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JOBS FOR THE 21ST CENTURY: INDONESIA ASSESSMENT

In response to the Asian tsunami, the USAID-Chevron partnership for technical education helped hundreds of youth from Aceh and Nias learn skills needed to help in the region's reconstruction, including electrical and wiring installation.



photography by USAID/Indonesia

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Map of Indonesia



EXECUTIVE SUMMARY AND RECOMMENDATIONS

Introduction

USAID and its predecessors have worked in Indonesia since 1950. Today USAID's assistance program focuses on basic education, democratic governance, rebuilding after the tsunami, economic growth, health, water, food, and the environment. Through targeted technical assistance, USAID programs also support implementation of the Aceh peace accord, which ended 30 years of conflict in Aceh Province. As part of its education program, the USAID Indonesia mission has supported the development of technical education, through a public-private partnership with an enthusiastic and experienced private sector partner, the Chevron Corporation. This partnership supports the Government of Indonesia's plan to help restore livelihoods following the devastating tsunami, through technical education and training. This program has conducted several key studies as part of its planning.

As requested by USAID/Indonesia, this Assessment complements the existing body of research and explores remaining issues to support the implementation of the project. The Aceh Province partnership with Chevron in Indonesia had set the broad parameters of a program previous to this assessment: With Chevron, USAID will design and open a new polytechnic institution in Aceh in 2007, which will need effective job placement strategies to help its Acehnese graduates find employment in Aceh, Medan, and Batam areas. With this country-specific program in place, the purpose of this labor assessment funded by the Asia and Near East Bureau is to support effective implementation and targeting.

Additionally, the USAID ANE Regional Bureau also supports various activities to promote youth leaders from the Indonesia area; it is particularly interested in youth attributes, such as the main demographic, educational, and household factors that shape youth expectations and behaviors, particular aspects of youth leadership in this region, and the youth characteristics tied to workforce issues.

Key Questions and Methodology

In this context, the USAID/Indonesia mission supported this rapid assessment of "Jobs for the 21st Century," with technical assistance provided by Education Development Center, Inc. (EDC), contracted through the Global Workforce in Transition financing facility. The assessment is guided by the oversight of the USAID Asia and Near East Bureau (USAID/ANE). A five-person EDC team, including two Indonesian nationals, has conducted an intensive in-country review during a three-week period (12 March–31 March 2007). They examined a great deal of published and unpublished material, interviewed more than 75 people in 30-plus government agencies and non-governmental organizations, and conducted formal and informal focus groups with more than 200 young people.

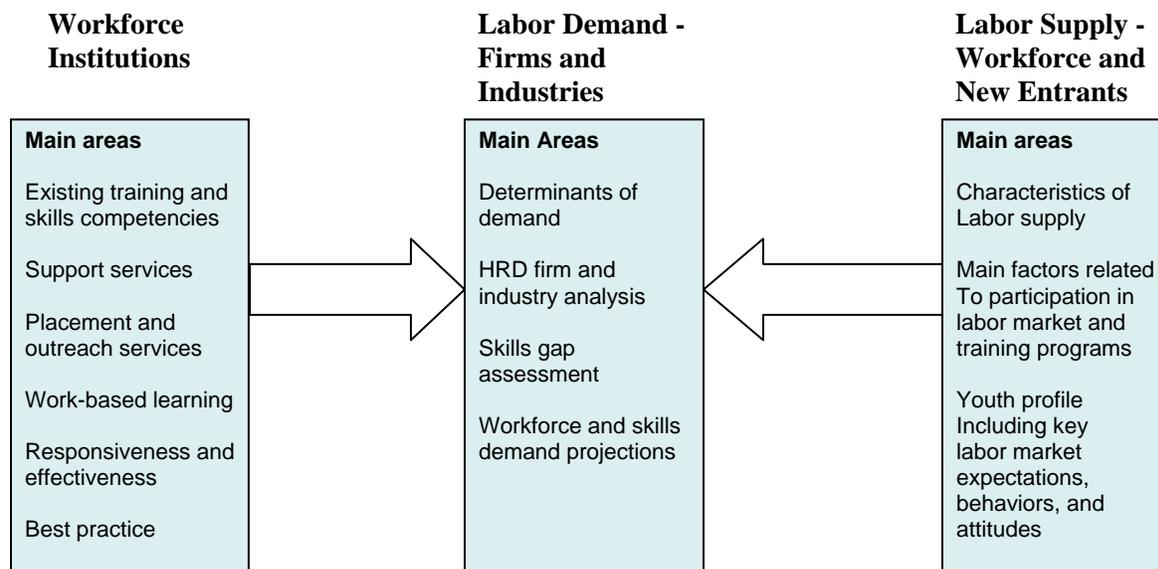
The assessment focuses on three main questions:

- ❖ What is the demand of firms and industry for technical workers in Aceh and surrounding provinces?
- ❖ What are the main linkages between workforce institutions and labor demand?
- ❖ What are the key characteristics of youth workforce in Aceh that will influence job search, recruitment and participation in polytechnic education?

The assessment begins by examining labor demand for technical workers; then it links the analysis of workforce institutions and labor supply to these demand issues. This integrative framework highlights the

key relationships between demand and supply for technical labor, and the necessary institutional framework in terms of education and training services to respond to these issues. Included in Figure 1 is a sketch of the three main areas of inquiry and the key linkages of these issues.

Figure 1. Workforce Development Linkages



The report is organized around these three broad themes, with key findings and recommendations offered in the final section of the report. The Appendices provide detailed information on the following: Statistical Overview of Economic Demand (Appendix A); Enterprise Case Studies and Questionnaire (Appendix B); Workforce Institution Profiles, Protocols, and Best Practices (Appendix C); Youth Workforce Statistics (Appendix D); Youth Focus Group Findings and Protocols (Appendix E); Bibliography (Appendix F) and Complete Contact Information (Appendix G).

Main Findings

In the medium term, employment of technical workers will increase substantially, and employment of unskilled labor will increase even more. Manufacturing employment is still largely oriented toward unskilled labor. Data from the Rural Investment Climate Survey (RICS) and the case studies suggest that the average firm may hire as many as four unskilled workers per technical worker. Moreover, as production capacity and output increase, the increase in employment of technical workers will not be proportionate, as our analysis of employment elasticity demonstrates.

The most significant bottlenecks for economic growth are gaps related to institutions, governance, and infrastructure. Evidence for this arises repeatedly in investment climate surveys, which point to institutions, governance, and infrastructure as factors increasing the cost of doing business; they can as well be interpreted as obstacles to business growth. Case study interviews confirm the seriousness of market-distorting regulations and inadequate investments in public utilities. If these problems are not addressed, there is a real danger that the expected rapid growth may fail to materialize in the medium term.

Unlike many economies in Southeast Asia, Indonesian unemployment is largely a reflection of demand-side factors, rather than youth bulge or labor supply increases. The unemployment rate has swollen up to its present level of about 10%. This rate is almost double that of 1998; it results from weak job creation from the demand side.

Aceh anticipates an economic transition, from resource-based industries to agro-industrial development (including fisheries). As explained in the analysis of the enterprise case studies, there are many reasons for the transition from resource-based industries to agro-industrial development: the resource depletion in the oil and gas sector, environmental protection of the logging industry, and the priority of local autonomous government to the agro-industry.

Out-migration is an important pathway for youth workforce with tertiary technical education. Highly educated and technically trained youth are being pulled out of the region, and into other parts of Indonesia and Southeast Asia region. There is a critical demand for technical workers in the East and Southeast Asia regions, which will in turn have impact on the regional and local labor markets of the northern Sumatra and the Aceh region.¹ Geographic mobility holds even for workers from Aceh. Permanent migration among Sumatra provinces shows that the Acehnese moved out of their province about as much as the other provinces did. Focus group discussions with Acehnese students show that their employment plans are far from parochial, with several willing to work overseas to find high-paying jobs.

The dominant need is for basic-skill-level workers; fewer opportunities exist for technical-level workers. Recent institutional trends point to the need for general employability skills and specific skill competencies. Based on the enterprise case studies, the dominant skills and competencies needed are in agriculture, including fisheries, and in agro-industry, to facilitate rural economic development. Current institutional focus is on developing skills required to do the job. The main areas have been identified in terms of specialized skills: metallurgy, foundry, rubber, boiler operation, specialized software, and English.

Extensive partnership networks of technical and vocational education institutions are poised to meet labor market needs. The current number of partnership arrangements established through Memorandums of Understanding (MOUs) suggests that inter-agency public and public-private partnerships are well understood in Indonesia and the northern Sumatra region. Cooperation and outreach service coordinators in educational institutions sustain and build partnerships.

The communication links opened by partnerships reveal new opportunities to meet social needs. Business and industry are poised for socially responsible actions in response to community needs. For example; contributions to city parks and playgrounds, youth centers, health clinics, dormitory facilities, and program sponsorships enable a better quality of life, decrease the drive to migrate for work, and simultaneously enhance productivity.

Youth expectations continue to be affected by the tsunami disaster. Many youth have experienced traumatic family losses that affect their labor market expectations. As part of traditional family life, parents play an important role in directing and choosing the field of study as well as the education institution where the youth should enroll. Youth do not have clear guidance to start thinking about their career path or employment future during high school. Gender issues (traditional gender roles) persist and influence the selection of occupational study and work expectation.

¹ Note that the island of Sumatra comprises several provinces. The northern part of the island includes Aceh Province and North Sumatra (Sumatera Utara) Province, as well as some others. This report will refer sometimes to the northern Sumatra region and other times to the province of North Sumatra.

The youth workforce in Aceh needs employability skills, high school credentials, and job experience.

Youth perceive that they need basic general skills such as computer operating skills and English. Work-based programming, such as apprenticeships and on-the-job training, is viewed a big positive in terms of future employability. Youth understand the value of job experience and openly express the need to have job experience in a bigger city. Youth look for a short-term job as a stepping-stone, participate in an apprenticeship or on-the-job experience, and find an actual longer-term job as part of this entry employment process. Informal social networks are the foundation for this informal job search.

Key Recommendations

Establish linkages with local and regional economic activity

The polytechnic should concentrate on technical occupations for agriculture, fisheries, and related processing, covering agriculture and aquaculture; agribusiness management; and the engineering mainstays of mechanical, electrical, and chemical engineering. In a province with large rubber plantations and an established rubber-manufacturing sector, the polytechnic should offer majors in rubber technology within general subjects such as chemical engineering. Agriculture courses should include agronomy, aquaculture, and agricultural engineering. Management subjects would equip technically trained individuals with entrepreneurial skills, thus contributing to local small- and medium-scale industries.

Strengthen management, empowerment, and stakeholder representation

The partnership between workforce training institutions and the private sector is reflected through the Memorandums of Understanding (MOUs). This tool for establishing partnership is an important mechanism for the Aceh polytechnic program. We recommend that the design, construction, program development, and management of the USAID-Chevron Polytechnic promote the concept of partnership by establishing a broad-based stakeholder advisory board. This board might be comprised of relevant ministries, such as the Ministry of Higher Education, Ministry of Industry, Ministry of Manpower and Transmigration, Ministry of Maritime and Fishery, Ministry of Agriculture; local provincial government representation; staff and management of training and educational institutions; and industry representatives. Putting everyone's ideas to use will also require specific information management systems and strategies to encourage feedback and evaluation of the program.

Focus on trainability and employability skills of students

Previous research has shown that graduates of polytechnics have a myriad of career pathways; many do not end up with the specific occupation of their graduate degree. Often graduates with specific technical skills are most valued for their general ability to solve complex technical problems related to the production of goods and services. Given this trend, it is important that graduates be sufficiently trainable. Trainability includes basic familiarity in the subject matter; quantitative skills; proficiency in problem-solving; and language skills, especially in English.

Change youth expectations in Aceh toward access to education and job opportunities

Based on the findings of the youth focus group, Acehnese youth continue to have doubts about their ability to find work and job opportunities in the Aceh region or beyond. An important contribution of the proposed polytechnic in Aceh will be to demonstrate real results in terms of educational access and opportunity for Acehnese youth. Such results would help build more positive expectations of youth toward job opportunities in general and the specific career pathways to obtain such employment.

Strengthen local responsiveness/accountability along with labor demand, economic development, and community needs

Institutional strategy should include systematic creation of needs-based courses. This will require setting targets and monitoring performance (e.g., budget, program, and employment rates) in order to have the ability to create systematically need-based courses. To meet underserved needs at present, priority should be given to Acehnese students, to creation of a gender-balance, and to increased opportunities for poor students. To create long-term stability, results-oriented management information systems should be developed so that workforce trajectories can be better understood and workers can be better prepared to meet long-term market needs.

Broaden resource mobilization to sustain programs beyond startup phase

Like the previous recommendation, the final recommendation suggests a means of meeting local market need. Specifically, a strategic plan should be drawn up to ensure institutional sustainability. Donor scholarships, production training centers, fee-based services, and student fees would ideally be the joint responsibility of donor and industry stakeholders. A joint working session of the USAID-Chevron Center management team and stakeholder advisory board could set targets and identify specific sustainability strategies.

SECTION I: LABOR DEMAND FOR TECHNICAL WORKERS IN ACEH AND SURROUNDING PROVINCES

- ❖ *What is the demand of firms and industry for technical workers in Aceh and surrounding provinces?*

This broad question is the starting inquiry of the assessment. To address this question, the assessment addresses four important topics: (1) key demand determinants for Indonesia, such as economic growth, productivity, and employment trends; (2) key demand determinants for the Northern Sumatra and the Aceh region; (3) the enterprise trends regarding skills, employment structure, and training (using existing primary data); (4) specific enterprise characteristics that reveal the personnel structure, training and human resource development (HRD) of the enterprise case studies. This section provides analysis for each of these topics, and then highlights the key findings of this research.

Methodology and Conceptual Framework

The labor demand analysis uses three distinct methods and data sources. First, the demand determinant analysis compares key economic indicators of labor demand using existing sources of government provincial statistics, with particular attention to available statistics for the Northern Sumatra and the Aceh region. A full summary of these labor market statistics is presented here and in Appendix A.

Second, the labor analysis estimates labor and skills demand and other key factors using existing primary data, such as the Productivity and Investment Climate Survey (PICS) (ADB, 2005), and the Rural Investment Climate Survey (RICS) (World Bank, 2006). Information on these estimates and data sources is included in the sub-section: The Enterprise Perspective.

Third, the assessment analyzes data from enterprise case studies, using information collected during the in-field research. The enterprise case study allows for in-depth information on the personnel structure, recruitment, and human resource characteristics of firms that employ technical workers in the Northern Sumatra region. As part of the research assignment, the EDC team designed and developed a new research questionnaire instrument. The enterprise case studies and questionnaire are presented in Appendix B. By using these various methods, the research allows for cross-checking of findings and more in-depth research at the firm level.

To evaluate demand in a labor market, we need to define the market accurately in terms of commodity and geographic scope. The geographic scope involves not only Aceh, but also major industrial areas in the vicinity---North Sumatra (around the capital of Medan) and Riau Islands (around the capital of Batam). These appear to be the more relevant centers of labor demand, particularly in the medium term. To define the commodity, we delimit those occupations for which the type of employment is associated with “real jobs,” that is, with wages (or gross profit, if self-employed), career development opportunities, and benefits. Using the ILO international standard classification of occupations, we include the following occupations in the definition of “technical workers.”²

- From Group 1, managerial positions that supervise workers from Group 3

² The ILO international standard classification of occupations includes: Group 1: Legislators, Senior Officers, and Managers; Group 2: Professionals; Group 3: Technicians and Associate Professionals; Group 4: Clerks; Group 5: Service Workers and Sales Workers; Group 6: Skilled Agricultural and Fishery Workers; Group 7: Craft and Related Trades Workers; Group 8: Plant and Machine Operators and Assemblers; Group 9: Elementary Occupations; Group 10: Armed Forces.

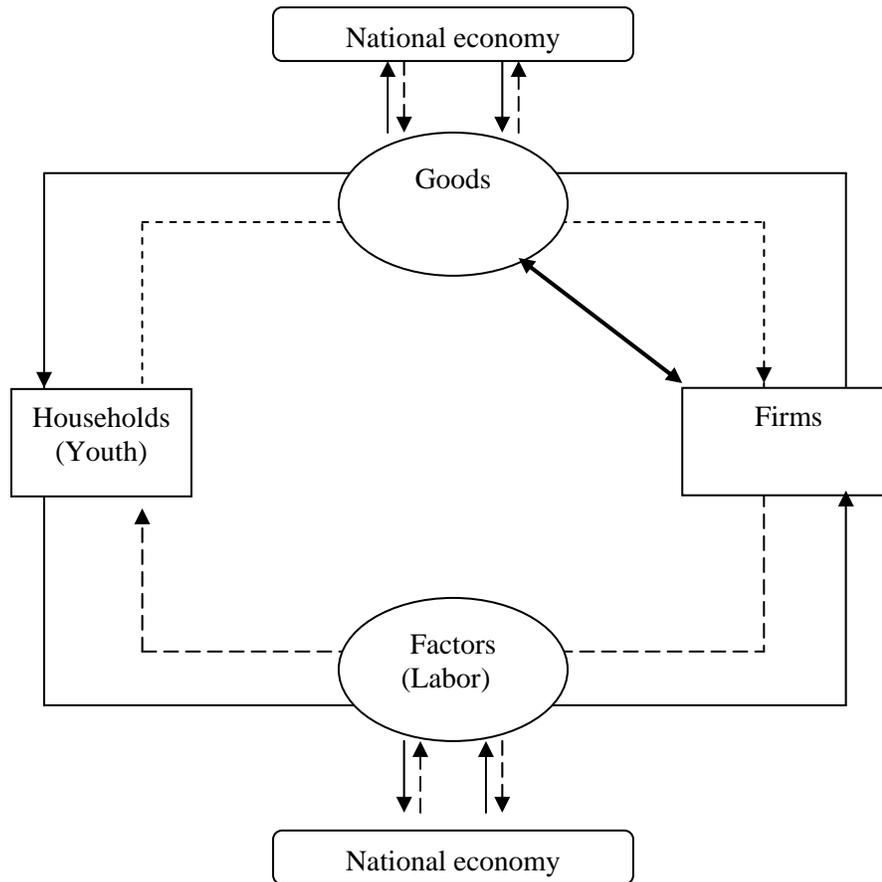
- From Group 3, occupations such as physical and engineering science technicians; computer associate professionals; optical and electronic equipment operators; ship and aircraft controllers and technicians; agronomy and forestry technicians; farming and forestry technicians and advisers
- From Group 8, occupations such as: stationary-plant and related operators (in mining, metal processing, ceramics, wood products, chemical factories, and so on); machine operators and assemblers (in metal fabrication, mining, chemicals, rubber and plastic, wood, printing and paper products, textiles and leather products, food products).

In addition, we delimit the definition of “technical worker” to include only those workers with the above occupations that have some post-secondary technical education. In Indonesia this covers either a university education or an academy degree (3-year diploma). Thus, the “technical worker” is defined both in terms of occupation and education requirements.

The conceptual framework involves an understanding of the economic system in Aceh, its linkages with the national economy, and the role of labor in this system. First, we trace the basic circular flow (Figure 2) for the market economy at the regional level, which comprises two basic sectors: households and firms. Firms produce goods for households in exchange for payments; they also produce for other firms (to meet intermediate demand). Households own assets (labor, land, natural resources). They supply resources to other households; payment for these factors generates household income. Flows of goods are represented by solid lines and flows of payments by broken lines. The regional economy is embedded in a national economy, which is an alternative buyer of firm outputs, as well as household factors, especially labor. It is also an alternative supplier of productive factors (capital and labor), as well as an alternative supplier of goods to both households and business firms.³

³ In turn, the national economy is embedded in the global economic system. Here we simplify the analysis by subsuming global supply and demand for goods and factors within the national economy.

Figure 2. Schematic of Circular Flow for the Economic System



Based on this schematic we make two observations. (1) The economic system is composed of closely interrelated actors, both regional and national. The context of the regional economy is the national economy; hence the assessment should cover local and national economic factors affecting growth, such as access to credit and investment capital or overall business climate and stability. (2) Labor demand is derived from the firms’ desire to earn revenue and thereby profit. Similarly, labor supply is derived from the household’s desire to earn income with which to purchase goods. Labor demand decisions are best explained by the profit motive, while labor supply is best explained by the consumption motive.

The preceding schematic is highly aggregative; it does not illuminate how decisions are made regarding regional versus local specialization in supply and demand. Again, this decision is best understood by relative profit and income opportunities, which depend on cost and market advantages of Aceh/Medan relative to other regions of the country.

Part 1: Key Demand Indicators for Indonesia

Economic growth continues yet remains substantially lower than before the 1998 financial crisis

Economic growth in Indonesia has been slowly recovering, reaching a high of 5.6 percent in 2005 (Table 1). From 1988 to 1992, Indonesia witnessed extremely high economic growth, at around 8 percent of GDP, with both industry and services having rates of growth in the 8-9 percent range. These trends

continued in 1993-1997, with GDP growth in industry sectors reaching an all time high of 9.5 percent. During this same time period, GDP growth due to agriculture slowly languished, with only 2 percent growth during the 1993-1997 period. This rapid economic growth came to an abrupt halt throughout Asia with the 1998 financial crisis. The economic contraction in 1998 was severe: industry shrank by 14% and the economy declined by 13.1% overall. Recovery began in 2000, with growth reaching 5.3% in 2004–2005. The industrial sector though has lagged behind at only 4.1% growth.

Table 1. Real GDP Growth by Industrial Origin, 1998–2005

	1988–92	1993–97	1998	1999	2000	2005	2001–05
GDP	8.0	7.1	-13.1	0.8	4.9	5.6	4.7
Agriculture	4.4	2.1	-1.3	2.2	1.9	2.5	3.2
Industry	9.4	9.5	-14.0	2.0	5.9	4.4	3.8
Services	8.6	6.9	-16.5	-1.0	5.2	8.1	6.3

Source: ADB, 2006

The overall composition of GDP by industrial origin now reflects these growth trends. Currently, the biggest share of economic output is in industry (44 percent), followed closely by services (41 percent). Output from agriculture is less than 15% of GDP (ADB, 2006).

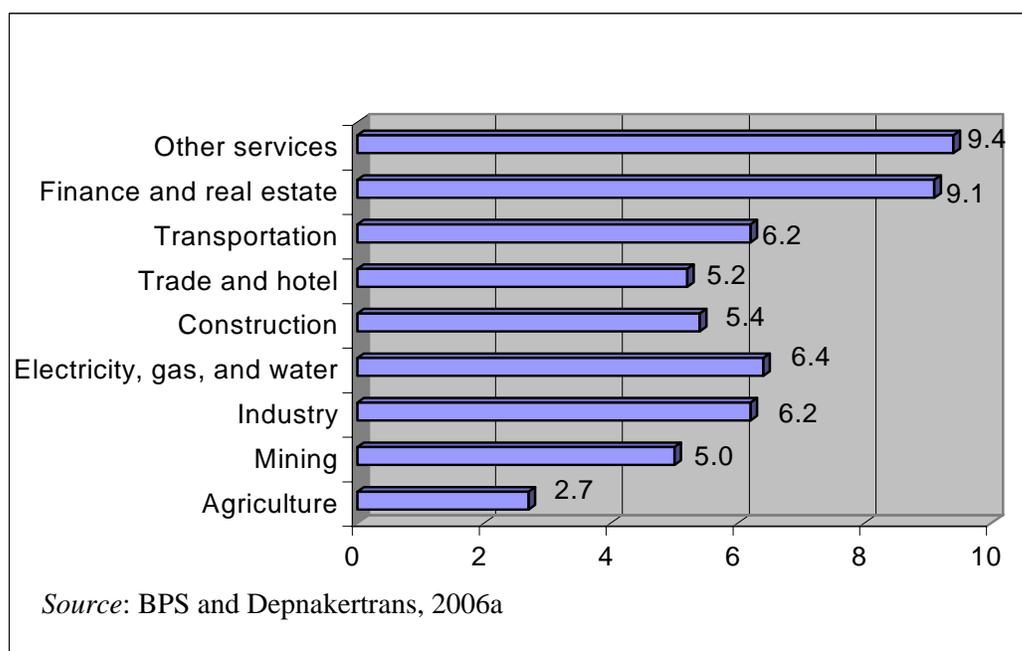
Several factors explain these stages of economic growth, particularly as it relates to the industry sector. The macroeconomic stabilization policies undertaken in the late 1960s under the new government of President Suharto initiated the economic policies that kick-started the industrialization development. Subsequently, in the 1980s the government pursued microeconomic reform. Fiscal policies focused on tax system reforms, while trade policy aimed at reducing tariffs and dismantling non-tariff barriers, so investment rules on foreign ownership were relaxed and the financial system was deregulated. However, the economic crisis of 1998 resulted in political upheaval and revealed the country’s ambivalence toward further advancing reform (Stern, 2003).

Indonesia remains constrained by an inferior investment climate; the legal and institutional environment in the country has pulled its rank down to 135 out of 175 countries in terms of the cost of doing business (retrieved 15 March 2007 from <http://www.doingbusiness.org/ExploreEconomies/Default.aspx?economyid=90>). The extent and quality of infrastructure are among the poorest in the region in practically every area, including telecommunications, water supply, sanitation, and transport (World Bank, 2004).

There is growing dissatisfaction with the regional distribution of economic activity. Wealth creation seems to have concentrated in a few industrial centers, bypassing large segments of the population, especially rural residents. The major centers of manufacturing employment are Java (around Jakarta), North Sumatra (around Medan), and Riau Islands (around Batam); smaller clusters can be found at Lampung, West and South Kalimantan, and South Sulawesi, which are all near Java. These industrial clusters have been formed owing partly to geographic advantages (infrastructure, relative wages, and natural resources), and partly to scale economies at the level of the firm and the industry (Deichmann et al., 2005). Partly to allay concerns on the growth trends, the country has embarked on decentralization of government functions. Authority, responsibility, and financial resources have been shifted to the regencies and cities or (in the case of Aceh and Papua) to the provincial governments of special autonomous regions.

Future prospects for the economy have been analyzed using the macroeconomic model development by the Badan Pusat Statistik (BPS), known in English as Statistics Indonesia, and Departemen Tenaga Kerja Dan Transmigrasi (Depnakertrans), the Ministry of Manpower and Transmigration. (See Box 1 in Appendix A for a complete description of the BPS Depnakertrans Macroeconometric Model.)

Figure 3. Official Growth Projections by Sector, 2005-2009



Based on the BPS-Depnakertrans research as presented in Figure 3, GDP is expected to grow at about 6% per annum on average until 2009.⁴ The fastest growing sectors would be services, particularly finance and real estate, which are projected at around 9 percent. Transportation, construction, utilities, and industry would grow at about the 6 percent rate. Agriculture would continue to lag behind, at around 3 percent (BPS and Depnakertrans, 2006a).

Employment persists in the agricultural sector, with little jobs creation and low productivity

Growth in the labor force (labor supply in the aggregate) has been negative, given downward demographic trends and a stable labor force participation rate. The labor force growth rate (Table 2) has been slowly inching downward, from 3.5 percent (1998) to 1.8 percent (2005). This decrease in the labor force growth rate mirrors the demographic trends of the population growth rate of the country. In the last decade, the population growth rate has decreased from 2.2 percent in 1990 to 1.3 percent in 2005.

⁴ Sectors are defined as follows: Agriculture (crop agriculture, fisheries and aquaculture, forestry); Manufacturing; Mining (mineral and non-mineral); Utilities (electricity, gas, and water); Construction; Transport (transportation, trade, storage, and communication); Finance (banking, finance, insurance, and real estate); and Other services (community, social, and personal services). Where Hotel is added, it refers to hotels, accommodations, and restaurants; where Trade is added, this covers wholesale and retail trade.

Table 2. Employment Indicators for Indonesia, 1998-2005

(in percent)

	1998	1999	2000	2001	2002	2003	2004	2005
Labor force growth	3.5	2.3	0.8	3.3	2.0	2.0	1.3	1.8
Labor force participation rate	66.9	67.2	67.8	68.6	67.8	67.8	67.6	68.0
Population growth	1.15	1.15	1.49	1.4	1.3	1.3	1.3	1.3
Unemployment	5.5	6.4	6.1	8.1	9.1	9.6	9.9	10.3

Source: ADB, 2006

Indonesian unemployment is largely a reflection of demand-side factors, rather than of youth bulge or labor supply increases

The unemployment rate has swollen up to its present level of about 10%. This rate is almost double that of 1998; it results from weak job creation from the demand side. To a large extent, the lack of jobs creation reflects the large amount of employment in the sluggish agriculture sector. Employment is still highest in agriculture (at around 44%), followed by services (43%); industry accounts for only 12% of total employment. These shares have been relatively constant over time, even though manufacturing and service sectors have experienced the more significant growth. This continued reliance on the agriculture sector for employment in the country is of particular concern, given that agriculture has been a poor performer in overall value added and jobs creation in the past decade. The ILO has estimated employment elasticity for the agriculture sector for 2000-2004 at -.59 percent, a reflection of the poor performance of the agriculture sector during this time. Employment elasticity for the manufacturing sector for the same time period is estimated at 1.6 percent, an extremely high and robust rate. Service sector jobs creation, as captured by the employment elasticity of value-added growth, is calculated at .85 percent (ILO, 2005).⁵ However, the main challenge is that there are not enough jobs (in absolute terms) in the manufacturing sector to absorb the large, rural-based surplus workforce.

Unemployment is also related to the educational attainment of the worker (See Table 2 of Appendix A). The unemployment rate is most severe among senior high school graduates, estimated at 18 percent. Unemployment rates among academy graduates and junior high school graduates are estimated at around 12 percent. Next, somewhat surprisingly, unemployment rates are similar between university graduates, primary school graduates, and those that have not finished primary school, estimated in the 5-6 percent range. Entry is easiest in the informal sector, to which the least educated gravitate, whereas secondary school graduates tend to vie for jobs in the formal sector where entry is more difficult. University students find their high level of schooling quickly absorbed in the market. The concentration of unemployment among secondary-schooled workers has been observed in previous studies (Tzannatos and Sayed, 1997). It is an indicator of the skills mismatch between the formal education of the secondary educational system and the workplace demands of the economic system, which leaves the expectations of youth disappointed.

⁵ "Elasticity" of employment here is simply the percentage change in number of employed workers, over the percentage change in value added of the economic product of the respective sector. If unity (unit elastic), then employment is expected to grow at the same rate as output; if above unity (elastic), then employment growth should be faster, while if below unity (inelastic), employment growth should be slower. Most employment elasticities are estimated to be between the value of 0 and 1. The average employment elasticity is .7 worldwide, as calculated by the ILO.

Box 1. Employment Projections for Indonesia, 2005-2009

Official projections on employment are available for the medium term. The labor force is expected to grow by less than 2% per year; where total employment will grow by over 3%, causing unemployment to decline to 6.5% by 2009. This is still somewhat above pre-crisis levels and will considerably reduce mass unemployment.

Employment projections for 2005–2009, in percent

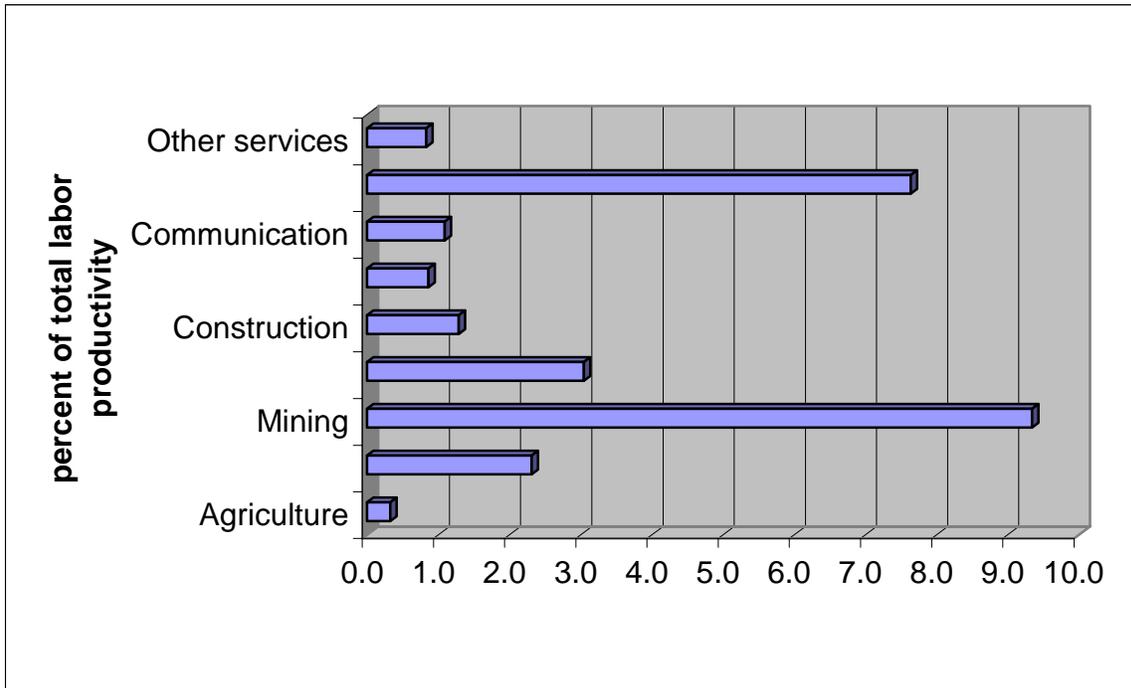
Indicator	Annual average, in percent	Implicit employment elasticity	Share in new employment, in percent
Labor force growth	1.9		
Unemployment rate	8.2		
Total employment growth	3.1		
Agriculture	0.8	0.3	10.7
Mining	3.1	0.6	0.7
Industry	3.9	0.6	16.8
Utilities	8.4	1.3	0.7
Construction	3.4	0.6	5.1
Hotel	4.4	0.8	27.3
Transport	8.3	1.3	16.2
Banks	13.3	1.5	6.6
Other services	4.0	0.4	15.9

Source of basic data: BPS and Depnakertrans (2006b).

Productivity reflects the employment and value-added structure

The low share of agriculture in economic output, concurrent with a high share of employment in the agriculture sector, implies great disparities in labor productivity, as measured by gross value added per worker (Figure 4). Mining and quarrying productivity is nearly ten times the national productivity; on the other end is agriculture, with less than a third of national productivity. The flipside is that the low productivity occupations are more employment-intensive and produce more jobs for a given output increment. However, labor costs have been increasing, partly due to increases in the minimum wage in the manufacturing sector for labor-intensive industries. Since 2001 jobs have been shifting from factories to farms and fisheries where both productivity and wage growth are much slower (ADB, 2003).

Figure 4. Relative Labor Productivity by Sector, 2005
(total labor productivity = 1.00)



Source of basic data: BPS and Depnakertrans, 2006b

Part 2: Demand Indicators for Northern Sumatra and Aceh Region

For Northern Sumatra, manufacturing and agriculture remain top economic sectors

Aceh, North Sumatra, and Riau comprise the northern end of Sumatra islands; in 2003, Riau Islands became a separate province from Riau. Aceh has a population of about 4 million people, or less than 2% of the country's population (see Table 4 in Appendix A). As its GDP share is approaching 3%, its per capita gross regional domestic product (GRDP) is actually higher than the national average.

The high GRDP in Aceh is distorted by the presence of a large petroleum industry (Table 3). The share of mining is 23.3%, but declines to 0.9% once the oil and gas sector is excluded. Similarly the share of manufacturing (including oil and gas manufacturing) drops from 16.9% to 6.3%. On the other hand, the share of agriculture climbs from about one-fifth to nearly one-third of regional output. Likewise Riau has a large oil and gas industry, accounting for a high share of output from the mining sector. However for North Sumatra and Riau Islands, the largest share of output is contributed by manufacturing unrelated to oil and gas.

Table 3. GRDP Shares by Industrial Origin for Northern Sumatra Provinces, 2005

Based on constant 2000 prices (in percent)

	Aceh	Aceh (without oil and gas)	North Sumatra	Riau	Riau Islands
Agriculture	21.0	32.6	25.3	16.8	4.8
Mining	23.3	0.9	1.2	55.4	6.9
Manufacturing	16.9	6.3	24.2	10.1	67.2
Utilities	0.2	0.3	0.8	0.2	0.2
Construction	3.3	5.1	6.3	2.8	2.6
Trade	15.6	24.2	18.2	7.1	8.2
Communication	6.3	9.8	8.4	2.5	3.7
Finance	1.5	2.3	6.2	1.0	4.4
Other services	11.9	18.5	9.4	4.2	1.9

Source: BPS and Depnakertrans, 2006b

In Aceh, agricultural performance has been lackluster, and oil and gas industries have experienced severe contractions

Output trends in total and by sector have been very erratic. Aceh real GRDP is barely higher than it was in 2004. The most severe contraction has been in the oil, gas and gas extraction, and manufacturing industries. In agreement with DevTech (2006), the outlook for this sector is bleak, and the economy will need to diversify rapidly to replace the output contraction from this sector. Despite dramatic fluctuations, the fastest (though erratic) growth rates have been registered by services and utilities. Trends for manufacturing in North Sumatra and Riau Islands have been more consistent, with the latter performing well relative to the rest of the economy. (See Table 5 of Appendix A.)

Growth and employment generation are expected to be led by agro-industry. Within the agricultural sector (Table 4), estate crops grew most rapidly over the last three years, followed by fisheries. In contrast, forestry, essentially an extractive sector like mining, has contracted by 22.3%. This trend is not likely to reverse, as the provincial government has committed to a moratorium on all logging and forest clearing. The estate sector produces cash crops (rather than subsistence); these crops are also widely grown by smallholders. Common cash crops include oil palm, rubber, coffee, and cacao.

Table 4. Growth Rates of Value Added Within the Agricultural Sector of Aceh, in 2002-2005

(in constant 2000 prices)

	2003	2004	2005	Average 2001-2005
Food crops	0.5	7.7	-15.5	-2.4
Estate crops	14.2	22.4	13.4	16.7
Livestock	3.2	-1.0	-7.5	-1.8
Forestry	-1.0	-24.5	-41.5	-22.3
Fishery	3.8	15.6	-3.3	5.4

Source: BPS (2002-2005)

Box 2. Aceh Development Priorities and Recovery

Aceh's new government has identified the following development priorities:

- Economic development, focused on agriculture, fisheries, and agro industry
- Education, focusing on upgrading the quality of education and training services
- Health, focusing on upgrading the quality of health facilities and services
- Infrastructure
- Social, cultural, and religious development
- Governance

The tsunami wrought major disruption of livelihoods in 2004, with an estimated damage worth \$1.2 billion. This included 20,000 hectares of fishponds, over 70,000 hectares of agricultural land, and 4,717 fishing boats; over 3,000 km of road were rendered impassable, and 120 arterial bridges were destroyed; also badly damaged were 14 of 19 seaports and 8 out of 10 airports. Moreover, the decades-long insurgency has constrained investments in the region. Even now, investors remain in a "wait-and-see" stance to confirm a permanent resolution of the security problem. The provincial planning agency (BAPPENAS) estimates annual economic growth at only 2-3% in the next two years, rising to 4-5% over the medium term (2007-2011). These are much lower than national trends, as reconstruction and rehabilitation will take years to complete.

Source: BAPPENAS, 2006b

Post-tsunami Aceh experiences severe unemployment, with agriculture being the main jobs generator

Following the tsunami, unemployment in Aceh has grown from 2% to 31%, so employment generation is an urgent development objective. While industry is the biggest contributor to output, agriculture is the largest jobs generator. Nearly 60% of Aceh employment is in agriculture (See Figure 2 in Appendix A). Trade and trade services contribute around 35% to employment. Manufacturing contributes only 4%, with 0.2% for the oil and gas sector alone. Hence, Aceh remains primarily a rural-based economy, which accounts for the high priority accorded to agriculture.

Unlike North Sumatra and Riau Islands, Aceh has few large-scale factories operating (Table 5), and nearly all are in the oil and gas sector. Defining "medium size" as a firm with 20 to 100 workers, then only five large-scale enterprises are operating in Aceh, which accounts for 11% of manufacturing workers. Eleven medium-scale enterprises remain in operation, which accounts for 2% of workers. The remainder (87%) is found in a gamut of micro enterprises in the province (over 10,000).

Table 5. Enterprise Indicators by Size Category in Aceh, 2004 and 2005

	2004			2005		
	Small	Medium	Large	Small	Medium	Large
Numbers:						
Of enterprises	15,130	20	6	10,427	11	5
Of workers	39,422	787	3,680	29,029	764	3,598
Values (billion Rp)						
Investment	118.1	574.7	-	84.4	477.7	-
Production	519.0	379.7	-	396.8	-	-

Source: BAPPENAS, 2006a

While agriculture can use some technicians in an extension or research capacity, demand for technical labor continues to originate largely from medium and large factories in manufacturing. Given the local scarcity of such factories, most technicians completing their degree in Aceh would have to find employment in medium to large firms outside the local economy. Out-migration from Aceh is not distinctively different from the other provinces of Sumatra Island, though in-migration is much higher in Riau and southern Sumatra (See Table 7 in Appendix A). Similarly, the focus group discussions of the EDC field work show that Acehnese young people aspire to find jobs even outside Indonesia. (See Section III, Part 2 of report).

Part 3: The Enterprise Perspective

Insights on growth prospects for the Indonesian economy can be obtained from enterprise surveys. Indonesia has had two recent enterprise surveys, namely the Productivity and Investment Climate Survey (PICS) (ADB, 2005), and the Rural Investment Climate Survey (RICS) (World Bank, 2006). The surveys identify key business constraints. PICS takes an economy-wide perspective and focuses on 713 medium and large firms in 11 regions and 10 manufacturing sub-sectors in the formal sector. RICS focuses on rural non-farm enterprises that are primarily informal. The RICS dataset is available for public use and can be used for limited skills-requirement desegregation within enterprises. It covers six districts across Indonesia, each representing a type of economy or geographic characteristic, namely: Labuhan Batu, North Sumatra, plantation economy; Malam, East Java, agro-industry; Bandung, Bali, tourism; Sumbaya, West Nusa Tenggara, arid region; Kutai Kertanagara, West Kalimantan, resource-abundant economy; Barru, South Sulawesi, fishing economy.

Skilled labor is not the key obstacle to doing business in Indonesia

In PICS, key company informants rank obstacles to doing business. Table 6 shows the greatest obstacles to doing business, based on the average PICS scores. For comparison, it presents the ranking of obstacles for the RICS.

Table 6. Top Ten Obstacles to Doing Business in Indonesia

Key obstacles ranked	PIC enterprise survey (ADB)	RIC enterprise survey (WB)
1	Macroeconomic instability	Low demand
2	Economic uncertainty	Insufficient access to formal credit
3	Local corruption	Insufficient road access
4	National corruption	High cost of transportation
5	Tax rate	High interest rates
6	Cost of formal finance	Insufficient access to markets
7	Regional labor regulation	Poor quality of roads
8	Tax administration	Poor quality of electricity supply/utilities
9	Legal and conflict resolution	Uncertain economic policy
10	National labor regulation	Insufficient access to credit from family

Source: ADB, 2005; World Bank, 2006

Additional ranked obstacles to the PICS view of medium and large industry include the following: power connectivity ranks only 12th and transport problems rank only 19th. Meanwhile skill level and worker education ranks only 13th. In general, these business obstacles are more pronounced for large firms and for those competing in international markets. Large firms and exporters tend to operate on a wider scale

and to have a more complex and structured business set-up, which renders them more vulnerable to investment climates.

The PICS rankings contrast sharply with the ranking of rural small enterprises included in RICS. Broad policy and regulatory constraints and uncertainty are not mentioned here as major problems, mainly because such regulations are of limited applicability in rural settings. Rather, dominant business obstacles relate to markets, infrastructure, and finance.

Informal self-employment is a robust jobs generator in rural Indonesia

In rural non-farm enterprises reported by RICS, only 13% work in medium to large firms. In the aftermath of the crisis, employment growth has been most robust for the rural non-wage sector, growing at a rate of 3.8% per year in 2002–2004, compared to overall employment growth of -0.04%. This suggests that informal self-employment is an important mechanism for coping with formal sector shocks. This may also be a manifestation of growing labor costs in the formal sector: the minimum wage has increased in real terms from about Rp 300,000/month (\$35) in 1995 to over Rp 500,000/month (\$55) in 2005. Minimum wage concerns are also noted as significant in PICS (ADB, 2005). Severance pay regulations have also grown more restrictive, particularly since the enactment of Law No. 13 in 2003. However formal regulations are hardly enforced among small and micro-enterprises, and even many large, labor-intensive firms do not comply with labor laws (World Bank, 2006).

Indonesia faces only limited skills shortages for technicians, despite larger shortages in East Asia region

Enterprise data on skills mismatches (quality problem) and shortages (quantity problem) reveal key enterprise trends. Zeufack (2006) draws together PICS from several developing countries (Indonesia, Malaysia, Thailand, Philippines, India, Bangladesh, and Brazil) to examine these quality and quantity issues.

- Nearly 50% of Indonesian firms have had vacancies for professionals and skilled workers in the last two years, which is lower than average and much lower than Thailand and Bangladesh, where professional-worker vacancies are reported for over 70% of firms and over 80% for skilled workers.
- In Indonesia, professional vacancies have been filled within two to three weeks, the shortest timeframe within the countries compared.
- The greatest skills shortages in Indonesia appear to be in middle management positions (27.4% of firms) and local engineer positions (27.7% of firms). These are nevertheless lower than the cross-country averages (39% and 28.6%, respectively).

Hence Indonesia appears to face less of a problem of skills shortages than other countries in the region. The PICS-Indonesia report (ADB, 2005) confirms that availability of skilled workers is not as significant a business obstacle as labor market regulations. Nevertheless, a skills shortage problem does exist, according to the key informants, even for rural enterprises: 86.1% of firms covered by RICS mentioned skills shortage as a moderate to significant problem. Half of the workers in household enterprises are either illiterate or have not completed primary school. Stand-alone enterprises fare better, as three-quarters of their workers have at least primary-level schooling.

Box 3. Skills Mismatch and Worker Training for Rural Enterprises

Skills mismatches can be partially addressed by worker training. However, only a minority of stand-alone firms (30%) provide training according to RICS. According to PICS, more foreign than domestic firms provide training, either in-house (43% versus 21.5%) or external (36% versus 22%). Batra and Stone (2004), in summarizing findings from the World Business Environment Survey on worker training, find that training decisions in developing East Asia are most strongly influenced by the following perceptions. Note that a 1 is “strongly disagree” and 5 is “strongly agree” on a 5-point scale.

- Technology has matured and workers are already proficient = 3.1.
- In-house training is adequate = 3.0.
- Skilled workers can easily be hired = 2.7.
- High labor turnover is costly = 2.6.

It appears that firms do not invest significantly in training, as they perceive that skill matching is adequate. Nor are they seriously concerned about labor turnover as an obstacle to training investment.

These observations echo earlier findings (Tzannatos and Sayed, 1997), which showed that the vast majority of firms in Indonesia, including foreign-owned, take advantage of cheap labor by opting for labor-intensive processes based on simple and traditional methods. Only a few highly skilled workers are required alongside hundreds of unskilled or semi-skilled operators who undertake repetitive tasks. Hence the training need of new workers is modest and involves only a short introduction to a firm’s specific production requirements. This is a typical characteristic of labor-intensive light manufacturing production. These findings point to the underlying structure of production, whereby most enterprises in this survey do not promote higher technological processes, preferring mass production technologies that have been transferred from other countries (Stage 4 of Vernon’s Product Cycle).

Source: World Bank, 2006; Tzannatos and Sayed, 1997; Vernon, 1966

Service sector has highest share of skilled educated workers and greatest growth potential in rural enterprises

Based on the RICS data, the service sector has the highest share of skilled workers, those who have at least completed secondary school, in the rural sector of Indonesia. The hotel industry has over 50 percent of its total workers with completed secondary school. Service retail and wholesale trade has over 40 percent of its personnel with a complete secondary education. Industry workforce has only 21 percent of its personnel with complete secondary education. The lowest share of skilled workers is in construction, with only 9 percent of its workforce with complete secondary education.

Service sector industries also have the highest growth in capital stock. Particularly, the trade and hotel sectors have growth rates of capital stock (2002-2005) in the 40-50 percent range. This compares with the capital stock of industry enterprises, where fixed assets have grown by over a fifth in nominal terms (Table 7). Also, industry has the highest percentage of workers with external training and the second highest percentage of firms recruiting skilled workers. Consistent with macroeconomic projections, RICS suggests that manufacturing output and employment have been growing. However, manufacturing is far

from the fastest growing sector, and the bulk of increased employment demand has been for unskilled labor.

Table 7. Indicators of Firm Growth by Sector, 2005
(in percent)

Sector	Growth of capital stock (from 2002) (%)	Workers provided training (%)		Firms recently hiring skilled workers (%)
		Internal	External	
Industry	21.3	11.2	15.1	26.1
Construction	9.1	7.4	7.2	20
Trade	41.7	13.5	14.4	28.6
Hotel	50.8	7.9	6.7	3.4
Others	23.2	34.4	13.6	7.1

Source: World Bank, 2006

To a considerable extent, these existing primary data surveys and their findings set the stage for the field work of the EDC team. The key issues that are identified in these previous studies form the foundation for the select enterprise case studies of northern Sumatra. These case studies are now detailed, as an important part of the contribution of the assessment research.

Part 4: The Enterprise Case Studies

The enterprise case studies examine seven enterprises in the northern Sumatra region. Table 8 highlights the key characteristics of the seven medium and large manufacturing companies; six are in Medan in North Sumatra, and one is in Aceh. The key characteristics of the firm survey sample are detailed in Table 8 of Appendix A. For purposes of privacy, the names of the companies are withheld. The limited time frame for the case studies did not allow extensive interviews. Instead, within each company, the general manager and/or human resource manager was selected as key informant.

Interview sessions were limited to at most one hour and were conducted with a structured questionnaire. The questionnaire and a complete description of the findings of the enterprise case studies are presented in Appendix B. The questionnaire contains close-ended questions (with fixed responses) and open-ended questions allowing respondents to use their own words to respond to the question. The questions cover basic information about the enterprise, location factors, employment profile, skill matching, future plans, and obstacles to business. In the case studies, “technical worker” is defined as a worker with college education; a “skilled worker” is one with no more than secondary education; “long term” denotes a 10-year horizon, while “medium term” denotes a 5-year horizon. An “administrative” occupation excludes direct supervisors in a production process; it usually includes accounting, human resources, and other administrative positions in the enterprise.

Synthesis of the Enterprise Case Studies

An overview of the seven case enterprises is presented in Table 8. This table provides summary information on the industry, market, company structure, productive sector, the location, the personnel structure, the average earnings, training, recruitment and turnover, staff and growth potential and primary business constraints. This information is further detailed in Appendix B.

Table 8. Structure and Labor-Market Impact of Local Enterprise Case Studies

Industry and Market Basis	Company Structure	Staff Size	Skilled Workers, Total and Distribution (Administration or Production)	Skilled-Worker Origins	Average Earnings	Training	Recruitment and Turnover	Staff and Production Growth Prospects	Primary Business Constraints
Chemical supplier, export	Multinational, Medan factory	55	Technical workers: 16 Administration: 3 Production: 13	Aceh: 1 North Sumatra: 15	<u>Technical:</u> Rp 1.823 Million (\$202.70)/month; <u>Unskilled:</u> Rp 1.100 million (\$120)/month	Internal and external	Two new workers in eight years; one employee downsized in 2004	Both stable in medium to long term	Tax administration and poor infrastructure (e.g., gas and electricity supply)
Palm oil refinery, export	Multinational, Medan refinery	420	Technical workers: 57 Administration: 15 Production: 42	North Sumatra: 55 Riau Islands: 2	<u>Technical:</u> Rp 1.395 Million (\$155.14) /month; <u>Unskilled:</u> 2/3 less than skilled	Internal and external	45% increase in skilled workers in past three years. One or two workers quit each year	Both stable for next ten years	Poor infrastructure (e.g., bad roads), demand constraint due to war in Iraq
Chemical company, domestic and export	Headquartered in Medan, Medan factory	360	Technical workers: 103 Administration: 10 Production: 93	North Sumatra: 103	<u>Technical:</u> Rp 3 million (\$333)/ month; <u>Unskilled:</u> 1/3 less than skilled	Internal	One new hire last year. Three to four workers quit annually.	Both stable recently, with plans to maintain staff size and double production.	None.
Steel casting, domestic	Headquartered in Medan, Medan factory	800	Technical workers: 90 Administration: 20 Production: 70	Bandung: 3 West Java: All foundry and metallurgy engineers North Sumatra: All others	<u>Technical:</u> Rp 3 million (\$333)/ month; <u>Unskilled:</u> Rp 1.3 million (\$145)/ month	Internal and external	8% increase in skilled workers last year. One or two workers quit annually.	Stable staff size but diversifying products while maintaining output	Poor infrastructure (e.g., gas and electricity supply)

Industry and Market Basis	Company Structure	Staff Size	Skilled Workers, Total and Distribution (Administration or Production)	Skilled-Worker Origins	Average Earnings	Training	Recruitment and Turnover	Staff and Production Growth Prospects	Primary Business Constraints
Rubber products manufacturing, export	Multinational, Medan factory	1,200	Technical workers: 80 Administration: 20 Production: 60	Aceh: 1 Other: 79	<u>Technical:</u> Rp 3.2 million (\$355)/ month; <u>Unskilled:</u> Rp .9 million (\$999)/ month	Internal and external	3 vacancies, almost nonexistent turnover	Stable hiring and production in the long term	Labor policies (e.g., mandatory leave, benefits, and severance). Poor infrastructure (e.g., low and erratic gas supply). Supply of technical engineers.
Rubber products manufacturing, export	Headquartered in Medan, Medan factory	3,300	Technical workers: 400 Administration: 300 Production: 100	North Sumatra: 400	<u>Technical:</u> <u>Unskilled:</u>	Internal	10 workers hired last year, 4% turnover annually	Stable hiring and production, with planned upgrade to product line	Poor infrastructure (e.g., gas and electricity). Costly benefits in labor policies. High tariffs and a regulated monopoly on importation of critical inputs.
Cement factory, domestic	Multinational, Aceh Besar factory	206	Technical workers: 55 Administration: 16 Production: 39	Aceh: Almost all	<u>Technical:</u> Rp 5 million (\$555)/ month; <u>Unskilled:</u> Rp 1million (\$111)/ month	Internal and External	Hiring to replace workers lost in tsunami. 70 vacancies. Generally no turnover, 5 departures last year.	--	--

Source: EDC Assessment Team interviews

Table 8 includes an overview of the types of industries included in the case studies. Only three out of the seven companies have their headquarters in the same locality; the rest are multinational companies. All (except for the cement company) are exporters. The agro-industries, one chemical company, and one mining company identify proximity to raw material as the primary reason for choosing to locate in northern Sumatra. The average number of full-time workers is fairly large, at nearly a thousand; the biggest companies by far are in agro-industry (in particular for rubber products).

Occupational structure of industry includes few technical workers

Less than one-fifth of full-time workers have tertiary degrees; the highest proportion is found in chemicals, and the lowest in agro-industry. The fraction share of technicians (technical workers, excluding administrative technical workers) is a little over one-eighth. The bulk of labor demand in large companies is still for skilled or semi-skilled labor; agro-based manufacturing has a lower requirement for technical labor. This is consistent with the low level of technology in Indonesian manufacturing discussed in Section III. A couple of companies are planning to upgrade their product lines, possibly leading to a technology upgrade and a greater demand for specialized tertiary education and firm-based training.

There nevertheless is a high premium for technical workers. On average technical workers can earn nearly double the wage of skilled workers, though the gap is smaller for the agro-industry. Technical workers in agro-industry earn just 56% more than the skilled workers. Most of the managerial positions are reserved for technical workers; skilled workers are rarely able to enter supervisory or management positions. Most of the technical workers have graduated from prominent universities or polytechnics in the same province. Graduates from outside are typically from premier national institutions, often in specialized courses not offered by local institutions.

Technical workers have limited jobs growth and low turnover

A majority of the enterprises—four out of seven—have made new hires in the past year, and the same number have current vacancies. Seven companies mention difficulty in finding technical workers; but usually for positions with specific qualifications (such as rubber technology, foundry engineering, metallurgy, proficiency in software) All the companies undertake recruitment training of new workers, sometimes up to six months. In general, companies mention that training is adequate to match the workers' skill with their requirements. External training is less common, and is usually related to industry-wide standards (e.g., ISO) or all-purpose skills (e.g., English). Turnover of technical workers is typically low (the highest being 5% of the total number of technical workers in one year). Job turnover is not cited as a constraint to providing training. Finally, no firm mentions providing financial or other support for workers to pursue education, except for some work schedule flexibility for some of its student workers.

Over the past three years, three companies have experienced positive output growth; two have experienced pronounced contraction and excess capacity (See Table 9). However this is more the result of transitory vagaries of the market rather than fundamental trends. One company that has been experiencing a decline in output has had the most rapid build-up in its technical worker contingent. One factory has been reducing its technical workforce despite enjoying increasing sales. One company has experienced moderate increases in output, but proportionately lower increase in the employment of technical workers (hence an implicit employment elasticity of 0.84).

Table 9. Growth Rates, Number of Skilled Workers and Total Output, Case Study Enterprises
(in percent)

	Growth rate, previous three years		Planned growth rate, next five years	
	Output	Technical workers	Output	Technical workers
M1	8.1	-11.8	0	0.0
M2	-27.3	45.0	340	42.9
M3	-16.7	0.0	150	0.0
M4	9.5	8.0	0	0.0
M5	0.0	0.0	0	0.0
M6	11.8	0.0	20	0.0
A1	0.0	10.0	29	127.3
Average	-2.1	7.3	77	24.3

Source: EDC Assessment Team data and estimation, 2007

Perhaps a better indicator of long-term trends is the firms' medium-term plans for production and employment. Four companies expect to increase their production and capacity over the next five years (for an average increase of 77%). However only two companies plan to increase their technical workforce within that period; of these, one is doing so as part of a one-off technology upgrade and reconstruction. Hence the capacity expansion is to be accomplished mostly by using more automated processes and equipment, rather than by proportionately increasing the hiring of technical workers.

Finally, the most common item of cost for doing business is infrastructure, usually related to electricity and other utilities (see Table 6). Government regulations (tax administration and trade barriers) are cited by two firms as increasing business costs. Likewise two firms cited labor regulations as part of the cost of doing business. Such regulations may increase the cost of hiring new workers and thus contribute to the planned substitution of machines and technology for technical workers (though this could only be confirmed by in-depth study).

Aceh anticipates an economic transition, from resource-based industries to agro-industrial development

The prognosis for labor demand in Aceh is summarized in Table 10. The first column lists the sectors that hire technical labor. Entries in the table are qualitative categories, though classification is based on the evidence and analysis throughout this report. The demand for technical labor is rated as low, medium, or high, depending on the sector's need for skilled workers. Prospects for the sector are rated unfavorable, favorable, or unclear, and similar categories apply for the labor demand prospects.

Table 10. Medium-Term Prospects for Labor Demand by Sector

Sector	Demand for technical workers	Prospects for sector expansion	Prospects for technical labor demand
Crop agriculture	Medium	Favorable	Favorable
Fishery	Medium	Favorable	Favorable
Construction	Medium	Unclear	Unclear
Mining	High	Unfavorable	Unfavorable
Crop agro processing	Medium to High	Favorable	Favorable
Fishery agro processing	Medium to High	Favorable	Favorable
Other manufacturing	Unclear	Unclear	Unclear

Source: Assessment Team, 2007

Based on this analysis, future technical labor demand for the Aceh region is in crop agriculture and fishery, and the processing of these commodities. There are several reasons for the transition from extractive to agro-industry. First is the resource depletion in the oil and gas sector, a trend that has been noted over the past few years. Second is the new government's commitment to environmental protection, particularly the declaration of the entire province as a zero-logging area, which would terminate forestry and severely restrict mining and related industries. Third, the local autonomous government has identified agro-industry as the priority sector for development, owing to the goal of poverty reduction and the reality that the bulk of employment is rural and agricultural. Fourth (and related to the third) is the current structure and resource endowment of the economy, where the bulk of employment is generated by agriculture, where enormous areas for production of food and cash crops as well as marine fishery and aquaculture remain underutilized. It is quite realistic to expect that estate agriculture (based on oil palm, rubber, cacao, and coffee) as well as aquaculture may flourish in this area, and with it, downstream processing industries. Local processing industries would initially be churning out simple products (such as crude palm oil and rubber), and in the long term industries would upgrade to more sophisticated products, such as refined oiled, canned fish, and rubber products.

This expectation is conditional on the permanent resolution of any remaining security concerns in the province and on reconstruction efforts proceeding as planned. If these conditions are met, then economic growth is expected to ensue, though, in the medium term, probably not as rapidly as is projected nationwide. This labor demand analysis and key findings provide the main guidance to projecting demand for technical labor in the Aceh and surrounding provinces of Indonesia. These key findings and their ultimate recommendations are summarized in Section IV of this report, along with the other key findings and recommendations of the other sections.

SECTION II: WORKFORCE TRAINING INSTITUTIONS AND THEIR LINKAGES TO ENTERPRISES AND INDUSTRIES

- ❖ What are the main linkages between workforce institutions and labor demand?

This section presents the findings of the ten case studies of formal and informal institutions and programs, all but one located in the northern Sumatra and Aceh regions. These workforce institutions include both formal education systems, such as schools and universities, and informal educational programs, such as those sponsored by institutions like non-governmental organizations (NGOs) and industry associations. This report refers to universities and public schools as formal institutions, and to NGOs and industry associations as informal institutions.

The first part of this section highlights the key institutional characteristics of these institutions. The second part of this section discusses trends and best practices gleaned from the analysis. Appendix C provides in-depth information on each case study, the protocols, and the best practices. Particular attention has been given to the following characteristics: entry-requirements, program focus, industry Memorandums of Understanding (MOUs) to promote linkages, career development, skill-based competencies, certificates, and employment/placement rates. The findings of Table 11 are linked by subject and summarized in the following paragraphs.

Part 1: Key Institutional Characteristics of the Case Studies

Institution Name and Type

Table 11 presents a summary of the institutions and programs studied. Two public polytechnics (politeknik, the Indonesian word, is used in all names) are Politeknik Negeri Medan, which is monitored by the Ministry of National Education, and Pendidikan Teknologi Kimia Industri (PTKI) Medan, which is monitored by the Ministry of Industry. The professional institute, Politeknik LP31 (Indonesian Institute for Professional Education and Development, Business College) Medan, operates independently. Also studied were two construction and engineering industry associations, Gabungan Perusahaan Kontraktor Nasional (GABPEKNAS) and Asosiasi Kontraktor Listrik dan Mekanikal Indonesia (AKLI). AKLI reports to Asosiasi Profesionalis Elektrikal Indonesia (APEI).

In addition, two GTZ-sponsored NGO programs, BITRA's rural skills development based in Medan and GTZ's workforce development program based in Banda Aceh, are analyzed. Politeknik MBP (Mandiri Bina Prestasi) Medan operates independently, but Balai Besar Latihan Kerja Industri Medan, a public vocational training center, is monitored by the Ministry of Manpower and Transmigration. Politeknik Caltex Riau in Pekanbaru also operates independently.

The case studies also cover high school and post-secondary programs. Sekolah Usaha Perikanan Menengah (SUPM) Negeri Tegal is a high school in Besar Aceh that is monitored by the Ministry of Maritime and Fishery. Three Banda Aceh post-secondary programs have been studied: Syiah Kuala University, Balai Latihan Kerja (BLK), and Lembaga Pendidikan Dan Pengembangan Profesi Computer/Indonesia (LP3KI). The first two are monitored by the Ministry of Higher Education and the Ministry of Manpower and Transmigration, respectively, whereas the final program operates independently.

Table 11. Key Characteristics of the Local Workforce Institution Case Studies

<u>Institution and City</u>	<u>Type of Institution</u>	<u>Entry Requirements and Recruitment</u>	<u>Program Focus</u>	<u>MOUs and Industry-Based Work Experiences</u>	<u>Career Development</u>	<u>Skill-Based Competencies</u>	<u>Certificates, Program Duration, and Placement Rates</u>
Politeknik Negeri Medan	Public, monitored by Ministry of National Education	Admissions - 20% feeder high schools, 80% open based on testing; includes students out of school; 2% are Aceh students; Rp 1.2 m (\$133)/yr.	Commerce/business (50% females) & engineering (8-10% females)	Fifth semester (3 months); arranged by institution; supervised by staff & industry; MOUs with 30 firms/businesses	Guidance and counseling unit, alumni workplace progress check-in after one year, and career placement	In coordination with industry associations uses a national-level competency-based certification test in 3 engineering areas (architectural, civil & mechanical)	3-year diploma & 1-year training; 60% placement rate
Pendidikan Teknologi Kimia Industri (PTKI) Medan	Public polytechnic, monitored by Ministry of Industry	High school graduate; open admissions; paper/pencil test & assessment of health; Rp 1.5 m. (\$166.80) /year	Industrial chemistry (75% females) and industrial mechanics (10% females)	Fifth semester (3 months); students locate and arrange own work experience; supervised by staff & industry; no MOUs	Graduates find their own jobs.	Course descriptions and outlines with some initial program skill-sets identified but limited; no outside testing of skills	3-year diploma – government assures placement (2-yrs.) - firm retains or releases grad. after 2 years
Politeknik LP31 (Indonesian Institute for Professional Education and Development, Business College) Medan	Private	Feeder schools & competitive admissions/screenings; 10 Aceh students enrolled; Rp 8.0 m (\$889.60)/year; scholarships for needy	Depends on need and center - business admin., office mgt., secretarial studies, computer informatics, accounting, business English; overall (75% females)	2 years in classroom followed by 3-month work experience; supervision by staff; work experience can be extended if necessary	Alumni contact and support; training on job applications and career awareness and motivation	First 3 semesters – mid-test and finals; 4thsemester competency-based testing with questions prepared by company	2-year certificate; 80% placement rate – institute assists

<u>Institution and City</u>	<u>Type of Institution</u>	<u>Entry Requirements and Recruitment</u>	<u>Program Focus</u>	<u>MOUs and Industry-Based Work Experiences</u>	<u>Career Development</u>	<u>Skill-Based Competencies</u>	<u>Certificates, Program Duration, and Placement Rates</u>
Professional Industry Associations in Medan: Gabungan Perusahaan Kontraktor Nasional (GABPEKNAS), Asosiasi Kontraktor Listrik dan Mekanikal Indonesia (AKLI), and Asosiasi Profesionalis Elektrikal Indonesia (APEI)	Industry Professional Associations	Currently - national-level certification of graduates of polytechnics; MOU with polytechnic	Construction (architectural and civil), mechanical and electrical certification and licensing; basic skill-trade certification in development—first for vocational senior high school graduates and then those who learned on-the -job	Not applicable	N/A	Knowledge is assessed by written test, practical skills by demonstration/ portfolio, attitude by interview; 3 assessors (national & polytechnic)	2-week refresher training is provided for service members in preparation for certification testing; certification only
NGO-sponsored training programs: BITRA, Medan, and GTZ, Banda Aceh,	NGOs	Sponsored by Germany; short-term training and workshops of interest to farmers, vocational schools, and NGOs; some trainings are free and others are fee-based	Agriculture, advocacy, democracy/civic education, small/ micro-enterprise, vocational for Polytechnic and vocational schools, and entrepreneurship training of trainers for NGOs	Not applicable	Programs are geared toward developing careers of marginalized/ underserved population. GTZ provides counseling.	Well-documented materials; entrepreneurship and vocational training broken into skill-sets	Certificates of attendance
Politeknik MBP (Mandiri Bina Prestasi) Medan	Private polytechnic	Admissions test/ post-secondary; use of feeder schools; needy students provided scholarships; Rp 2 – Rp 3.2 m. (\$222-\$356)/year depending on program	3 programs - commercial/business (50% females), eng. (10% females) & agribusiness (60% females); students take 2 semesters each of business English, computers and entrepreneurship	2-3 months in work experience—mostly arranged by student during holiday periods; supervision by staff and firm/farm; also use of study tours; no MOUs	N/A	Certificate of practical skills provided for farm work experience by farm instructor based on pre- & post-test	3-year certificate; (placement rates – commercial 80%, engineering 50%, agribusiness 100%)

<u>Institution and City</u>	<u>Type of Institution</u>	<u>Entry Requirements and Recruitment</u>	<u>Program Focus</u>	<u>MOUs and Industry-Based Work Experiences</u>	<u>Career Development</u>	<u>Skill-Based Competencies</u>	<u>Certificates, Program Duration, and Placement Rates</u>
Balai Besar Latihan Kerja Industri Medan	Public vocational training center, monitored by Ministry of Manpower and Transmigration	Workers from industry/MOUs for upgrade training; local unskilled high school grads (ages 21-25) who haven't worked; cohorts of Aceh trainees; Rp 750,000 (\$83)/3-month	Workers provided with upgraded skills (e.g., welding, automotive); 3-month informal basic skill training (e.g., automotive, wood working) for unskilled (few females)	20 MOUs with firms for worker upgrade training per year; informal basic skill trainees receive hands-on training only followed by entrepreneurship training; no work experience	N/A	Competency-based based on pre-test; skills-sets have learning activities and performance criteria; external assessors	1-3 month training; certificate program with external association certifications
Politeknik Caltex Riau Pekanbaru	Private polytechnic	Highly selective with testing and interviews; mostly fresh high school graduates (includes 55 top students from Riau); 5-8% are one to two years out of high school; Rp 6 m./year	Five 3-year programs - computer, electronic, telecommunications, and mechatronics technician and accounting (40% females – mostly in accounting program); students take six semesters of English; employability skill training - communication and team-building skills	2-3 months in work experience after the fifth semester; student arranges own experience with concurrence of Office of Cooperation	Institution maintains contact with alumni and offers follow-up job placement; institution follows up with employer to determine their satisfaction with the (alumni) employees.	Provides own certification; competency-based instruction less defined in IT; Indonesian certifications are primarily in construction, mechanical, and electrical areas	3 year diploma; 4-year diploma planned; graduate on own for placement; 80% rate (20% abroad & 60% in-country/ one-third with Chevron past year)
Sekolah Usaha Perikanan Menengah (SUPM) Negeri Tegal, Besar Aceh	Public vocational senior high school, monitored by Ministry of Maritime and Fishery	3-year senior secondary school; selective admissions based on knowledge and ability test, physical, and interview; Rp 21,000 (\$2.35)/month	Fisheries and maritime-based program with entrepreneurship training, 6 semesters of English, sector-integrated computers, Japanese language training; (30% females)	6 months of on-the-job training integrated throughout the program; teacher and company supervise student; MOUs	N/A	Practical and theoretical skill-based competencies	3-yr. program; technical certification based on gov't. test; 80-85% get jobs in maritime and fisheries industry; 15-20% go to post-secondary education

<u>Institution and City</u>	<u>Type of Institution</u>	<u>Entry Requirements and Recruitment</u>	<u>Program Focus</u>	<u>MOUs and Industry-Based Work Experiences</u>	<u>Career Development</u>	<u>Skill-Based Competencies</u>	<u>Certificates, Program Duration, and Placement Rates</u>
Syiah Kuala University, Balai Latihan Kerja (BLK), and Lembaga Pendidikan Dan Pengembangan Profesi (LP3KI), Banda Aceh	Post-secondary training programs: a public university monitored by the Ministry of Higher Education; a public vocational training center monitored by the Ministry of Manpower and Transmigration, and a private academy	a. Mechanical engineering program – students locally recruited (97%) b. short-term - programs open to public and some targeted to industry; c. open enrollment – students mostly from Aceh and North Sumatra, Rp 1.1 m. (\$120)/year	a. Mechanical eng. (5% females) ; b. 1-week to 6-month programs – local need – includes electrical, wood-working & automotive (20% females in electrical-fewer in other programs); c. computer program training (50% females)	a. 2-month work experience after fifth semester, MOUs for outreach/ cooperation projects; b. 6-month program has a 3-month work experience; c. 1-2 year programs have 3-month on-the-job training with MOUs - supv. By school director and employer	BLK and LP3KI graduates find their own jobs.	a. Course exams –few skill-based competencies only in some of the labs; b. yes – skill-based competencies; c. on-the-job experience has some skill-based practical work	a. 5-years/60-70% get jobs – mostly outside of Aceh; b. short-term training/ students find own job – mostly in Aceh district; c.1-2 yr. program/ students find own jobs, throughout Indonesia, 90% placement

Source: EDC Assessment Team interviews

Entry Requirements, Fees, and Recruitment

To summarize the case study findings, the majority of students in the training programs go through specialized testing and competitive admissions processes, though some enter through open admissions and feeder schools. Student recruitment varies from local youth who have never worked to industry-specific programs that certify polytechnic graduates. Ethnicity is not an issue, nor is mobility of either male or female students. Likewise, women are included in all programs but tend to have unequal representation according to the discipline. Women comprise more than 50 percent of students in certain subjects such as banking and accounting, industrial chemistry, and agribusiness, but only between 5 and 20 percent of students in electrical and mechanical programs.

Fees range from Rp 750,000 (\$83) for a 3-month course at a public institution to Rp 6 million (\$667)/semester for training at a private polytechnic school. Average annual fees fall in the Rp 1-2 million (\$110- \$220) range. Needy students can easily be left out of the training because of the fees, so a couple of the programs offer scholarships, and one training institution offers some of its courses for free and others on a fee basis. Programs analyzed ranged in length from three- to five-year diploma programs, to two-week refresher trainings.

Politeknik Negeri Medan and PTKI Medan both accept students from feeder schools and from open-admissions testing. Politeknik LP31 likewise accepts students from feeder schools, but its exams are competitive, and it offers some scholarships. Politeknik Negeri Medan and LP31 have enrolled students from Aceh, 2 percent and 10 students, respectively, whereas PTKI does not have Acehnese enrollees. Fees per year for the three programs are Rp 1.2 million, 1.5 million, and 8 million (\$133.44, \$166.80, \$889) respectively.

The NGO programs have varying requirements; some are fee-based and others are free. Politeknik MBP Medan uses feeder schools, post-secondary admissions tests, and scholarships to bring in new students for its programs that cost between Rp 2 and Rp 3.2 million/year. Balai Besar Latihan Kerja Industri Medan takes students from institutions with MOUs for upgrade training, unskilled high school graduates with no work experience, and cohorts of the Acehnese trainees. The fee is Rp 750,000/month.

Politeknik Caltex Riau has highly selective testing and interviews with high school graduates, including top local students and a small percentage (5–8 percent) who are one to two years out of school. The program fee is Rp 6 million (\$667)/semester. SUPM has selective admissions based on knowledge and ability; it costs Rp 21,000 (\$2.35)/month. The Syiah Kuala post-secondary program recruits 97 percent of its students locally, whereas BLK students are offered to the public and, selectively, to industry. The LP3KI program uses open enrollment to recruit its students, most of who come from Aceh and North Sumatra; it costs Rp 1.1 million (\$120)/year.

Program Focus

The polytechnic institutions offer an impressive range of courses, with substantial coverage in the industrial and service sector fields. Females participate at a high rate. Science-based education is as much as 50 percent in many institutions. Only two of the programs examined have an agricultural focus, as most are concentrated on business administration, engineering, and computing. Four schools have business English programs, with requirements varying from two to six semesters. Failing grades have varying consequences, though typically it is only in the fourth semester that students can repeat material. On the average, institutions have about a 5 percent dropout and 5 percent repeat rate.

Politeknik Negeri Medan's program focuses on commerce/business and engineering. Fifty percent of students in the commerce/business program are female, whereas 8–10 percent of the engineering students

are female. At PTKI Medan, the focus is on industrial chemistry and industrial mechanics. The female enrollment rates are 75 percent and 10 percent, respectively. Politeknik LP31 has need-based foci on business administration, office management, secretarial studies, computing, accounting, and business English. Seventy-five percent of the enrollees are female.

The GABPEKNAS and AKLI/APEI program focuses on construction' mechanical and electrical certification and licensing' and basic skill-trade certification. The programs by BITRA and GTZ focus on agriculture, advocacy, democracy/civic education, and small/micro-enterprise development. Polytechnic students learn about vocational schools, and NGO participants learn about entrepreneurship training of trainers. Politeknik MBP has three foci: commercial/business, in which 50 percent of students are female; engineering, in which 10 percent are female; and agribusiness, in which 60 percent are female. Students take two semesters each of business English, computing, and entrepreneurship. Balai Besar Latihan Kerja Industri Medan has programs for worker skill upgrades, such as welding, and basic skills training for unskilled workers. Few females participate in either program.

Politeknik Caltex Riau has five programs: computing, electronics, telecommunications, mechatronics technicians, and accounting. Students also take six semesters of English plus employability skills trainings in communication and team building. About 40 percent of the students are female, and most are in the accounting program.

SUPM is a fisheries and maritime program with entrepreneurship training. English, Japanese, and computing are required; 30 percent of the students are female. At Syiah Kuala's University, the mechanical engineering program was visited, with 5 percent female enrollment. BLK focuses on local needs and its programs include electrical, woodworking, and automotive training. About 20 percent of the electrical training students are female, and the percentage drops in the other fields. LP3KI's focus is on computer programming; 50 percent of its students are female.

Partnerships Through MOUs and Industry-Based Work Experiences

Overall, the workforce linkages of these 10 institutions are truly impressive in terms of the number, the depth, and the range of relationships between industry and the workforce institutions. Examples of MOUs to date span a wide range of topics:

- Joint responsibility of Ministries, National Boards, industry associations, and training institutions in setting and ensuring competency-based program skill standards for trainees relevant to the workplace with workplace skill-certification and workforce competency-based assessment
- Full-time (two- to four-month) work experiences for students; coordinated and monitored by provider and industry; MOUs to clarify roles and responsibilities
- Professional training for institutional staff through work experiences
- Industry employee study programs and worker upgrade

All programs lasting six months or more include work experience requirements. Most placements are arranged within one hour of the training institution and are 2-3 months in length. However, the experiences vary in length and quality, as well as in who is responsible for arranging, coordinating, and monitoring the experience. Vocational training centers provide short-term targeted skills-training for unemployed youth (ages 19-25), reconstruction skills for Aceh workers, upgrade skills-training for workers from industry, and production training. Note that the institutions visited provide little training of trainers and/or management and executive education. Staff sometimes receives short-term training, and some institutions conduct training upgrades for workers, but only one explicit course includes a training of trainers program. The following details the specific relationships of the individual institution; more discussion and analysis of these institutional linkages are provided in the second part of this section.

Politeknik Negeri Medan has 30 MOUs to support student placement. Students spend their fifth semester (three months) in institutionally arranged work placements that are supervised by institution and industrial firm staff. PTKI Medan students likewise spend their three-month fifth semester in an institution and industrial-firm-staff supervised placement. However, PTKI students arrange their own placements, as the institution has no MOUs in place. Politeknik LP31 students have a three-month work experience following two years of classroom training. Their placement is staff-supervised and can be extended if necessary. Politeknik MBP students arrange placements that total between two and three months and are frequently spread over holiday breaks. The institution and industrial staff supervise the placements, but there are no MOUs. Also, study tours are sometimes available.

Balai Besar Latihan Kerja Industri Medan has annual worker-upgrade placements that are regulated by about 20 MOUs. Informal basic-skill trainees have no work placements, but they receive hands-on training followed by entrepreneurship training. Politeknik Caltex Riau students spend their fifth semester in a two- to three-month self-arranged placement that is designed in agreement with the Office of Cooperation. SUPM students receive six months of on-the-job training that is integrated into their program through MOUs. The placements are teacher and industrial-firm supervised.

Syiah Kuala students receive two months of work placement after the fifth semester, as arranged through MOUs for outreach and cooperation projects. BLK students spend three months of their six-month program in a work placement. Lastly, LP3KI students in the one- and two-year programs spend three months in work placements that are negotiated through MOUs and supervised by the school director and employer.

Career Development

Career development services vary from nonexistent to job placement assistance for alumni. In general, non-governmental and industry-sponsored training and education institutions are more consistent in following up with their graduates and assisting in career advancement information and/or training. Some institutions stress soft-skill development in addition to subject-specific skill mastery. Also, career development services help students who have little access to formal economy work understand their options.

A guidance and counseling unit is available for students at Politeknik Negeri Medan, as are alumni workplace follow-ups and career placement services. PTKI graduates are responsible for finding their own jobs. Politeknik LP31 students receive training on job applications and career awareness and motivation. The alumni are tracked and offered career support. Although BITRA and GTZ do not have career development services as such, they reach out to marginalized/underserved populations that might not otherwise have a chance to develop careers. Politeknik Caltex Riau maintains contact with its alumni and offers follow-up job placement. It also follows up with employers to gauge their satisfaction with its graduates. BLK and LP3KI graduates, like PTKI graduates, are responsible for finding their own jobs.

Skill-Based Competencies

Most training providers use traditional course-based exams rather than skills-based exams. (See further discussion in Part 2 of this section for information on best practices and program development in these areas.) Some programs, though, do effectively use competency-based training and break activities and tasks into skill sets, with instructors monitoring skill acquisition. The associations assist in arranging short-term, targeted training related to certification skills, both in-firm and out-of-firm.

In coordination with industry associations, Politeknik Negeri Medan uses a national-level competency-based certification test in architectural, civil, and mechanical engineering. PTKI uses course descriptions

and outlines with some initial program skill-sets, but no outside testing of skills occurs. At Politeknik LP31, the first three semesters have midterms and finals, but the fourth semester includes competency-based testing..

GABPEKNAS and AKLI conduct written assessments, require practical skills demonstrations, and interview students to gauge their workplace attitudes. Both BITRA and GTZ work with well-documented materials and break entrepreneurial and vocational training into skill sets.

Politeknik MBP farm instructors conduct pre- and post-placement testing to certify practical skills gleaned from the work experience. Similarly, Balai Besar Latihan Kerja Industri Medan uses pre-testing of competencies and skill sets with learning and performance activities by external evaluators.

Politeknik Caltex Riau provides its own certification. SUPM uses practical and theoretical skill competencies. Syiah Kuala uses course exams and skill-based competencies in some labs only. BLK teaches skill-based competencies, and LP3KI offers skill-based practical work in its on-the-job work placements.

Certificates, Program Duration, and Placement/Employment Rates

Job placement of competency-testing programs ranges from 60 to 85 percent. Some schools provide both industry-certified, competency-based testing and job placement assistance, whereas others have neither. Placement rates in general tend to be high—as much as 100 percent in agribusiness and 50 to 60 percent in business or engineering. Overall, these rates reflect a deep commitment by workforce institutions to encourage full participation in their programs and to provide placement and employment services. Here are some of the various practices put in place at these institutions.

The three-year diploma and one-year training at Politeknik Negeri Medan generates 60 percent placement rates. PTKI's three-year diploma comes with a two-year placement assurance from the government, after which time the company can keep or release the employee. Politeknik LP31's two-year certificate generates an 80 percent, institutionally assisted placement rate. Individuals attending GABPEKNAS and AKLI trainings receive a certificate for their participation in the two-week certification test preparation program.

Likewise, BITRA and GTZ offer certificates of attendance. The graduates of the Politeknik MBP three-year certificate programs in commercial studies, engineering, and agribusiness have placement rates of 80 percent, 50 percent, and 100 percent, respectively. Balai Besar Latihan Kerja Industri Medan awards external association certifications for participation in its one- to three-month trainings. At Politeknik Caltex Riau, where graduates are responsible for finding their own employment, the employment rate is 80 percent, with 20 percent finding work abroad, 60 percent domestically, and the remainder finding work with Chevron.

The three-year SUPM program's technical certification is based on a government test. Between 80 and 85 percent of graduates get jobs in the maritime and fisheries industry, and 15 to 20 percent go on to post-secondary education. About 60 to 70 percent of Syiah Kuala's five-year program graduates get jobs, but most are found outside Aceh. For the most part, BLK's students find jobs in Aceh district. Finally, LP3KI graduates of the one- and two-year programs have a 90 percent placement rate in jobs throughout Indonesia.

Part 2: Best Practices of Workforce Linkages

In short, the institutional findings reveal a rich mosaic of programmatic activities, administrative support, and management systems to promote the linking of workforce institutions to industry and enterprise. This sub-section highlights the specific nature of the workforce linkages, summarizing them in Table 12, and

analyzes the linkages in the context of the specific workforce institution. In so doing, this discussion is neither normative nor prescriptive. It simply offers example upon example of the outstanding relationships between workforce institutions and industry/enterprise in Indonesia, particularly in the northern Sumatra and Aceh region. Additionally, workforce institutions have promoted educational access and opportunity through various mechanisms of recruitment, scholarships, and corporate responsibility.

Entry requirements demonstrate a commitment to recruiting students from disparate backgrounds

The recruitment program, including outreach and counseling, ensures full access to these educational opportunities at the tertiary level. Setting quotas to balance the student body is another tool to promote educational access, for example, defining urban-rural, out-of-school youth, new workers, vocational graduates, and male-female ratios.

A few programs stand out as illustrations of these practices. First, Politeknik Negeri Medan recruits students from Aceh, a traditionally underserved area in terms of employment training. Another example is Politeknik LP31 Medan, which offers scholarships to economically needy students. Note that they also offset outlay costs by offering need-based, fee-based programs to community NGOs and firms. The institution raises 20 percent of its revenue through such courses. Balai Besar Latihan Kerja Industri Medan offers dormitory accommodations for students not from the Medan area. (Note that dormitories should be sex-segregated, including toilet and shower facilities.) In addition, the institution recruits youth (ages 20–25) who lack workforce experience. Finally, PTKI has made a request to the Ministry of Industry to allow 60 top local students to obtain need-based scholarships.

Program focus that responds to student and market needs allows both to develop

Soft skills like numeracy, literacy, business English, and computing prepare students better for employment. The intensity of institutional requirements varies, but more business English, in particular, tends to increase job opportunities. Beyond content, one key factor that influences program success is scheduling. Programs must reach the students who are able to attend and must accommodate their schedules. Female students, in particular, have paid and unpaid work outside of the classroom or their work placement/internship. Personal commitment to career development can only go so far, particularly when travel and family care compete for a student's time, imposing a rigid time schedule. Courses should be offered during the morning, afternoon, and evening.

Table 12. Key Best Practices of Enterprise-Level Institutional Analysis

Best Practice	Field Examples	Purpose
<i>Entry Requirements and Recruitment</i>		
Corporate scholarships for needy students	Some providers offer corporate-sponsored scholarships, set diversity quotas, and provide shorter-term training options.	Demonstrate social responsibility by promoting human development of all people.
Coordinate recruiting between feeder schools, public offices, and training programs	Inter-institutional public partnerships and public-private partnerships offer students opportunity to move from short-term or basic training programs to long-term programs.	Identify Acehnese high school graduates with high potential while demonstrating a commitment to area youth.
Quota usage to balance student mix in the short term	Some schools recruit students who historically lack access to programs, such as females, Acehnese students, and poor students.	Demonstrate a commitment to human development. Also allow for skills transmission among people left out of economic development planning (e.g., rural women and the disabled).
<i>Program Focus</i>		
Courses offered morning and evening	Morning and evening courses are offered within the various diploma and certificate areas.	Permit students with other family and work—including unpaid work—commitments to attend classes and participate in work placements.
Public-private partnerships fill need-based training gaps	Programs serve needs of informal economy workers or youth who are on path to join informal economy workforce.	Inform underserved and marginalized populations of options and transmit basic skills.
Stakeholder advisory councils for needs articulation	A few advisory councils have successfully involved stakeholders.	Create community responsiveness which develops local markets.
Production training centers	Centers raise funds and produce goods while training future workers.	Sustain local markets while teaching practical and entrepreneurial skills.
<i>Memorandums of Understanding and Industry-Based Work Experiences</i>		
MOUs	Inter-agency partnerships regulated by MOUs have brought together different ministries, different sectors, and people with disparate social and economic backgrounds..	Respond to prevalent public needs that cannot be met by a single institution or the market but are nonetheless critical.
Educator and industry exchange programs	Many institutional staff have little or no industry experience and benefit from a new approach to overly familiar topics. Young recent graduates get in-depth training beyond what has been available historically.	Study visits and exchanges increase program relevancy and improve pedagogy skills (e.g., cross-disciplinary communications and team building).
<i>Career Development</i>		
Worker upgrades through short-term industrial training	This is an important revenue-generating mechanism as well as a good industry linkage mechanism for work experience and job placement opportunities.	Workforce keeps pace with global demands on local market. Also this encourages employee morale and decreases burnout rates.

Best Practice	Field Examples	Purpose
<i>Career Development (cont'd.)</i>		
Scheduled campus visits	On-campus information sharing-discussions at times when students do not have to be at work, interviews, and job testing are common. Alumni transmit information to enrolled students.	Familiarize students with work environment. Allow students and institutions a better chance to prepare for work realities.
Career guidance and counseling units	Examples include recruitment assistance, personal development, career awareness information, and job placement.	Find jobs according to personal interests and skills. Help to incorporate disadvantaged and underserved people.
Industry-education partnership coordinators on staff	Designated deputy positions, dedicated to industry-education cooperation, job placement, and follow-up, have been better informed, better able to articulate their relationships with the workplace, and more responsive to workplace needs.	Underscore relevance and importance of work experience and job placement efforts, and systematize monitoring of graduates as well as job satisfaction of employers.
<i>Skill-Based Competencies</i>		
Test students pre-and post-work placements (internships)	Students receive two sets of tests that measure their ability to perform certain jobs.	Serve as a benchmarking tool for the students and the programs. Ensure that student is qualified to work full-time.
Industry-association certifications for students	Industry associations are increasingly involved with certification processes, refresher courses, external assessment, and polytechnic certification testing process coordination.	Reinforce skills and create measurable standards in local markets that transfer to successful performance in international markets.
Training in associated subjects	Preparation for agricultural and industry workers requires foreign language study such as English or Japanese.	Professions require ability to communicate with people in internationalized markets.
Ministry-, association-, and industry-coordinated skill-based learning development	The Ministry of Manpower is working with vocational training providers to identify and impart skill sets.	Create relevant, competency-based skill-sets with appropriate learning activities and performance criteria.
<i>Placement/Employment Rates</i>		
Ministry support for graduates	Offer two-year employment placement with option to become permanent if both parties agree.	Provide substantive job experience while demonstrating commitment to public welfare.
Institutions monitor alumni and offer long-term job support	Alumni follow-ups can ensure job satisfaction. If change is desired, institution assists student in finding new placement.	Enhance human development and productivity.

Source: EDC Assessment Team interviews

Of the institutions studied, a few stand out as good examples of these ideas. First, Politeknik LP31 has branches in different cities, and its curriculum is based on community needs. Second, BITRA and GTZ's programs have been able to reach students that traditional programs have not. They are able to transmit skills to workers who are outside the reach of institutions, such as marginalized informal economy workers. Next, both Politeknik Caltex Riau and SUPM require six semesters of English. SUPM's fisheries also require Japanese-language training. Finally, Politeknik Negeri Medan, LP31, and the post-secondary programs offer courses that allow students with schedule constraints to attend classes.

Box 4. The Key to Program Effectiveness: Public/Private Partnerships in Workforce

An article by Aterido (2006), demonstrates a need to form partnerships between the public and private sector in many industrial and developing countries to boost competitiveness and employment. Both firms and the individual can benefit from skills training, which is not only associated with higher economic growth and income levels, but also with social gains such as increased employment and expanding/improving the formal sector and social equity. Countries are creating training systems to these social and economic demands by investing more in human development. In many countries, public and private sectors along with associations, unions, and NGOs are forming partnerships to share in the responsibility of the human, material, and financial resources necessary to implement these systems.

Aterido further suggests: (1) incentives and subsidies should respond to a targeted strategy where results can be measured and adjusted, (2) the resulting system should include a governing/advisory body representing all parties, (3) all stakeholders need to share in the cost, including workers, to sustain markets; and (4) there should be a good information system capable of tracking performance (note – among the training providers visited, many of these targets were lacking). Consequently, future public-private partnerships prioritize the following: development of a targeted strategy; use of a broad-based governing/advisory board; stakeholder cost-sharing; and a good management information system with measurable performance indicators.

The International Labor Organization (ILO, 2003) recommends government investments for the pre-employment training of individuals and enterprises for the on-the-job training. Worldwide the trend has been from state-led supply-driven systems to more flexible, demand-driven public-private partnerships with more of a focus on the private sector and individual investment. Education and the labor markets need to be linked with industry playing a greater role in setting standards, assessment of procedures and accreditation. The case studies in Appendix C provide excellent examples of such partnerships. The increased involvement of the Construction (GABEKNAS) and Electrical (AKLI) associations in North Sumatra in skill-based testing and accreditation (Case Studies 4a and 4b) is in line with this world-wide trend. The USAID-Chevron alliance (Case Study 8) and JICA-LP31 partnership (Case Study 3) further support this movement.

Effective industry partnerships and MOUs support placement and learning for students and faculty

Partnerships are also used to promote student job placement as well as work-based learning for students and faculty. Several programs have institutional coordinators who arrange and monitor the work experience. Other programs, though, have neither coordinators nor MOUs, and students are left to coordinate their own experience. Identifying placements within one hour of the training institution also helps students balance their responsibilities and allows the training provider easier access to supervisory duties. The established placements seem to work well according to some training providers, who noted that firms took their responsibilities seriously and provided daily oversight along with practical-skills testing.

Stand-out examples of MOUs and exchange and placement programs include Politeknik Negeri Medan, which provides staff leaves of up to three months for industry placements and works with more than 30 firms/businesses for workplace training. LP31 has MOUs with about 250 companies in North Sumatra. Their students spend three months in a placement that can be extended for an additional three months, than extended into contract for one or two years. Finally, Politeknik MBP agricultural program staff is given training, workshops, and lectures by farmers. Other staff is given in-firm trainings to keep them abreast of current trends.

Career development services are instrumental in youth employment and targeting to disadvantaged populations

Career development services are critical services to help youth to build their own strengths, to support their entry into the labor market, and to target assistance to disadvantaged populations. Most institutions studied understand the diversity of needs within their communities and are working to meet them. From a human development standpoint, provision of these services is an excellent community contribution because they allow individuals to develop their own strengths and fill market niches.

A couple of practices of note include Politeknik Negeri Medan, which has a guidance and counseling unit available to current students and alumni; and PTKI Medan, which schedules alumni lectures on Saturday mornings so as not to conflict with students' class and work schedules. Politeknik LP31 also stays in contact with alumni, as well as their employers, to ensure job fit. Politeknik Caltex Riau uses an online system to keep in touch with students. The findings and recommendation summary that follows in Section IV will detail ways to maximize such systems.

Box 5. Management Information Systems for Career Tracking

Directly related to the career development competency-based system is the need for a results-oriented management information system that can support data-based decision making. Currently, there is little use of systems tracking of training and employment indicators or skill-sets of graduates. The ideal system is to track indicators on student employment and occupation, work quality, career pathway and development, turnover, morale, job satisfaction, and productivity. Several training institutions have information-based websites that allow graduates to query the system for information, input contact information, and monitor new developments. However, the systems are a perfect—yet underused—tool for readily available career development. They are also an ideal information receptacle for workplace performance and occupation.

Skills-based competency training and testing prepare students for the real demands of the workforce

The trend of competency-based certification testing, typically coordinated by national industry associations, national government, and national boards is a step toward creation of employment-ready graduates. Competency-based tests already exist for architectural, civil, and mechanical engineering, and are being developed for the remaining engineering fields and entry-level basic trade and construction skills. The tests could ultimately help correct for the wide disparity in training quality between educational and training institutions, which would be particularly helpful given that many firms administer their own skills-based tests to job seekers. Equally important is the consideration of personal development as a skill. Interpersonal dynamics and communication are extremely important considerations once a worker is onsite. Teaching soft-skills-based competency is good for student and worker morale.

An excellent example of skill-competencies is at Balai Besar Latihan Kerja Industri Medan, where specific learning activities, performance criteria, and indicators for each skill set are in use and external assessors assess competency. An interesting finding and best practice is AKLI's certification process, which includes attitude assessments as part of the testing procedures.

Employment rates range from 50 to 100 percent, but employment tracking is inconsistent

Tracking employment placement relates directly to the sustainability of information transfer in training programs. Although placement rates range from average to high, most of the training providers could provide information on whether the graduate was employed and by whom, but only a few could provide much information on the occupation of employment or had systematic follow-up with alumni. Two programs provide excellent examples of employment placement programs. LP31 provides career placement for alumni, and PTKI offers the employer a warranty for the first two years out of the program.

SECTION III: YOUTH WORKFORCE IN THE ACEH AND SURROUNDING PROVINCES

- ❖ What are the key characteristics of the youth workforce in Aceh that will influence youth expectations, labor market participation, job search, recruitment and participation in polytechnic education?

This section of the report begins with a statistical overview of the youth workforce in the Aceh province and the neighboring Nias province. Next, it presents the key findings of this assessment’s youth focus group research and analysis on labor market participation, career development, job search, and other labor market factors. These findings form the guidance for key recommendations that are then presented in following section of this report.

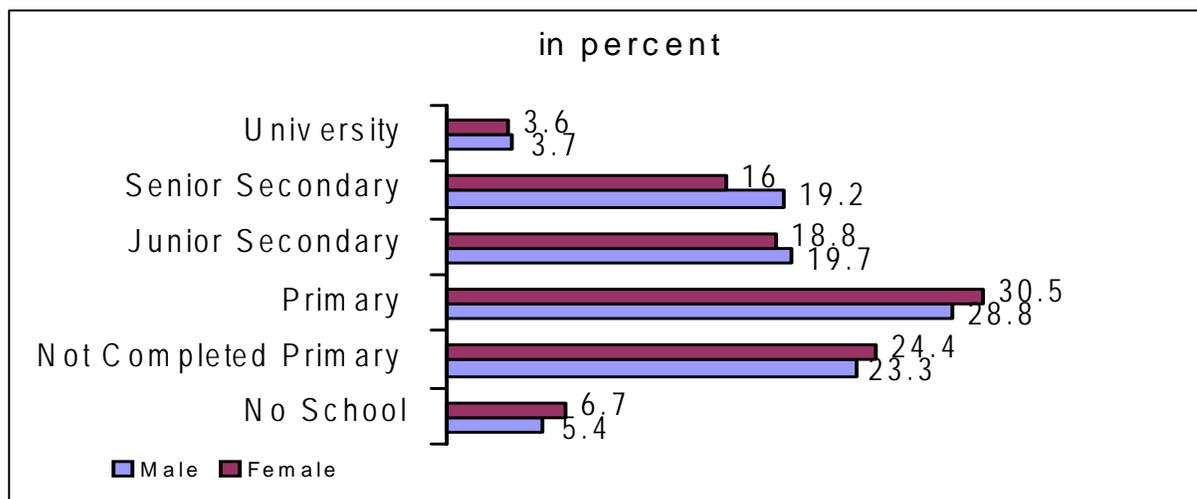
Part 1: Overview of Youth Profile

According to the 2005 Population Census in Aceh and Nias, youth (population aged 10 to 24) constitutes about 40 percent of the whole population (aged 0 to 65+ years). This section elaborates briefly on the characteristics of the young population (aged 10 to 24 years): educational attainment, reasons for leaving school, and activities after leaving school. The section is based on the available secondary data from various sources. Appendix D presents a complete statistical documentation of the youth workforce data used in this analysis.

Educational Attainment

According to the 2005 Population Census (BPS, 2005a) in Aceh and Nias, more than half (60%) of the population in Aceh Province consists of those who never went to school and those who enrolled or completed primary education (see Table 1 of Appendix D). Another 36 percent of the population finished their secondary education (junior high and senior secondary school), and 4 percent graduated from university. Figure 5 provides data on education attainment of the population aged 5 years and above in Aceh Province. Girls enroll earlier in school and more girls than boys attend primary school. However, more male students are enrolled in higher education.

Figure 5. Population Aged 5 Years and Above by Education and Sex, Aceh Province



Source: BPS, 2005a

Further classification based on age and education status indicates that about 64 percent of the population aged 7 to 24 years are still in school and 33 percent are not in school anymore. The remaining population do not have any education at all (see Table 2 in Appendix D). Thus, about 36 percent of youth aged 10 to 24 years in Aceh would not have the capacity to read and write properly. These youth would face difficulties in competing to find better jobs and/or better future life. From the same statistics, we also observe that the gender gap persists. Figure 5 indicates that more female students pursue primary education, but in higher education, more male students enroll than the females. Considering the composition of the enrollments, female youth would likely have more difficulty in finding better jobs than male youth.

Reasons for Leaving School

The dropout rate provides information on the number of students who cannot continue their education at each particular level. The year 2003/04 has the highest dropout rate (more than 5 percent) compared with other years and other education levels (BPS, 2005a). Junior secondary school appears to be the second critical point, as there are consistently high dropout rates at this level of schooling (over 3 percent), with the exception of the year 2002/03. The dropout rate in junior secondary education is particularly high in 1999/00 (over 5 percent). Compared with senior secondary education, primary education has more consistent dropout rates. Students who drop out of primary and junior secondary education generally cannot read or write and therefore contribute to Indonesia's illiteracy rate. This is one of the main reasons behind the government's move to make these two education levels compulsory.

A survey conducted nationally in 1999 indicates that financial difficulty is the primary cause preventing both males and females from continuing their education. Other important gender-related issues include the fact that female youth are often married off at an early age to ease the burden on the family, and the general belief that females youth do not need to pursue higher education. A more recent survey conducted by ILO (2006a) confirms that financial difficulty is the main reason that families terminate their children's education. Another qualitative study (Rostiawati, 2006) indicates that youth in South Sulawesi leave school for the same reasons—financial difficulties, helping parents to do household chores, getting married to lessen the economic burden on the family, not enjoying school (because often being scolded by the teacher), and acute sickness.

Discussion with dropout youth and mothers in Aceh during the recent study confirms that financial difficulty is the main reason for the youth leaving school. Other specific reasons presented during the discussion are losing parents (when a tsunami hit the area in 2004) and absence of a job market. During the field visit, the job market became an issue since there were many construction and recovery activities, but most of the jobs were given to workers from outside Aceh (mainly from Java and North Sumatra).

Activities after Leaving School

The abovementioned ILO school-to-work survey (2006a) also reveals that more than 60 percent of youth who already left school are unemployed, and an estimate of 38 percent work for salary with an employer. The remaining is either self-employed or doing voluntary work/currently seeking for work. If we examine further, we learn that most youth of 15 to 20 years of age are unemployed after leaving school. By the age of 21-22 years old, 48 percent of youth were still unemployed. However, when the youth enter the age of 23-24 years old the status of unemployed drops to 20 percent and the survey indicates more youth at this age enter the labor market to work for salary. It is interesting that the survey also shows increased percentage of youth who engage in household chores at the age of 21-22 years and above. Further on the survey result identifies a distinct pattern of activities between male and female youth.

Almost half of the male respondents in the survey are working, whereas the same percentage of female respondents doing household chores or being unemployed.

Another ILO Survey on School-to-Work transition (ILO, 2004) reports that 55 percent of the surveyed youth start looking for a job between the ages of 18 and 21, 28 percent are looking for a job before the age of 18, and 17 percent later than 21 years.⁶ The characteristics of regions and gender are the main distinctions. Young men and women in the Jakarta region tend to start their job search at a later age compared with the sample in the other two regions (Central Java and NTT). The data compare sample groups (job seekers, employees, and self-employed). Among the job seekers, young women start looking for a job earlier than young men did, especially in Central Java. However, among employees and self-employed groups, young men started earlier than young women did. This is a consistent finding across all three provinces.

Part 2: Key Findings from Youth Focus Groups

Methodology and Limitation of the Study

To answer a number of questions related to Acehese youth, the team conducted focus group discussions (FGD) with various target groups as described in Appendix E. The FGD approach was chosen in order to obtain information from a wide range of target groups within a limited time. Appendix E provides complete documentation of the protocol and specific responses to these youth focus group.

Focus group discussions with youth in polytechnic and university were arranged by the team in collaboration with their respective faculty members; focus group discussions with out-of-school youth, youth workers, and parents were arranged with the assistance of the Rotary Youth Club (RYC) in Banda Aceh. Given the time limitations, FGD participants were spontaneously recruited just one day before or immediately when the team arrived at the location. Thus, the selection of participants very much depended on their availability. This situation encouraged participants to express their views voluntarily about the issues raised in the discussion. At the same time, it prevented those who did not know much or were not concerned about the issues from responding actively in the discussion. Appendix E provides detailed information on the date, time, group identification, group location, number in group, and gender.

Profile of Focus Group Discussion Participants

1. Youth – Students

Three groups of students were recruited from two polytechnic institutes in Medan (public and private institutes) and the Faculty of Mechanical Engineering, University of Syiah Kuala in Banda Aceh. The total number of youth students participating in the three groups was 28 students (12 females, and 16 males).

Youth students from the two polytechnic institutes in Medan were in their second to fourth semester, majoring in accounting, business administration, banking, agro-business, and civil engineering. Students from the faculty of mechanical engineering were in their second to tenth semester.

These Acehese youth students have lived in Medan since they were in junior secondary school level. Some of them (7) have been living in Medan with their parents (family), but most of them stayed with their relatives (uncle or married sister/brother). They rarely stayed in a rented room or dormitory.

⁶ This survey uses the Indonesian school-to-work transition survey (ISTWS) as the main data source in which 2,180 youth and 90 enterprises were involved in the interview process in the year 2003. The survey was conducted in three provinces in Indonesia—Jakarta, East Nusa Tenggara (NTT) and Central Java.

2. Youth – Workers

Eight (8) youth (1 female and 7 male) workers participated in the FGD. All of the youth were workers in a ‘home industry’ (Malaya Taylor), located in one of the business areas in Banda Aceh. They have been working with the industry from about three months to four years. Amongst those youth workers, three of them graduated from junior secondary school, two finished their senior secondary school education, and three others were still continuing their education in university. They had all come from neighboring districts of Banda Aceh, such as Sigli, Alui Putih, Pidie, and Meulaboh. Most of them have been living in rented rooms or with their relatives in Banda Aceh.

3. Out-of-School Youth

The FGD with out-of-school youth convened in a fishermen’s village located in Krueng Raya sub-district. Seven (male) youth recruited by the community leader (*geucik*) participated. Those youth worked as fishermen and/or in a boiling house to process salting fish. Two of the participating youth graduated from junior secondary school, four had not finished with senior secondary school and one had not finished his junior education. The village was swept away by the tsunami 2 years ago, and two of them lost their parents as well as their relatives. According to the *geucik*, the sub-district had consisted of three villages with an estimate of 900 households, and only 300 households were saved from the tsunami. Most of them still lived in the hills nearby since only 120 houses had been reconstructed and available within the three villages.

4. Parents (mothers)

The team agreed to have a discussion with parents of children aged 14 to 24 years of age. With the assistance of RYC, the team successfully arranged one discussion with a group of mothers in the fishermen’s village. These mothers were the beneficiaries of RYC outreach activity. They established groups of credit unions to increase profit and continue their small business in processing salted fish.

Eight mothers participated in the FGD. These mothers included three who had finished their senior secondary school; the others did not complete primary education. Most of them (5) have more than 5 children aged 2 to 20 years old, and the children are still continuing their education in primary to tertiary level. Two of the mothers lost their children in the tsunami disaster two years ago.

5. Workers

Discussion with workers in the Cement Andalas Factory was primarily to obtain information related to the (technical) skills needed by workers similar working environments. The facilities were located in the coastal area in Lhok Nga sub-district. The tsunami hit the facilities badly two years ago; only one (tall) building remained, and many staff were lost. However, reconstruction and recovery efforts have restored most of the facilities in the area (including a housing complex for the staff and community). Since the factory temporarily stopped production, there were rotation and changes of the staff structure, in the production section specifically.

One group of FGD (12 participants: 11 male, 1 female) met in one of the facilities within the Cement Andalas complex. Half (6) of the participants had been working with the industry since the inception (in 1981/82) whereas the others (6) had already joined the industry for at least 5 to 16 years. One of them graduated from technical vocational school, one finished his polytechnic degree, and most of the remaining finished their bachelor’s degrees in mechanical engineering.

Box 6. A Survivor of Tsunami: Male Student in a Private Polytechnic School, Medan

Now, I live with my uncle (the brother of my mother). He found me in a refugee's camp eight months after tsunami hit my hometown. From him I knew that two brothers of mine were alive and lived in two separate refugees' camps. I lost my parents and my two older sisters. So, I was moved to Medan since then, August 2005, and lived with my uncle's family.

I wanted to be a journalist when I was in junior secondary school in Banda Aceh. My dream was swept away at the same time when tsunami overflowed and swept away my family. I just agreed to my uncle's suggestion to enter this polytechnic since I did not have any choice anymore. After two years (4 semesters), I am majoring in business administration in this polytechnic, I feel that I need to seriously learn this specific field so that I can work in an office somewhere.

Source: EDC Assessment Team YFD

Youth Expectations and Aspirations

Expressing future aspirations is a challenge for youth in general, especially for those who have already worked and dropped out from their education. One youth worker stated he just wanted to gain more funds to start his own business, and another expressed more or less the same aspiration: *"I want to have more money so that I can go and work abroad as migrant worker"* (a male youth worker, 23 years). Whereas, a female youth worker (23 years) simply stated she did not want to continue her education, just wanted to work until she got married. Among the youth workers, three were continuing their education at university (and diploma program). They admitted that they worked to earn some money to pay tuition fees and support their living in Banda Aceh.

However, discussion with youth from various groups revealed diverse future aspirations. One of the group, those who continued education in polytechnic and university, could clearly state their future aspirations although they admitted the aspirations changed when they entered university and/or polytechnic; they hoped to become technical industry specialist, medical doctor, psychologist, lawyer, computer programmer, civil engineer, mechanical engineer, architect, journalist, musician, and singer (Appendix E Summary). *"I dream to be a singer since I was in high school. I like to sing very much, but my parents strongly disagree"* (a female student, 4th semester in polytechnic); *"When I was in senior secondary school I wished to continue my education in technical institute in Banding, but it was too expensive"* (a male student, 4th semester in polytechnic). After studying in the program awhile, however, youth students realized they would not be able to meet their dream. Some of them were able to cope with their problems by learning the subjects of business administration or banking, but others were still struggling to keep their aspiration alive.

Most of the youth students who participated in the discussion, both in polytechnic and university, indicated they were from well-off families. And parents strongly gave direction in selecting the field of study as well as the higher education institutions they should enter, *"My parents encouraged me to take faculty of medicine because I am a girl. So I chose the faculty of medicine in this university as my first choice and faculty of technology was my second choice. But I did not pass the entrance test for the faculty of medicine, so I was placed in this faculty"* (a female student, 2nd semester in mechanical engineering). This female student was the only woman in the discussion group, and the participating students admitted there were only a few female students who took the field study of mechanical engineering or technology.

Further discussion with youth students in the university revealed also that many of them were willing to pursue a master's degree abroad. And surprisingly, some of the youth students in polytechnic had the same wish to continue to take courses towards a bachelor's degree in the university. Many of them admitted that nowadays big companies would offer higher salaries only to students who graduated from university (who held a bachelors degree).

The two polytechnic institutes in Medan and the University are prominent higher education institutes in Medan and Aceh where most parents would encourage their children to continue education: *"I decided to take this polytechnic institute since my brother and a friend of mine encouraged me to take this institute. It a well-known polytechnic in Medan and many said that once graduated from this institute you can easily get a job"* (a male student, 4th semester in polytechnic); *"My uncle encourage me to enter this polytechnic. He knows that this polytechnic is good"* (a male student, 4th semester in polytechnic)

A different situation faced youth who already dropped out from junior and/or senior secondary school for some time (1 to 4 years). These youth had been working in boiling houses in a fishermen village and/or sailed to the sea to catch fish.

During discussion, some of them simply stated that they wished to gain more money to start their own business: *"I do not want to continue my education. I am older now, and if I go to school I will be the oldest person in the class. I just want to gain more funds to start my own boiling house"* (a dropout youth, 22 years). Only one of the youth clearly said he wanted to increase his computer operating skills, that he already acquired some of the skills before tsunami. Four of them admitted they wished to work as civil servants and police officers before the tsunami but they did not dare to even think about their wish since they did not have enough money to pay 'entrance fee': *"It is difficult to be a civil servant. I have to earn a lot of money to pay for the entrance fee"* (a dropout youth, 20 years).

Box 7. A Better Future for My Children

A 40-year old mother of 6 children in a fishermen's village, Aceh region:

I have six children: the eldest is taking technical engineering, the faculty of technology, University of Syiah Kuala, two children are in senior secondary school, two others are in primary school and one is not yet in school. My eldest is in his sixth semester now. When he finished senior secondary school he applied and accepted in two universities: Islamic Institute in Banda Aceh and Syiah Kuala University (technical engineering). He then chose technical engineering since he does not feel confidence to be a (Islamic) teacher – he is small.

I hope all my children to have higher education, not like myself. I do not expect my children doing the business I am doing now. They will have a brighter future if they graduated from university and work outside this village. For my other children who are now still in high school, I expect them to be a medical doctor and/or a nurse. Here, in Aceh women will be well respected when they become medical doctors or nurses.

With the condition now, having one child in the university, two in senior secondary school and two in junior secondary school, I have to allocate about Rp 50,000 (\$5 or 6) a day. From the business I do now, drying and selling salted fish, I can earn in average of Rp 160,000 (\$16 or 17) a day. So, I hope this business will be better that I can continue supporting my children pursuing higher education.

Source: EDC Assessment Team YFD

In the fishermen's village the team had a chance to talk with mothers about their views on education for their children. It revealed that parents in general do not value education. Most of the mothers in the discussion session articulated they could not prevent their youth from leaving school to catch fish and earn their own living. Those mothers indicated that their sons would be ready to go sailing with their fathers when they reached 14 to 15 years of age. Once they earn their own money, those youth would easily give up their education.

On top of that reason, the mothers revealed that economic difficulty was the prominent factor in their children's continuing education. These mothers in the fishermen village used to process salted fish and sell the fish to the market in the city. During fish season they could produce a lot of salted fish and sold the fish at a good price. Their spouses usually went to the sea to catch fish; during monsoon they did not go to the sea and find occasional jobs instead.

Interestingly, there was one mother (Box 7) who eagerly motivated her children to pursue higher education. She insisted her children should not follow the same path as hers. Although she only completed her senior secondary school, she expected her children to graduate from university and admitted that she could afford to pay the tuition fee.

Job Search and Retention for the Youth Workforce

Information about experience in searching for a job came from discussion with youth workers in a home industry and workers in a Cement Andalas factory. Seven youth workers aged 20 to 24 years participated in the discussion in a home industry. All of them were from districts outside Banda Aceh, and they stayed with relatives or shared a rented room with some friends.

Youth workers participating in the discussion could be categorized into two groups: (1) those who really wanted to work after dropping out from high school; and (2) those who worked at the same time they continued their education at university. In general, youth workers finalized or dropped out from junior or senior secondary school and then tried to go outside their hometown.

Youth who did not continue their education went to the city of Banda Aceh to look for a job. Some of them took the first job offered to support their living in the city. This first job was regarded as a ‘stepping stone’ with the expectation of getting a better job later on.

Some of the youth came to Banda Aceh to continue their education. After living in the city for awhile, the daily allowance from their parents was not enough and they looked for work to increase their resources. Sometimes, the parents could not afford to support their living in the city anymore; then they needed to work.

To have a friend or an acquaintance from the same hometown (or neighborhood) who already established a business in the city could be of benefit. This friend/neighbor would easily assist them in finding a job or would voluntarily offer them work within the business. The first few months would be used as an ‘apprenticeship’ period. After sometime, they would be offered to do the ‘actual’ job.

Box 8. Seeking a Different Job—Declining to be a Farmer

A male youth worker, 24 years: When I finished my junior secondary school in my hometown, about two hours from Banda Aceh, I worked with my brother in other district. My brother has a small business and I helped him in buying stuffs but I did not enjoy the work. So I went back to my hometown, jobless for about two months. Then I prepared myself and took a course on sewing. After finishing my course, I came to Banda Aceh, to this tailor—the owner is a friend of mine. We came from the same hometown.

A male youth worker, 22 years: I completed junior secondary school in 1998 and remained jobless for about a year in my hometown, about seven hours from Banda Aceh. Then I went to the city of Banda Aceh. I worked in a café to sell (Aceh) coffee for about two months before I met the owner of this home industry. Firstly, I was taught how to sew a button manually. After four months I started to learn operating sewing machine and two months later (after 6 months working) I learnt to make a dress. Now, I have been working here for four years. Someday, I wish I could start my own business like this one.

Source: EDC Assessment Team YFD

More experienced workers in the Cement Andalas Factory disclosed their stories about the first time they applied to the company. Most of the workers had been working with the company since its inception. And they revealed that the company used to offer apprenticeships program to well-known university and polytechnic institutes in Banda Aceh and Meulaboh. Thus, many of them were accepted as fellowships of this apprenticeship program for about four months. After they graduated, the company would usually consider accepting them as full-time workers in the company.

Skills Needed to Reconnect to Job Market and for Job Retention

Discussions with different groups of youth, workers, and parents revealed they have a common need to increase the basic skills for workers nowadays, namely, computer operating skills and skills to communicate in English language. The following are quotations from youth who participated in the discussion: “*I think English language is important and we (youth) need to learn English to get good jobs*” (a female student in Polytechnic); “*I wish I can continue to take computer course. Before tsunami, I learned Microsoft Word and Excel programs but I now I feel I need to increase my computer skills*” (a

male-drop out youth); *“I learned to sew before I work here. Thus, the first time I worked in this place I have acquired basic sewing skills”* (a male youth worker).

More experienced workers reported that the apprenticeship program offered by (big) companies help them to enter the (same) job market. During the program, workers directly learn the skills needed. They also revealed that the on-the-job training they acquired from the program equipped them with the specific skills needed by the company. This means that the company offering an apprenticeship is likely to accept students who participated in the program: *“I am one of those workers who participated in the apprenticeship program. In previous times, the company always offered the program to students with good academic performance in Syiah Kuala University and Polytechnic in Meulaboh”* (a male worker in Cement Andalas Factory).

As elaborated in the previous section, there are at least two ways to encourage job retention: (1) increasing specific skills on-the-job as provided by the company and (2) pursuing a higher degree in a certain field needed by the company. At least three workers in Cement Andalas factory continue their education to pursue bachelor degrees to meet the new regulation of the company (that all staff in the executive level should have at least bachelor degree).

SECTION IV: KEY FINDINGS AND RECOMMENDATIONS

This report includes three main areas of research and analysis: the labor demand of the Aceh and surrounding provinces; the workforce institutions and their linkages to private sector demand and community needs; and the labor supply analysis that focuses on youth employment in the Aceh region. The sections of the report carefully examine these three main areas and their interrelationships. In addition, this report's findings provide guidance for the USAID/Indonesia proposal to establish a polytechnic in the Aceh region. The following key findings and recommendations draw on the previous analysis and highlight the main issues that relate to this programmatic direction for USAID/Indonesia. For the purpose of presentation, the key findings are grouped by the main analytical section. Recommendations, however, are more general, and relate to the main directive of the research, that of understanding these issues as they relate to the development of a polytechnic in the Aceh region, a USAID/Indonesia priority.

Key Findings

Economic Trends and Prospects in Indonesia

- *Manufacturing in Indonesia is expected to grow rapidly over the medium term, in pace with overall GDP.* Manufacturing is the largest value-added economic sector in the country. Growth is estimated to be around 6% per year, in pace with the rest of the economy and still slower than during the boom years. As manufacturing is the major source of demand for technical workers, this may be expected to lead to rising demand for technical workers; however, such an expectation needs to be qualified in the following ways.
- *In the medium term, employment of technical workers will increase substantially, and employment of unskilled labor will increase even more.* Manufacturing employment is still largely oriented toward unskilled labor. Data from RICS and the case studies suggest that the average firm may hire as many as four unskilled workers per technical worker. Moreover, as production capacity and output increase, the proportionate increase will not be forthcoming in employment of technical workers, as our analysis of employment elasticity demonstrates.
- *The most significant bottlenecks to growth are gaps related to institutions, governance, and infrastructure.* Evidence for this arises repeatedly in investment climate surveys, which point to institutions, governance, and infrastructure as factors increasing the cost of doing business; they can be interpreted as obstacles to business growth as well. Case study interviews confirm the seriousness of market-distorting regulations and inadequate investments in public utilities. If these problems are not addressed, there is a real danger that the expected rapid growth may fail to materialize in the medium term. For this study, what is interesting in these surveys is what is *not* mentioned as a business constraint. This is taken up in the next finding.

Skills Matching of Technical Labor

- *Supply of technical labor is not a major bottleneck for manufacturing expansion overall.* Support for this claim comes from multiple sources. First, unemployment has risen above historical trends, and tends to heavily affect secondary and diploma graduates. This suggests an abundance of semi-skilled to skilled secondary graduates relative to the rate of job creation in the formal sector. Second, industries covered by the Productivity and Investment Climate Survey (PICS) do not mention technical labor as a major obstacle to doing business. Rather, Indonesia is shown to have the lowest incidence and duration of vacancies among the countries in the region. Any skill gaps filled by industry are normally met by internal training. Though training does not appear in

all the firms in the investment climate surveys, our case studies showed that recruitment training is always undertaken for new workers. Turnover is not generally a serious factor that constrains companies from providing training; this is found for both the case studies and the enterprises in PICS.

- *Unlike many economies in Southeast Asia, Indonesian unemployment is largely a reflection of demand-side factors, rather than youth bulge or labor supply increases.* The unemployment rate has swollen up to its present level of about 10 percent. This rate is almost double that of 1998; it is a result of weak job creation from the demand side.
- *There are no significant obstacles to geographic mobility of technical workers.* Among our case enterprises, companies are willing to hire from graduates from distant polytechnics and universities to fit specialized skills. While most hires are graduates from local universities, as well as local residents, this pattern was attributed more to a lack of applicants from other universities and non-residents than to anything else. Geographic mobility holds even for workers from Aceh. Permanent migration among the Sumatra provinces showed that the Acehnese moved out of their province about as much as people from the other provinces. Focus group discussions with Acehnese students showed that their employment plans were far from parochial, with several willing to work overseas to find high-paying jobs.

Economic Trends and Prospects in Aceh and Northern Sumatra

- *Investment in manufacturing in Northern Sumatra is based on proximity to raw materials.* In Aceh, the large firms hiring technical labor are resource-based. Foremost is the gas and petroleum industry, followed by quarrying, then forestry. Meanwhile, the agro-industries in our case studies point to proximity to raw materials (from agriculture) as the reason for setting up factories in North Sumatra. Unfortunately, there is no large processing industry in Aceh as in North Sumatra. One reason may be the decades of insecurity that have deflected investments in agriculture and processing.
- *In Aceh, there is expected economic transition from resource-based industries to agro-industrial development (including fisheries).* As explained in the analysis of the enterprise case studies, many reasons justify the transition from resource-based industries to agro-industrial development, including the resource depletion in the oil and gas sector, environmental protection of the logging industry, and the priority of local autonomous government to the agro-industry.
- *Additionally, service sector employment and out-migration of youth are important pathways for youth workforce with tertiary technical education.* The Indonesian service sector has the highest levels of capital growth in the region, with a large percentage of tertiary-educated workers. The service sector is increasingly playing a key role in jobs for the 21st century for this region. In addition, highly educated and technically trained youth are being pulled out of the region, into other parts of Indonesia and Southeast Asia region. There is a critical demand for technical workers in the East and Southeast Asia regions, which will in turn affect the regional and local labor markets of the northern Sumatra and the Aceh region.
- *The dominant need is for basic-skill-level workers; fewer opportunities exist for technical-level workers.* Based on the enterprise case studies, the main needs for skills and competencies are in agriculture, including fisheries, and agro-industry, to facilitate rural economic development.

Workforce Training Institutions

- *Recent institutional trends promote employability skills and competencies.* Current institutional focus is on developing skills required to do the job. These skill competencies can be used to build communication between the workplace (career pathways) and the training provider.
- *The main challenge for all employment-training programs is to establish active linkages between the demanders and the suppliers of training.* This process should ultimately make educational institutions more results- and workplace-oriented.
- *From the enterprise perspective, progress is being made but workforce training is still short of the target.* The data gathered indicates that technical workers usually come from major universities and polytechnics in the vicinity of industry centers, and that job vacancies tend to be in mechanical, chemical, and electrical fields, in addition to specific positions within specialized subjects. Suitability of candidates for the vacancies comes into question in two key areas: equipment training/lack of familiarity, and subject-specific gaps, such as metallurgy, foundry, rubber, boiler operation, specialized software, and English. When such gaps in worker knowledge are encountered, the worker's job is not at risk, but the burden of training falls on the company.

Workforce Institutional Partnerships

- *Extensive partnership networks exist and are poised to meet labor market needs.* The current number of MOUs suggests that inter-agency public and public-private partnerships are well understood. Cooperation and outreach service coordinators within educational institutions sustain and build partnerships.
- *The communication links opened by partnerships reveal new opportunities to meet social needs.* Business and industry are poised for socially responsible actions in response to community needs. For example, their contributions to city parks and playgrounds, youth centers, health clinics, dormitory facilities, and program sponsorships enable a better quality of life, decrease the drive to migrate for work, and simultaneously enhance productivity.

Youth Workforce Expectations

- *Youth expectations continue to be influenced by the tsunami disaster.* Many youth have experienced traumatic loss that affects their labor market expectations. Youth are highly influenced by parents and sensitive to gender roles. Parents play an important role in directing and choosing the field of study as well as the education institution where the youth should enrol. Youth do not have clear guidance to start thinking about their career path or employment future during high school. Gender issues (traditional gender roles) persist and influence the selection of occupational study and work expectation.
- *The youth workforce in Aceh needs employability skills, high school credentials, and job experience.* Youth perceive basic general skills, such as computer operating skills and English, as necessary. Work-based programs, such as apprenticeships and on-the-job training, are viewed a big positive in terms of future employability. Youth understand the value of job experience and openly express the need to have job experience in a bigger city, look for a short-term job as a stepping-stone, participate in an apprenticeship or on-the-job experience, and find an actual longer-term job. Informal social networks are the foundation for this informal job search.

Key Recommendations

Establish linkages with local and regional economic activity

The polytechnic should concentrate on technical occupations for agriculture, fisheries, and related processing, covering agriculture and aquaculture, agribusiness management, as well as the engineering mainstays of mechanical, electrical, and chemical engineering. In a province with large rubber plantations and an established rubber-manufacturing sector, the polytechnic should offer majors in rubber technology within general subjects such as chemical engineering. Agriculture courses should include agronomy, aquaculture, and agricultural engineering. Management subjects would equip technically trained individuals with entrepreneurial skills, thus contributing to local small and medium scale industries.

Strengthen management, empowerment, and stakeholder representation

The partnership between workforce training institutions and the private sector is reflected through the Memorandum of Understanding. This tool for eliciting partnership is an important mechanism for the Aceh polytechnic program. It is recommended that the design, construction, program development, and management of the USAID-Chevron Polytechnic promote the concept of partnership by establishing a broad-based stakeholder advisory board. This board might be comprised of relevant ministries, such as the Ministry of Higher Education, Ministry of Industry, Ministry of Manpower and Transmigration, Ministry of Maritime and Fishery, Ministry of Agriculture; local provincial government representation; staff and management of training and educational institutions; and industry representatives.

Focus on trainability and employability skills of students

Previous research has shown that graduates of polytechnics have a myriad of career pathways; many do not end up with the specific occupation of their graduate degree. Often graduates with specific technical skills are most valued for their general ability to problem-solve complex technical problems as they relate to the production of goods and services. Given this trend, it is important that graduates be sufficiently trainable. Trainability includes basic familiarity with the subject matter; quantitative skills; proficiency in problem-solving; and language skills, especially in English.

Change youth expectations in Aceh toward access to education and job opportunities

Based on the findings of the youth focus group, Acehnese youth continue to have doubts about their ability to find opportunity to find work and job opportunities in the Aceh region or beyond. An important contribution of the proposed polytechnic in Aceh will be to demonstrate real results in terms of educational access and opportunity for Acehnese youth.

Strengthen local responsiveness/accountability along with labor demand, economic development, and community needs

Institutional strategy should set targets and monitor performance (e.g., budget, program, and employment rates) in order to have the ability to create systematically need-based courses. To meet underserved needs at present, priority should be given to Acehnese students. In addition, programming should consider gender and equity in its student recruitment and outreach activities. Particular attention should be given to increasing opportunities for poor students. To create long-term stability, management information systems should be developed to track student outplacement and labor market demands of the participating youth.

Broaden resource mobilization to sustain programs beyond startup phase

Like the previous recommendation, the final recommendation suggests a means of meeting local market need. A strategic plan should be drawn up to ensure institutional sustainability. Donor scholarships, production training centers, fee-based services, and student fees would ideally be the joint responsibility of donor and industry stakeholders. A joint working session of the USAID-Chevron Center management team and stakeholder advisory board could set targets and identify specific sustainability strategies.

Abbreviations and Acronyms

ADB	Asian Development Bank
AKLI	Asosiasi Kontraktor Listrik dan Mekanikal Indonesia (Association Electric and Construction Indonesia)
APEI	Asosiasi Profesionalis Elektrikal Indonesia (Association of Professional Electricians Indonesia)
BAPPENAS	Badan Perancang Nasional (National Development Planning Agency)
BITRA	Bina Keterampilan Pedesaan (Construct Rural Skill)
BLK	Balai Latihan Kerja (Training Center Manpower)
BLKI	Balai Latihan Kerja Industri (Training Center Industry Manpower)
BNSP	Badan Nasional Sertifikasi dan Propesi (Office National of Certification and of Profession)
BPS	Badan Pusat Statistic (Statistics Indonesia)
BRR	Badan Rekontruksi dan Rehabilitasi (Office Reconstruction and Rehabilitation)
BSNP	Badan Standar Nasional Pendidikan (Office National of Certification and of Profession)
DEPNAKER	Departemen Tenaga Kerja dan Transmigrasi (Ministry of Manpower and Transmigration)
DEPRINT	Departemen Perindustrian (Department Industry)
DIKNAS	Departemen Pendidikan Nasional (Department Education of National)
DIKTI	Direktorat Pendidikan tinggi (Directorate Higher Education)
GABPEKNAS	Gabungan Perusahaan Kontraktor Nasional (Alliance Entrepreneur Construction National)
GRDP	Gross Regional Domestic Product
GTZ	German Technical Cooperation
ILO	International Labour Organization
JICA	Japan International Cooperation Agency
KADIN	Kamar Dagang Indonesia (Chamber of Commerce National)
LP3I	Lembaga Pendidikan dan Pengembangan Profesi Indonesia (Institute Education and Development Professional Indonesia)
LP3KI	Lembaga Pendidikan Pengembangan Profesional Komputer Industry (Institute Education and Development Profession Industry Computer)
LPJKN	Lembaga Pengembangan Jasa Konstruksi Nasional (Institute Development Construction Services National)
MBP	Mandiri Bina Prestasi
MOU	Memorandum of Understanding
PAKLN	Pusat Administrasi Kerjasama Luar Negeri (Center Administration Cooperation Aboard)
PICS	Productivity and Investment Climate Survey

PMK	Pendidikan Menengah Kejuruan (Directorate Vocational Secondary)
PTKI	Pendidikan Teknologi Kimia Industri (Education Technology Industry Chemical)
PUIL	Peraturan Umum Instalasi Listrik (General Installation Electrics Regulation.)
RICA	Rural Investment Climate Assessment
RICS	Rural Investment Climate Survey
RYC	Rotary Youth Club
SEFA	Safe Emergency for Aceh
SUPM	Sekolah Usaha Perikanan Menengah
TKI	Tenaga Kerja Indonesia (Indonesia Workforce)
UI	Universitas Indonesia (Indonesia University)
USAID	United State AID
USU	Universitas Sumatra Utara (North Sumatra University)

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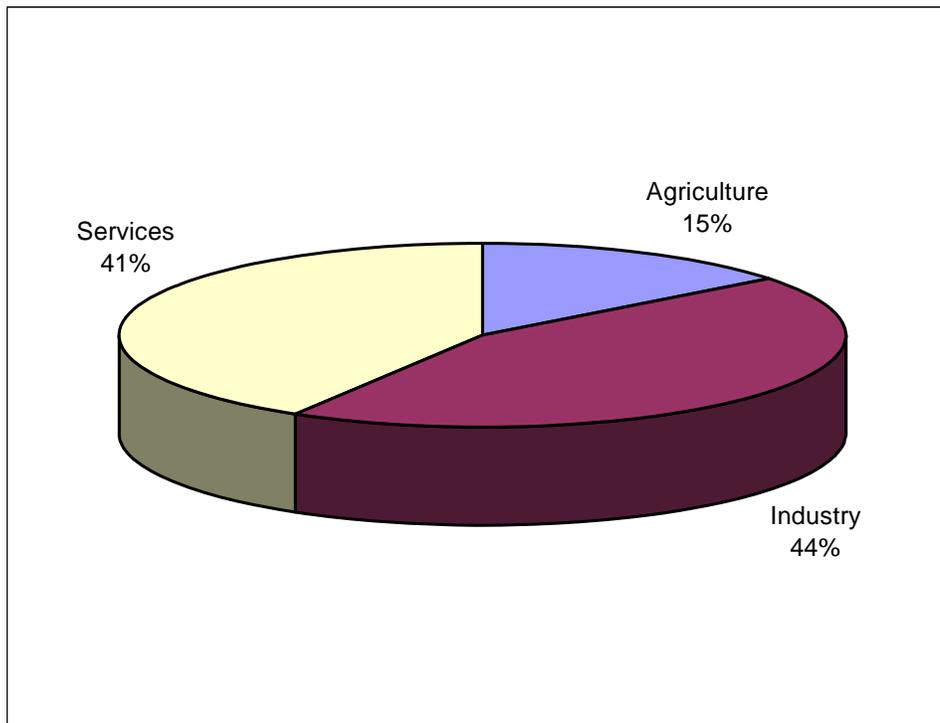
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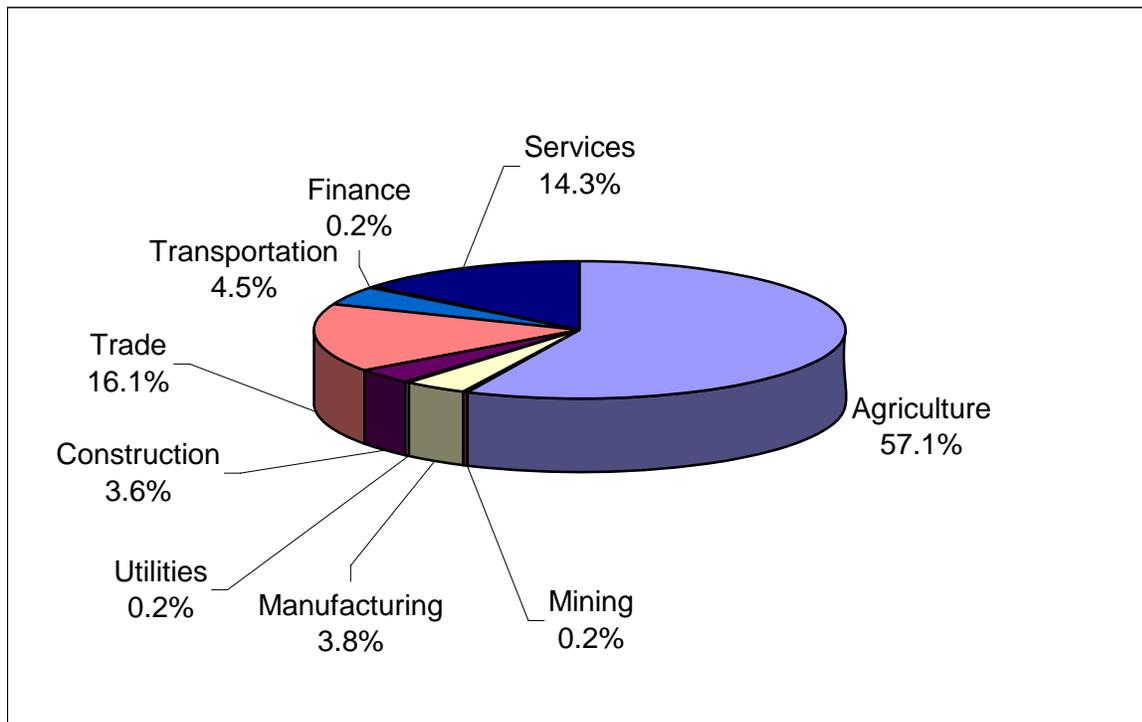
Appendix A: Statistical Overview of Economic Demand

Figure 1. GDP by Industrial Origin, 2005



Source: ADB Key Indicators 2006

Figure 2. Employment Shares by Sector in Aceh, 2005



Source: BPS.

Table 1. Employment Shares by Sector, 1998 – 2005**in percent**

	1998	1999	2000	2001	2002	2003	2004	2005
Agriculture	45.0	43.2	45.3	43.8	44.3	46.4	43.3	44.0
Manufacturing	12.1	13.8	13.5	13.3	13.9	13.2	12.9	13.1
Others	42.9	43.0	41.2	42.9	41.8	40.4	43.8	42.8

Source: ADB Key Indicators 2006.

Table 2. Unemployment by Education Attainment of Worker, 2005

Educational attainment	Labor force	Unemployed	Unemployment rate
Primary	18,985,093	1,012,711	5.3
Completed primary	37,959,793	2,540,977	6.7
Junior High	21,239,448	2,680,810	12.6
Senior High	21,760,000	3,911,502	18.0
Academy	2,496,059	322,836	12.9
University	3,361,979	215,320	6.4

Source: Depnakertrans and BPS (<http://www.bps.go.id/sector/employ/table4.shtml>; accessed 15 March 2007).

Table 3. Firm Size and Investments by Sector, Sample Means, 2005

Sector	Number of workers	Value of fixed assets	Total sales	Technical workers in total, %
Industry	83.7	1,918,745	7,012,978	21.3
Construction	5.6	419,935	1,120,914	9.1
Trade	38.7	491,590	4,124,794	41.7
Hotel	3.4	797,805	84,306	50.8
Others	10.9	293,061	3,008,858	23.2

Source: World Bank Indonesia Rural Investment Climate Survey

Note: "Skilled workers" denote secondary school graduates.

Table 4. Economic and Demographic Indicators for Northern Sumatra Provinces, 2005

	Shares of provincial to national		Per capita GDP ('000 Rp)
	Value added (constant 2000 prices)	Population	
Aceh	2.7	1.9	8,667
North Sumatra	5.1	5.7	7,060
Riau	6.7	2.7	16,642
Indonesia	100.0	100.0	7,980

Note: Riau includes Riau Islands.

Source: BPS.

Table 5. GRDP Trends by Sector in Northern Sumatra Provinces, 2002-2005 based on constant 2000 prices, in percent

	2002	2003	2004	2005	Average (2002- 2005)
Aceh	20.1	5.5	-9.6	-13.5	0.6
Agriculture	2.1	3.3	6.0	-8.9	0.6
Mining	66.8	9.9	-24.1	-33.6	4.8
Oil and gas manufacturing	-5.1	1.7	-11.6	-26.2	-10.3
Other manufacturing	61.6	1.6	-37.3	4.5	7.6
Utilities	-3.2	17.0	19.5	-1.8	7.9
Construction	13.3	0.9	0.9	-24.0	-2.2
Trade	2.2	2.5	-2.7	12.2	3.5
Communication	4.2	3.9	3.7	45.3	14.3
Finance	23.9	31.0	19.4	6.3	20.2
Other services	6.0	6.3	20.1	-0.7	7.9
North Sumatra					
Manufacturing	5.0	4.3	5.4	4.8	4.9
Riau Islands					
Manufacturing	-	-	7.6	7.4	7.5

Source: BPS.

Table 6. Area Harvested by Major Cash Crop in Aceh, 2005

	Smallholder	Estate	Total
Oil palm	79,377	171,905	251,282
Rubber	91,225	23,930	115,155
Coconut	107,008	0	107,008
Coffee	95,287	0	95,287
Areca	34,373	0	34,373
Cacao	26,908	4,014	30,922
Clove	25,964	0	25,964
Others	45,624	0	45,624
Total	505,766	199,849	705,615

Source: BPS.

Table 7. Permanent Migrants in and out of Sumatra Island, 2000

Province	Number	Percent of provincial population
Out-migrants		
Nanggroe Aceh Darussalam	181,574	4.6
Sumatera Utara	1,025,451	8.8
Sumatera Barat	837,493	19.7
Riau	169,941	3.4
Jambi	112,204	4.6
Sumatera Selatan	580,077	8.4
Bengkulu	66,762	4.3
Lampung	273,061	3.6
In-migrants:		
Nanggroe Aceh Darussalam	228,641	5.8
Sumatera Utara	552,450	4.7
Sumatera Barat	260,845	6.1
Riau	884,769	17.8
Jambi	482,795	20.0
Sumatera Selatan	1,038,898	15.1
Bengkulu	332,080	21.2
Lampung	1,923,928	25.2

Source: BPS.

Table 8. Enterprise Characteristics from the Case Studies

	Agroindustry	Other	Average
Age	23.0	27.3	25.1
Workers	1,640	355	998
Skilled worker shares (%)			
In total workers	10.8	23.8	17.3
Of which in production	57.9	80.0	69.0
Current vacancies	3	19	11
New hires	6	2	4
Wage gap	156	219	192

Source: Author's data.

Box A-1. The BPS-Depnakertrans Model

GDP forecasts are based on a Keynesian aggregate demand model. The endogenous variables are GDP (nominal and real), private consumption, private capital formation, imports, GDP deflator, exports (except oil and gas), private consumption deflator, and inflation. Exogenous variables are government capital formation, real exchange rate, real exports of oil and gas, real bank credits, real GDP of Japan and the US, export deflator, import deflator, and real prices of rice and of gasoline. The determinants of the endogenous variables are as follows:

GDP: Total consumption, total capital formation, net exports

Consumption: GDP and lagged values

Private capital formation: GDP, real bank credit, lagged values

Imports: GDP, terms of trade

GDP deflator: growth of money stock, nominal rice price, export deflator, nominal price of gasoline

Exports: GDP of Japan, GDP of the US, export price deflator of non-oil-and-gas, exchange rate

Private consumption deflator: GDP deflator

Inflation: private consumption deflator

A sectoral economy block (exogenous to the above model) generates projections of individual sector value added, based on projected GDP and projected output of the sectors. Finally, a double-log specification (exogenous to the above models) generates projections of sectoral employment based on sectoral output and GDP.

On the supply side, labor force projections are obtained using an ILO demographic transition model, combined with an exogenous labor force participation rate (calibrated from the data). Projected unemployment can therefore be derived as the difference between the projected labor force and employment.

Source: BPS and Depnakertrans.

Box A-2. Kawasan Industri Medan

The Kawasan Industri Medan (KIM) is an industrial park covering 514 ha, of which 103 ha have been developed. It currently hosts about 60 companies. However KIM is losing competitiveness against a nearby industrial estate in Batam, given the better infrastructure on the island, particularly for oil and gas utilities. Steel, rubber gloves, and crude palm oil manufacturers are the industries most affected by the weaknesses in energy supplies. The state utilities company is planning new projects to ease the infrastructure problem in KIM, but these will come online only by 2008 at the earliest.

Sources:

http://www.bkpm.go.id/bkpm/facts.php?mode=baca&info_id=80

<http://www.indonesiamatters.com/967/industrial-parks/>

Appendix B: Enterprise Case Studies and Questionnaire

Company M1: An Export-Oriented Chemical Supplier

M1 is a chemical supplier of resins, adhesives, and overlays. It is a global export company based in Finland that opened a factory in Medan in 1995. It chose the location because of its proximity to customers, namely the wood industry. It is a medium-sized company with only 55 workers, of whom 16 (29.1 percent) have college educations. Of these, 3 are in administrative positions and only 13 are on the production line.

Almost all skilled workers were born in North Sumatra—there is only one Acehnese skilled worker, though this only suggests that the preponderance of applicants are from the province. They are all graduates of chemistry or mechanical courses, either at the diploma or engineering level, mostly from the University of North Sumatra (USU) or the Pendidikan Teknologi Kimia Industri (PTKI) Medan. Most of the skilled workers have been on the job since the company started, with only two new additions (in 1999 and 2003), one of whom was from Aceh. On average the skilled workers earn Rp 1.823 million (\$203) per month, about two-thirds above the average payment for unskilled workers, estimated at Rp 1.100 million (\$120) per month.

The company has not found it difficult to fill technical positions, though ordinarily it provides formal in-house training for new workers to familiarize them with the equipment. The company also sponsors external training (consisting of one-week courses) for specific topics such as management (for supervisors), English, and International Standards Organization (ISO) compliance. Staff almost never leave; hence turnover is not a problem.

Growth prospects are poor, owing to the decline of domestic market demand, which is in turn due to resource depletion. The workforce has been reduced to its current size from 17 skilled workers in 2004, and it will remain this size in the medium- to long-term. Production has been stable, at about 30,000 units/month (up by 8.1 percent from 2004, when it was operating below capacity). The company intends to maintain this rate of production in the medium- to long-term.

The company identifies tax administration as the major item in the cost of doing business; it has had a number of legal disputes with the tax collection agency, with three pending cases in the courts. The second major item is the infrastructure constraint, owing to the insufficient supply of electricity and gas.

Company M2: An Export-Oriented Palm Oil Refinery

M2 is a palm oil refinery in Medan, producing bottled palm oil for export. Established in 1996, it has headquarters in a Middle Eastern country. The main reason for locating in Medan is its proximity to suppliers of crude palm oil, which in turn is produced from the oil palm plantations that abound in North Sumatra. The company is large, with 420 full-time workers, of whom only 57 (13.6 percent) are skilled. Fifteen are in administrative positions and the remainder are in production; all are from North Sumatra except two from Riau Islands. Most have graduated from USU, the Institut Teknologi Medan, or PTKI, usually from electrical, chemical, or mechanical engineering courses. Salaries earned by technical workers average Rp 1.395 million (\$155), about two-thirds higher than those earned by unskilled workers.

The company has not had a problem recruiting skilled workers, though it has always offered supplementary formal training for new technical workers in factory equipment and processes. Workers are also occasionally given external training on specific topics (such as ISO standards). Voluntary departures are low (about 1 or 2 a year), so turnover is not a factor in training provision. All technical workers are recruited from North Sumatra.

The company has been in an expansion mode, doubling capacity in the last three years. One major cost of doing business is poor infrastructure, particularly bad roads, which raises logistic difficulties and transport costs in obtaining CPO. However, the critical constraint is demand: Its main market, the Middle East, has been affected by the worsening Iraq conflict. Its marketing and sales department is now attempting to diversify to other countries and tap into growing global demand. In the past three years it has also increased the number of skilled workers by about 45 percent. However, it has attained its long-term target and is not expected to alter capacity or workforce size over the next ten years. Hence, no vacant positions are on offer.

Company M3: A Domestic- and Export-Oriented Chemical Company

M3 is a chemical company, established in 1950 and originally headquartered in Medan. It sells in both domestic and foreign markets. It now employs 360 full-time workers, of whom about 93 are in the production department and another 10 are in administration (a total of 28.3 percent). Most of the workers graduated from USU or Politeknik Medan (Poli-Med), in chemical or mechanical engineering. All technical workers were born in North Sumatra. Skilled workers receive over Rp 3 million (\$333) (although many have been working for the company for twenty or more years), which is more than three times the average wage of unskilled workers.

Usually the company has no difficulty filling up vacancies, except for some positions with narrowly defined qualifications such as proficiency in Mechanical Desktop™. New workers need about three months of formal hands-on training with the company's machinery and processes. Annually, three or four workers voluntarily leave the company, though their positions are easily filled. Turnover is not a constraint to internal training, and the company does not provide external or overseas training.

Production and number of skilled workers has been stable over the past three years, with only one new hire in the previous year. The company plans to double capacity while keeping the same number of workers, which will be accomplished by introducing more automatic processes and machinery in the plant. It does not encounter serious constraints in the investment climate.

Company M4: A Domestic Steel Casting Company

M4 is a steel casting (metal fabrication) company also originally headquartered in Medan. Established in 1989, it specializes in mining, quarry, rubber, palm oil, cement, power, and steel mill supplies for both the domestic and foreign market. It is a large company, with 800 workers, of whom 90 have college degrees (70 of whom are in the production department, and 20 in administration).

As there are only few foundries in Sumatra, the company has had difficulty finding engineers specializing in foundry and metallurgy, though more-generic engineers and technicians (e.g., mechanical and electrical) have been easy to find. Engineers in these fields have had to be recruited from distant polytechnics (notably the Institut Teknologi Bandung, in West Java). Currently there are three metallurgists or foundry engineers born in Bandung; the rest of the technical workers are from North Sumatra. Skilled workers earn an average of nearly Rp 3 million (\$333), more than double the average wage of unskilled workers (Rp 1.3 million (\$144)).

As with the other companies, formal in-house training (about three months) is given to new workers; the company also sponsors managers to join external seminars and workshops, including overseas. Turnover is not a problem (only about one or two voluntary departures per year on average) and is not a factor in providing training. The key informant (the company president) notes that university graduates (four-year degrees) tend to have less practical experience than polytechnic graduates (three-year diplomas), but are more readily trainable because of their deeper foundation in theory, quantitative, and problem-solving skills, and their familiarity with the subject matter.

The company has been expanding the number of skilled workers (up 8 percent from three years earlier), hiring seven new workers in the previous year; however it intends to maintain its current size in the long

term. Its production plans are oriented not towards expansion, but towards diversifying its product range. The major obstacle to doing business, and a constraint to business expansion as well, is poor infrastructure related to electricity and gas supply.

Company M5: A Multinational Manufacturer

M5 is a manufacturing company in Medan, specializing in rubber gloves and other products. It is a multinational company headquartered in Kuala Lumpur; its investment in a factory at Medan (in 1995) was motivated by proximity to sources of crude rubber. The company has 1,200 full-time workers, of whom only 80 are skilled. Of these, 60 are in the production department and 20 in administration. Only one technical worker is from Aceh (at a supervisory position). Skilled workers earn an average of over Rp 3.2 million (\$356) per month, in contrast with unskilled workers who earn only about Rp 0.9 million (\$100) per month.

The company currently has three vacancies for mechanical engineers. Most technical workers have a mechanical or chemical engineering background, usually from USU or PTKI. The key informant, a Malaysian operations manager, notes that its high-school level workers are relatively proficient relative to, say, comparable high-school level workers in Malaysia. However, Malaysian-trained engineers tend to be more proficient than comparable Indonesian-trained engineers. It is not clear why, though one factor he suspects is the English-language skills that allow Malaysian-trained engineers to gain quicker access to English-language material in the field, as compared to those trained in Indonesia. Worker education is supplemented by formal in-house training for all new workers. They also send some technicians to headquarters in Malaysia for further training, and technical workers are also offered external training, mainly in English. Turnover is almost non-existent.

They do not plan to expand production (currently at 110 million pairs of gloves per month) at anytime. They have not changed the number of skilled workers over the last three years, nor do they plan to significantly increase hiring in the long run. An important cost of doing business is labor policies, such as mandatory leave, benefits, and severance rules, which make it costly to fire workers. Operations also suffer from low and erratic gas supplies. Lastly, the company faces some difficulty in finding good engineers in Indonesia, which may be a constraint given the company's plan to move into higher technology products.

Company M6: A Rubber Manufacturer Headquartered in Medan

M6 is another rubber manufacturing company, specializing in tires and pneumatic tubing. It is headquartered in Medan, though its location is seen as ideal given its proximity to crude rubber suppliers. This company is the second-oldest of our case enterprises (established in 1956), and its factory is the largest by far among our case studies, employing 3,300 workers. Of these, 400 are skilled workers, but most are in administration—only 100 are in the production department, and all hold positions classified as “supervisory.” All the skilled workers are from North Sumatra with a background in chemical or mechanical engineering, usually from USU or PTKI.

The company currently has no vacancies and has hired no new workers over the past three years. The company has generally had difficulty in finding chemists and engineers with a specific background in rubber technology, as most of the technical graduates are more familiar with oleochemicals. New technicians are given a three- to six-month training course. In general the workers are highly trainable if they have a good quantitative background, thus bridging the aforementioned skill gap. However, the company would be better-served if its engineering graduates had already acquired training in rubber technology.

There is minor turnover (about 4 percent per year), although this is mainly due to unpleasant work conditions in the factory (rubber being a noxious material). This turnover is a factor only for training in the more-specialized products that require sophisticated technology; the bulk of the factory output consists of the more common types of rubber products. They hired 10 new workers in the past year, but currently have

no vacant positions. In the long term, they plan to maintain their capacity production (36 million tires per year), as well as the size of their work force. Rather than expand production, they intend to upgrade their product line toward performance tires. The main obstacles for doing business are poor infrastructure (lack of gas and electricity supply) and labor policies that mandate costly benefits, as well as high tariffs and a regulated monopoly on importation of critical inputs (such as carbon black).

Company A1: A Multinational Cement Company Selling Only to the Domestic Market

A1 is a cement company located in Aceh Besar on the outskirts of Banda Aceh, right at its quarry site. It uses local shale, sandstone, limestone, and pozzolan, with gypsum being the only major ingredient requiring external supply (in this case, from Singapore). The company was established in 1981 by a multinational cement company; it was later acquired by another multinational company based in France. It sells entirely to the domestic market (claiming a 70 percent market share of the cement market in nearby North Sumatra).

The 2004 tsunami killed 137 workers and destroyed most of the facility. Since then the factory has been under reconstruction, and new equipment is being installed. Just last year it began packaging operations for cement shipped in from Langkawi, Malaysia, and by 2008 it plans to reopen cement-manufacturing operations. Currently it has 206 workers, of whom 55 (28.6 percent) are technical labor; of those 55, 39 are in the production line. Virtually all technical employees are Acehnese, and most have graduated from Syiah Kuala in Aceh, though many have taken undergraduate degrees from the Institut Teknologi Bandung. While unskilled workers' earnings average only about Rp 1 million (\$111) per month, workers in managerial positions (nearly all of whom have college educations) can receive up to Rp 12 million (\$1,334.40) a month. The average salary among the group of technical workers is Rp 5.7 million (\$633) (though this is skewed by the preponderance of managers in the group).

No new technical workers have been hired since the tsunami, but the company is currently on a massive recruitment drive, with about 70 vacancies imminent. Most will require technical graduates with backgrounds in chemical and mechanical engineering. The drive accompanies an internal reorganization, where workers with qualification gaps (such as absence of tertiary education) would either be reassigned or offered a severance package. This coincides with the reopening of the plant with upgraded facilities. Monthly salaries for the job vacancies range from Rp 1.4 million (\$155.68), for entry-level college-educated technicians, to as much as Rp 5 million (\$556), for experienced engineers. For its reopening in 2008, the installed capacity is about 1.5 to 1.6 million tons per year, about 30 percent higher than the pre-tsunami capacity.

Even during normal times, the company had a difficult time recruiting college-educated workers. The reason given is that college-level technicians originally from Aceh were moving to other industrial areas, and graduates of local universities had little practical experience. New workers were given a three- to six-month formal training course (with the longer training for the inexperienced workers). The company also sends supervisors to other branches of the company for technical training overseas. For unskilled workers, the company also avails itself of training services from the Department of Manpower. The company had five voluntary departures in 2005 (interestingly, the departing workers were moving to public sector jobs). However, in normal times turnover is nearly nonexistent and is not a factor in training provision.

Enterprise Case Study Questionnaire

Notes:

1. The identity of the company and respondents will be kept strictly confidential!
2. The respondents would be the business owner, the personnel/human resource manager, the technical workers, and their supervisors.

Basic information about the interview

1. Date and time	
2. Enterprise name	
3. Address	
4. Contact info.	

Basic information about the enterprise

1. Name	
2. Year started	
3. Product(s)	
4. Company HQ	

5. If company HQ is in another province, please indicate what are the advantages of locating a branch in North Sumatra:

Employment and labor market

1. Number of full-time workers (total)	
a. Unskilled	
b. Technical (requiring post-secondary schooling/training)	
Technical worker	
Supervisor of technical worker	
Other (administrative, marketing, etc.)	
Total technical	
c. Average wage of unskilled workers (est. in '000/mo)	
2. Number of technical workers hired last year	
2.a. Worker profile (see last page)	

3. Which educational institutions are the most important sources of technical workers? Please identify the top 3 institutions and corresponding important courses of study:

Institution	Courses of study

3. Current job vacancies, technical

Position	Qualification	Number	Months vacant	Salary scale ('000/mo)

3. Are you having difficulty finding workers to fill vacancies? (Y or N)

4. If Yes, why? (tick as many as applicable)

Not enough person qualified

Candidate with educational qualification is unsuitable

Qualified people are all leaving for other places

Others, explain:

--

5. If candidate with educational qualification is UNSUITABLE, please explain in what way the candidate is unsuitable.

--

6. What measures have you taken to fill the gap, if any? Tick as many as are applicable.

Given in-firm training

Sent workers abroad for in-firm training

Sent workers for external training

Financed workers to get additional degree

Others, please explain:

--

6. If your firm has engaged in in-firm training, please describe what kind of training was provided:

--

7. How many technical workers voluntarily left your company in the current and previous years, and need to be replaced?

2006

--

2005

--

2004

--

8. If labor turnover is a serious constraint to in-firm training, explain what measures if any your firm has taken to address this.

--

D. History of the enterprise

1. History of employment

2006, total number of technical workers

--

2005, total number of technical workers

--

2004, total number of technical workers

--

2. Output of main product (estimate; indicate range if exact figure unavailable)

Unit

--

2006, total

--

2005, total

--

2004, total

--

E. Future plans of enterprise

1. Production target of major product (based on expectation)

In five years:

--

In ten years:

--

2. Target for number of technical workers

In five years:

--

In ten years:

--

3. If you plan to expand your production, indicate reasons

--

4. What are the major obstacles faced in expanding business? Please describe and indicate importance (very important, important, not as important):

Labor market regulations

Other government regulations

Government fees and taxes

Lack of infrastructure

Lack of credit

Lack of technical workers

Employment profile (cont'd)

2a. Technical worker profile: (If exceeding 20, sample 20):

No	Position	Salary ('000/mo)	Years in company	Highest schooling	Location	Province of birth
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

Appendix C: Workforce Institutions Profiles, Protocols, and Best Practices

C-1. Workforce Institutional Responsiveness – Interview Guide

Objective: Provide practical information about the relevancy, articulation, and responsiveness of firms, industry associations, and training institutions (public and private) to work-skills/demand required for technical jobs in Aceh and the neighboring provinces of Indonesia in order to improve (support) the USAID-Chevron project that will build a new polytechnic institution in Aceh 2007.

Contact Name: _____

Title: _____

Organization/Institution: _____

Address: _____

Phone Number & E-mail: _____

Key Linkages and Responsiveness: Private/Public Sector and Workforce Institutions

- What institutional linkages exist with employment sectors (USAID, civil, private/public sector)?
- What institutional linkages exist with trainee feeder groups/agencies/firms?
- What institutional capacity and flexibility exists to offer new, demand-driven courses and/or to terminate courses no longer necessary?
- In what ways can institutions accommodate emerging trends in the job market?
- What are some good examples of institutional strengthening of industry associations?
- What are some good examples of linkages and alliances between the workforce education and business environment?

Employment/Outreach Services: Impact

- Does program support demand for real/sustained jobs?
- Are job placements tracked over time? How is impact measured? Through which methods?

Relevant Program: Curriculum, Staffing, and Skills

- How relevant is program to job market (i.e., curriculum, support materials, facilities/labs, industry experienced lecturers, and mgt/staff)? What are the barriers?
- Is program based on skills competencies? On skills testing? On certification?
- Is program based on work-based learning/training (e.g., apprenticeships)?
- Do programs include targeted skills training?
- Are literacy, numeric, communication/English, ICT skills included?
- Do programs foster motivation, teamwork, problem-solving, and creativity?
- Are organizational and management skills included?
- Are entrepreneurship skills included?
- Are new business ventures (job creation) skills included?

Recruitment/Support Services: New Entrants

- What are their demographics (e.g., age, education/training, urban:rural, gender, etc)?
- What job market support services are available? Is the following made available: remediation or workplace orientation (i.e., site visits, org. training); career and development counseling; assistance with entry into job market; and clear job expectations?

- In the area of specialized training and service delivery, are new entrant programs designed for the formal and informal sectors? For in-firm and out-of-firm entrants? Is training gender-aware? Is gender-specific training used when necessary?
- Are there incentives for motivation and advancement present in the workplace?
- Are there programs for training of trainers? For management and executive education?

C-2. Institutional and Training Provider Profiles

The following case studies profile institutions and their workplace employment program relevancy in terms of staffing, programs, and skills; recruitment and key best practice linkages with the workplace; and ability to turn out graduates who can fill technical jobs in Aceh, its neighboring provinces of North Sumatra, and Riau and the Riau Islands.

Case Study 1: Politeknik Negeri Medan

Key Personnel:

Director: Zulkifli Lubis; Deputy Director for Cooperation with Industry and Commerce: S. M. Sibarani; and Secretary Director: Ina Almisah

Contact Information:

Jl. Almamater No. 1, Kampus USU Medan 20155
Tel: (061) 8210371

Institutional Profile:

Located about 20 minutes from the city center, this polytechnic is a public, post-secondary, 3-year institution that reports through the Ministry of National Education. (The Ministry monitors 20-plus such institutions in separate provinces.). There are eleven programs, including three in commerce/business: accounting, banking, and business administration; eight in engineering: automotive, energy, road/building construction, electrical, electronic, telecommunication, computer, management informatics

- More than 4,000 students:
 - Females make up 20-25 percent of the student body, including 50 percent in the commerce/ business program and 8-10 percent in the engineering program.
 - Aceh students are 2 percent of the student body.
 - Graduates per year: 2003/04, 1344; 2004/05, 1388; 2005/06, 1404; 2006/07, 1007
- Morning and afternoon programs. Offers a 3-year diploma and a 1-year training program. Fees plus books and materials = Rp 1.2 million /year.
- Politeknik Negeri Medan is an authorized training center and testing venue for the Test of English for International Communication English (TOEIC). There is a similar arrangement for the training and testing of computer skills.

Organization:

Director and four deputy directors: Administration/Finance, Academics, Student Affairs, and Cooperation with Industry and Commerce

Industry Training for Staff:

Director has taken a short training course with a gas/oil company. Staff receive professional development training from one week up to one year at government training institutions. Staff also receive lectures from people working in industry. Some staff arrange a leave of up to three months to work in industry, whereas others train in firms for one to two weeks.

Student Training Placements and Alumni Employment Rates:

Percent of graduates obtaining jobs upon program completion: 2003: 30 percent; 2004: 10 percent; 2005: 54 percent; 2006: 60 percent. Note: About one-third of the graduates obtained jobs in Batam.

MOUs have been signed with 30 firms/businesses for workplace training, and more than 100 firms/businesses have counseled or hired 2005/06 graduates, including:

- Sawit Mas Group, Medan
- Bernofarm Pharmaceutical Co., Jakarta
- Pusat, Pt Esco Bintan Indome Sia, Bintan
- Pt Datascript Kpc, Medan
- Synergy Surya, Medan
- Pt Swadharma Sarana Informatika, Medan
- Pt Canang Indah, Belawan
- Pt Bank Rakyat Indonesia (persero), Medan
- Cv Yukuba Engineering, Medan
- Pt Indosat Divisi Regional Barat, Medan
- Pt Toyota Motor Manufacturing Indonesia, Jakarta
- Anugerah, Batam
- Pt Alkurnia Sentosa International, Medan
- Kantor Yenaga Kerja, Pemkab Langkat
- Pt Swadharma Duta Data, Jakarta
- Pt Flora Sawita Chemindo, Medan
- Pt Rubycon, Batam
- Pt Prudential Life Assn., Medan
- Pt Schlumberger Geophysics, Nusantara, Jakarta
- Pt Astra International Tbk, Medan
- Media Grafikatama T., Morawa
- Pt. Bank Danamon Indonesia, Medan
- Sumanira Rekagraha Ciptatama, Medan
- Pt Great Indonesian Resources, Medan
- Pt Chakraprima Gitanusa, Jakarta
- Pt Bank Niaga, Medan
- Binus Center Gajahmada, Medan
- Pt Sinar Oleochemical International, Medan
- Pt Ulee Balang, Medan
- Pt Traktor Nusantara Cabang, Medan
- Pt Siskem Aneka Indonesia Cikarang, Penerbit Erlangga, Medan
- Pt Intan Andalas Wood Industri, Medan
- Pt Medan Media Grafikatama T., Morwaw
- Pt Indah Kiat Pulp & paper Tbk, Perawang Riau
- Pt Aplikanusa Lintasarta, Medan
- Pt Indomarco Adi Prima, Medan
- Pt Trakindo Utama, Medan
- Ajb Mumiputera, Medan; Pt Pdm Indonesia, Jakarta
- Pt Pelayaran Meratus & Group Cab, Medan
- Pt Buma Intinaker, Jakarta
- Citibank, Medan Branch
- Polonia Traso Industri, Medan
- Infineon Technologies, Batam
- Pt Pacific Medan Industri, Medan
- Pt Berkat Kurnia Mitra Abadi, Medan
- Pt Bahari Dwikencana lestari, Aceh Timur
- Adira Rental, Medan
- Trijaya Pratama Futures, Medan
- Pt Pharos Indonesia, Jakarta
- Pt Ciptakomindo Pradita, Jakarta
- Pt Indofood Sukses Makmur T., Morawa
- Pt Hm Sampoerna Tbk, Surabaya
- Pt Inter Delta Tbk, Medan
- Pt Setio Harto (Ltd), Medan
- Pt Perusahaan Gas Negara (Persero) Tbk, Jakarta

Program Structure and Student Expectations:

Students are given knowledge and skills tests as part of their coursework. Students who fail are expelled, except during fourth semester when they are allowed one repeat. The students' fifth semester consists of a firm or industry work placement, supervision of which is done by industry supervisors and Politeknik staff. The certification process uses a provincial, competency-based certification test that has been approved at the national level. The test is administered in three engineering program areas: architectural, civil, and mechanical. Students that fail are allowed one retake.

Skill-Set Examples by Field:

Production Technician: operating conventional machine based on computer; designing tool jig of fixture; designing production process and material flow; production and expense calculating; designing computer programs for production process; assessing destructive material; and quality control of machine product industry.

Maintenance and Repair: fixing machine operation and ensuring energy efficiency; installing factory utilities; designing appliance installation; designing substitution elements; designing computer programs for maintenance and repair systems; designing computer programs for installation and commission systems; mechanical inspections to follow the determined processes; analyzing equipments and balancing; implementing action planning; and factory simulation and materials stream planning.

New Student Recruitment:

- 1,400 new entrants each year, with 20 percent coming from feeder schools and 80 percent coming from open-enrollment testing, including some who have been working for about a year.
- A new student who successfully completes the one-year program may continue into the three-year program.
- 5 percent of students drop out during the first year.
- Some students work with a company for a while, leave the company, then apply through open enrollment for admission.

Key ‘Best Practice’ Workforce Linkages:

- Deputy director position for Cooperation with Industry and Commerce.
- Guidance and Counseling Unit.
- Politeknik works with business and industry to schedule campus visits for interviews of potential workplace entrants.
- Politeknik stays in contact (via Internet/computer website linkage, personal contact, or phone) and works with alumni to help them find jobs.
- Phone interviews with graduates’ workplace supervisors one year after placement to check on workplace performance.
- Follow-up career placement available through Politeknik.
- Politeknik arranges three-month (fifth semester) full-time work experience with a firm, which many students are able to turn into a full-time job after graduation.
- Use quotas for diverse student body.
- Sign MOUs with business and industry for work experiences.
- Training/testing center - Test of English for International Communication (TOEIC).
- Use a national competency-based certification test, administered through General Government Construction National Association, in three areas: architecture/building construction, with 18 skill areas; civil/road construction, with 26 skill areas; and mechanical, with 4 skill areas. Test covers knowledge, skills, and attitude.

Case Study 2: Pendidikan Teknologi Kimia Industri (PTKI) Medan**Key Personnel:**

Deputy Director for Administration/Finance: Mansour Halowan; Treasurer: Pilemon Bangres; Education Department: Rusfiarman; Chemistry Instructor: Darmi Parmita; and Engineering Instructor: Sitepu

Contact Information:

Jalan Medan Tenggara VII, Medan 20228
Tel. (061) 7862439

Institutional Profile:

Located about 15 minutes from the city center, PTKI is a public post-secondary three-year program. There are two concentrations, industrial chemistry and industrial mechanics. The program is monitored by the Ministry of Industry (as are 8 institutions in Indonesia); and has had a private partnership with the Government of Japan (JICA, Japan International Cooperation Agency) for several years.

- More than 1,000 students
 - Females make up 60 percent of overall student body and are 75 percent of students in industrial chemistry and 10 percent in mechanics.
 - There are two Acehnese students.

- Fee for 3-year diploma courses plus books and materials = Rp 1.5 million (\$166.80) /year.

Organization:

Director and three deputy directors: Administration/Finance, Academics, and Student Affairs. There is no deputy director for cooperation with industry and commerce.

Industry Training for Staff:

PTKI can make a request to the Ministry of Industry/Office of Training Center to get lecturers from the university and/or from industry for professional development of staff; each year a few staff will arrange for a professional development leave of up to 3 months to work in industry; each year there is an arranged one-week study tour for management and staff of PTKI to Batam, and in 2008 a study tour of industry in Hong Kong is planned for 20 lecturers; the latter was in response to a proposal sent to the Ministry of Industry. Six years ago a foreign assistance partnership with JICA provided a mini-plant along with related laboratory equipment, technical assistance, and short-term training (6 months) in Japan. Today this equipment is outdated. Keeping up with the latest technology is a serious issue for the institution, to keep the staff current and to offer up-to-date lab equipment.

Student Training Placements and Alumni Employment Rates:

PTKI graduates about 350 students per year. No records are kept on employment or occupation, and graduates must find their own jobs. However, PTKI allows on-site screening tests and subsequent interviewing by firms of the qualified job seekers.

Mobility of females was identified as an issue in employment. Although many want to stay in Medan, some companies will provide transport assistance if females are willing to relocate.

Program Structure and Student Expectations:

Students spend their fifth semester (3 months) in a workplace experience, but must find and arrange their own workplace. There are no MOUs in place to facilitate the process, though workplace supervision is provided by industry supervisors and PTKI staff. Saturday morning coffees are held on occasion by alumni of PTKI, and presentations on motivation are provided. Some companies also send lecturers to provide workplace orientation information. Beyond a lecture on guidance and counseling, students are on their own in finding jobs and developing career awareness; there is no guidance and counseling unit.

Skill-Sets by Field:

Course descriptions and outlines are available, though information on specific skill-sets within programs is limited. Sample skills follow.

Mechanics: Operation of mini-plant: operate pump (centrifugal), trouble-shoot pump, unload tide pump, operate valve, maintenance of valve, operate compressor, calculate/counting activity valve, introduction/junction pump, pipe installation, analysis of steaming kettle efficiency.

Industrial Chemistry: adjust fluid flow with different pressure/temperature, use reactor, manage distillations, minimizing appliance size measure, draining, tower water, making use of recyclable water.

Two semesters of business English and computers are provided internally by PTKI, but there is no outside testing of skills.

New Student Recruitment:

Three hundred new entrants each year are selected from an open admissions process in which about 500 potential students apply. A paper and pencil test is administered along with a health assessment.

No special allowances are made for students from feeder schools, students with prior work experience, or diversity or special-needs quotas. However, a proposal has been made to the Ministry of Industry to allow 60 top senior high students to be awarded need- and merit-based (from open admissions exams) scholarships. Upon graduation these students would be assured government assistance in finding a two-year post in a company.

Key ‘Best Practice’ Workforce Linkages:

- Foreign assistance partnerships (e.g., JICA) provided mini-plant and related laboratory equipment, technical assistance, and short-term (6-month) training of staff in Japan.
- Saturday morning coffees with program alumni, and presentations on career awareness and motivation. Company-sponsored lectures on various topics for workplace orientation.
- Alumni provide short-term training for staff.
- Annual 3-month industry exchanges for staff.
- Annual one-week study tours to Batam for management and staff, plus a study tour (next year) of industry in Hong Kong for 20 participants, which is arranged through Ministry of Industry.
- Industry uses a preliminary screening test followed by an interview with potential job seekers.

Case Study 3: Politeknik LP31 (Indonesian Institute for Professional Education and Development, Business College) Medan

Key Personnel:

Director: Syahril St. Saidi; Head of Education: Saptari Wibowo; and Cooperation and Placement: Suparman

Contact Information:

Main office: Gedung Sentra Kramat, Jl. Kramat Raya No 7/9 Jakarta 10450

Branch office: Jl. Gajah Mada No 15 M Medan 20154

Tel. (061) 4573885, (061) 4573886, (061) 4573887

Institutional Profile:

Politeknik LP31, a private, post-secondary, 2-year certificate, was established in 1989. With branches in Medan and Banda Aceh, programs are local-needs based and may include: business administration, secretarial studies, computing for accounting, computer informatics, public relations, office management, business English, business, and commerce. Jakarta programs include electronic engineering, management and industrial engineering, automotive engineering, mechanical engineering, marketing, and distribution.

- More than 500 students
- 75 percent female
- 2-year certificate
- Fees plus books and materials = Rp 8 million (\$889.60) /year

Note: About 80 percent of the institute’s operating cost is generated through student fees and the remaining 20 percent through short-term (3-day) in-firm and/or NGO training courses.

Industry Training for Staff:

LP31 recruits and selects staff on a contractual basis from the open market and hires and fires based on job performance. Staff attend a training program in Jakarta and are initially provided with a 3-month to 1-year contract. They are assessed every 3 months and can achieve permanent status after two years if they demonstrate satisfactory performance.

Student and Alumni Employment and Training Placements:

The Medan center graduates about 250 students annually, and approximately 80 percent find employment. Employment for students in the top 20 percent of the class is guaranteed by LP31.

Institute assists with employment for new graduates and alumni. Institute has MOUs with 250 companies in North Sumatra. Many firms use a test followed by an interview to determine level of competency of job seeker.

Academics:

Students spend the full two years in the classroom followed by three months in a probationary work experience on salary with a company within an hour of Medan. Students are visited on a regular basis (12 times) during the work experience period. Following the 3-month work experience, the job can be extended for another 3 months, terminated, or given a 1- or 2 year contract. As a part of their formal training, students are taught how to interview, create resumes, and apply for jobs; they are provided with career awareness and motivation sessions. Morning, afternoon, and evening shifts are offered to allow flexibility for student schedules.

Skill-Sets by Field:

During the first three semesters, regular mid-test and finals are used. During the fourth semester, competency-based testing is used. Companies come in and prepare the questions relevant to the workplace, and students are provided with a D mark (failed), C mark (satisfactory), B mark (good), or A mark (excellent). In the case of a 'fail' mark, the student is allowed to take remedial work and test again during the next session. The mark is provided on the certificate.

New Student Recruitment:

An open house is held twice a year. LP31 has sister schools (feeder schools) where they visit, share information, and, on occasion, provide free training to teachers (4 hours). In addition, LP31 provides short-term training (3 months) in English, accounting, and/or computer course to selected senior-level students. Each year out of 1000-plus candidates, through a competitive admissions/qualifications process and screenings, approximately 125 students are selected in groups of 24. A program cohort system is used, with cohorts starting about three months apart. Full scholarships are provided to 3 students out of every class of 24 based on need, review of academic performance, home visit, and interview. About 10 students from Aceh are currently enrolled in the program.

Key 'Best Practice' Workforce Linkages:

- Separate coordinating position for Cooperation and Placement.
- Staff are evaluated and contractual. LP31 can hire/fire based on performance.
- Signing of MOUs with business and industry for work arrangement experiences.
- LP31 stays in contact with alumni and works with alumni to find a job via Internet/computer website linkage, personal contact, and/or telephone.
- Follow-on career placement available.
- LP31 assists student in arranging 3-month work experience with firms/business on a probationary period following completion of the two-year program, with the firm deciding after the 3-month period whether to extend to another three months, provide 1- or 2-year contract, or dismiss.
- LP31 staff provides on-site monitoring of the work experience.
- Certification is based on a company-prepared test that is competency-based and relevant to the workplace.
- Flexible scheduling.
- Use of feeder schools.

Case Study 4: Industry Professional Associations (Construction/Civil, Mechanical, and Electrical Engineering)

Included is information on two industry professional associations – GABPEKNAS (construction/civil and mechanical) and AKLI (electrical) and key linkages.

4a: Gabungan Perusahaan Kontraktor Nasional (GABPEKNAS)

Key Personnel: Head: Arnold T. Panggabean; Secretary: Binsar Naiggolan; Members: Tagor Mr Simatupang, Ari, M. Koster Silaeng; Instructors: Syaiful, Syiril Erwin

Contact Information:

Secretariat – Jin. Sisingamangaraja No 112 Medan

Tel. (061) 7331740, (061) 7353335

Institutional Profile:

Established in 1977, the Medan branch office of the regional association of construction service members and professional engineers for North Sumatra Province reports through the National Construction Services Development Board. Responsibilities are related to national-level competency-based certification of graduates of the Polytechnics, and include testing and management of a national-level competency-based certification system in the program areas of architectural, civil, and mechanical/technical engineering. The program is about 3 months old, and the initial MOU was with Politeknik Negeri Medan.

Testing and Certification in Engineering (2007):

Labor needs a certificate to assure a standard level of skills-based quality control. The certification tests are in the three areas of knowledge, skills, and attitude. Knowledge is assessed through a written test, skills through practical demonstration/assessment portfolio, and attitude in an interview. The test is constructed in accordance with industry needs. Three assessors are employed, 2 from the Politeknik and 1 from Jakarta, representing both academia and the work force. Similar testing and certification are planned at the basic skill/technician level (2008) and in a related engineering field (electrical in 2007).

Testing and Certification in Basic Skills for a Technician (2008):

In accordance with the national board, a certification basic-skill/technician-level test will be developed and implemented in selected basic skill-trade areas: masonry, electrical wiring, carpentry, welding, pipefitting, and motor repair. If necessary, the potential certifiable workers will receive two weeks of refresher educational training by the association and then be tested in their skill-competency. Vocational senior high school graduates would be tested and certified first, followed by those who have learned their trade skills on-the-job.

Certification Areas (2007/2008):

Architecture: draftsman, bricklayer, stone masonry, solid plaster, ceramic, tiling, carpenter, painter, plumber, building finisher, supervisor/building construction, supervisor/housing construction, supervisor/quality control.

Civil: draftsman, surveyor, concrete laboratory technician, mechanics, laboratory technician, soil investigation operator, foundation work, earth moving, bar bender, concrete worker, form worker, road asphalt worker, supervisor/hot mix asphalt, supervisor/ossification road, supervisor/irrigation building, supervisor/irrigation channel, supervisor road work, supervisor/bridge work, dredging, technician numerator.

Mechanical: draftsman, welder/plate and pipe, welder/MID underhand position, welder/TIG underhand position.

4b: Asosiasi Kontraktor Listrik dan Mekanikal Indonesia (AKLI) and Asosiasi Profesionalis Elektrikal Indonesia (APEI)

Key Personnel:

Deputy 1: Purga; Deputy 2: Tohav Suhartono; Instructor/member: Sumarsono

Contact Information:

Secretariat – Jl. Bibuk 106, Medan Plaza

Tel. (061) 610-4222, 4147065, 4514235

Institutional Profile:

Association Electrical and Mechanical Indonesia/Contractor AKLI established in 2002 a branch office for the regional association of electrical service members and professional engineers for North Sumatra Province, which reports through the Association of Professional Indonesian Electricians (APEI). Their area of responsibility includes licensing and support in implementation of a national-level competency-based certification system for electrical technicians and engineers. The program is about 3 months old, under an initial certification MOU with Politeknik Negeri Medan and an MOU with National Public Electricity Industry (PLN) to provide 3-day training to association members on new product development. The training costs of Rp 35,000–200,000 (\$3.90- \$22.24) are paid by the association.

Testing and Certification in Engineering (2007):

Labor needs national-level certification to assure standard level of quality of electrical skills. Certification tests are in the three areas of knowledge, skills and attitude and take three days, 2 days on knowledge base and one day on the practical. Knowledge is assessed through a written test, practical through skills demonstration, and attitude through an interview. The test is constructed in accordance with industry needs and based on the PUIL (a book of detailed skills for each job classification built around four levels of classification (A to D with A low and D high)).

Certification Areas (2007):

Electrical: electrical installer, wire joiner (low, middle, and high voltage), power (kilowatts up to 25, 99, 500, and all), house distribution, and house junction and generator.

Key ‘Best Practice’ Workforce Linkages:

- Joint responsibility of a National Association/Board and provincial-level professional associations, industry, and training institutions working together to ensure competency-based skill standards for workforce technicians.
- Linking of professional associations to workplace skill certification and workforce competency-based assessment is an important connection to improve institutional responsiveness and training quality.
- Linking of professional associations to industry where industry provides training on new product development to association members.

Case Study 5: Regional Programs of NGOs BITRA and GTZ

Local NGO BITRA, an activator for rural progress, and international NGO GTZ related to workforce-training activities and the corresponding workforce linkages. Both are sponsored by the Germans.

5a: Local NGO BITRA (Medan)

Key Personnel:

Executive Director: Safaruddin Siregar; Secretary/Deputy: Iswan Kaputra

Contact Information:

Jl. Bahagia by Pass No. 11/35, Medan 20218

Tel. (061) 7876408

Institutional Profile:

Incorporated in 1992, with the Medan office established 1996, BITRA is a German-sponsored rural skills development initiative with 20 staff members and various advisory and organizing boards. Activities are located in North Sumatra Province—primarily agricultural advocacy, small/micro-enterprise, and a research and development program. Activities include an annual meeting to evaluate programs, democracy/civic education for community leaders, and short-term training and workshops of interest to the local farmer, including entrepreneurship skills and community advocacy.

Types of Short-Term Training:

Trimming cacao; making pesticides; preventing disease; micro-organics; management for entrepreneurs; traditional medicine, health alternatives, and recognition of medicinal trees; selling of agricultural products; managing non-profit organizations; land reform; managing community radio; documentary film-making; community organizing on issues of civil society, journalism, law, and political rights; training of trainers; credit union ledgers; gender training; participatory rural appraisal; achievement motivation; and basic cooperation.

Workforce Development Support:

Most training is independent of business and industry and training institutions, although BITRA has a relationship with the Government/Department of Industry and Plantation Office, an association/LPPI (entrepreneurship - Management Institute of Education of Indonesia), and NGOs (MASDA and Contra). Trainings are half-days or 2-3 days; they provide food, accommodation, and transport. Information made available upon request. Also, other organizations are allowed to use their training center.

Key 'Best Practice' Workforce Linkages:

- Foreign donor support of the NGO workforce-training effort is important linkage in supporting workforce development.
- NGOs provide grassroots linkages and trainings, especially in hard-to-reach and marginalized communities/areas.
- Linkage with government, association, NGOs, and marginalized communities.

5b: GTZ, International NGO (Banda Aceh)

Key Personnel:

Principal advisor: Paulina Rodriguez; Junior expert: Mathias Range

Contact Information:

Jl. Jender al Sudirman No. 64, Geuceu Iniem, Banda Aceh 23239

Tel. (620) 65140202

Institutional Profile:

Partner for the Future Worldwide in two districts, Aceh Utara and Lhokseumawe. GTZ coordinates with other donors and stakeholders, namely ADB, InWent, Mercy Corps, and Save the Children. Plan to phase out in 2009.

Program:

Economic recovery/microfinance (work jointly with economic department at University in support of small micro-enterprise and job fair) and vocational training (work with Polytechnic and vocational training schools, 3-month course on basic skills); provide entrepreneurship training and training of trainers for 3 weeks for a fee (23 villages); provided immediate relief after tsunami (rehabilitated 200 fish farms), provide short courses 1–5 days; facilitate in establishing savings and loans units; well-documented materials.

Key ‘Best Practice’ Workforce Linkages:

- Business counselors provided for coaching/mentoring.
- Material development – available for user.
- Encouraging partnerships with government, NGOs, and other donors.
- Good use of course fees.

Case Study 6: Politeknik MBP (Mandiri Bina Prestasi) Medan**Key Personnel:**

Director: Mardaus Purba; Instructor, Poultry: Rela Giuting

Contact Information:

Jin. Letjend Djamin Ginting’s 285-287 P. Butan Medan 20155
Tel. (061) 8218605, (061) 8218589

Institutional Profile:

Established in 2002, Politeknik MBP is located 20 minutes from Medan city center. It is a private, post-secondary institution offering a 3-year certificate and 3 programs with 16 sub-programs (commercial/ business, engineering, and poultry agribusiness).

- 1,200 students.
- Half of the students are female
 - 60 percent are female in agribusiness
 - 50 percent are female in commercial business (i.e., banking, accounting, English).
- There are no MOUs for work programs.
- Accreditation is provided by the Ministry of National Education, and there is good cooperation with the government.
- Fees plus books and materials = Rp. 2–3.2 (\$222- \$355.84) million.

Staff Recruitment and Training:

Staff are recruited in the open market on a contractual basis and are evaluated annually based on job performance. In-firm training/workshops/lectures are provided by staff to farm management and firms as requested.

Student and Alumni Employment and Training Placements:

Approximately 80 percent of the commercial/business graduates, 100 percent of the agribusiness/poultry graduates, and 50 percent of engineering graduates get jobs. Graduates are responsible for their own placement. Illustrative occupations of agribusiness jobs include: chicken,

cow, goat, buffalo/ranch supervisors, assistant supervisors, and controllers; crosscuts/food division supervisors, reproduction, and researchers; and dairy cattle/ranch breeding as well as production of milk extorting, growth, and processing.

Many firms test, then interview, students to determine their competency level.

Program Structure and Student Expectations:

Students spend a total of 2-3 months in a work experience, mostly working during the holiday periods following the semester. The agribusiness/poultry program is the only one in the Medan area; students in this program obtain their work experience at nearby large farms (within 10 kilometers) with supervision by both farm instructor and Politeknik staff. Programs are coordinated at the department level, practical skill experiences and tests are arranged by the farm instructor, and the farm provides a certificate at the completion of the work experience. Students are also given pre- and post-skill tests at the farm. Additionally, students acquire work-related experiences through arranged study tours to selected farms/firms/companies on a regular basis. The program has a 5 percent dropout rate with another 5 percent of students repeating. Agribusiness students take 2 semesters of business English, 2 semesters of computing, and 2 semesters of entrepreneurship.

New Student Recruitment:

Admissions tests are used to screen new applicants. Feeder schools, plus information and talks at local schools, also generate students. Needy students are identified based on application information, such as number of children, salary and jobs of parents, housing, and education.

Key ‘Best Practice’ Workforce Linkages:

- Linkages between training institution and farm management set a good example for agriculture-related work experiences and job placement.
- Linkages between training institution and government.
- Linkages to feeder schools.
- Special needs/low economic students receive partial scholarships (school and government); assistance provided to 20 percent of first year students with continuation based on academic performance after the first year.
- Recognized regionally for outstanding agribusiness/poultry program.

Case Study 7: Balai Besar Latihan Kerja Industri Medan

Key Personnel:

Instructor/automotive: Siregar; Instructor/woodworking: Awaluddin Siregar

Contact Information:

Jin. Gatot Km. 7.8, Medan
Tel. (061) 8461520

Institutional Profile:

Established in 1959, Balai Besar Latihan Kerja Industri Medan is located about 25 minutes from Medan city center. (Note: The original facility was built by the Dutch, who also provided equipment, technical assistance, and short-term training in Netherlands for staff.) Its mission has changed, pursuant to regulations of Ministry of Manpower and Transmigration, most recently on March 15, 2006, from a Politeknik to a vocational training school. The current mission is to be of use to other institutions, organizations, companies/industries, and related parties in upgrading skills and competencies of employees, such as training, productivity development, competency testing, and empowerment. The Medan center is the largest of the 11 Ministry of Manpower training centers. Note

that there is another center in Banda Aceh. The Medan certificate program has external association certifications.

- Fees for 3-month training = ~Rp 750,000 (\$83.40)

Student and Alumni Employment and Training Placements:

Seven hundred workers from industry provided with upgraded skills in past year (20 companies); trainees return to their workplace. Offer 1-3 month programs; also provide 3-month informal basic skill training topped off with entrepreneurship training from another program (e.g., automotive engineering mechanics) for unemployed locals, who then typically go into self-employment.

Program Structure and Student Expectations:

Programs are competency-based with trainee receiving pre-test and assigned into a program; outside/independent assessors from local companies/ industry are used to assess skill-sets according to specified performance criteria and certification requirements. Skill-sets are competency-based and defined with detailed learning activities, performance criteria, and indicators for assessment (3 books for each skill-set—knowledge information, competencies, and evaluation). Facility includes a production training center for woodworking/furniture-making. Illustrative skill-sets:

Skill-Sets by Field:

Welding: competency: understanding of program materials and use of tools and techniques; *learning activity:* preparation for welding, road drawing, choose tools for welding; *source:* welding metal book/manual; *performance criteria:* able to do doormat welding, able to explain work drawing and specifications, able to select kind of material for welding, able to choose tools for cleaning and assemble, able to operate welding machine, able to do process welding

Small Vehicle Automotive: competency: testing battery; *learning activity:* attend lecture and observe demonstration; *source:* battery manual; *performance criteria:* know standard operations procedures, know information from industry and specifications, and choose tools for testing, conduct testing and analysis

New Student Recruitment:

MOUs are signed with companies/industry from the region including North Sumatra, Aceh, Riau/Riah Islands, and West Sumatra; dormitory facilities are available for up to 200 trainees; informal program trainees selected from local applicants who haven't worked, usually graduates from senior-level vocational schools (ages 21-25); selected cohorts of Aceh trainees were provided with reconstruction training skills.

Key 'Best Practice' Workforce Linkages:

- Foreign donor contributions (Dutch) were critical to the initial building construction, laboratory equipment, and training (in-country technical assistance and short-term training in the Netherlands).
- Training center has a set of competency-based skills for each of its vocational program skill areas; learning activities, performance criteria and indicators have been developed under the coordination and supervision of the Ministry of Manpower with assessors provided from the companies—great partnership.
- Center has excellent relationships with the various industries in the region as it cooperatively works with these companies to provide short-term (up to 3 months) training for workers from the companies.
- Center has an excellent production training center; wood-working training is provided and furniture produced and shipped internationally.
- Center had more than 20 MOUs with industry this past year.

- Center provided short-term reconstruction training for trainees from Aceh this past year, showing responsiveness to a regional need.
- Center has a dormitory that can accommodate up to 200 trainees; this allows for on-site short-term training accommodation, an asset to any program.
- Center provides short-term training to unemployed 21- to 25-year-olds, excellent responsiveness to a local need.

Case Study 8: Politeknik Caltex Riau, Pekanbaru

Key Personnel:

Head: Syaifuddin Abdullah; Acting head: Didad; Assistant director of student affairs: Sugeng Purwantoro; Assistant director for cooperation: Dadang

Contact Information:

Politeknik Caltex, Riau (Pekanbaru)
Tel. (062) 761944626, (062) 761554224

Institutional Profile:

Established in 2001, Politeknik has 3-year diploma programs (computer technician, electronic technician, telecommunication technician, mechatronics technician, accounting) and 4-year programs (multimedia information, industry system information, electron telecommunication technician). Competency-based instruction less defined in IT area because of Indonesia tendency to certify other subjects. The construction and start-up of this center has been partially supported by the Chevron Foundation.

- 520 students, 40 percent female
- Staff are young, new to teaching, and have less experience with competency-based instruction.
- 18 instructors and 33 lecturers
- Dormitories accommodate 50 trainees.
- Four assistant directors including one for cooperation, all promoted from within
- Fees, books, and materials = Rp 12 million (\$1,334.40)/year. (Public university charges Rp 6 million (\$667.20) /year.)

Note: Politeknik contracts for projects and conducts short-term training for Chevron to generate additional funds; has production furniture training center, which is managed in conjunction with a course for institution use only, as furniture is not sold on open market.

Student and Alumni Employment and Training Placements:

This past year, the 120 graduates had an 80 percent employment rate. About 20 percent found jobs abroad and 60 percent in-country. Some graduates continue their education and transfer to the university, but either way the graduates are on their own for work experience and job placement. These have to be cleared through the Office of Cooperation. The Politeknik has a few MOUs with industry; about 20 percent of the graduates were placed with Chevron this past year, with over 100 total placed since the program began. Typical occupations are junior engineer, junior accountant, or technician. Human Resources office stays in contact with graduates via Internet/computer website linkage. There is some follow-up with the employer as to job satisfaction with the graduate. Prospective employers test the job seeker, use interviews, check their academic performance, and use group simulation to check attitude and ability to work as a team member.

Staff Recruitment and Training:

Staff are young, bright, high-energy; they typically have five years of university, but little experience in industry. They are recruited on the open market on a contractual basis and assessed on performance. If performance is satisfactory, they can become permanent. After five years the staff member is eligible for a 20-year Rp 70 million house loan through Caltex/Chevron. Instructors/lecturers receive a salary above that of a comparable staff member in the university. The director, who has 23 years with Caltex/Chevron, including six years at the Politeknik, led the initial team that designed and built the Polytechnik and has directed its program from the beginning.

Program Structure and Student Expectations:

Students are provided with career awareness and workplace orientation, along with communication skills and team-building activities (in-class and outbound). A 2- to 3-month work experience is included in the program after the fifth semester of the 3-year diploma or the sixth semester of the 4-year diploma. The student arranges his/her own work experience, which can be in any location. Placements are arranged between the student and the on-the-job supervisor with the agreement of the Office of Cooperation. On occasion, two-day study tours are arranged over a weekend. The Politeknik has a production training center in furniture-making in which all students participate as a part of a formal course. Also, students take six semesters of English. Caltex provides its own certification, which is typically recognized as a higher level of certification than the national certification. In some instances, though, a graduate will be required to take the regular certification test. In order to maintain the high quality of training, computer equipment is replaced every three years.

New Student Recruitment:

Highly selective admission through testing and interviewing. About 120 students are selected each year, with an increase in admissions planned for the coming year. Most applicants are fresh out of high school, but a few (5-8 percent) are one to two years out of school. These are typically students who decided to go to the university and then changed their mind and decided to attend the Politeknik too late for the current school year. Scholarships are provided to the top Riau students, and five top students from each of 11 districts are identified in Riau, using letters of recommendation from the high schools, a writing test, and an interview at the district level. Potential candidates are brought to campus. Full scholarships (Chevron) are offered to the top three candidates and partial scholarships to others. Over the past two years, 50 trainees from Aceh have participated in the program.

Key 'Best Practice' Workforce Linkages:

- Separate coordinating position for Cooperation.
- Staff are evaluated based on performance and are contractual.
- Signing of MOUs with business and industry for projects and short-term training.
- Institution in touch with graduates via Internet/computer website linkage, personal contact, and telephone.
- Follow-on career placement available for graduates.
- Foreign donor human, material, and financial resource linkage.
- Good relationship with Ministry of Higher Education.
- Supports community projects—playground/park and school.
- Recruitment highly selective; linkage with schools/district offices in selection.
- Provides scholarship assistance as incentive to highly qualified students.
- High-tech focus helps institutional credibility/recognition of program quality.
- Trainees provided with team-building activities (in-class and outbound).
- Attractive physical plant and grounds adding to positive impression made on external public and incoming students.
- Quality staff—young, highly educated, and high-energy—adds to positive image.
- No-smoking policy on campus adds to quality of institution projected.

Case Study 9: Sekolah Usaha Perikanan Menengah (SUPM) Negeri Tegal, Besar Aceh

Key Personnel:

Director: Muda Syah; Teacher/mechanical: Zulficar

Contact Information:

Jin. Laksamana Malahayati KM. 27 Ladong-Aceh Besar
Tel. (0852) 77020389

Institutional Profile:

Fisheries High School (SUPM) Negeri Tegal is located 45 minutes from Banda Aceh. Originally established in 1988 as a business school, it reported through Ministry of Agriculture. In 2001, that changed to the Ministry of Maritime and Fisheries, and SUPM became the senior-level vocational high school in maritime and fisheries (1 of 8 in Indonesia).

- Dormitory for 270 students, housing for staff
- Three-year school with on-the-job training
 - One month in years one and two, and four months in year three, which is overseas or in private sector
- Students wear immaculate navy-designed uniforms
- Fully supervised schedule daily
- Ages 16-18 with 30 percent female
- Fees and materials of Rp 21,000 (\$2.35)/month
 - A few government foundation scholarships awarded at Rp 31,000 (\$3.45) /month for the top students
- Physical plant and grounds well-kept

Student and Alumni Employment and Training Placements:

Graduates are able to get jobs in the maritime and fisheries industry and canning factories, Korean and Japanese fishing fleets, or working on ships and in seaports. About 15-20 percent go on to post-secondary education with the other 80-85 percent getting jobs.

Program Structure and Student Expectations:

Programs are fisheries and maritime-based with an entrepreneurship program during semesters three and four. Six semesters of English, computers sector-integrated, and Japanese-language training two hours/week every semester. Students receive two certificates: graduate of school and technical certification in either fisheries, mechanical, or aqua-cultural, based on test given by a government official from Jakarta department of training. Work-study program in which company provides orientation and training and teacher and company supervise the student; head of department of public relations arranges the work experience. Well-equipped labs with good practical experience provided. Faculty have D4 certificates with work experience, including management.

New Student Recruitment:

Out of 200 applicants, 147 accepted for admission, from throughout Aceh, based on knowledge and ability test, physical, and interview.

Key 'Best Practice' Workforce Linkages:

- Work experience program has linkages to Japan and private industry with MOUs and active on-the-job employer/supervisors.
- Certificate-based testing with an independent assessor from national government.

- Institution has full-time public relations person actively involved with foreign and domestic private sector relations.

Case Study 10: Post-Secondary Programs in Banda Aceh

Included is information on three post-secondary training providers (public/university-mechanical engineering, public/short-term vocational training/engineering, and private/academics-computers). All are within the city limits of Banda Aceh. The key linkage is to explore any affiliations that might be arranged between the post-secondary institutions and the proposed Chevron Polytechnic: for example, students may be interested in transferring to the University to pursue an engineering degree or to take courses that supplement their program at the Polytechnic.

10a: Syiah Kuala University, Banda Aceh

Key Personnel:

Head/Mechanical Engineering: Muhammad Dirhamsyah; Deputy: Fuadi Noor Balia; Consultant: David Sandler

Contact Information:

Syech Abdul Rauf No 7, Darussalam, Banda Aceh 23111
Tel. (062) 6517428420

Institutional Profile:

Syiah Kuala University is public, and its program is monitored by the Ministry of Higher Education's Mechanical Engineering Department. The university was established in 1977.

- 12,000 students
 - Mechanical engineering
 - Has 824 students with 5 percent female
 - 45 staff: 7 Ph.D., 27 masters and 11 undergraduate; 9 mechanical engineering professors passed away in the tsunami
 - Salaries are low, at Rp 200-250/thousand (\$22.24 -\$27.80) a month, so motivation of faculty is low. Many have second jobs
- Institution needs maintenance; some buildings suffered damage from earthquake.
- Outreach/cooperation project with key clients including NAD provincial government, International Board of Indonesia, Desa Rabo Pulo Aceh, Asbisindo project, Public Electric, and KADIN
- Fees and materials = Rp 6 million (\$667)/year

Student and Alumni Employment and Training Placements:

Graduation class: 60-70 percent get jobs, though graduates are mostly employed outside of Aceh, in Jakarta, Medan, and Pekanbaru.

Program Structure and Student Expectations:

Mechanical engineering degree/undergraduate program is 5 years, but students have 7 years to complete the program before they are dropped. There is a two-month work experience program after the fifth semester. Quality of program is low due to lack of funds: tsunami and years of civil strife. Accordingly, much of lab equipment that was provided by German government in 1992 is now old. Some equipment donated by UN. Labs were not in good shape. Civil engineering program is stronger because of the current building construction related to the tsunami.

Proposed programs for the future: environmental, geology, and industrial engineering to better respond to district needs in the areas of design, manufacturing, and energy.

New Student Recruitment:

Locally recruited (97 percent). Low expectation for students, students who cannot get into one of the better engineering programs in Indonesia go to Syiah Kuala. Students are mostly from Aceh or have a connection to Aceh.

Key ‘Best Practice’ Workforce Linkages:

- Some outreach linkage to local communities and firms.

10b: Balai Latihan Kerja (BLK) Banda Aceh**Key Personnel:**

Head/training: Syaiful; Instructor/electric: Abdullah; Instructor/woodworking: Rusdi;
Instructor/automotive: Ruswan

Contact Information:

JL. Satria No. 3, Komplek Geuheu, Banda Aceh
Tel. (0651) 7406864

Institutional Profile:

BLK Vocational Training Center was established 1979. It is a public institution monitored by the Ministry of Manpower.

- 16 programs that are short-term only (1 week or 6 months)
 - Some open to public and some targeted to industry
- Some equipment provided by Japan
- 917 participants this past year
- Equipment/shops were clean and organized
- Dormitory accommodations
- No fee for public, it only charges for upgrade training provided to industry.
- Due to decentralization, the program is now reporting at the provincial level and receiving fewer funds
- MOUs for training of workers with specific companies

Student and Alumni Employment and Training Placements:

Trainees are able to find work in Banda Aceh and at the district level; students find their own employment.

Program Structure and Student Expectations:

Females are 20 percent in electrical courses, but few in any of the other programs. A mobile unit can provide training onsite in districts in response to local need. Only the 6-month program has an on-site work experience associated with it (3 months), which is supervised by the employer. There are no funds for instructors to visit the on-site training. Upgrading of instructors provided in Bandung, Salatiga, TOT Jakarta.

Key ‘Best Practice’ Workforce Linkages:

- Responsive to districts/local demand; courses offered based on identified need.

10c: Lembaga Pendidikan Dan Pengembangan Profesi Computer/Indonesia (LP3KI) - Banda Aceh

Key Personnel:

Owner: Zulfayanah; Director: Rozali

Contact Information:

Jl. Dhama No. 20 Kp. Laksana & Jl. Durain No. Kp. Kramat - Banda Aceh

Tel. (0651) 24155

Institutional Profile:

A private academic institution established in 1991 that offers a short-term computer-training program. Trainings are for three days, or one or one-and-a-half months, plus one-year, two-year, and three-year programs. A planned three-year program will include computer programming.

- 150 students; 50 percent female
- MOUs with business/firms for 3-month on-the-job training that follows the class work
- Materials and fees = Rp 1.1million (\$120) /year

Student and Alumni Employment and Training Placements:

Student employability is 90 percent, with jobs located throughout Indonesia. Students find their own job, and many are able to turn their on-the-job experience into employment. Students who decide to start their own business are mentored by LP3KI owner, at a fee, . Career follow-up is provided via telephone.

Three-month on-the-job training supervised by director and owner. The student makes a job-training report and receives test at end of on-the-job training, prior to receipt of certificate. Some students are extended in their job training experience to improve their skills prior to graduation. Government officials and company management attend certificate ceremony.

New Student Recruitment:

Open enrollment with students coming from Banda Aceh and other cities and towns in Aceh and North Sumatra.

Key 'Best Practice' Workforce Linkages:

- MOU linkage with business and industry for on-the-job training.
- Follow-up of graduates and employer relative to job satisfaction.
- Program flexible, can be adapted according to demand/firm needs.
- Government officials and company management attend graduation/certificate ceremony.

C-3. LIST OF DEMAND-SIDE PARTNERSHIP DEVELOPMENT STRATEGIES

The following list incorporates the best practices identified in Appendix C-2 of this report and combines them with other strategies for workforce development partnerships. The list is divided into two themes, the first of which is targeted to national agencies, institutions, business, and industry, as a group. The second theme is targeted exclusively to formal and informal training institutions, so that they can begin to monitor the responsiveness of their programs. Theme 2 is divided into the following subgroups: Linking Training Institutions to Communities; Developing Links to Business and Industry; Strengthening Administrative Development; Programs and Practices for Staff Development; Programs and Practices for Student Development; and Specialized Student and Staff Recruitment Strategies.

This list could be used to assess the status of current workforce linkages and to determine future goals and strategies. One recommended setting for such an assessment is a professional development and training workshop with institutional leaders and staff.

Theme 1: Nationally Linked Partnerships

- Develop joint responsibility among National Boards, professional associations, training institutions, and business and industry to develop and teach competency-based skill standards.
- Link professional associations to workplace skill-certification and workforce competency-based assessment with external assessors.
- Link foreign-donor supported workforce-training efforts to workforce development. For example, JICA provided mini-plant and related laboratory equipment, technical assistance, and short-term training of staff in Japan (6 months); Dutch government supported building construction, laboratory equipment/procurement, and staff training; and Caltex provided labor, material, and financial resources).
- Certification is competency-based and industry-prepared.
- Develop competency-based skills within skill areas (e.g., learning activities, performance criteria, and indicators with independent assessors).

Theme 2: Organizational Development for Training Institutions: Building Responsive Programs

Group A: Linking Training Institutions to Communities:

- Advisory boards that represent stakeholders.
- Budgeted, line-item position dedicated to industry cooperation.
- Guidance and counseling unit that assists students with career counseling; personal and developmental needs; and job information.
- Signed business-industry MOUs for arranged work experiences.
- Training/testing center partnerships (e.g., Test of English for International Communication (TOEIC) located on-site with training provider).
- Grassroots linkages and trainings available, especially in remote areas and marginalized communities.
- Production training centers that provide training and generate institutional revenue through production and distribution of products (e.g., furniture).
- Demonstrated community-based social responsibility, such as short-term training for needy trainees (e.g., Aceh reconstruction).

- Training centers that have on-site training and dormitories for students from remote areas or who lack transportation access.
- Short-term training for unemployed, (e.g., among 21– to 25-year-olds with elevated unemployment rates).
- Building parks, playgrounds, and schools for healthy, educated communities.
- Attractive physical plants that are clean, healthy facilities (e.g., no smoking on premises) that convey a good, positive image.

Group B: Developing Links to Business and Industry:

- Campus visits by business and industry to interview job seekers.
- Business- and industry-provided screening tests, followed by interviews with job seekers.
- Communications between business and industry and training providers, in order for them to prepare students for current and anticipated job needs (e.g., job titles, job descriptions, salaries, and training and educational requirements).
- Communications between private sector firms and training providers, in order to build necessary skills training for students.
- Training institution passes labor market information to students and assists with their job placement.
- Training institution maintains contact with alumni to assist in job placement (e.g., via Internet/website linkage or personal contact information such as address and telephone).
- Training institution maintains contact with new workplace-entrant alumni, through workplace supervisor via telephone and/or on-site visit after placement, to check on performance.
- Follow-up career information and new placements for alumni available, as necessary, from training provider.
- Industries train professional association members on product development.
- Training institutions and local firms (e.g., farm management) partner to provide agriculturally related work experience, job placement, and rural economic development support.
- Training institutions develop and use quantifiable performance indicators to track program impact.

Group C: Strengthening Administrative Development:

- Institutional strategy sets targets and has flexibility to offer new demand-driven courses and to terminate courses deemed obsolete by business and industry.
- Training-institution staff and, when possible, workplace supervisor to monitor on-site student work experiences.
- Flexible scheduling of classes, workshops, and presentations to accommodate student needs.
- Staff contracts consist of performance-based evaluations.

Group D: Programs and Practices for Staff Development:

- Short-term (e.g., one-week) study visits to business and industry.
- Industry exchange programs that enable students to work for up to 3 months in a business or industry.
- Short-term, subject-specific trainings by alumni working in businesses and industry.

Group E: Programs and Practices for Student Development:

- Offer provider-assisted placements in the workplace, which have the potential to turn into full-time jobs. Note: A typical placement lasts two to three months, but the Ministry of Industry arranges a two-year placement for its students.

- Offer presentations on career awareness and motivation by program alumni (e.g., Saturday-morning coffees).
- Offer presentations by businesses, industry, and private sector on various topics of workplace orientation.
- Employability skills such as teamwork and communication.
- Entrepreneurship, organizational, and management skill development required.
- Two or more semesters of business English required.
- Two or more semesters of integrated, sector-specific computer applications required.

Group F: Specialized Student and Staff Recruitment Strategies:

- Hire young, highly educated, high-energy staff for fast-developing IT areas.
- Hire management and staff with industry experience.
- Develop quotas to create a diverse student body (e.g. female:male, rural:urban, regional representation, etc.).
- Demonstrate social responsibility through use of firm-sponsored scholarships for poorest students.
- Develop flexible scheduling to allow for combination work and schooling programs.
- Work with feeder schools and districts to establish information sharing and recruiting visits.
- Use tests, interviews, and recommendations for student admission.

Appendix D: Youth Workforce Statistics

Table 1. Percentage of Population by Districts and Education Attainment

Districts/Cities	Education Attainment						No Answer	Total
	Never Go to School	Drop out Primary	Finished Primary	Junior High	Senior High	University		
Simeulue	3,116	15,371	27,515	12,763	8,049	1,402	732	68,948
Aceh Singkill	12,343	43,826	38,063	17,495	12,937	2,011	1,029	127,704
Aceh Selatan	11,741	46,036	53,332	30,495	22,879	4,488	1,327	170,298
Aceh Tenggara	10,780	38,285	35,649	33,003	28,311	3,286	959	150,273
Aceh Timur	15,764	69,476	102,279	47,991	24,852	3,468	1,510	265,340
Aceh Tengah	6,699	31,035	39,057	29,324	29,608	5,975	299	141,997
Aceh Barat	10,482	31,266	39,872	24,791	23,030	4,707	2,263	136,411
Aceh Besar	12,230	53,110	58,844	52,482	63,623	14,722	-	255,011
Pidie	32,273	101,858	116,387	92,932	65,589	14,811	-	423,850
Bireuen	15,952	65,553	98,998	68,165	50,140	10,707	3,499	313,014
Aceh Utara	24,334	115,507	154,459	79,337	48,421	9123	2,642	433,823
Aceh Barat Daya	7,984	29,575	33,993	16,297	13,056	2,522	901	104,328
Gayo Lues	8,847	20,468	18,200	9,298	5,629	1,395	144	63,981
Aceh Tamiang	10,384	51,999	69,001	37,926	33,440	4,695	2,280	209,725
Nagan Raya	11,722	28,800	33,238	19,924	12,572	2,478	3,230	111,964
Aceh Jaya	4,333	13,298	19,821	9,823	4,502	979	951	53,707
Bener Meriah	3,846	19,196	29,958	22,845	16,043	2,292	429	94,609
Banda Aceh	3,036	18,572	17,131	23,491	76,107	21,433	1,739	161,509
Sabang	1,030	3,936	5,593	5,418	7,493	1,941	-	25,411
Langsa	4,261	23,434	28,660	22,327	33,609	7,445	-	119,736
Lhokseumawe	5,615	25,387	33,910	26,323	36,939	8,335	242	136,751
Total	216,772	845,988	1,053,960	682,450	616,829	128,215	24,176	3,568,390

Source:: BPS, 2005

Table 2. Total Number and Percentage of Population by Age and Education Status

Age Group	Never Go to School		Still in School		Not in School Anymore		No Answer		Total	
	Persons	%	Persons	%	Persons	%	Persons	%	Persons	%
Laki-laki										
7-12	6,362	2.27	264,809	94.67	7,421	2.65	1,120	0.40	279,712	100
13-15	1,000	0.71	120,629	86.14	17,666	12.61	747	0.53	140,042	100
16-18	1,101	0.81	83,816	61.76	49,894	36.76	902	0.66	135,713	100
19-24	2,760	1.23	39,439	17.53	180,914	80.43	1,830	0.81	224,943	100
Total	11,223	1.44	508,693	65.18	255,895	32.79	4,599	0.59	780,410	100
Perempuan										
7-12	5,859	2.23	248,779	94.77	6,827	2.60	1,034	0.39	262,499	100
13-15	970	0.72	117,214	86.78	16,136	11.95	744	0.55	135,064	100
16-18	1,107	0.82	85,451	63.20	47,735	35.31	907	0.67	135,200	100
19-24	3,558	1.47	46,026	19.08	189,582	78.58	2,089	0.87	241,255	100
Total	11,494	1.48	497,470	64.27	260,280	33.63	4,774	0.06	774,018	100
Laki-laki + Perempuan										
7-12	12,221	2.25	513,588	94.72	14,248	2.63	2,154	0.40	542,211	100
13-15	1,970	0.72	237,843	86.46	33,802	12.29	1,491	0.54	275,106	100
16-18	2,208	0.82	169,267	62.48	97,629	36.04	1,809	0.67	270,913	100
19-24	6,318	1.36	85,465	18.33	370,496	79.47	3,919	0.84	466,198	100
Total	22,717	1.46	1,006,163	64.73	516,175	33.21	9,373	0.60	1,554,428	100

Source: BPS, 2005

Table 3. School Participation Rate by Districts and Age Group

No	District/Cities	7-12 Years	13-15 Years	16-18 Years	19-24 Years
1	Simeulue	93.76	82.93	61.87	11.48
2	Aceh Singkill	94.85	82.34	54.95	8.64
3	Aceh Selatan	96.42	88.82	65.44	11.25
4	Aceh Tenggara	95.23	89.73	68.16	13.42
5	Aceh Timur	94.35	79.22	48.44	9.90
6	Aceh Tengah	93.94	87.02	65.00	14.09
7	Aceh Barat	90.69	83.91	60.09	15.35
8	Aceh Besar	95.68	90.28	71.42	26.78
9	Pidie	95.38	88.33	63.04	18.17
10	Bireuen	93.21	87.45	63.90	17.56
11	Aceh Utara	95.95	87.65	63.46	16.23
12	Aceh Barat Daya	92.82	84.52	55.19	11.09
13	Gayo Lues	95.96	80.32	50.52	9.69
14	Aceh Tamiang	96.19	84.76	57.28	10.55
15	Nagan Raya	91.68	80.22	55.01	13.85
16	Aceh Jaya	87.99	77.59	50.32	11.82
17	Bener Meriah	96.60	88.51	63.20	10.41
18	Banda Aceh	95.64	92.22	78.16	51.18
19	Sabang	96.82	94.36	70.35	10.88
20	Langsa	96.11	90.15	67.04	16.44
21	Lhokseumawe	93.25	88.85	69.89	22.17
All Provinces		94.72	86.46	62.48	18.33

Source: BPS Propinsi NAD, 2005

Appendix E: Youth Focus Group and Protocols

The following details the information from the seven youth focus groups that were conducted as part of the interviews with youth. The table below presents the schedule for these focus groups by time, group identification, location, number in group, and gender.

FGD NO	Date	Time	Group Identification	Group Location	No. of Pax	Sex (M/F)
Y1	20-Mar-07	PM	Youth Students	Polytechnic Medan (Public)	10	F=8; M=2
Y2	21-Mar-07	AM	Youth Students	Polytechnic MBP Medan (Private)	7	F=3; M=4
Y3	24-Mar-07	AM	Youth Workers	Malaya Taylor, Banda Aceh	7	F=1; M=7
Y4	25-Mar-07	AM	Parents	Krueng Raya (Fisherman Village)	8	F=8
Y5	25-Mar-07	AM	Out-of-School Youth	Krueng Raya (Fisherman Village)	7	M=7
Y6	26-Mar-07	AM	Workers	Andalas Cement Factory (Lhoknga)	12	F=1; M=11
Y7	26-Mar-07	PM	Youth Students	Faculty of Mechanical Engineering University of Syiah Kuala, Banda Aceh	11	F=1; M=10

GUIDELINES FOR FOCUS GROUP DISCUSSION (FGD)

A. YOUTH – WORKERS (2 groups: male and female)

Youth workers will be recruited from one or more companies. Two groups consisting of maximum 8 male and 8 female workers respectively will be identified with the assistant from the management of the company.

Location:

- Medan
- Banda Aceh

Objective:

- to have a picture about experiences of workers entering the job market and retaining jobs over time
- to get information about the length of time for new entrants to get jobs
- to know whether jobs match education and skill levels

Questions/issues:

1. Introduction: when do you finish education? When do you start to search for a job?
2. Could you tell me your (own) experience in searching for a job? How about the job you are doing now?
Probe: how long for searching, how long have you been staying for this job (the latest)
3. Could you tell me your experience when you first doing your job?
Probe: how did your knowledge and skills (education) match with your job (position), do your company provide (more) training, what kind of training?
4. How do you retain in the (latest) job?
5. Could you tell me what is your expectation related to the job you retain?

B. YOUTH – STUDENTS (OF POLYTECHNIC INSTITUTIONS)

Youth – students will be recruited from one or more polytechnic institutions. Three groups consisting of maximum 8 male and 8 female students respectively will be identified with the assistant from the director or faculty member.

Location:

- Medan
- Banda Aceh

Objective:

- to know the aspiration of youth about the future (job)
- to identify who influence youth in choosing study program

Questions/issues:

1. Introduction: when did you finish high school? Where and in what subject/study field?
2. How do you like the study (program) that you are in now?
Probe: who influence you to choose, why do you yourself choose this program, from whom/where s/he knew about the study program

3. What is your expectation after you finish education?
4. Do you have any ideas/suggestion about type of skills that students like you should have to prepare themselves to work?

C. YOUTH – OUT-OF-SCHOOL

Out-of-school (dropout) youths who already have been working (in various sectors?) male and female separately recruited with the assistant from one or more (youth) NGO.

Location:

- Banda Aceh

Objective:

- to identify obstacles / reasons youth terminate education
- to get information about the skills needed to reconnect to job market and retain in the job

Questions/issues:

1. Introduction: "Interrupted Journey"
2. Could you tell what kinds of obstacles can young people like you encounter that may cause them to leave formal education?
3. Could you please rank from the most important to least important?
4. How do they, young people like you, overcome these obstacle and reconnect with job market (doing the job you have now) ?
5. How do you retain in this job? (How long have you been in this last job?)

D. PARENTS

Mixed group of fathers & mothers who have their youths in senior or tertiary level of education. The recruitment of parents with the assistance of polytechnic institution or NGO (?)

Location:

- Banda Aceh

Objective:

- To know the role / influence of parents in education (choosing study program)

Questions/issues:

1. Could you tell me your opinion about education? (*check the same opinion for male and female children*)
2. What is your expectation when your children finish education? (*check the same opinion for male and female children*)
3. Do you think your children will be as you expected? Why?
4. Looking to the situation and condition in Aceh recently, do you have any suggestion or opinion related to education and training?

SUMMARY OF YOUTH FOCUS GROUPS

Youth - Students

ISSUES	Y1	Y2	Y7
<i>Group identity</i>	<i>Polytechnic Medan (Public)</i> <i>F=8; M=2</i>	<i>Polytechnic MBP Medan (Private)</i> <i>F=3; M=4</i>	<i>Faculty of Mechanical Engineering, University of Syiah Kuala, Aceh</i> <i>F=1; M=10</i>
Know polytechnic/field of study from	<ul style="list-style-type: none"> ▪ relatives: uncle ▪ parents ▪ brother ▪ teachers in high school: economic, class teacher ▪ tutor 'bimbingan' (who also teaches in the polytechnic) ▪ friends 	<ul style="list-style-type: none"> ▪ brother ▪ relatives: uncle ▪ friends ▪ promotion from the polytechnic to senior high schools ▪ does not pass university entrance test 	<ul style="list-style-type: none"> ▪ teacher in senior high school <i>(promotion tour from the institute to senior high schools)</i>
Person/individual influenced in choosing the field of study	<ul style="list-style-type: none"> ▪ parents ▪ brother ▪ consultation with class teacher 	<ul style="list-style-type: none"> ▪ parents ▪ uncle ▪ friends 	<ul style="list-style-type: none"> ▪ parents ▪ individual youth her/himself
Future aspiration <i>(before enrolled in the recent program)</i>	<ul style="list-style-type: none"> ▪ technical industry ▪ medical doctor ▪ psychology ▪ law school ▪ computer programmer ▪ civil engineering 	<ul style="list-style-type: none"> ▪ journalist ▪ musician/singer ▪ white collar workers 	<ul style="list-style-type: none"> ▪ medical doctor ▪ mechanical (engineering) ▪ architecture (car modelling) ▪ Informatics
Future aspiration <i>(now - during the study of the respective program)</i>	<ul style="list-style-type: none"> ▪ working in a bank ▪ working in a leasing company 	<ul style="list-style-type: none"> ▪ musician ▪ to take care animals/giving medication ▪ white collar workers ▪ owner of agro-business 	<ul style="list-style-type: none"> ▪ working as mechanical engineering ▪ continue to pursue master degree in university abroad
Suggestion related to youths' need in increasing their skills	<ul style="list-style-type: none"> ▪ English course ▪ Computer (operating) skills 	<ul style="list-style-type: none"> ▪ based on individual's talent ▪ Computer (operating & programming) skills ▪ Automotive 	<ul style="list-style-type: none"> ▪ English course ▪ increasing skills related to agriculture ▪ relate training to labor market ▪ open collaboration with NGO or organization dealth with microfinance
Gender issues	<ul style="list-style-type: none"> ▪ more female students in banking, accounting, and bussiness; technic & engineering are male dominated ▪ parents do not allow girl children to go far from the homes/families 	<ul style="list-style-type: none"> ▪ musician is not appropriate for girls/women ▪ electronic is for boys 	<ul style="list-style-type: none"> ▪ mechanical engineering is male dominated field of study ▪ girl/women used to choose or directed by parents to take faculty of medicine, nurse, or teacher

Youth - Workers

ISSUES	Y3	Y6
Group identity	<i>Malaya Taylor, Banda Aceh (Home Industry)</i> F=1; M=7; Age: 20 - 25 years	<i>Cement Andalas/Lafarge</i> F=1; M=11; Age: <25 years
Education level	<ul style="list-style-type: none"> ▪ Junior high School ▪ Senior High School ▪ Vocational School ▪ (still in) University 	<ul style="list-style-type: none"> ▪ Vocational School (technic) ▪ Diploma Program (telecommunication) ▪ Polytechnic ▪ University (socio-politics, mechanical engineering, electronic)
Length of work in the company	<ul style="list-style-type: none"> ▪ 3 months ▪ 1 to 2 years ▪ 2.5 years and above 	<ul style="list-style-type: none"> ▪ 6 years ▪ 10 years ▪ above 10 years (since the inception)
Experience in searching for a job	<ul style="list-style-type: none"> ▪ finish high school, go to the city (Banda Aceh), work with this home industry ▪ finish high school, apply to the university in Banda Aceh, do not have enough allowance, search for a job ▪ finish high school, stay with the brother's family in the city (Banda Aceh), working ▪ just want to move to the city because do not want to work as a farmer, searching for a job to earn more money that will be used to go/work abroad 	<ul style="list-style-type: none"> ▪ apply apprenticeship in the company, and becoming an employee after a year
Future aspiration	<ul style="list-style-type: none"> ▪ gain more funds to work abroad (as migrant worker) ▪ gain more funds to open his/her own business ▪ to continue education (in university) ▪ continue working 	
Suggestion related to youths' need in increasing their skills	<ul style="list-style-type: none"> ▪ English course ▪ Computer (operating) skills ▪ Agriculture related skills 	<ul style="list-style-type: none"> ▪ Agriculture related skills ▪ Technical skills ▪ Computer (operating) skills ▪ Telecommunication ▪ English and Mandarin Language
Gender issues	<ul style="list-style-type: none"> ▪ fixing the sewing machine is a man's job, women can't do it 	<ul style="list-style-type: none"> ▪ Mechanical Engineering is male dominated field, regarded as inappropriate work for women

Parents & Out-of-School Youth

ISSUES	Y4	Y5
Group Identity	<i>Mothers in fishermen village Krueng Raya, Aceh</i> F=8; Age: 26 - 48 years	<i>Out-of-School Youth Krueng Raya, Aceh</i> M=7; Age: 16 - 22 years
Daily job	<ul style="list-style-type: none"> ▪ drying fish 	<ul style="list-style-type: none"> ▪ caching fish (in the sea) ▪ boiling fish
Reason of not continuing education	<ul style="list-style-type: none"> ▪ no funds for tuition fee and other fee/allowance related to education ▪ no job market ▪ the children are not willing to continue because they are used to earn money by themselves 	<ul style="list-style-type: none"> ▪ no funds for tuition fee ▪ have many brothers/sisters ▪ parents died (because of Tsunami) ▪ no use of continuing education because of no job market ▪ prefer to work/earning a living
Future aspiration	<ul style="list-style-type: none"> ▪ Teacher (religion) ▪ Nurse ▪ Medical Doctor ▪ White collar workers ▪ Finish university education ▪ (Depends on the child) 	<ul style="list-style-type: none"> ▪ Police officer ▪ Civil Servant ▪ Open small business of processing dried fish by themselves
Suggestion/opinion related to education and training	<ul style="list-style-type: none"> ▪ Training skills needed by local companies (provide jobs after training) ▪ Depends on the children's will 	<ul style="list-style-type: none"> ▪ English course ▪ Computer (operating) skills ▪ Entrepreneurship skills ▪ Job should be provided after education or training provided

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Appendix G: Complete Contact Information and Schedule

March 30, 2007

Contact Details Assessment

Date / Time	Name	Position	Place
Monday 3-12-2007			
12.30 PM	Dr.Sutanto Suwarno.SE	Head of International Affair. Department of Labour	Hotel Nikko Jl.Thamrin Jakarta
3 PM	Andrea Osborne-Smith	Program Manager EDC/ USAID Indonesia DBE2 Project	BEJ Building Tower 2. floor. 14. Jl. Sudirman Jakarta Selatan
7 PM	Elizabeth Sunindyo	Education Specialist U.S. Agency for International Development (USAID) Jakarta, Indonesia	Hotel Niko Jl. Thamrin Jakarta
Tuesday 3-13-2007			
9 AM	David Ray	Team Leader Industry Value Chain Strengthening	Senada Project (USAID- DAI) Gedung .BRI 2 Jl. Sudirman Kav. 44-46 suite 805. Jakarta
10 AM	Pancar Simatupang	Senior Agriculture Economic Advisor	AMARTA Gedung BRI 2 Jl. Sudirman Jakarta
2 PM	Robert F. Cunnane Elizabeth Sunindyo Loretta Garden	Deputy Mission Director Education Specialist	USAID Indonesia American Embassy Jl.Merdeka Selatan 3-5 Jakarta 10110

Date / Time	Name	Position	Place
Wednesday 3-14-2007			
9 AM	Dr.Jossy P. Moeis Shaquil Azhar	Researcher Researcher	Institute for Economic and Social Research UI Depok
11 AM	Suprayogi Khairullah	Director of Regional II Leader of P3RIRRWANF Monitoring and Evaluation Specialist	BAPPENAS Jl. Diponegoro Jakarta
2 PM	Dr.Sutanto Sumarno.SE Yosep Sasmito I Ktut Cakra Fachrurozi B.Wisdoyo Puspita Candra Roehlan B Harmoko Massubiyanto Dopang Titin Supenti	Head Head of Division	International Affair Workforce Jl.Gatot Subroto Floor 4A. PAKLN Ministry Manpower and Transmigration
Thursday 3-15-2007			
8 AM 11 AM	Meeting Team <i>Gerry, Roehl, Hamid to Medan</i>		
Friday 3-16-2007			
8 AM	Dr. Suryamin	Manufacturing Sector Statistics	Badan Pusat Statistik (BPS) Jl.DR.Sutomo 6
9 AM	Dr.Bambang Heru,M.Sc	National Product Statistics	Badan Pusat Statistik (BPS) Jl.DR.Sutomo 6
11 AM Jakarta	Dr.Djoko Sutrisno	Director of Technical and Vocational Education	Diknas Gd. E 12-13 th floor Jl. Sudirman Jakarta
9 AM Medan	Zulkifli Lubis SM.Sibarani Ina Alnisah	Director Deputy 4 Secretaries Director	Polytechnic Medan Jl. Almamater 1 Kampus USU Medan

Date / Time	Name	Position	Place
9 AM Medan	Hendra Utama Hendy Sibuea Azwir Agus	Chief Exsecutive Administrative Legal Officer	KADIN Skip Baru 16 (samping Roti) Medan
2 PM	H.Mansur.ST. Halomoan SE Pilemon Bangun Rusfiarman SE Darni Paramita Henry Sitepu	Deputy 2 Administration Finance Education Instructor Instructor	Pendidikan Teknologi kimia Industri (PTKI) Jl. Medan tenggara VII Medan
Saturday 3-17-2007	<i>Caroline to Medan</i>	Send a letter for focus group	
9 AM	Syahril Wibowo Suparman	Director Head of Education Co. Placement	LP3I Jl. Gajah mada
9 AM	Reijn Meijer	General Manager	Dynea Mugi Jl.yos sudarso Km 10.5 Madar Medan
2 PM	Arnold Pangabea Binsar Nainggolan Syaiful Syiril Erwin Ari Togar Simatupang M.Koster Silaeng	Head Secretary Instructor Instructor Member Member Member	GABPEKNAS Jl.Sisingamangaraja 112 Medan
Sunday 3-18-2007	<i>Team Meeting (2PM)</i>		
Monday 3-19-2007	<i>Caroline to Jakarta</i>		
Tuesday 3-20-2007	<i>AM. Yustina to Medan</i>		
8 AM	Dr. Aden Gultom		BPS (Badan Pusat Statistik) Jl.Dr.Sutomo 6 Jakarta
9 AM	Patrick Kadian		Senada Gedung BRI 2 Jl. Sudirman Jakarta

Date / Time	Name	Position	Place
11 AM	Bambang Wardoyo		Puso,Atinaker, Balitfo Ministry Manpower and Transmigration
11 AM Jakarta	Supeno Djanali	Director of Institutional Development Directorate General of Higher Education Ministry National Education	DIKTI Wisma Aldiron suite 302. Jl.Gatot Subroto .kav.72 Jakarta
3 PM Jakarta	Firman Aji	Advisor Growth Economic	USAID
9 AM	Vastian	Human Resource Manager	Pasific Medan Industry Jl. Yos Sudarso Km 10.5 Belawan Medan
9 AM Medan	Safarudin Siregar Iswan Rahmadi	Executive Director Deputy Staff	BITRA Jl.Bahagia by pass 11/35 Medan
11 AM	Sean Stein Tom Delay	Consul Deputy	US Consulate American Medan Jl. Walikota 13. Medan
2-4 PM	Aceh Students 9 female, 2 male	Focus Group	Polytechnic Medan
3.30 PM.	Tohar Suhartono Purba Sumarsono	Deputy 2 Deputy 1 Member	AKLI Jl.Biduk 106 (Medan Plaza)
Wednesday 3-21-2007			
AM	Purba Rela Ginting	Acting Director Instructor	Polytechnic MBP (Mandiri Bina Prestasi) Jl.Jamin Ginting Padang Bulan.Medan
	Aceh Students 4 female, 4 male	Focus group	Polytechnic MBP
2 PM	Akbar	Head of Planning	BLKI Jl.Gatot Subroto Km 7,8 Medan
5 PM	Firmandez	Chamber of Commerce Aceh	Kadin Aceh Jl. Panglima polim 132-

Date / Time	Name	Position	Place
	Zulfan Arifin	Assistant Director Finance/ Novotel	134.Aceh 23122
Thursday 3-22-2007	<i>Gerry, Hamid to Pakanbaru (11) Yustina To Aceh (13.30)</i>		
Friday 3-23-2007	Aceh		
8.30AM	Ramang Basuki	Field Coordinator Representative	Sampoerna Foundation Sub-Office Jl. T.Ibrahim 5A Lamseupeng Banda Aceh
9 AM	Indrah	Human Resource Manager	Everbright Batteray Jl. Rasak 7 Medan
9.30 AM	Alfiatunur (Dedek)	Coordinator	Rotary Youth Club Jl.T.Ibrahim 5B Banda Aceh
11 AM	Parissara Liewkeat	International Program Manager	ILO Jl. Sudirman Mata Ie Lr.ikhlas 6 Aceh Besar
11 AM	Nadarajah Swaminathan	Operation Manager	Buana Multicorpora Jl.SM Raja 170 Medan
12 PM	Yuli Edi Syahputra	Director Program Manager	SEFA (NGO) Safe Emergency for Aceh Jl.poteumen Rohom. Sp.Pango No. 16 Lambhuk Uleekareng Banda Aceh
2 PM	Chaterin Wijaya	President	Growth Asia Jl. Yos Sudarso Km 10.5 Medan
4 PM	Johan Anton	Production Manager	Industri Karet Deli Jl. Yos Sudarso Km 8,3

Date / Time	Name	Position	Place
			medan
3.30 PM	Ria Fitri	Chairperson	Balai Syura Urueng Inong Jl.T.Imung Lueng Bata 11 Banda Aceh
2 PM P.Baru	Syaifuddin Abdullah Didit Sugeng Dadang	Director Acting Director Deputy 3 Deputy 4	Polytechnic Caltec Riau / Chevron Rumbai Pakan Baru
Saturday 3-24-2007	<i>Gerry, Hamid To Aceh (8.40 AM)</i>		
12 PM	Rotary Youth Club	Focus Group 1 female+ 7 male	Malaya Tailor Jl.T.Hasan Dek 102 Beurawa Banda Aceh
Sunday 3-25-2007			
9 AM	Rotary Youth Club	Focus Group Parents 8 Female + 7 Male	Krueng Raya Fisherman Village Banda Aceh
10 AM	Dr.Ir. Muhammad Dirhamsyah, MT	Head Of Mechanical Engineering Depatment	Syiah Kuala University Jl.Syech Abdul Rauf 7 Banda Aceh
5 PM	John Jobson Alfiatunur (Dedek)	Progress Recruitment Rotary International Coordinator RYC	Swiss-bel Hotel Banda Aceh
Monday 3-26-2007		Aceh	
8 AM	T.Mudasyah, SE Zulfikar	Director Instructor	Ladong Secondary School for Fishery Aceh Besar
9 AM	Amiruddin Latief	Senior Vice President Focus Group 1 Female + 11 Male	PT.Semen Andalas Lhoknga Aceh
11 AM	Zulfayanah Rozali	Commissaries Director	LP3KI (Lembaga Pendidikan Pengembangan Profesi computer Indonesia)

Date / Time	Name	Position	Place
			Jl.Dharma 20. Banda Aceh
2 PM	Dr.Ir. Muhammad Dirhamsyah, MT Ir.Fuadi Noor Balia.MT David Sandler	Head of Department Secretary Consultant International Board of Indonesia	Syiah Kuala University Jl.Syech Abdul Rauf 7 Banda Aceh
2 PM	Student 9 male, 1 female	Focus Group Mix Students	Syiah Kuala University Jl.Syech Abdul Rauf 7 Banda Aceh
3.30 PM	Syaiful Abdullah Rusdi Ruswandi	Training Program Electric Instructor Wood Instructor Automotive Instructor	BLK I(Balai Latihan Kerja) Jl.Satria 3 Banda Aceh
Tuesday 3-27-2007	<i>Aceh</i>		
9 AM	Soesmarjanto Soesmoko John Jobson Soepandi Dedek Rizal Alamsyah	BRR Progress Recruitment Representative RYC Coordinator RYC Field Officer Sampoerna Director Polytechnic Health	Rotary Youth Club Jl.T.Ibrahim 5B Lamseupeng Banda Aceh
9 AM	Svenja Paulina R Matthias Range	Principal Advisor Junior Expert	GTZ Jl.Sudirman 64 Banda Aceh
10 AM	Dr.Rachman Lubis Frank von Passen Andi Ikhwan Rik Frenkel	Chairman Infrastructure Expert Economist Team Leader	BAPEDA Jl.Daud Banda Aceh
Wednesday 3-28-2007	<i>Team to Jakarta</i>		
Thursday 3-29-2007			
11 AM	Team Meeting		
Friday 3-30-2007			
9.30 AM	Jim Hope	Director	Education Office

Date / Time	Name	Position	Place
	Mimi Santika Philips B. Tjakranata Tarmi Pujiastuti Caroline	Education Specialist Program Specialist Education Specilaist	USAID Indonesia American Embassy Jl. Merdeka Selatan 3-5 Jakarta 10110