 percent to businesses in Aceh. Under the program, the collateral requirements are not too stringent: instead of the usual 110-120 percent of the loan amount, 80 percent is asked from borrowers. The size of the loan ranges from Rp 50 million to Rp 500 million. As of April 2009, the total amount of funds that had been loaned under this program was only about Rp 5 billion.<sup>20</sup> Although it is too early to assess the overall effectiveness of the program, the relatively small uptake of these “cheaper” funds further suggests that high interest rates are not preventing businesses from accessing credit in Aceh.

**Figure 9 GDP growth does not react to different interest rates**

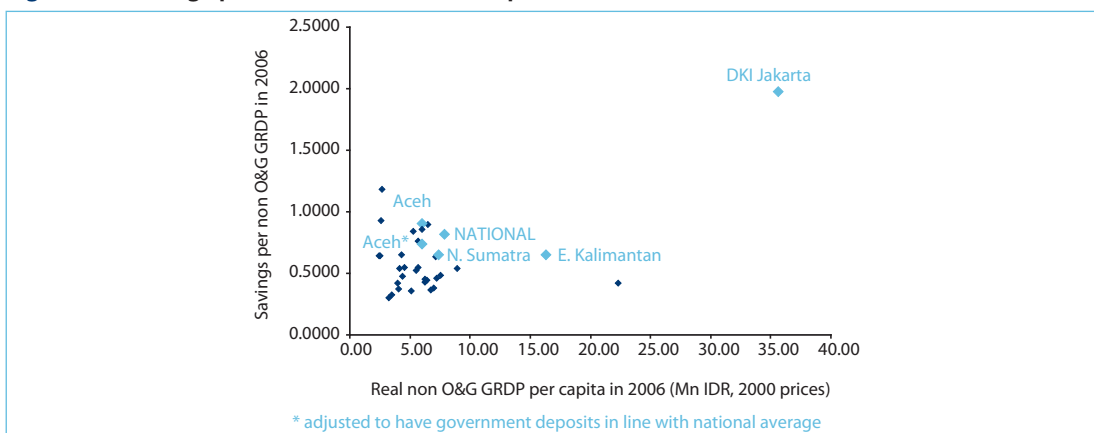


Source: Bank Indonesia, BPS and World Bank staff calculations.

### c. Is it low savings and no access to external finance?

**A low savings rate is not the reason for the low volume of credit in the province.** One classical explanation of why credit may be costly or why there may be credit rationing is low domestic supply of funds together with no access to external finance. Bank deposits are used to evaluate the supply of funds. Aceh has one of the highest savings-to-GRDP ratios in Indonesia. Figure 10 shows this with Aceh being the fourth ranking province in 2006. Not surprisingly, Aceh has a very low loan-to-deposit ratio (LDR): in December 2008 LDR was 46 percent, significantly lower than the national ratio of 70 percent.

**Figure 10 Savings per GRDP for Indonesian provinces, 2006**



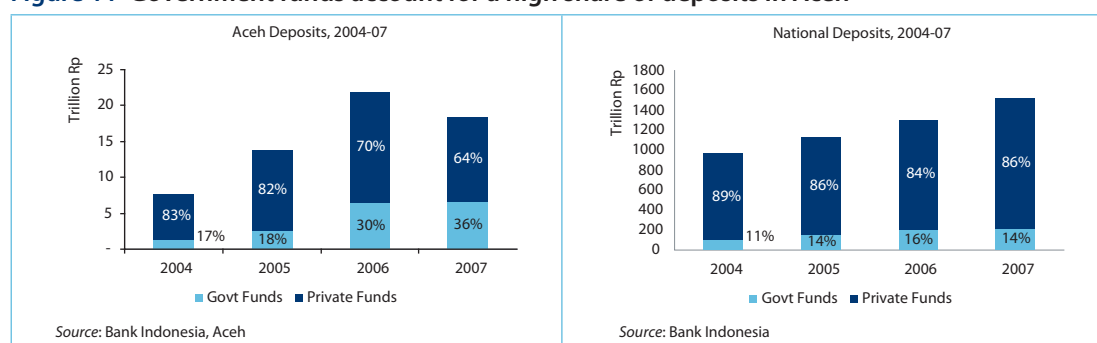
Source: Bank Indonesia and World Bank staff calculations.

<sup>20</sup> Data from program officials.

**A large share of deposits in Aceh is short term, but even then the savings rate is not a constraint to financing in the province.**

The situation in Aceh could be misleading due to the high level of reconstruction and government funds that have been deposited in the province by different governmental and non-governmental agencies. As shown in Figure 11, in 2007 government funds represented 36 percent of all deposits, compared with an average of about 14 percent for Indonesia as a whole. As these funds cannot be used for lending, a low amount of ‘loanable funds’ could explain why there is so little credit in Aceh while total savings are so high. To test this hypothesis, a similar rate of ‘loanable funds’ as in the rest of Indonesia is assumed, adjusting the savings rate in Aceh (data point “Aceh\*” in Figure 10 above).<sup>21</sup> Even after adjusting the savings rate to the national level, Aceh still has a relatively high savings-to-GRDP ratio, which leads to the conclusion that low supply of funds is not the reason for the low credit-to-GRDP ratio.

**Figure 11 Government funds account for a high share of deposits in Aceh**



If savings are indeed high in Aceh there has to be another explanation as to why credit volume is low: is it because the banking sector is not performing its intermediary function well or because credit is being rationed? The following sections focus on exploring these different options.

#### d. Is it poor intermediary function by local banks?

**Poor intermediary function of banks in Aceh could be constraining their ability to extend credit to businesses.** Banks in Aceh do not seem confident in evaluating loan applications; although their review process should officially last no more than one month, SMEs sometimes wait up to six months when they apply for a loan for the first time (IFC, 2007). To gain a better understanding of the intermediary role that banks are playing in Aceh, a series of in-depth interviews with eight commercial banks in Banda Aceh was conducted in December 2008 to study the banks’ perspectives on doing business in Aceh and the specific challenges that they face. The aim was to find out whether banks were not able to price the specific risk associated with lending in Aceh, resulting in unwillingness to lend, or whether banks lacked the expertise that might be necessary to operate in Aceh and extend loans.

**Banks are not charging higher interest rates in Aceh to cost the perceived higher risks of operating in the province.** If banks were worried about high default rates in Aceh, one would expect them, amongst other things, to charge higher rates in the province. Interestingly, all banks interviewed by the team declared that they were charging the same rates as in the rest of Indonesia. Bank Indonesia data presented in Table 6 show that average nominal interest rates in Aceh were lower than national averages and interest rates in other provinces in December 2008. The observed differences in lending rates are probably the result of banks having different portfolios in different provinces as all banks interviewed

<sup>21</sup> This adjustment was to lower the amount of public savings in Aceh so that the share of public savings in total savings is the same as the national average.

claimed that the rates they charged depended on many factors (size of the loan, maturity, borrower, etc.) but not on the province where the loan was given. Low interest rates in Aceh indicate that banks are not costing a higher perceived risk of operating in Aceh.

**Table 6 Average nominal interest rates, December 2008**

Percent

	National	Aceh	North Sumatra	East Kalimantan	Papua	Central Sulawesi
Working account	15.2	14.1	15.7	15.0	15.1	15.7
Investment	14.4	13.7	15.2	14.3	14.7	14.1
Consumption	16.4	12.0	13.7	13.3	14.2	14.4

Source: Bank Indonesia, World Bank staff calculations.

**One way for banks to maintain large loan portfolios without being exposed to the perceived higher risks of investment lending is to focus on consumption lending.** As shown in Table 7, the share of investment and working capital credit in total credit is lower in Aceh than in the rest of Indonesia and much lower than in neighboring North Sumatra. Consumption loans are usually considered safer and do not require much screening of the applicants, since the purchased goods, typically motorbikes or cars, are used as collateral. Moreover, banks admit that customers they trust most are civil servants and most of their loan applications are accepted.

**Table 7 Investment and working capital credit as share of total credit**

Percent

Investment and working capital credit as share of total credit			
	2005	2006	2007
Aceh	48.6	49.8	50.8
North Sumatra	78.6	79.0	78.7
Riau	68.9	68.3	68.5
East Kalimantan	76.8	78.9	80.3
Papua	42.6	47.5	54.1
Central Sulawesi	51.9	50.9	49.9
Maluku	57.8	38.8	40.6
<b>Sumatera</b>	<b>71.7</b>	<b>71.8</b>	<b>71.7</b>
<b>Java</b>	<b>71.3</b>	<b>72.7</b>	<b>71.3</b>
<b>Indonesia</b>	<b>70.3</b>	<b>71.4</b>	<b>70.3</b>

Source: Bank Indonesia and World Bank staff calculations.

**There is no evidence that banks' intermediary function is a constraint to investment in Aceh.** It could be that banks do not have the necessary human resources (loan officers) to adequately assess loan applications, choosing instead to reject applications and focus on a safer loan portfolio and forego profitable business opportunities. This could affect Aceh to a greater degree than other provinces, given that many banks were not serving many areas during the conflict. Some of the largest players present in rural areas send credit agents into the field to identify and approach businesses that they deem credit-worthy and extend them loans. This proactive approach is effective at expanding the loan portfolio while keeping repayment rates high. This suggests that there is indeed room for improving financial intermediation and that banks that manage to send well-trained credit agents into the field to meet potential customers are successful in serving more people and businesses. Even then, with the large volume of funds being spent in reconstruction in a short period of time, banks have responded rapidly in opening branches to capture deposits and have hired the necessary expertise to extend loans to those sectors they deem safe. Given also the relatively competitive nature of the banking sector, there is little compelling evidence to suggest that banks would not have improved their capacity to serve demand for credit, if they thought that this business sector was profitable.

#### Box 4 Is the conflict an impediment to accessing credit?

Approaching financing issues in Aceh, one of the team's hypotheses was that banks might be reluctant to lend to local businesses because they were concerned about the stability of the province. Given Aceh's history of violence and young peace, it seems plausible that banks might fear some form of violence resumption and thus voluntarily limit their activity in the province. Findings from the interviews are mixed: there is a strong consensus that concerning security, it is now "business as usual" for banks in Aceh and that there are more stringent problems. However, many banks mentioned that during the conflict they had a much reduced physical presence (or none at all) and exposure to the province. To the extent that a resumption of the conflict is still a possibility, it will still be a consideration of banks when operating in Aceh. Several banks expressed their intention of expanding their network of branches in Aceh, particularly reaching out to districts and cities outside the provincial capital, which may reflect the increased attractiveness of the province and the fact that peace has held for four years now. No bank said that it was charging different interest rates in the province (as a consequence of higher perceived risk) or had more stringent collateral requirements. Any differences in interest rates can be explained by differences in the loan portfolio (e.g. smaller loans which would result in higher average interest rates being charged). Moreover, even though banks did not express fear that the conflict might resume, they all expressed concerns about the local and presidential elections in 2009 and the fact that a lot of strategic decisions were on hold until they could observe whether the elections would bring back instability. The focus on consumption loans, and in particular those serving civil servants, also indicates an attempt by banks to reduce the risks of doing business in Aceh.

Source: Survey of banks in Aceh.

Although there seems to be some room for improvement in the way that banks are fulfilling their financial intermediary function — especially for many banks that left the province during the conflict and are only slowly coming back — this is unlikely to be the major factor behind low levels of credit to the private sector. Given the availability of funds, strong growth during the reconstruction effort and relative security in most parts of Aceh, it seems unlikely that banks would not put the necessary resources and capacity in place, at least to the same level as they do in other places in Indonesia. *The difference* in the amount of credit going to businesses with the rest of the country can therefore not be explained by a lack of capacity of local banks.

#### e. If not, is it credit rationing by banks?

**Credit rationing could be one reason for low credit levels.** The cost of credit does not seem to be a key constraint to investment, nor a poor intermediary function by local banks. Another reason for the low levels of credit being extended to businesses could be that they simply do not have the option to do so. For instance, this could happen because businesses cannot comply with the requirements set by banks, because too many businesses are informal,<sup>22</sup> or because banks are reluctant to extend loans to certain types of credit applicants.<sup>23</sup>

**Banks are very cautious in their approach to operating in Aceh, avoiding riskier sector such as agriculture or borrowers such as SMEs.** In the interviews conducted with commercial banks in Banda Aceh, it appeared that these banks were very cautious in their approach to operating in the province (as suggested by the low NPLs of most banks and the banking sector in general), limiting the access of

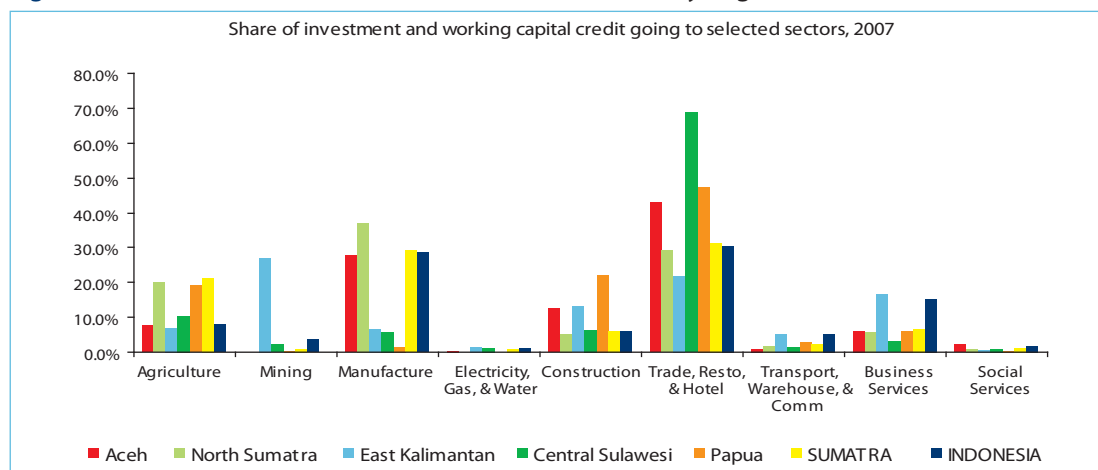
22 This may not be a constraint to access smaller loans, since many banks do not request business or tax registration numbers, but instead require KTP or family registration card and other informal references (e.g. from village head).

23 Difficult access to credit for smaller businesses and farmers is not an exclusive problem of Aceh; it affects the whole country (and most other countries for that matter). Attempts by the government to address this issue through subsidized and/or guaranteed credit schemes show very low repayment rates, somewhat justifying the reluctance of private banks to lend to these sectors. In Aceh, the PER program (Pemberdayaan Ekonomi Rakyat) was launched in 2001 and consisted of small loans (Rp 1 - Rp 250 million) for informal SMEs. It did not require collateral. Between 2001 and 2003, Rp 47 billion was disbursed of which Rp 40 billion have defaulted. This low repayment rate was later explained by the absence of collateral requirement, the tsunami and its consequences and design flaws of the program (the government instead of banks was selecting the applicants). Low repayment rate of subsidized schemes sponsored by the government was also highlighted by several of the banks with which the team had discussions in Aceh in the elaboration of this study.

people and businesses to credit. First, banks are usually reluctant to offer lending products that do not require collateral and are mostly targeted towards Micro, Small and Medium Enterprises (MSMEs).<sup>24</sup> This could be a serious impediment to access since many people and businesses lost assets and certificates in the tsunami, which they can no longer use as collateral. Second, some people have been “blacklisted” by banks. This occurred after they failed to repay their loans as a consequence of the losses incurred in the tsunami and, as of today, they remain unable to apply for new loans although most of these old loans have been written off. Third, agriculture appears to be a relatively risky sector and, even if many banks express interest in lending more to encourage agricultural development, this still has to be followed up by action.

**Credit structure in Aceh is skewed toward sectors that are deemed less risky, such as construction and trading.** As shown in Figure 12, the sectoral allocation of investment and working capital credit is skewed towards sectors that are deemed to be safer. These sectors are mostly part of the urban economy, such as trading and to a lesser extent construction. Sectors that receive most loans are those in which fixed capital investment is low, such as trading. This might also be an indication that businesses still do not want to commit large investments to the province as they perceive a high risk that the conflict may resume and force them out. Limiting the fixed capital investment that they might be forced to abandon in such an event is a straightforward way for businesses to insure against this risk. The share of credit that goes to manufacturing is in line with the rest of Sumatra and Indonesia, and the share of credit going to agriculture is relatively low compared with the rest of Sumatra. Lending to the food processing industry is constrained by its small size in Aceh. The large allocation of credit to the construction sector would seem to contradict statements by interviewed bankers identifying construction as a relatively risky sector: contractors often face issues related to land titling, extortion or volatile building material prices. However, the share of credit going to this sector is still higher than Sumatra and national averages, indicating that, despite expressed misgivings, construction has been the major driver of the province’s economy for the past few years with a large share of all resources – public and private – being devoted to it.

**Figure 12 Construction and trade sectors receive a relatively large share of credit in Aceh**



Source: Bank Indonesia and World Bank staff calculations.

**In general, it appears that banks are unwilling to lend to small-scale agribusiness and plantations without the government or NGOs guaranteeing the loans.** There is a sense that the market has been distorted as farmers and fishermen have been receiving grants and loans from NGOs during reconstruction, and are now unwilling to take on commercial loans that they will have to repay.<sup>25</sup> The

<sup>24</sup> Interview with banks, Banda Aceh, December 2008.

<sup>25</sup> IFC, “Aceh Financial Sector Diagnostics”, November 2007.

few lending programs that do not require collateral, or accept only household appliances and furniture as collateral, are very successful and in high demand. Even banks that have expertise in micro-credit and rural lending in other provinces appear reluctant to undertake micro-finance lending programs in Aceh.<sup>26</sup> Moreover, part of the recent success of Sharia banking can be explained by the fact that it does not require collateral for loans.<sup>27</sup> People or groups that have lost their assets to the tsunami or the conflict might be prevented from accessing credit. There is evidence that victims of the conflict have slightly less assets than non victims (Table 8). The case of former combatants is also worth pointing out: on average, even though they have the same income as civilians, their asset base is lower. Some disadvantaged groups in Aceh may be facing constraints to accessing credit, which in turn could be a barrier for them to be able to engage in economic activities and invest.

**Table 8 Income and wealth (men only)**

	All Men		Civilian Men		Comparing Groups	
	TNA	Civilians (n = 1792)	Victims (n = 974)	Non-victims (n = 1321)	Ex-TNA to civilians	Victims to non-Victims
<b>Average Income (Rp. '000)</b>	16,248	16,596	16,146	16,918	-347	-771
<b>Household Poverty Measures, 2008</b>						
Household assets (mean) (Rp. '000)	17,426	24,370	23,520	25,838	-694***	-2,586*
Meters-sq. of land farmed by household (mean)	7,628	10,044	8,912	10,800	-2,416	-1,887
Share of houses made of concrete (%)	27	36	31	40	-9***	-9**
Access to water from a clear/protected source (%)	46	60	56	63	-15***	-7**
<b>Poverty Perceptions</b>						
Households among poorest third in village††	65	47	53	42	18***	12***

\*\*\* Significant at 99%; \*\* Significant at 95%; \* Significant at 90%. Table reports population means and sample n's.

Source: MSR, 2009.

**Following the end of the conflict, banks have resumed operations in Aceh and are gradually returning to a “business-as-usual” mode of operations in the region.** However, evidence suggests that this process might be slower than they admit. As of today, most banks are only operating in the province's main cities and have very little coverage of rural areas. As a result, they lack the capacity to extend loans to economic sectors central to the economy, such as agriculture and fisheries. Banks are mostly serving the safest borrowers. No bank extends business loans to companies that are less than one year old. They lend mostly to well-established businesses with large cash-flows and sound collateral. In Aceh, these are mostly trading businesses and, to a lesser extent, contractors. Access to finance, especially for some sectors of activity, seems to be an issue in Aceh.

**Although access to credit is fairly low in Aceh, this does not seem to be the binding constraint to growth in the province.** Small and medium enterprises that apply for loans are in general successful: only 4.13 percent of them were rejected in the first half of 2008 (World Bank, 2008d). Issues of access to finance appear to be widespread in Indonesia and cannot explain alone Aceh's relatively low credit rate. The low credit being extended to the private sector may be an attempt by banks to cope with what many perceived to be the higher risks of operating in Aceh. Banks' intermediary function is also hampered by the fact that many banks left the province during the conflict and have only recently returned, so they have

26 Interviews with banks, Banda Aceh, 2009.

27 IFC, “Aceh Financial Sector Diagnostics”, November 2007, p.2.

few branches in the province and have to re-establish their businesses and customer networks. Banks are lending to the safest borrowers: established businesses and companies with high cash-flows that can repay their loans quickly or consumer loans to government officials. Agriculture, food processing, and small-scale manufacturing all have the potential to help create sustainable and shared economic growth but cannot access credit easily since they fall into categories that banks are reluctant to finance. Access to credit is not a binding constraint to growth in Aceh, but given that both businesses and individuals have identified it as a constraint for them to increase productivity, improving access to credit may be important for the ability of the poor to benefit from growth. There are two main interventions that government institutions can implement to increase the access of Aceh's private sector to credit:

- **Expand/ introduce KUR type partial credit guarantee programs**, assisted by GoA/Gol, to provide incentives to banks to extend loans to new customers. Such a program should consider exit strategies for firms that have proven their credit worthiness and can therefore access credit without the credit guarantee. Given Aceh's experience with such programs, particular attention should be paid to the design of the program to avoid a low repayment rate, as in the *Pemberdayaan Ekonomi Rakyat* program, or low intake, as with the newer *Kredit Pemberdayaan Pengusaha* program;
- **Support business development services** (e.g. through Development Business Services Centers, DBS-Centers) that provide information to small and medium enterprises on financing and business development, while also identifying businesses with development potential and linking them to credit sources. DBS-Centers should focus on agriculture, fisheries and agro-processing, both because of the potential of these sectors to become an engine for inclusive growth in Aceh, as well as the fact that these sectors are often identified as particularly risky by banks.

This section has provided evidence that access to credit by businesses in Aceh is relatively low, and has analyzed the causes of why this may be so. Although there might be issues with the intermediary role that banks are playing, there is little reason to believe that the intermediary function of banks in Aceh is significantly worse than in the rest of the country. As a result, to a large extent the reasons for the low levels of credit extended to businesses have more to do with the perceived higher risks of operating in Aceh and related lower profitability of investment proposals. The following sections in the report analyze what the reasons behind this might be.

# Low Social Returns

**Incentives to invest may be lowered because some complementary factors of production are of poor quality or not available at all.** Workers may have very low productivity because of low skills, infrastructure may be of poor quality or the geographical conditions adverse to business development. Human capital is important to productivity enhancement, as it allows technological progress, and the development of skills-intensive industries. Indonesia's basic indicators of educational attainment remain low relative to its regional peers. At the national level, basic infrastructure indicators, especially in energy, transport and water and sanitation, are particularly poor. These deficiencies may pose important obstacles to the productivity of businesses and therefore the incentives for businesses to invest. In analyzing the quality and availability of complementary factors of production, it will be useful to compare Aceh with other provinces within Indonesia to assess the extent to which it fares better or worse than other provinces.

**Given Aceh's favorable location, geography is unlikely to pose a significant constraint to growth.** The growth diagnostic framework treats the geographic location and characteristics as a set of complementary factors impacting social returns to investment: among the geographical factors that could have an adverse influence on growth, one could think of a country being landlocked, lacking natural resources or arable land. Aceh is situated at the northern tip of Sumatra and on a central trade route, and is endowed with natural resources. It is close to a major industrial and trade center in Sumatra, Medan, and to regional markets, including neighboring Malaysia and Singapore. Aceh's climate allows for the cultivation of several export crops such as palm oil, rubber, cocoa and coffee and together with the neighboring province of North Sumatra it hosts one of the last remaining rainforests in Southeast Asia. Recent research highlights the advantages investors see in Aceh being close to a major industrial and trade center such as Medan, as well as Malaysia, but it also cites some of the constraints that are preventing Aceh from benefiting from this proximity. These include weak supply chain linkages to wider domestic and global chains, market information failures and poor bargaining power of smaller growers, poor extension services and poor product quality (IFC, 2008). Potential investors consider the proximity and transport logistics to Medan as an asset for Aceh, rather than a constraint. There is a lively debate on whether economic growth needs to be unbalanced as economic activity concentrates (World Bank, 2009b). This debate also takes place in Aceh, when discussing the benefits of Aceh's proximity to Medan, and whether agglomeration forces, attracting investment and economic activity to Medan, act as an incentive or disincentive (e.g. by all value-added activities taking place in Medan rather than in Aceh) to invest in Aceh. Without wishing to put an end to that debate, but based on the available evidence and interviews with potential investors, this report argues that Aceh's geography is not a binding constraint to investment and growth.

## a. Infrastructure: roads

**Infrastructure is often highlighted as a key impediment for investment in Aceh.** Basic infrastructure indicators seem to be comparable to the national average in a number of areas, such as irrigation and access to electricity. However, Aceh scores significantly lower on indicators related to telephone connections, private sanitation and waste management. All kinds of infrastructure are not equally important for businesses and this section will focus on understanding the specific problems of the road and electricity networks, which are both integral to successful private sector development.

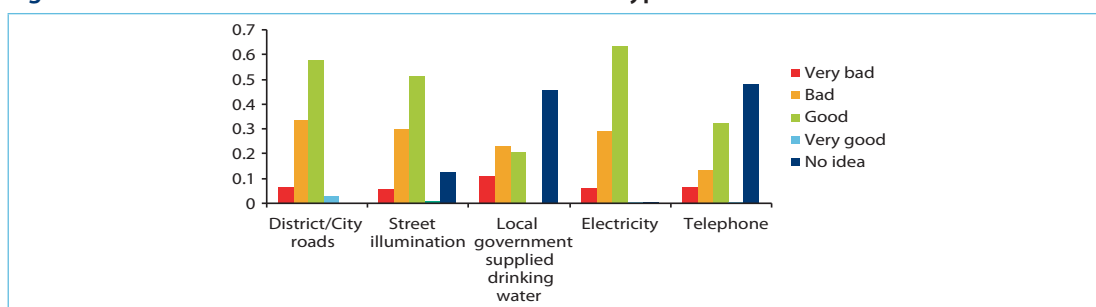
**Table 9 Infrastructure condition in Aceh and Indonesia, 2005**

Infrastructure Condition <sup>28</sup>	Aceh (%)	Indonesia (%)
Households with access to electricity	73.0	68.7
Villages without electricity	7.7	7.3
Telephone connections	6.2	12.2
Irrigated land as a percent of arable land	52.8	54.6
Private sanitation	34.2	52.2
Waste management	3.7	8.5

Source: Podes, 2005.

**The private sector’s perception of the condition of infrastructure is mixed,** as shown in the figure below. When firms in Aceh were asked about their views on the condition of district and city roads, street illumination and electricity in the vicinity of their operations, more than 35 percent answered these services were either “bad” or “very bad”. However, perception indicators seem to be comparable for most infrastructure types, with no single type or group singled out by existing businesses as being the more problematic. Some types of infrastructure may still pose a barrier to investment and growth by holding back new investors from settling in the province. In discussions with the Investors Outreach Office in Aceh, lack of reliable electricity supply was highlighted as the main constraint for otherwise viable business ideas. To figure out which types of infrastructure are significantly worse in Aceh, this report relies on more objective measures of infrastructure coverage and quality in Aceh, and compares these with other provinces.

**Figure 13 How firms assess the condition of different types of infrastructure**



Source: The Asia Foundation / KPPOD

**Despite widespread perceptions to the contrary, Aceh’s road infrastructure does not seem to be worse than that of the rest of the country.** Data from the Public Works agency show that in 2006 Aceh’s district and provincial road networks were in better condition than the average for Sumatra or the

28 Indicator (measure): Households with access to electricity (share), villages without electricity (share), telephone connection (share of villages connected), irrigated land as a percentage of arable land (share), private sanitation (share of household equipped with septic tank), waste management (share of villages equipped with proper waste management system, e.g. final dump site)

country as a whole. Only the national road network is in a worse condition, a result of national roads along the east and west coasts being severely damaged by the tsunami. In 2000, 78 percent of Aceh's national road network was in good condition, compared with 69 percent in Sumatra as a whole and 54 percent at the national level. In terms of road density, Aceh compares favorably with the rest of the country and is very similar to Sumatra as a whole.

**Table 10 Road condition in Aceh, 2006**

Roads in good condition, 2006	District roads (%)	National roads (%)	Provincial roads (%)	Road density* Km/ 10,000 person	Road density* Km / 100km <sup>2</sup>
Aceh	28	6	9.5	3.5	2.7
Sumatra Utara	12.2	42	4.9	1.7	2.9
Sumatra Island	17.9	57	6.2	3.6	2.8
National	20.2	52	10.8	1.4	1.7

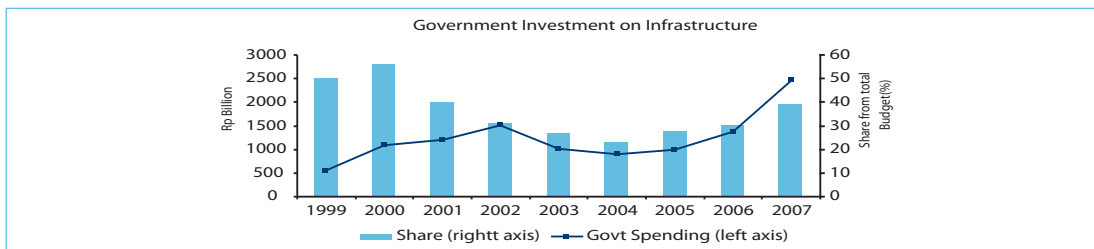
Source: Bina Marga, Public Works. \* Provincial roads.

**Infrastructure suffered significant destruction during the conflict.** Some of the lagging indicators can be explained by the conflict. A recent conflict damage and loss assessment shows that over 50 percent of nine types of infrastructures were damaged during the conflict: transport, bridges, water and sanitation, electricity, irrigation, village facilities, economic facilities, housing, and productive land (MSR, 2009). In 2006, only 12 percent of this damage had been repaired. Ninety-six thousand hectares of rice field (31 percent of the total in Aceh) fell fallow; 278,000 hectares of other cropland (49 percent) could not be used because of the conflict and over 200,000 heads of livestock (cattle and buffalo) were lost during the conflict. In the enterprise sector, 1,483 rice mills and other small processing plants were damaged (47 percent of the total), around 6,707 shops, stores and food stalls and almost 1,409 village markets (among a total of 2,368) were damaged or destroyed. Nearly 1,179km of district roads (43 percent of the total), 2,641km of village access roads (60 percent), and 1,442km of hamlet access roads (61 percent) were damaged. Some 2,195 concrete bridges and 4,468 other bridges (wooden, suspension, steel girder) were also damaged. Infrastructure damaged by the conflict tended to be built back relatively low, particularly when compared with the speed at which tsunami-damaged infrastructure is being built back.

**Reconstruction after the tsunami has equipped Aceh with better infrastructure.** About US\$1.5 billion worth of infrastructure projects (in the areas of transport, irrigation and energy) have been allocated. As per December 2008, about 3,000km (all types of road) have been built, 273 bridges have been repaired, as well as 12 airstrips and 20 ports.<sup>29</sup> This was primarily in tsunami-affected areas, with few investments in the interior and other non-tsunami affected areas: only nine percent of the value of the conflict related damages and losses have been allocated in the form of post-conflict support (MSR, 2009). In post-conflict areas, there are still great assistance needs in housing, agriculture and transport. In areas where infrastructure has been repaired after the tsunami, it is not clear whether local governments will have the resources and the capacity to maintain these new assets. The government remains the main investor in infrastructure. Although some industries have resorted to building their own infrastructure (oil and gas, fertilizer industry and a few plantations), the vast majority of the private sector still relies on infrastructure provision by the public sector. Government spending on infrastructure decreased significantly following decentralization, but it has been increasing again (both in absolute and relative terms) since 2004, as shown in Figure 14. Recent studies on public spending in Aceh show both an increase in public spending on infrastructure as a whole (World Bank, 2008b), as well as an increase in the allocation to operation and maintenance (World Bank, 2006b) to 9 percent, still below the national average of 12 percent. Maintaining the high allocation of funds to infrastructure and in particular spending on operations and maintenance will be necessary to continue improvements in Aceh's road infrastructure.

<sup>29</sup> The energy sector was one of the few sectors that did not receive enough funds to recover from the tsunami. With minimum needs estimated at almost US\$120 million, allocated funds covered less than 40 percent of the minimum needs.

**Figure 14 Government spending on infrastructure in Aceh has been increasing since 2004**



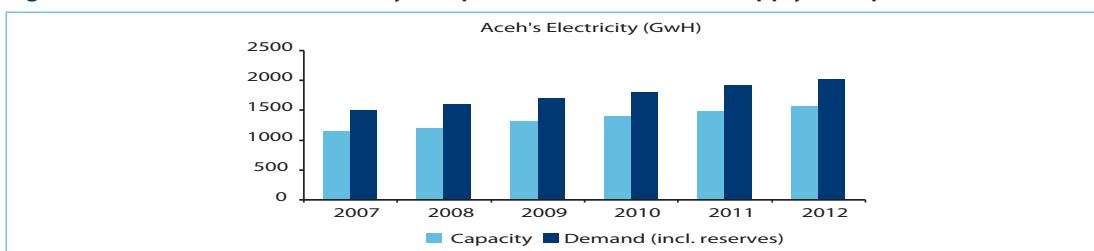
Note: Constant 2006 prices.

Source: Provincial, Ministry of Finance, World Bank staff calculations.

## b. Infrastructure: electricity

**Demand for electricity continues to increase and a lack of reliable electricity supply has often been identified as a key constraint for economic development in Aceh.** Similar to the national trend, demand growth for electricity has been almost 10 percent for the past five years. Households account for 67 percent of demand, while businesses and government account for 14.5 percent and 18.5 percent, respectively. Almost 80 percent of Aceh’s electricity supply comes from the Sumatra interconnection system through North Sumatra. This system has been designed to improve efficiency in distribution, but it also implies that Aceh is vulnerable to disturbances in long-distance connections, which can sometimes occur, for instance, in bad weather conditions. Electricity supply in Aceh is enough to meet demand under normal conditions, but it lacks the necessary idle power reserve to act as a back-up when supply networks are disrupted (Figure 15). This happens relatively often in the province: businesses in Aceh report that electricity supply is interrupted on average 4.3 times per week, whereas in the rest of Indonesia this only occurs twice a week. Discussions with private sector representatives also highlighted that the lack of reliable electricity was a key constraint for certain types of activities (fish processing, poultry) that would otherwise be viable.

**Figure 15 Aceh lacks the necessary idle power reserve to avoid supply disruptions**



Source: RUPTL NAD 2008-2017, PLN, World Bank staff calculations.

**According to PLN, the electrification rate in Aceh is higher than in the rest of Sumatra and Indonesia** (Table 11). Electrification at the household level does not necessarily translate into reliable electricity and uninterrupted power supply. Several industries, such as the oil and gas or cement, resort to generating their own supply of electricity: together these industries produced about 427,000 kVA for their own usage in 2007. That year, about 575,000 kVA or 3 percent of the total electricity supply in Aceh was generated by the private sector for its own consumption. For medium and small industries, which operate on a smaller scale, generating their own electricity is often not an option and electricity supply might constitute a significant constraint.

**Table 11 Aceh's electrification rate is on par with the rest of Indonesia**

Percent

Electrification's Rate – Provinces	2003	2008	2013
Java - Bali - Madura	59.5	67.3	77.3
NAD	56.2	69.8	86.5
North Sumatra	67.1	78.2	93.2
West Sumatra	60.5	72.9	94.3
Riau	38.5	47.1	56.9
East Kalimantan	49.8	65.4	91.1
North Sulawesi, Central Sulawesi and Gorontalo	46.2	53.5	63
Papua	27.4	34	42.6
NTT	22.4	28.7	37.2
Batam	68.7	96	100
<b>Sumatra</b>	<b>50.3</b>	<b>62.8</b>	<b>80.3</b>
<b>Indonesia</b>	<b>54.8</b>	<b>63.5</b>	<b>75.2</b>

Source: PLN.

**Frequent power outages, even in the provincial capital Banda Aceh, as a result of under-capacity, relatively old equipment and frequent necessary maintenance, are likely to be a significant constraint to growth.** Significant investment in electricity is needed to ensure uninterrupted power supply and avoid the need for the private sector to generate its own electricity. In order to meet the growing demand for electricity, PLN estimates that it will need to invest about US\$130 million over the next five years (PLN, 2007). Most of the investment may have to come from the public sector. The current structure of the energy markets is unlikely to result in significant investments in energy generation by the private sector, given the current pricing policies by PLN. It is debatable whether the provincial government will have the capacity to undertake the necessary investments in the short term. In addition to improving the reliability of energy supplies from the Sumatra Interconnection System, the GoA could consider the use of renewable energy resources, which have been previously identified as having potential for Aceh (CSIRO, 2008). There are opportunities to enhance the development of geothermal, local biomass and solar energy, to ensure reliable and local supplies of energy to support the development of the province.

### c. Education and human capital

**Educational attainment levels in Aceh are high relative to other provinces and the Indonesian average,** but former combatants are at a slight disadvantage compared with civilians. Primary and secondary enrollment rates were higher in 2007 than the national rates and those of the wealthier neighboring province of North Sumatra (Table 12). There has not been any significant evolution since the end of the conflict and the tsunami as enrollment rates were similar in 2007 to what they were in 2004.

**Table 12 Educational attainment**

Percent

Education	2004			2007		
	Aceh	North Sumatra	National (average)	Aceh	North Sumatra	National (average)
Primary NER	95.9	93.6	93.0	95.7	93.9	93.8
Junior Secondary NER	80.0	73.0	65.2	76.4	73.6	66.6
Senior Secondary NER	62.0	56.6	42.9	61.8	54.8	44.6
Primary GER	108.8	106.6	107.1	114.3	111.0	110.4
Junior GER	95.9	89.9	82.2	91.1	91.3	82.0
Senior GER	75.2	70.9	54.4	76.8	69.0	56.7

Source: Susenas, 2004-07.

**Data from the Aceh Reintegration and Livelihood Survey (ARLS) indicate that former combatants are on average less educated than civilians.** ARLS dataset provide information on individuals, households and villages and focus on post-conflict reintegration in Aceh. ARLS was implemented from July-September 2008 in 754 villages in Aceh. The sample is such that the survey is representative of men in all Aceh (and of women in a subset of districts) and allows comparisons to be drawn between several groups, including ex-combatants versus civilians and victims versus non victims. The study uses these data to investigate the socio-economic situation of some of these groups, including former combatants, and understand the specific challenges that they face. Such considerations are integral to outlining relevant policies for inclusive growth. In terms of education, when comparing former combatants with civilians, it appears that former combatants are more likely to have stopped their education at the primary or junior high school levels (Table 13). Only 17 percent of them have graduated from senior high school or obtained a higher degree as opposed to 34 percent of the civilians (MSR, 2009). However, more of them are literate which may indicate that they are more likely to have received a basic education.

**Table 13 Basic characteristics, comparing ex-TNA, civilian victims and non-victims (men only)**

	All Men		Comparing Groups	
	Ex-TNA (n=1024)	Civilians (n=1794)	Ex-TNA to civilians	
Age (mean)	35	40	-6	***
Acehnese (%)	94	70	24	***
Literate (%)	96	91	5	***
<b>Education (%)</b>				
None	15	17	-3	
Completed primary school	40	29	11	***
Completed junior high school	29	20	9	***
Senior high school or more	17	34	-17	***

\*\*\* Significant at 99%; \*\* Significant at 95%; \* Significant at 90%. Table reports population means and sample n's.  
Source: MSR 2009.

**During the conflict educational infrastructure was deliberately targeted,** with government troops seeking to destroy potential hiding places for combatants, and GAM seeking to destroy what they saw as a major source of Indonesian propaganda. A damage and loss assessment (MSR, 2009) estimates that 49 percent of high schools, 47 percent of middle schools, 54 percent of primary schools and traditional *madrasah* (Islamic schools), and 74 percent of kindergartens were damaged during the conflict. Schools would often be temporarily shut down when violence was particularly bad. In the six months following the collapse of the Cessation of Hostilities Agreement in May 2003, 880 schools had to close their doors (Barron, 2008). Universities also came under attack. A large number of Acehnese left the province in this period. Czaika and Kis-Katos (2007) for example estimate that over 180,000 people left the province between 1999 and 2002, providing evidence that the conflict was a major determinant of outbound migration from the province. After the government declared martial law in Aceh in May 2003, more than 100,000 Acehnese fled the territory, among them many students and businessmen (Misbach, 2007). Agriculture-based industries and traders fled the province, and hundreds of students of Syiah Kuala University continued their education outside Aceh. However, there are signs that the improved security situation and the opportunities created by the reconstruction effort resulted in some businessmen and skilled labor returning to Aceh.<sup>30</sup> The reconstruction effort has in turn contributed to improving human capital in the province. Reconstruction projects have improved educational facilities and improved the capacity of government officials. As of December 2008 40,000 teachers had been trained during the reconstruction effort.<sup>31</sup> Many reconstruction actors have employed local staff, which has probably generated significant knowledge transfers.

30 Interview with the Head of Commerce, Trade and Industry Chamber and business leaders.

31 Aceh and Nias Recovery Progress, data from Pusdatin-RAN Database-BRR in <http://www.e-aceh-nias.org/home/default.aspx?language=EN>, accessed on 14 April 2009

**The availability of skilled labor does not seem to be a constraint and there is no shortage of skills in the province.** The labor market does not seem able to absorb the existing supply and there are few employment opportunities for skilled workers in Aceh. The majority of Aceh's workforce (over 60 percent) is employed in the informal sector. The main employer is agriculture followed by trading and services, with limited employment possibilities in the industrial sector. The local government seems to absorb an important share of the skilled labor force,<sup>32</sup> since employment opportunities in the formal sector for graduate students are limited and over one-third of all university graduates seek job opportunities outside the province.<sup>33</sup> Although a lack of skilled labor may not be currently constraining growth, this may be because Aceh is in relatively low growth equilibrium, with many of the more skilled Acehnese having left the province during the conflict. One would expect this to be reflected in the number of professionals working in the province, e.g. showing a lower number of teachers and health professionals. As Table 12 below shows, there is no shortage of professionals in Aceh to provide health and education services. The province is either in line with national averages or above average and it is doing better than North Sumatra (Table 14). This provides further support to the notion that skilled labor is available in sufficient numbers. As the province develops, the skill set of its workforce may become more of a constraint, but at present it does not seem to be a constraint to investment and growth.

**Table 14 Health and education professionals**

	Teachers/1000 * (2008)	Health professionals/1000 ** (2007)
NAD	14.84	2.6
North Sumatra	14.04	2.3
Sumatra	n/a	2.1
Total National	14.98	2.0

\* Includes teachers at levels SD, SMP, SMA.

\*\* Includes general doctors, specialized doctors, nutritionists, nurses, medical equipment operators, midwives.

Sources: Ministry of Health, Ministry of education, BPS.

**Moreover, skilled workers are rewarded for their skills at a level that is similar to Sumatra (but below the national average),** which indicates that businesses that need skilled labor in Aceh do not have a hard time finding it. Returns to education are defined as the wage premium that employees with a certain level of education receive over less educated employees. One would expect, in the case of unmet demand for skills in Aceh, that the returns to education in Aceh are higher than in the rest of Indonesia, which would show in the premium being paid on wages in the province. Table 15 draws comparisons of wage premiums in Aceh, North Sumatra and Indonesia as a whole: the people who only have completed SMA versus people who are less educated, the people who have completed SMA or a higher level of education versus all others and the people who have attended tertiary education versus all others (see Annex I for details). The aim is to find out the shadow price of skills in Aceh, meaning by how much firms value their workers' skills. The results show that skills in Aceh are rewarded at the same level as in Sumatra, but below the national level. Controlling for other variables that also affect wages, such as age, gender or location, a worker who has completed a SMA or a more advanced level can expect to earn 39 percent more than other workers in Aceh. In Sumatra this premium equals 38 percent and in Indonesia 67 percent. For tertiary education, the wage premium is 53 percent in Aceh, whereas it is 61 percent in North Sumatra and 105 percent in Indonesia. This indicates that the demand for workers with tertiary education is lower in Aceh than in North Sumatra.

32 Most of the employment opportunities for graduate students are in public service, banking industry and services. As an illustration, more than 60,000 graduate students competed for only 6,000 positions in the both the provincial and district governments in Aceh in 2008.

33 Interview with Head of Syiah Kuala University Alumni.

**Table 15 Returns to education - predicted increase in wage**

Percent

	SMA vs. less-educated	SMA and above vs. less-educated (SMP and below)	Tertiary vs. less-educated
Aceh	33	39	53
Noth Sumatera	29	39	61
Sumatera	30	38	52
Indonesia	47	67	105

Source: World Bank staff calculations based on Sakernas, 2008 except for Indonesia (World Bank, forthcoming (b)).

**The supply of skilled labor may not be a major constraint to growth in the province, but that does not mean that availability of skills is not a constraint for many Acehnese to benefit from growth.**

The need to import a large number of workers from neighboring provinces to fill the medium-skilled jobs that were created by the reconstruction effort, signals that many Acehnese do not have the necessary set of skills to participate in the labor market. Acehnese in rural areas (World Bank, 2008a) highlighted the lack of skills and human capital as key constraints to improve their productivity and escape poverty. A variety of skills were identified as necessary to increase productivity in rural areas, among them the adoption of improved fishing and agricultural technologies, experience with engaging in simple processing of primary goods, maintenance of shipping equipment or cottage industries (sewing, mat weaving and baking). Improving the match between skill supply and demand has been identified as a key area to facilitate the creation of jobs in Indonesia (World Bank, forthcoming), focusing on improving the quality of vocational training and the provision of skill development for workers.

**What emerges from this analysis is that although there is room for improvement in the provision of education in Aceh, rather than a scarcity of supply of skilled labor there is a lack of demand for skilled labor.**<sup>34</sup> As a result a large share of the skilled workforce has had to seek opportunities outside the province or with the local administration. Going forward, as the province develops and modernizes, this may change. The private sector may start to experience a scarcity of professional skills, with the need to improve the match between skills demanded by the labor market and those delivered by the local institutions. However, this does not seem to be a major constraint at present. Ex-combatants are somewhat less educated than civilians. To ensure that they also can benefit from growth, it is important that they are equipped with the necessary skills. Providing livelihoods to former GAM combatants will also support the peace process and strengthen the province's stability.

<sup>34</sup> Significant wage inflation for skilled and semi-skilled workers during Aceh's reconstruction period as well as the inflow of migrant workers from other provinces during the same period seems to contradict the statement that availability of skills is not a problem in Aceh. However, the reconstruction effort, with yearly disbursement rates of over 20 percent of GDP, and the death of about 167,000 people, was as much a shock to the labor market as to the rest of the economy. In normal circumstances (prior to the tsunami and as the reconstruction effort winds down), to a large extent the local labor market seems able to supply the set of skills that the market is demanding.

# Low Appropriability

**There might be disincentives to invest, not because investors are unable to make profits, but because they are not able to appropriate returns on their investments.** This is an important question since if economic agents are not able to make a return on their investments, they will not undertake any investments. This question is largely independent of whether the necessary complementary factors — infrastructures, skilled workforce, etc — are available for companies in order to allow them to generate returns, which was discussed in the previous section. There are numerous problems that might prevent investors from reaping the benefits of their investments. They occur when companies, although generating returns, cannot benefit from these because mechanisms prevent them from doing so. Such mechanisms can take many forms, for instance: high levels of corruption, high (legal or illegal) taxes, regulatory uncertainty, lack of law enforcement, weak property rights, or market failures. All of these can prevent investors from appropriating their share of the returns and thus may result in lower investment levels. This chapter will start by assessing the stability of the macroeconomic environment in Aceh. Then it will look into the overall quality of the business environment before going into specific microeconomic issues that underpin the business environment. It will then study the potential occurrence of market failures and how these could hinder growth. Finally, it will conclude by answering the question of whether a binding constraint to growth lies within issues of appropriability.

## a. Macroeconomic risks

**The macroeconomic outlook in Aceh is to a large extent tied to that of Indonesia. Given Indonesia's macroeconomic stability, this is not a constraint to investment and growth.** The central government deficit has been maintained to very low levels in 2008, close to 0 percent of GDP, while government debt-to-GDP has fallen sharply in recent years. Inflation, after having accelerated in Indonesia as a result of rising food prices, started to fall in the second half of 2008. Although there are concerns as to how well Indonesia's economy will weather the current financial crisis, there is consensus among most observers that the country is relatively resilient and there are limited macroeconomic risks to Indonesia's economy. The macro situation in Aceh looks balanced too. After several years of high inflation in Aceh as a result of the reconstruction program and the inflow of funds, the province's inflation rate has now fallen to below the national rate. Unemployment in Aceh is only slightly higher than at the national level.

**The fiscal outlook in Aceh benefits from province-specific sources of revenue.** As all sub-national governments in Indonesia, the province and district governments in Aceh rely mostly on transfers from the center for their revenue, and, at the city/district level, own source revenue only accounted for 7.2 percent of the total in 2008. The Law on Governing Aceh (LOGA), Law 11/2006, provided for additional transfers in the form of the Special Autonomy Fund (SAF) which equals 2 percent of the national DAU

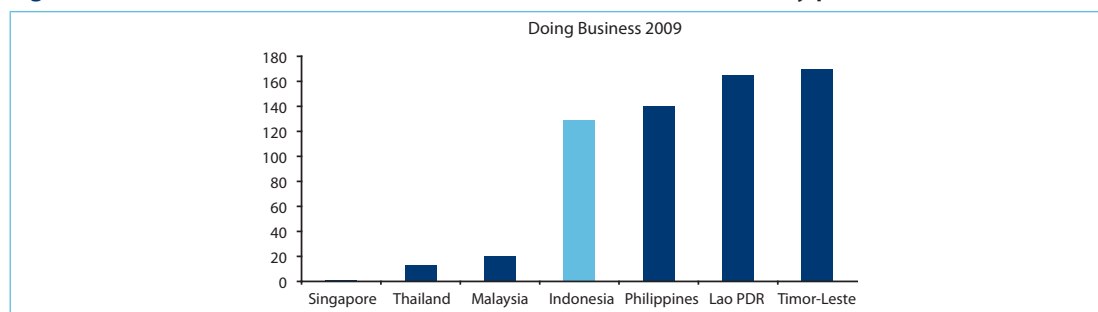
(General Allocation Fund) pool. Moreover, the province receives 70 percent of the oil and gas revenue that it generates. Even though the shared revenue from natural resources extraction has been declining as the reserves are being depleted, this revenue in conjunction with the SAF ensures sub-national levels of government a conformable source of income and increased level of spending.

**The lack of capacity of local levels of government has led to issues in the spending of the available resources, and might hamper the provision of much needed infrastructure.** The Special Autonomy Fund should fund the development agenda of the province as it is to be used for social spending and infrastructure and cannot finance government general administration. However, recent delays in passing the budget on time have raised concerns about the ability of local governments to implement overall development programs. Responsibilities are not clearly defined between provincial and district/city governments, which often results in confusion as to which level of government should build certain types of infrastructure and which one should pay for their maintenance. As sub national levels of government are responsible for the provision of most infrastructures, this has probably contributed to let the quality of certain roads deteriorate as well as prevented the province to equip itself with a better power infrastructure.

## b. Business environment

**The business environment in Indonesia as a whole is rather poor: Indonesia ranked 129 out of 181 countries regarding the ease of doing business in 2009** (Figure 16).<sup>35</sup> Indonesia's performance was particularly low in six areas: starting a business, employing workers, registering property, paying taxes, enforcing contracts and closing a business. These problems most likely also concern Aceh, and some issues such as registering property may be even more acute in the province. However, since these regulatory issues concern the whole country, while Aceh's growth and investment levels are low compared with other regions, this calls for a more in-depth study of Aceh's business environment in order to understand what is specific to that environment.

**Figure 16** Indonesia's environment to do business remained relatively poor in 2009



Source: Doing Business 2009.

**A poor regulatory framework associated with illegal practices that impose a burden on businesses characterizes the investment climate in Aceh.** Recent research (IFC, 2008) points to several shortcomings specific to Aceh's business environment: risks and uncertainty regarding access to land, complicated investment procedures, and deficient market intelligence. It stresses that the government has not created a regulatory framework particularly conducive to investment, which often results in investors becoming confused during their interactions with the administration. This assessment also makes clear that the

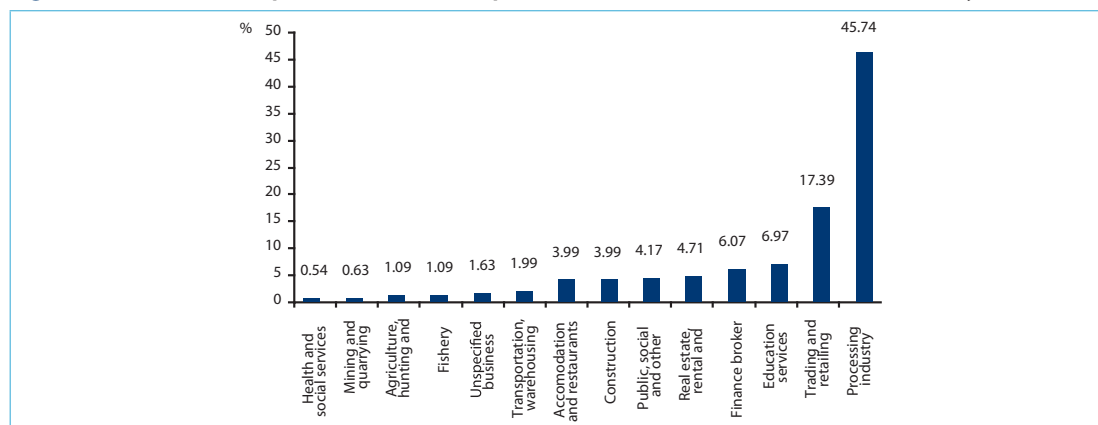
<sup>35</sup> These data are from the Doing Business Survey 2009 (World Bank, 2008c), which reviews the rules and regulations regarding 10 stages of a business life. It looks into official laws and regulations but does not assess whether illegal practices such as corruption affect businesses' operations.

political risk of troubles resuming, unauthorized charges, and deficient asset protection, are important impediments to investment.

**The Government of Aceh is working on a new investment law (investment “Qanun”) that should provide much needed certainty to current and prospective investors but which could also include burdensome dispositions.** The special autonomy status has raised concerns over the safety of investing in Aceh if the legal framework is not clearly defined and if there are inconsistencies between national and regional regulations. The investment Qanun’s aim is to address these issues. The Qanun was still under discussion in the provincial parliament in mid-2009.<sup>36</sup> The law would guarantee access to national and international markets for businesses in Aceh, as well as their right to attract domestic and international direct investment. Moreover, it would guarantee legal certainty and security for business operations and simplify the process of business licensing. Additionally, it would guarantee equal treatment of domestic and foreign investors, while “paying attention to regional and national interest”. The draft law also clarifies some leasing, building and user rights regulations.<sup>37</sup> However, there are several potentially detrimental dispositions in the draft law. For instance, the GoA would secure the right to create and collect regional taxes to finance official activities beyond the scope of the standard fiscal regulations imposed by the central government. Also, some provisions in the law aimed at protecting the local economy may deter investment and ultimately hurt the province: investors would not be allowed to employ staff from outside the province if staff with a similar profile are available in the province, raw materials and inputs would have to be bought in Aceh, and investors would have to use support facilities from the province, whenever possible.

**In order to establish what impacts business performance at the micro level, the report uses a firm-level survey** from The Asia Foundation and KPPOD of 1,104 firms in all districts in Aceh. Knowing some basic characteristics of the firms in the survey helps understanding the significance of the survey findings. The average size of firms in the survey is 13 employees, and the average age of firms is 12 years, which seems representative of businesses in Aceh. The figure below shows that the most represented sectors are processing industries and trading. Since in Aceh more than half of the population works in the agriculture sector, the survey is only representative of firms that employ a fraction of the workforce and, as such, the findings from it will need to be qualified. However, most findings are likely to still be relevant to the extent that most constraints affecting firms in the sample probably also affect all firms in Aceh.

**Figure 17 Sectoral composition of the sample of the Asia Foundation / KKPOD survey**



Source: The Asia Foundation/ KPPOD and World Bank staff calculations.

<sup>36</sup> Latest draft of the investment law as of 6/5/09.

<sup>37</sup> For instance, the draft law establishes that: 1) Leaseholds can be initially granted for 60 years, renewable once for 35 years for PMA and PMDN companies provided that they are operating 2) Building Rights are granted for 50 years, renewable once for 30 years 3) Using rights are granted for 45 years, renewable once for 25 years.

**The two issues that seem to affect firms' performance the most are the attitude of their district government and the transactions costs they face.** A series of firm level regressions is used to understand which problems among the many discussed in the survey were affecting firms the most. The dependent variables tried were two different measures of firms' performance: sales per employee and investment per employee. The independent variables were binary variables indicating whether a firm reported each issue as being significant or very significant. The issues included were: land access and law certainty, business license, district government interaction with business people, regent/mayor capacity and integrity, transactions costs, infrastructure, security and conflict settlement (see Annex II). The purpose of these regressions was to figure out which of these issues had the greatest impact on performance, assuming that respondents could accurately assess the extent to which they were affected. The two variables that consistently had a significant negative impact on actual firm performance were "district government interaction with business people" and "transactions costs". The first one encompasses all issues that have to do with local governments' attitude towards the private sector (capacity in matters related to the private sector, willingness to help, unfair competition, predatory behaviors, nepotism) and the second one all types of official and unofficial transaction costs faced by businesses (legal and illegal taxes, duties, "security" payments). This provides evidence that businesses might suffer from predatory behavior from local governments and criminal groups. Interestingly, some of the constraints often mentioned (such as land availability, infrastructure) are not significant throughout the exercise.

**The aspect of the business environment that affects firms' investment the most is "transaction costs", understood as legal and illegal taxes paid to official and non-official entities.** The analysis then looked at whether the businesses reporting each of these issues as significant were actually conducting less investment, in terms of investment as a percentage of sales, than the others (see Annex III). It turned out that only for "transaction costs" was the difference between affected and non-affected firms significant: businesses reporting them as a burden invested on average 6 percent of the value of their sales in 2007, as opposed to the rest of the businesses, which invested 21 percent of the value of their sales. This difference is significant at the 5 percent level. This suggests that legal and illegal taxation are significant constraints on businesses, and in Aceh illegal taxation might constitute the core of the problem. However, the survey does not specify which kind of transaction costs, legal or illegal taxes, poses the most problems. A later section explores further the issues of taxation and illegal payments, turning first to corruption, an issue that has been often raised with regard to Aceh's business environment.

## c. Corruption

**There is a widespread belief that corruption is pervasive, affecting the way most enterprises and individuals conduct business in Aceh, but survey data show corruption is less of an issue in Aceh than in the rest of the country.** A survey by Transparency International ranks Banda Aceh as the third least corrupt city among a total of 50 cities in Indonesia, according to a corruption perception index<sup>38</sup> established by surveying business people (Table 14). Perceptions of local government efforts to curb corruption are particularly high. What is particularly encouraging is the fact that Aceh has improved its score significantly since the last survey carried out in 2006. The area where Aceh scores worse is in the awarding of public contracts, confirming responses from private sector actors interviewed for this report. This gives an image of Aceh that is different from the corrupt one that is usually conveyed. This suggests that businesses might not have to pay government officials for most services that they require relative to the rest of Indonesia. This relatively high mark for Banda Aceh on corruption does not mean that corruption is not an issue. Indonesia scored 126 out of 180 countries in terms of corruption (1 being the least corrupt) in a survey carried out by Transparency International in 2008, indicating that corruption is a

38 Transparency International, "Indonesia corruption perception index 2008 and bribery index". This index includes measure of perception of Bribery on: Applying Business Permit / Public Utility Procedure / Annual Tax Payment / Awarding of Public Contract / Getting Favorable Judicial Decision / Influencing Policy, Law, Regulation / Speeding up Bureaucratic Process

widespread phenomenon in the country. In this sense, although this report is not arguing that there are no corruption problems in Aceh, it argues that it may not explain by itself the lower investment levels in the province.

**Table 16 Corruption perception index**

Rank	City (n=number of business person respondents)	CPI
1	Yogyakarta (n=44)	6.43
2	Palangkaraya (n=31)	6.1
3	Banda Aceh (n=30)	5.87
30	Ambon (n=31)	4.32
50	Kupang (n=44)	2.97

Source: Transparency International, Indonesia corruption perception index 2008.

Note: 1 means lowest corruption, 50 highest corruption.

**There might be other forms of corruption related to the public tender process in the province, where anecdotal evidence suggests that businesses systematically have to pay bribes** when they bid for government contracts. Often companies winning a bid for a government project in Aceh have to pay a “fee”, the “*jatah pimpro*”, to government officials. The amount of this fee usually represents 5-10 percent of the project value. Another potential problem in tender processes is “*intat linto*”, where bidders pretend to compete but collude in their preparation of proposals. Business leaders confirmed that these practices were widespread in Aceh and that the local business community knows about it.<sup>39</sup>

**The tender offer process is heavily embedded in patronage networks that were reinforced during the conflict** and provides a good example of their functioning.<sup>40</sup> Many public offices are now staffed with former GAM officers who have kept ties within GAM networks. As a result, many former combatants are working in professional sectors that are often contracted by the government, such as construction. GAM’s networks play a large part in attributing public contracts, by attributing contracts directly to other GAM members regardless of the quality of the proposal, and the intimidation of other businesses in the tender process or government officers in procurement committees.

**Corruption in Aceh can affect the effectiveness of public spending.** Corruption in the tender process can affect the effectiveness of public spending, by distorting the ways in which state resources are allocated and by producing less for a given expenditure. This may affect investment through insufficient infrastructure. Second, it may lead to weaknesses in the regulatory environment, such as oversight of the tendering of contracts, driving up costs and preventing firms from entering the market. Anecdotal evidence shows that ex-combatants are playing increasingly important roles in sectors with a high potential for extracting rents, such as construction, illegal logging or mining (Aspinall, 2009a).

**The way in which the construction sector operates also illustrates some of the shortcomings of this patronage system and the inefficiencies it can create.** Construction in Aceh has been segmented between large and small contracts. Many local contractors, with limited expertise and capital, have started operations in the wake of the tsunami expecting to benefit from the reconstruction effort, but due to their size are limited to small projects. The vast majority of small projects go to local contractors linked to GAM. As for large contracts, these are mostly won by larger firms that are non-Acehnese. The consequence of this segmentation is a lack of competition. Local firms are not forced to improve their productivity since they are guaranteed a pool of small contracts. Patronage systems in turn can increase barriers to entry for businesses that are not operated by people with the right political connections. As a result, potential investment and all the associated technology transfers often fail to occur in the region.

39 Interviews with businessmen and business association leaders, Banda Aceh, January 2009.

40 This section draws heavily on Aspinall, Edward (2009a),

**The tender process for the provision of public goods and services should not be used to buy out potential peace spoiler.** Letting former combatants extract rents on economic activities through corruption can be a way of buying out potential peace spoilers by ensuring they have a stake in the stability of the province. Yet while this may be true in the short run, in the long run it is probably not viable. Rent extraction by a few may deter investments and economic activity by the rest of the economy, bringing about a lower equilibrium growth rate. Broader based and more inclusive growth has the potential to benefit society as a whole, including the potential spoilers, ensuring their long-term support for the peace process in a much more effective way. The following section provides further evidence of the limits of a strategy that uses public contracts to maintain peace and stability.

#### d. Transaction costs: taxation and payments for security

**Local taxes and charges, although constraining growth in certain sectors, are relatively low and unlikely to be constraining growth and investment in the province as a whole.** Regarding legal taxation and local charges, following decentralization earlier in the decade there has been a clear trend for increased local taxes and duties, with around 6,000 new taxes and local charges being created by local governments in the first five years of decentralization (Lewis and Suharnoko, 2008). Despite this proliferation of taxation and local charges, they seem to account for a relatively low share of costs (less than 2 percent) and over 80 percent of firms find that local taxes and charges are not particularly onerous. Local taxes and charges seem to be targeting those sectors that are thriving (e.g. coffee, tea, forestry products), which could reduce incentives to invest in these sectors. Transportation is particularly affected by local-user charges for road use, border crossing or weigh stations (KPPOD and The Asia Foundation, 2008). The fact that, overall, local taxes and charges are not particularly burdensome in Aceh was also reflected in perceptions of potential investors (IFC, 2008), with investors being rather encouraged by reforms at the national level. However, they also voiced concerns that Aceh's Special Autonomy Status could be used to levy additional taxes and charges (e.g. extra charges for palm oil produced in the province). As a whole, it does not seem that legal local taxes and charges are a binding constraint to growth, although in certain circumstances (e.g. transportation) they have become more problematic. As such, this report argues that illegal taxes or the additional costs of security that firms have to incur in Aceh, given their uncertainty, are more problematic and probably constitute a binding constraint to growth.

**It seems unlikely that Aceh will slip back into armed conflict, but violent incidents are still common and businesses still perceive the province as being unsafe, which may constitute a barrier to private investment.** There is broad buy-in for the peace process among former GAM leaders since many have either risen to public office or operate profitable businesses. However, many of their followers have been unable to do as well and may feel that they have not benefited from the peace dividend (Apsinall, 2009b; MSR, 2009). As a result, they sometimes resort to violent means in order to make a living. In the two-year period from October 2006 to September 2008, 588 violence incidents were recorded.<sup>41</sup> These incidents threaten people's and businesses' security but are unlikely to escalate in a resurgence of the conflict unless the situation of many former combatants deteriorates significantly.

**Former combatants are over-represented in lagging sectors of the economy, such as agriculture.** The Aceh Reintegration and Livelihoods Survey (ARLS) shows that former combatants of *Tentara Negara Aceh* (TNA or the Aceh National Army) are more likely than civilians to derive their income from rice farming or agricultural wage labor, and less likely to derive their income from employment as civil servants, teachers or traders (Table 17). These agricultural jobs on which ex-combatants are overly reliant are low paying jobs. It may seem surprising that ex-combatants are not doing better economically given the widespread belief of tight knit networks of former combatants and the resulting nepotism in the province. However, Table 18 shows that among ex-combatants, officers have kept more ties with other

41 World Bank, Conflict and Development Team data.

ex-combatants than non-officers. This probably indicates that officers are more likely to benefit from their GAM connections to do well, for instance by obtaining construction contracts through these networks, while most non-officer ex-combatants are struggling to make a living. As a result, measures favoring agricultural development would not only help the poorest Acehese, but also reach out to many former combatants, thereby contributing to the province's stability.

**Table 17 Type of livelihood (men only)**

Type of Livelihood (%)	All Men		Civilian Men		Comparing Groups	
	TNA (n=1024)	Civilians (n=1794)	Victims (n=764)	Non-victims (n=1030)	Ex-TNA to civilians	Victims to non-Victims
Wet rice farming	22	17	18	16	6 ***	2
Non-agricultural daily wage labor	19	18	20	17	1	3
Trader	9	13	11	14	-4 **	-3
Agr. daily wage labor	10	6	7	5	4 ***	2
Civil servant	1	4	3	5	-4 ***	-1
Other skilled	3	4	4	4	-1 *	0
Coffee farming	2	4	4	5	-2	-1
Private sector employee	3	4	3	4	-1	-1
Teacher	0	2	2	3	-2 ***	-1
Other unskilled	4	3	2	5	1	-3 ***
Veg/spice farming	5	3	4	3	1	1

\*\*\* Significant at 99%; \*\* Significant at 95%; \* Significant at 90%. Table reports population means and sample n's. Livelihoods reported as the primary activity by at least three percent of the population included.

Source: MSR 2009.

**Table 18 Friends and business partners-comparison of ex-com groups (%)**

	Conflict Victim	KPA Member	Ex-TNA	IDP	Returnee
Men (n=1,024)	61	57	61	1	10
Women (n=51)	57	35	47	2	18
Officers (n=30)	62	76	83	7	10
Non-Officers (n=1,045)	61	56	60	1	10
Prisoners (n=97)	64	40	54	1	12
Conflict Victims (n=800)	69	57	61	1	13
Non-Conflict Victims (n=280)	38	56	61	2	3
<b>Differences</b>					
Ex-TNA Men vs. Women	4	22*	14	-1	-7
Officers vs. Non-Officers	1	20*	22**	6	0
Ex-TNA Victims vs. Non	30***	1	-1	-1	10***

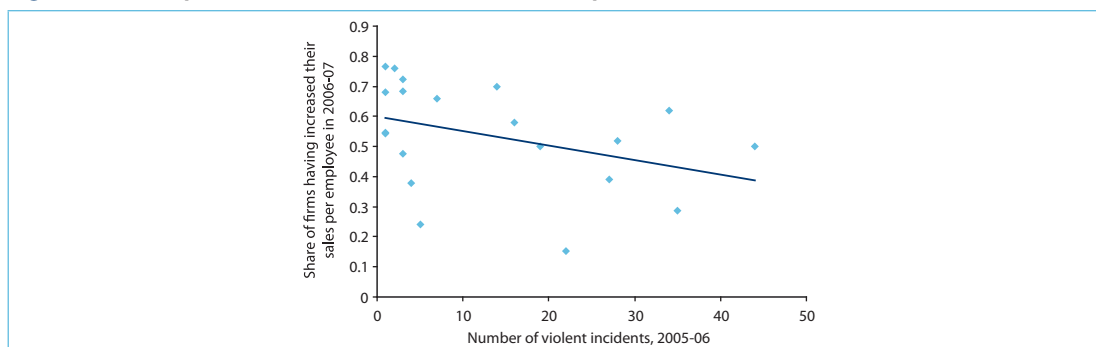
\*\*\* Significant at 99% \*\* Significant at 95% \* Significant at 90%. Table reports population means and differences in means.

Source: MSR 2009.

**The practice of extorting 'illegal' taxes developed during the conflict and continues today.** During the conflict years, GAM established a parallel structure of governance that was very well developed and organized. Illegal taxes were raised by both parties during the conflict (Olken and Barron, 2007; Schultz, 2004; ICG, 2001). Legal and illegal businesses also thrived during the conflict, allowing for the extraction of large rents (McCulloch, 2006). Such systems have continued into the post-conflict period, and some ex-combatants still carry on this kind of activity, resorting to threats and sometimes violence to extract rents from people and businesses, as well as exert pressure on the attribution of public contracts, control of land access and local disputes resolution (MSR, 2009).

**The districts where most violent incidents have occurred since the MoU tend to be those where firms' performance has been worse.** Figure 18 shows the number of violent incidents by district (X axis) against the share of businesses in the district that have increased their sales per workers in 2006-07 (Y axis), using the TAF/KPPOD survey. It shows a downward sloping relationship, meaning that the districts that have experienced more violence tend to have fewer well-performing firms and this relationship is significant at the 10 percent level (see Annex IV for regression results). It does not establish causality between the two and there might be other factors influencing both parameters. Nonetheless, it is fairly intuitive that violent outbreaks can negatively affect business performance and investment decisions.

**Figure 18 Firm performance and violent incidents, per district**



Source: TAF/KPPOD survey, World Bank.

**Illegal extortion and security concerns create extra costs and uncertainty for businesses in Aceh, constraining investment and growth.** These two issues are linked since criminal groups usually use the threat of violence to coerce firms into paying for “protection”. Illegal extortion and security issues are perceived as significant constraints by businesses: 9.3 percent of businesses report security and conflict settlement as a constraint in Aceh as opposed to 4 percent in the other provinces.<sup>42</sup> Meanwhile, 23.4 percent of businesses report paying for extra security. Former combatants and other criminal groups sometimes resort to violence in order to make a living, which creates insecurity and uncertainty in the province (ICG, 2009). They often use their coercive power to extort rents from businesses. Businesses in Aceh reported that they have to pay former combatants when they operate in the province, even in the capital Banda Aceh.<sup>43</sup> In rural areas, former combatants levy money through control of “*akses ke lapangan*” (access to the field), which they have retained after the peace agreement. Businesses willing to settle have to make regular payments to GAM to be allowed to operate. Very often it is not clear to which organization or person illegal payments should be made. As a result, it sometimes happens that, even though payments have been made, companies are still being attacked because they did not pay the right people. Such a situation makes it even harder for businesses to operate in Aceh since it adds uncertainty to informality and insecurity.

**The diagnostic thus identifies the continuing presence of violence and high levels of illegal informal ‘taxation’ as key constraints to investment and growth.** The two are closely linked. Violence, or the threat of violence, is often the means to extract rents. As such, dealing with both requires reinserting the monopoly of the state on charging taxes and on the use of force. In Aceh today, both key functions of the state have been fragmented with non-state actors, such as former combatants and *preman* (criminals), involved. The outcomes of this—rising violence and continued assertion of power from groups outside of the formal political process—in turn lead to increased perceptions from many potential investors of a potential escalation of conflict. Encouraging investment will require breaking the vicious cycle of (sometimes violent) intimidation, illegal taxation, and (possible) conflict escalation.

42 KPPOD and The Asia Foundation (2008). The Asia Foundation and KPPOD have conducted similar survey across all provinces in Indonesia, which allows for cross-province comparisons.

43 Interviews with businessmen and business association leaders, Banda Aceh, January 2009.

**Improving the capacity of the police to investigate and solve crimes is necessary to strengthen the rule of law.** Breaking this cycle is not easy but policy-makers do have some potential tools. It requires both direct and indirect approaches. First, it is important to strengthen the rule of law. This requires enhancing the performance of the police. If the perpetrators of criminal acts, including violence and extortion, are caught and sentenced, the cost-benefit calculations of those who partake in such acts can change. At present in Aceh, the police do not have adequate capacity to effectively investigate criminal acts. Much of the support the police have received in Aceh to date has been on “softer” issues such as increasing knowledge of human rights and methods of community-level policing. It is deemed that this can help build the legitimacy of the police in the eyes of regular Aceh citizens, in so doing enhancing state-society relations and trust. This is important. But the legitimacy of the police is far more likely to improve if they are able to catch those committing crimes and violent acts. Improving investigation capabilities requires training and other methods of capacity building. But it also requires enhancing the resources the police have: by hiring more and better police officers, and giving them the physical equipment to do their jobs properly. It also requires strong will—from senior police officers in Aceh and Jakarta, and senior politicians in Aceh—to achieve results.

**A strong and professional judicial system is another key element to strengthen the rule of law in the province.** Catching those involved in extortion and violence is not enough. The judicial system in Aceh also needs to be strengthened so that those who are arrested are, if guilty, prosecuted. There are significant weaknesses to the formal judicial system in Aceh including a lack of capacity and, at times, the practice of ‘rich man’s justice’ where money can dictate the judgments of courts. Building a strong and professional judicial system again requires capacity building, extra resources and political will. It may also necessitate building ‘demand’ from the citizenry for a more effective and impartial system. This is to a large extent a national problem that cannot be solved in Aceh only – but the local authorities can support the judicial system in the province, and minimize the constraints it poses to combating extortion and illegal acts.

**In addition to dealing directly with criminal acts, addressing the root causes of these crimes will also improve the security situation in Aceh.** Indirect interventions that address the underlying ‘causes’ of crime and violence are also necessary. It has long been recognized that former combatants often face particular challenges in adapting to civilian life, including finding jobs (Tajima 2009). Unemployment, or employment of a type that does not satisfy previous ambitions, can lead ex-fighters to pursue violent and criminal means (Collier 1994). As such, it is necessary to develop programs and strategies that help combatants find jobs.

**Comprehensive strategies to support economic growth and development in conflict-affected areas could be more useful than programs targeting ex-combatants only.** In many post-conflict contexts, targeted reintegration assistance is provided for this purpose. Former fighters are given cash and other forms of support such as mentoring and training. In Aceh, this has been tried too (Barron and Burke, 2008). However, the impacts have been limited. Former combatants who have received reintegration assistance are no more or less likely to be working now than those who did not, despite the fact that those who received assistance were likely to have higher levels of assets at war’s end (MSR, 2009). The provision of individually-targeted assistance to former combatants has also led to jealousies and tensions, and has created an “entitlement mentality” that has in some cases negated against deeper social and economic reintegration (Barron, 2009). Geographically targeted approaches that seek to build the economy in areas particularly affected by conflict may have more utility. This includes the use of community-driven development projects to provide private and public goods, agricultural extension activities to raise productivity, some job-creating public works projects, and provision of business support services (MSR, 2009). Former combatants and other ‘at risk’ groups can be included in such schemes and, if projects are targeted at the most conflict-affected areas, they are likely to benefit.

**Support for reforms to improve the rule of law and reduce extortion and illegal taxes has to be widespread, highlighting the need to avoid alienating particular groups.** It is also necessary to find ways to address the ‘needs’ of those at a higher level who currently benefit from extortion and protection rackets. Access to large-scale contracts has been an important means of ensuring buy-in to peace from potential spoilers in Aceh. But it is unlikely to be sustainable. Already there is rising resentment from many in Aceh who have seen the benefits of peace diminished by the continuance of war-time practices. There is a real risk that over the medium term, this could lead to new uprisings if factors that drove the conflict—such as poor service delivery, inequality and lack of growth—continue into the post-conflict period (Barron and Clark, 2006). Given capacity constraints highlighted in the paragraphs above, there is a need for a delicate balancing act that focuses on limiting opportunities for large-scale rent extraction while providing other legal avenues for former leaders and elites to prosper. It makes sense to focus the efforts on combating extortion and the extraction of illegal taxes where there is the highest potential to promote inclusive growth and the creation of necessary pro-reform constituencies: agriculture and the agri-business sectors, the trading and transport communities as well as manufacturing, particularly labor-intensive manufacturing.

**Building constituencies that support these reforms should be part of a strategy to combat extortion and illegal taxes.** Given the likely opposition from individuals and groups that currently benefit from illegal activities, these reforms could be costly in political terms and there will be a need to build constituencies to demand change. Analytical and monitoring work that shows how much extortion and violence are adversely impacting Aceh’s economy, and the benefits that reductions could provide, would be important to this end. Ongoing monitoring by civil society can help publicize trends and costs.

**Perceptions of higher risks of investing in Aceh could be addressed through a scheme to provide insurance for investments.** This scheme would provide insurance against illegal acts and unauthorized charges, and the provincial government could facilitate the availability of such insurance for investments in the province. This would mean that businesses and local governments share the risks associated with security issues and illegal taxes. Such a scheme would not be a long-term solution but rather help to kick start investment and growth, and showcase Aceh to other potential investors. There are institutions that specialize in providing political risk insurance products (e.g. the Multilateral Investment Guarantee Agency, MIGA, a World Bank Group organization). Insurance can be offered against risks related to currency transfer restrictions, expropriation, war and civil disturbance and breach of contract.<sup>44</sup> Other types of investment guarantees are possible, but the potential benefits of such a scheme would need to be carefully assessed against costs, avoiding unnecessary fiscal liabilities on the provincial government. Careful design would also avoid providing coverage against commercial failure, since there is a risk that such an insurance scheme could be abused by firms that have not been affected by the post-conflict environment.

**An insurance scheme could open the way to new investments in the province and demonstrate the opportunity to make returns on investments.** The need to provide investors with insurance comes from the expropriation or destruction risk posed by civilian groups and the security threat in the post-conflict environment as well as the negative perceptions of Aceh outside the province. Although the likelihood of major instability resuming in the province is rather low, the perception of this risk still deters businesses and investors from coming to Aceh. As a result, the provision of a political risk guarantee would be a valuable addition to security risk insurance. Providing such insurance would reduce the risks faced by investors in Aceh as they would bear the risks stemming from the general instability together with an insurer. Such guarantees have the potential to open the way for relatively large-scale investments in sectors such as energy, fisheries, cold storage or agro-processing. In addition to protecting investors from petty criminality and extortion, such a scheme could also send a very powerful signal that the province is keen to attract investment.

<sup>44</sup> <http://www.miga.org>

**A custom-made insurance scheme would need to be designed together with the local authorities to meet the needs of the province.** Investors would pay the premium, possibly at a subsidized rate. This scheme could be offered to large investors as well as smaller ones. However, several dimensions of the scheme would need particular attention. First, providers of political risk insurance usually work with national governments, whereas in Aceh their main counterpart would be the local government and some dispositions of the standard products might need to be adapted. Second, within this innovative setting, the role of the national government would have to be defined precisely. Third, a discussion on whether investors from other provinces of Indonesia could be insured should occur, as they are obvious candidates for investing in Aceh but insurance usually covers overseas investors only. Fourth, dispute resolution mechanisms that usually involve the government and investors would need to be adapted to a context where most of the risk stems from non-governmental groups.

## e. Market failures – coordination failures

**Market failures that most often affect firms are of two types: coordination and information failures. These usually hamper the successful development of new products on a large scale.** Coordination failures occur when firms are not capable of scaling up successful new products for lack of complementary services or inputs. Information failures occur when firms simply fail to explore new products in order to discover what they could be good at. New products need not be at the global technology frontier but rather ones whose production process requires adapting an existing technology. The study of these potential market failures requires reliable trade data in order to investigate what the studied economy exports and how its export basket evolves over time. The aim is to evaluate the sophistication of its products and the rate at which it evolves as new products are “discovered”. Unfortunately, export data for Aceh are not accurate since much of the trade goes through Medan and are not recorded in official figures. As a result, this part of the analysis relies on relatively weak trade data, as well as anecdotal evidence in the form of case studies to investigate potential market failures.

**Some sectors in the economy, especially in agribusiness, show signs of coordination failures. But unsuccessful attempts to address these failures suggest that coordination failures are not a binding constraint to growth and investment.** Sectors such as horticulture, livestock, fisheries and aquaculture have not been able to increase in scale and reach higher levels of productivity (IFC, 2008). The small-scale makes fulfilling certain quality and safety standards more costly, which in turn limits the scaling-up of these activities.<sup>45</sup> Businesses point out the lack of market linkages with businesses from outside the province, limiting the reach of Acehese products. The existing trading networks are dominated by a series of traders, limiting the bargaining power of Acehese producers. Local businesses expressed concerns at this situation and a belief that improving market information (e.g. through a database with information on exporters of the most common commodities) could have an important positive impact. Although these issues are relatively important, recent initiatives to provide market information and support networking with businesses outside the province (the Investment Outreach Office, the Export Development Center) have had limited success, suggesting that other constraints to investment and growth may be more pressing.

**There is some need for industry-specific infrastructure but the types of infrastructure most needed today would benefit all industries in Aceh.** Coordination failures can occur when there are economies of scale linked to the provision of types of infrastructure that are external to firms but internal to an industry. These result in an under-provision of such types of infrastructure. The sectors mentioned before, horticulture, livestock, fisheries and aquaculture, would need some industry specific infrastructure and complementary services, such as cold storage facilities. However, it was pointed out by most business people interviewed by the team that infrastructure that was lagging most in Aceh was “basic” and general,

<sup>45</sup> Interviews with businessmen and business association leaders, Banda Aceh, January 2009.

such as good quality roads, water supply and reliable electricity supply. Once the quality of these has improved, the Acehese government could start exploring the needs for industry-specific infrastructure and the role of the public sector in providing these, in consultation with the stakeholder industries.

## f. Market failures – information failures

**Very few Acehese businesses are exporters or sell outside the province.** The available trade data seem to indicate that Aceh exports very few manufactured goods. Non-oil and gas exports in Aceh increased by 80 percent in 2008, but this was mostly due to an increase in fertilizer exports.<sup>46</sup> The fertilizer industry in Aceh uses as its main input subsidized gas and exports represent more than 80 percent of total non-oil and gas exports (Table 19). In contrast, and excluding fertilizer, manufactured goods only represent a small fraction of overall non-oil and gas exports: in 2008 they represented only 3.3 percent of the total. The share of agricultural products represents 14 percent and mostly comprises unprocessed coffee, cocoa, spices and fisheries products. In line with these observations, very few Acehese firms report exporting their products. The Asia Foundation / KPPOD business survey finds out that only 1.5 percent of Acehese businesses export overseas and that only 4.3 percent of the firms have primary customers that reside outside of the province.

**Table 19 Aceh's non-oil and gas exports**

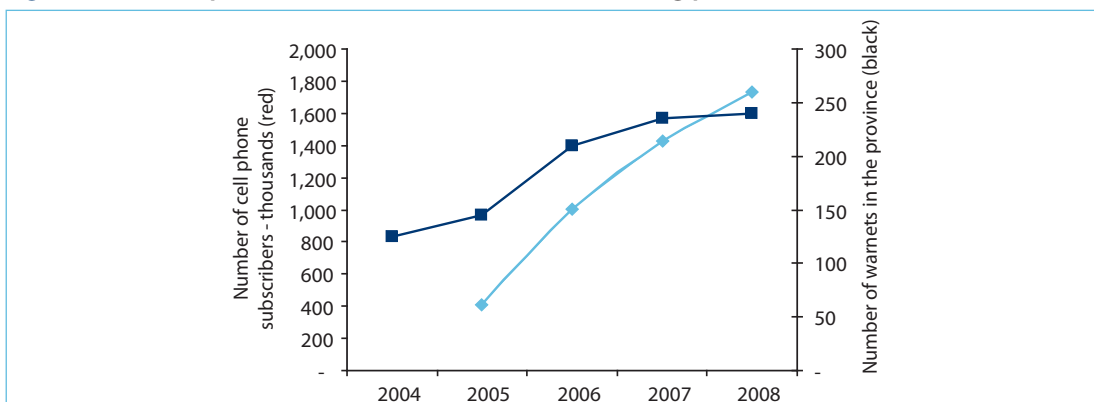
US\$

	2008
Chemicals	134,049,080
Food and live animals	22,936,870
Manufactured goods	5,040,379
Animal & vegetable oil & fat	632,100
Machinery and transport eqpt	250,082
Crude materials, inedible	227,127
Misc. Manufactured articles	15,234

Source: BPS.

**However, Aceh has proven open to trade and in rapidly adapting new technologies in the post-tsunami years.** As in the rest of Indonesia, there are few barriers to trade with other provinces and the rest of the world. In the wake of the tsunami, and during the subsequent reconstruction program, Aceh has opened significant trade channels to purchase construction materials as well as basic commodities such as food. The adoption of new technologies in the province has been rapid in recent years. The number of cellular phone subscribers has been increasing at a fast pace (Figure 19) and in 2008 the leading mobile phone provider had 1.7 million subscribers. Moreover, the number of internet cafes (*warung internet* or "warnet") has been increasing at a rapid rate in the province suggesting that Acehese have an interest for new technologies and that they can easily penetrate the province.

46 World Bank, 2009c.

**Figure 19 Mobile phone subscribers in Aceh for the leading provider and number of “warnets”**

Source: Cell phone provider and Dinas Information and Communication Aceh.

**Furthermore, anecdotal evidence suggests that new products are being tried out in Aceh but that a few have been successfully scaled up.** The past few years have seen some experimentation, especially in the agricultural sector. Farmers have tried several new products such as: livestock, patchouli and mushrooms. These attempts at diversifying their produce show that Acehnese businesses do not lack ideas for innovation (Box 5 below). However, few of these business ideas have evolved into successful new companies and even less new sectors of the economy. This is why studying success stories can be powerful: the box below presents three new incipient business sectors in Aceh.

### Box 5 New Industries emerging in Aceh

#### **Recycling Industry** (Source: Palapa Plastic Recycling Foundation)

Plastic recycling is one of the new industries that have been developing in Aceh. Previously, this business operated following the same model as many others: plastic waste was collected in Aceh and then exported to North Sumatra where it was processed. In June 2005, Palapa Plastic Recycling Foundation successfully set up a processing facility in Lhokseumawe using its own funds. Several donors provided assistance to this business in different forms ranging from capacity building for scavengers to a better technology for plastic recycling. This new business has been able to provide livelihoods to many Acehnese. The foundation is currently employing around 25 permanent staff and recycles 50 tons of plastic waste each month, providing income to more than 1,500 scavengers. All the production of shredded plastic is sent to Medan to be exported to China and Singapore, where it is eventually converted into final products such as plastic chairs, rope, etc.

#### **Organic Cacao** (Source: APKO Pidie Jaya)

With the support of several donors, the cacao growing cooperative APKO Pidie Jaya was established in 2007 and now has 7,100 farmers. Over 7,000 farmers obtained organic cacao certification that allows their produce to be traded internationally. Agreements between the cooperative and international buyers such as The Body Shop, Bendrain Swiss, Olam and Delfi chocolate have also been signed. The cooperative's first export of about 10,000 tons of organic cacao is scheduled to occur in August 2009.

#### **Coconut and its sideline Industry** (Source: Austcare)

This company was set up in early 2008 in Meulaboh, West Aceh, with a start-up capital of about Rp 1 billion obtained from donors and the cooperative's members. The capital was mainly used to purchase a coconut processing machine. The machine is able to produce several products from raw coconuts: coconut fiber, coconut shell, and charcoal. Most of the production is exported overseas, the main destinations being Malaysia and Singapore. With the support of several donors, in the form of technical assistance and machine upgrading, the company has been growing steadily and now employs 20 permanent staff and generates a monthly profit of about Rp 150 million.

**Market failures are not behind the unsuccessful attempts to scale up businesses in Aceh.** While there are plenty of new ideas in Aceh, few of them are successfully turned into thriving businesses for reasons that have less to do with market failures than with issues of institutional weaknesses, transactions costs and governance. Aceh is open to new technologies, open to trade with the rest of the world, and has university graduates in sufficient numbers, but still sees the development of few new industries. To understand why, it is interesting to note that many businesses that successfully manage to develop and scale up are big enough from the beginning to be able to gather political support. This observation is consistent with the issues of appropriability previously mentioned as being the binding constraint to growth in Aceh. Although hard to test this hypothesis, one of the mechanisms that explain the success of politically connected firms may have to do with the fact that such firms are relatively well-protected from extortion.

This chapter has reviewed the factors that may be preventing businesses from appropriating the benefits of their investments and, in particular, the role that the conflict has played in this. As often assumed, the conflict and its legacy have a significant adverse impact on incentives that firms have to invest and on these firms' ability to appropriate the returns of their investments. The microeconomic environment is the most likely binding constraint in Aceh, and there are several phenomena at play that threaten its quality. Patronage systems that were reinforced during the conflict have resulted in a private sector that thrives on their connections with the public sector rather than their efficiency. This also prevents new companies from coming to Aceh since they are not part of the local networks. Security threats and the costs these imply also constrain investment and growth. Businesses have little certainty when they operate in Aceh: they do not know who and how much they will have to pay to be able to do business.

# Conclusions

**Applying the growth diagnostic framework to Aceh helps to identify the binding constraints to investment and growth in the province.** Aceh has been growing at a slower pace than the rest of the country, with investment, particularly private investment, at relatively low levels. Growth is being hampered by the conflict and its legacy. Aceh's economy suffers from powerful patronage networks and an insecure environment as a result of the 30-year conflict. This situation hampers growth performance and limits private investment. Potential investors have expressed concerns about the possibility of the conflict resuming and there is evidence that security concerns and the resulting extortion and illegal taxes are preventing firms and individuals from reaping the full benefits of their investments, thus constraining investment and growth in the province. Addressing these concerns, to enable economic actors to appropriate returns on their investments, is a precondition for the resumption of private sector investment in the province.

**Two main constraints to growth were identified: the availability of reliable electricity, vital to processing and value-added activities; and the perceived higher security risks of operating in Aceh, coupled with extortion and illegal payments.** Constraints identified affect equally local, domestic and foreign investors. Issues such as infrastructure (roads, electricity) may be more of a problem for local investors than they are for foreign investors. The security concerns affect all types of investor, although larger investors may be able to mitigate some of these concerns by securing protection from local governments eager to receive investment. Concerns expressed at the onset of this report on the availability of data at the sub-national level, as well as the relatively tumultuous period on which much of the analysis focuses (i.e. the aftermath of the tsunami and the reconstruction effort) leads to particularly cautious findings and recommendations. The table below summarizes the report's findings, whether constraints identified are binding, the strength of the conclusions and policy implications. Despite these caveats, this report argues that electricity supply and security concerns and exposure to extortion and illegal taxes currently constitute the main constraints to growth in the province.

**Table 20 Constraints to growth in Aceh**

Type of constraint	How binding?	Strength of conclusion	Policy Implications
Access to credit	Non-constraining	Medium	-
Low Human Capital	Non-constraining	High	-
Quality of Infrastructure. Electricity	Constraining	High	<ul style="list-style-type: none"> <li>• Revise pricing strategy by PLN</li> <li>• Support participation of the private sector in generation from renewable energy sources</li> <li>• Improve reliability of energy supplies from North Sumatra</li> </ul>
Extortion and Illegal Taxes	Constraining	High	<ul style="list-style-type: none"> <li>• Improve capacity of police and judiciary to impose rule of law</li> <li>• Focus economic development programs in conflict affected areas</li> <li>• Help build constituencies for reform – e.g. involving communities and civil society in monitoring efforts</li> <li>• Facilitate a political risk insurance scheme to attract investors</li> </ul>
Macro-risks	Non-constraining	High	-
Information Failures	Non-constraining	Medium	-
Coordination Failures	Non-constraining	Medium	-

**The availability of reliable electricity is a binding constraint to investment and growth, particularly for smaller firms.** Energy supply is inadequate and unreliable and likely to be a binding constraint for investment and the economy as a whole. Some businesses are able to generate their own electricity, but this is a viable solution only for businesses that are relatively large, allowing them to finance these investments. Smaller businesses (e.g. for processing of fish, livestock or agri-business sectors) are unable to afford the necessary investments and electricity becomes a constraint for these prospective businesses. Availability of electricity is therefore particularly important to promote smaller firms in the processing sector. The GoA has identified availability of electricity as a key area of concern for the development of the province, and is increasing its efforts to generate energy and ensure the availability of electricity from PLN. Renewed efforts to attract private sector investment could be supported by:

- **Revising pricing of privately generated electricity to be distributed through PLN**, to enhance the incentives of the private sector to invest in energy generation in the province;
- **Promoting private sector participation in the generation of electricity from renewable energy sources**, such as geothermal, local biomass or solar energy;
- **Exploring the possibility of public-private partnerships to attract cost effective independent power producers**, incorporating secure and attractively priced access to energy sources and related land into MoUs and contracts; and
- **Improving the reliability of energy supplies from the Sumatra Interconnection System** to avoid frequent interruptions in electricity supply.

**The inability of firms and individuals to appropriate the returns to their investments, because of security concerns and illegal taxes, is acting as a powerful deterrent to investment in the province and constitutes the main constraint to investment and growth.** This report provides evidence that the cost or availability of capital is not a constraint to growth and investment in the province. Similarly, with the exception of energy infrastructure, complementary factors of production do not seem to be a constraint to growth and investment. Security concerns, extortion and illegal taxes and payments limit the ability of firms to earn a return on their investments, providing disincentives for investment in the

province. Perceptions of increased risk can also translate into a lack of credit to the private sector. All this increases the uncertainty of doing business in Aceh, affecting the costs of any potential investor. Businesses are trying to overcome this uncertainty by teaming up with businesses or networks that can offer protection and a sense of security, although this may not always be possible. Those businesses not able or willing to enter into such agreements may decide not to invest in the province at all. To remove this constraint, it is crucial to reinsert the monopoly of the state on charging taxes and on the use of force. Encouraging investment will require breaking the vicious cycle of (sometimes violent) intimidation and illegal taxation. A strategy to do this would be two-fold, introducing reforms that strengthen the capacity of the government to impose the rule of law as well as interventions aimed at addressing the underlying causes of crime and violence, namely lack of alternative economic opportunities and grievances, by:

- **Improving the capacity of the police to investigate and solve crimes to strengthen the rule of law**, through training and capacity building, enhancing the resources at the police's disposal and strengthening the police force;
- **Improving the capacity of the judicial system to prosecute and sentence criminals**, through capacity building, extra resources and political will, as well as supporting the constituencies, in the private sector and civil society, that will demand these reforms;
- **Supporting economic growth and development in conflict-affected areas**. This is different from targeting reintegration assistance to ex-combatants, which has a more limited impact and can lead to tensions. Geographically targeted approaches, which focus on groups at risk and the vulnerable in conflict-affected areas, have proven more effective;
- **Focusing reforms on improving the rule of law and combating extortion and illegal taxes on sectors that result in inclusive growth**. This would include agriculture, fisheries, agro-processing and certain services sectors (trade, transport), supporting the creation of pro-reform constituencies;
- **Involving civil society in the monitoring of illegal acts, as well as the costs and benefits of addressing this issue**, to broaden the demand for reforms that limit illegal acts and security threats. Given the considerable political will and capital that will be needed for the reforms proposed, there may be a need to sequence reforms, in order to gain support from pro-reform constituencies and neutralize opponents;
- **Facilitate the provision of political insurance by the private sector**. Guarantees provided by third parties for individual projects can be found in many regions of the world and are often used in post-conflict environments. These types of guarantee can also act as a powerful signal to potential investors. A careful design of such an insurance scheme is key to avoid unnecessary fiscal liabilities for the provincial government and to avoid abuse of the schemes by unsuccessful entrepreneurs. These investment guarantees are usually designed at the national level. As such, the fact that Aceh is a province in a larger and relatively stable country poses some additional challenges in the design of such a scheme, to be addressed by the national and provincial governments together.

**An improved security situation and the removal of illegal payments and taxes are likely to result in increased investment and growth.** At present, firms and individuals cannot take investment decisions, since they are not certain about the costs they will face from security threats and extortion; they are unable to reap the benefits from their investment and, as such, are unlikely to invest. As costs related to security and illegal payments decline, firms and individuals will be able to assess costs and benefits of their investments with greater certainty and undertake investments when they are clearly viable commercially.

**The binding constraints to growth are likely to change over time, with other constraints becoming more binding as these are addressed.** As problems related to the availability of electricity and

the security situation improve, with businesses no longer subject to extortion and illegal taxes, other constraints will become binding and a different set of reforms will become necessary. The local authorities can introduce a system, together with the private sector, to discuss the analysis and recommendations in this report, and continue with a process to, in the future, revisit the recommendations and identify other binding constraints to investment and growth in the province. Going forward, the constraints are more likely to resemble those of the rest of Indonesia, where regulatory uncertainty, in particular over taxes and licensing regulation, local taxes and regulations imposed by local governments, as well as deficiencies in law enforcement, are constraining investment and growth. The poor quality of transport infrastructure has also been identified as a key constraint for investment and growth in Indonesia. Although current transport infrastructure seems to be adequate for Aceh's low equilibrium growth, as the province modernizes and develops this is likely to become a constraint.

**Inclusive and widespread growth, benefiting the majority of the population, while paying particular attention to the opportunities and grievances of potential 'peace-spoilers', should be part of a broad strategy to address the issue of security and conflict.** This report looks at the binding constraints to growth and offers recommendations on potential interventions to address these. Addressing the identified binding constraints is likely to benefit the population as a whole, increasing the ability of the poor and vulnerable in Aceh to benefit from growth. Particular interventions will be necessary to ensure that growth is inclusive. These include continuing the focus on the agriculture sector, but improving the provision of public services in this area. They also include redressing existing inequalities in both human and physical capital by improving the skill set of the poor in rural areas, who identified their lack of skills as a key constraint in increasing their productivity, as well as interventions that facilitate the access to credit of individuals and small enterprises active in the agriculture and fisheries sectors. Spreading the benefits of growth will give a stake in peace and stability in Aceh to a larger share of the population, lowering security concerns and ultimately making any resumption of the conflict less likely.

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# Annexes

## Annex I – Estimation of returns to education

Specification	SMA vs. less-educated	SMA and above vs. less-educated	Tertiary vs. less-educated
Aceh	0.33*** (0.05)	0.39*** (0.04)	0.53*** (0.07)
North Sumatra	0.29*** (0.03)	0.39*** (0.03)	0.61*** (0.05)
Sumatra	0.30*** (0.02)	0.38*** (0.02)	0.52*** (0.03)
Indonesia	0.47	0.67	1.05

Source: Bank staff calculations based on Sakernas (Feb 2008)

Notes:

1. \*\*\* significant at 1 percent; \*\* significant at 5 percent; \* significant at 10 percent.
2. Standard errors in parentheses.
3. National values are taken from the "Job report" (World Bank, forthcoming (b)).
4. SMA = senior high school
5. Control variables include: age and age squared; urban dummy; gender dummies; and for at the national level, regional dummies (Sumatra, Java/Bali, Kalimantan, Sulawesi, NTB/NTT/Maluku, Papua).

## Annex II – Regression tables: firm performance and issues faced

Dependent variable	Sales per employee (2007)			Investment per employee (2007)		
	Basic	With incidents per 1000	With conflict intensity	Basic	With incidents per 1000	With conflict intensity
Land access and law certainty	-6.33 (25.69)	0.63 (28.02)	-0.97 (30.13)	-0.02 (1.40)	0.14 (1.44)	0.08 (1.71)
Business licensing	-36.57* (20.74)	-43.73* (26.14)	-31.63 (22.42)	1.89 (2.18)	1.89 (2.39)	3.18 (2.86)
Local government interaction with business people	-41.08*** (14.40)	-42.03** (16.50)	-40.25** (18.55)	-2.42** (1.21)	-2.66** (1.31)	-2.40 (1.51)
Mayor capacity and integrity	-16.17 (16.17)	0.12 (15.65)	-17.70 (17.97)	1.39 (2.64)	2.00 (2.87)	1.31 (3.05)
Transaction costs	-36.37** (16.31)	-36.61** (17.54)	-38.19** (18.47)	-1.69** (0.86)	-1.73* (0.94)	-1.59 (1.02)
Infrastructure	-45.06 (31.65)	-49.44 (35.86)	-34.68 (36.73)	-1.51 (1.42)	-1.63 (1.60)	-1.73 (1.70)
Security and conflict settlement	0.71 (29.39)	6.18 (36.03)	21.36 (41.13)	-0.87 (1.14)	-0.85 (1.29)	-0.75 (1.68)
Incidents per 1000	--	262.25 (273.61)	--	--	6.62 (11.05)	--
Conflict intensity	--	--	-17.36 (14.13)	--	--	-2.06** (0.97)

Source: The Asia Foundation / KPPOD survey (2008), World Bank conflict and development team

Notes:

1. \*\*\* significant at 1 percent; \*\* significant at 5 percent; \* significant at 10 percent.
2. Standard errors in parentheses.
3. Investment and sales per employee are yearly values expressed in millions rupiahs.
4. Dependent variables (except last 2) are dummies indicating whether the respondent estimates that each constraint is hampering his/her firm's performance in a significant or very significant way.
5. Incidents per 1000 is the number of security incidents in the district where the firm operates from Jan 05 - Jul 08 per 1000 population.
6. Conflict is the conflict intensity indicator developed by the World Bank staff. It measures the long term impact of the conflict in terms of victims, returnees, political prisoners, perceptions of intensity, etc... This study uses it at the district level (see World Bank, 2006c).

## Annex III – T test of equality of means

	Mean of Investment per sales (2007)		
	For group reporting ... as a constraint	For group NOT reporting ... as a constraint	Difference
Land access and law certainty	0.11	0.2	-0.09 (0.07)
Business licensing	0.7	0.15	0.55 (0.57)
Local government interaction with business people	0.19	0.19	0 (0.11)
Mayor capacity and integrity	0.11	0.19	-0.08 (0.07)
Transaction costs	0.06	0.21	-0.15** (0.07)
Infrastructure	0.16	0.22	-0.06 (0.10)
Security and conflict settlement	0.25	0.18	0.07 (0.11)

Source: The Asia Foundation / KPPOD survey (2008)

Notes:

1. \*\*\* significant at 1 percent; \*\* significant at 5 percent; \* significant at 10 percent.
2. Standard errors in parentheses.
3. Categories indicate whether the respondent estimates that each constraint is hampering his/her firm's performance in a significant or very significant way.

## Annex IV – Security incidents and growth

Regression Statistics	
Multiple R	0.380964
R Square	0.145134
Adjusted R Square	0.097641
Standard Error	0.166216
Observations	20

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95.0%	Upper 95.0%
Const.	0.600889	0.0527	11.402	1.14E-09	0.490169	0.711608	0.490169	0.711608
X Variable	-0.00484	0.002768	-1.748	0.097479	-0.01065	0.000976	-0.01065	0.000976

Source: The Asia Foundation / KPPOD survey (2008), World Bank conflict and development team

Notes:

1. The dependent variable here is the share of firms in a district that have increased their sales per employee in 2006-07.
2. The independent variable is the number of security incidents that occurred in a district in 2005-06.
3. The coefficient on the independent variable, number of security incidents, is significant at 10 percent.

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