EXECUTIVE SUMMARY

1. The objective of this report is to explore firm competitiveness, the investment climate and growth in Malaysia. The analysis is grounded in data from the Malaysia Productivity and Investment Climate Survey (PICS), a stratified random survey of 1,151 firms conducted by the Malaysian Department of Statistics and the Economic Planning Unit from December 2002 to May 2003 in collaboration with the World Bank. The objective of the survey was to identify the key constraints to competitiveness as perceived by the firms in the manufacturing and selected business support services sectors. A total of 902 firms in the manufacturing sector and 249 firms in selected business support services sector were surveyed. The core questionnaire on the investment climate covered issues related to the business environment. As Malaysia will need to shift from an investment led growth strategy to a productivity led growth strategy, the survey also probed firm’s perceptions of what is holding back productivity growth. Firms were asked to assess the skills and technology programs, the two pillars of productivity enhancing programs in Malaysia. Finally, as the services sector is expected to play a larger role in supporting future growth, business support services were also asked to assess the investment climate. The findings of this report served as inputs into the mid-term review of the Eighth Malaysia Plan, completed in October 2003. It is noted that the timing of the survey, which coincided with the invasion of Iraq and the outbreak of SARS, would have strongly influenced the perception of firms with respect to the macroeconomic environment and future growth. In addition, given that the survey was completed in May 2003, it certainly does not capture the full impact of the measures undertaken by the Government of Malaysia (GoM) in 2003 and the positive sentiment of investors that has followed the measures.

2. The firm-level analysis pointed to key concerns regarding the regulatory burden, skills shortages and weak innovation capabilities which could be addressed by the following recommendations: (i) to carry out a detailed assessment of the regulatory environment and make changes to reduce the regulatory burden; (ii) to accelerate tertiary education; (iii) to rebalance the economic and social objectives of the education policy; (iv) to further reduce restrictions on the import of skills; and (v) to scale up appropriate skills and technology programs. These measures are summarized in the matrix attached to this Executive Summary. If they are implemented, Malaysia could achieve its Vision 2020 and make the transition from growth based on factor accumulation to growth based on higher productivity.

3. The Government of Malaysia is acutely aware of concerns regarding the investment climate and skills shortages. In the past years it has taken active steps to reduce the regulatory burdens and streamline the business environment, with the objective of raising investment and growth. It has also taken steps to increase the supply of skilled workers and enhance the employability of the human resources. On May 21, 2003, the Government of Malaysia announced a four-pronged stimulus package intended to promote private investment, strengthen
competitiveness, develop new sources of growth, and enhance the effectiveness of public service delivery. In order to promote private investment, the Government has announced a variety of incentives for small and medium enterprises and has liberalized previous restrictions on foreign investment, particularly in the manufacturing sector. Most significantly, the Government has announced the elimination of restrictions on the fraction of manufacturing firms’ equity that can be held by non-Malaysians in the case of new ventures or the expansion of existing ventures. It has also significantly relaxed restrictions on the employment of expatriates in the manufacturing sector.

4. The impact of these actions is reflected in the recovery in domestic investment as well as FDI more recently. Both the applications for FDI in the manufacturing sector and FDI measured through the cash balance of payments showed significant increases in the second half of 2003. In addition, applications for domestic investment in the manufacturing sector doubled in 2003 compared to the level recorded in the previous year.

5. This report is structured as follows. The first two chapters provide an assessment of the investment climate. The last two chapters examine how productivity enhancing programs—skills and technology—have performed in Malaysia. The diagnosis is based on the survey data as well as on cross-country comparisons. Chapter 1 reports on the investment climate and firm performance in the manufacturing sector. Chapter 2 presents the findings on the investment climate and firm performance in the services sector. Chapter 3 examines skills performance, and the contribution of training and education to skills performance. Chapter 4 provides a diagnosis of the technological capability of firms. This report also identifies areas that require further work (e.g., carrying out a detailed assessment of key elements of the regulatory environment; undertaking a larger firm level survey to achieve a better assessment of the services sector as a source of growth).

The Investment Climate

6. A strong investment climate is needed to provide firms with incentives to invest, innovate, and grow. A good investment climate consists of an environment in which firms can realize their productive potential to grow, create jobs, and provide the goods and services demanded by consumers at home and around the world. This requires a sound macroeconomic environment, the availability of high quality physical and financial infrastructure, skills and technology, the existence of a legal and regulatory framework that promotes competition, and a governance environment that overcomes bureaucratic inefficiencies and enables firms to access the factors that they need in order to grow. The PICS extensively probed firms’ perceptions of the investment climate in which they operate. This report focuses on key aspects of the investment climate as identified by firms in Malaysia.

7. Malaysia’s investment climate compares favorably with the Asian countries in which PICSSs have been implemented. Malaysia’s investment climate is rated substantially better than that of even the most dynamic parts of China. Firms were asked to rate 17 different dimensions of the investment climate as a constraint to doing business. For every one of the 17 categories, firms in China are more likely than firms in Malaysia to rate the factor as a serious constraint. As another example, the number of days required to clear customs in Malaysia is three days, but the time required is over twice as long in China (Figure 1). The same is true when Malaysia is
8. **But not all is well with Malaysia’s investment climate.** If we look closely at firms’ responses, a consistent pattern of concerns emerges. Firms are concerned about (i) shortages of skilled workers, and (ii) regulatory burdens, as key adverse features of the investment climate. Consider, for example, labor market regulations. Firms note that the difficulty in hiring local workers, the regulations for hiring foreign workers and skill shortages are the reasons why they are understaffed. Firms face considerable uncertainty regarding the length of time required to complete bureaucratic procedures. For example, the time required to obtain a license from the land office is more uncertain than that required to obtain an import permit.
9. In addition, for the services sector, international comparisons with nearly 40 countries reinforce the firm-level finding that there is a relatively higher cost resulting from these regulatory burdens in Malaysia than that seen in most other countries. According to a WTO services trade restrictiveness index (constructed by assigning subjective weights and values that estimate the restrictiveness of the country’s trading regime for services based on the number and severity of restrictions), for most services industries, restrictions in Malaysia are greater than the averages for Asia, Latin America, and OECD countries. The cross-country evidence as well as the firm-level survey data all point in the same direction—to concerns about regulatory burdens as having a negative impact on the investment climate in Malaysia.

10. Regulatory impediments are especially harmful in Malaysia because they tend to be felt most by the best performing firms. The best performing firms in the manufacturing sector—large scale firms, exporters, or firms with FDI—voice strong concerns about regulation as an obstacle to their operations. Large firms, which have a better performance in terms of value added per worker (VAL) and total factor productivity (TFP), identify regulation as a very important obstacle to their operations relative to smaller firms. In fact, 90 percent of large firms complain about regulation. In particular, large firms face a heavy regulatory burden in terms of customs and labor regulations. Similarly, exporter firms, which also perform better in terms of VAL and TFP, are more concerned with regulation than non-exporter firms (see Figure 2). Firms with FDI, which have significantly higher VAL and TFP, also consider regulation to be a greater obstacle to their operations than is the case with domestic firms. Firms in the most dynamic regions (those in Peninsular Malaysia, especially in the south and west, which perform much better than those on the east coast, in Sabah and in Sarawak) voice more concerns about regulation. Finally, irrespective of size, export orientation, or level of FDI, firms identify skill shortages as a main obstacle to doing business—a concern that is reinforced by the findings throughout this report.
11. **Firms identify the investment climate in the selected business support services sector to be more unfavorable for doing business than the investment climate in the manufacturing sector.** Evidence shows that business support service firms that are constrained to have 30 percent or less foreign ownership are less productive, while firms that operate in less restrictive industries are more productive.

12. **Firms that use high technology show greater productivity.** Evidence from firm-level data shows that firms with newer capital equipment are more productive. For example, firms with a larger fraction of their machinery that is computer-controlled have higher VAL and TFP.

13. **Policymakers face trade-offs between scale and efficiency.** Firm size measured by firm assets (machinery and equipment) is positively associated with firm performance. Although one cannot establish a strong causal relationship between firm size and productivity, there is some preliminary evidence that large firms in Malaysia tend to be more productive than smaller ones, as they benefit from economies of scale, face lower transaction costs, and are better able to access skills and technology programs. These results do not sit well with the goal of the Eighth Malaysia Plan which is to expand the programs targeted at the SMEs. Malaysia is implementing a large number of productivity-enhancing public programs that have been nominally targeted towards the SMEs but are not extensively used by them (see Table 1). This raises a number of issues. An important one is whether skills development and technology support institutions target SMEs more aggressively, even if this imposes a cost in terms of efficiency. The Government should adopt a clear objective against which the skills and technology development institutions will be evaluated.

| Table 1: SME Use of Skills Development and Technology Support Institutions and Incentives is Low |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
| Percentage of firms that report using the institutions | Skills Development Institutions | Technology Support Institutions | Technology Incentives |
| SMEs | 14.7 percent | 14.5 percent | 1.2 percent |
| Large Firms | 39.1 percent | 17.4 percent | 11.4 percent |

*Source: Malaysia PICS, 2002.*

**Skills and Education**

14. **Shortage of skills is a pervasive problem among the firms surveyed.** Irrespective of location, industry or firm characteristics, the large majority of firms identify skill shortages as a “severe” or a “very severe” problem. The average time taken to fill a vacancy for a skilled technician takes longer than in China and a few other Asian countries where PICS have been carried out. When firms were asked about the possible causes of skills shortages, around 70 percent of managers surveyed identified the insufficient supply of university graduates as the most important reason. The complaints of the firms regarding skills shortages are found to be consistent with the analysis on returns to education, returns to training, and trends in unemployment.
15. **Firms place a high premium on workers with tertiary education, as evidenced by their much higher wages compared to workers with less education.** The return for tertiary education is nearly 18 percent versus 9.5 percent for secondary education and only 4.5 percent for primary education. The premium for tertiary education is higher in Malaysia compared to OECD countries. Figure 3 presents the results of a semi-parametric regression of log hourly wages on formal education. The curve connects the average of the predicted values of log hourly wages for each year of formal education. There is a significant increase in the slope for primary, secondary, and tertiary education.

16. **The rate of return on training is also large: 10 percent in terms of higher wages for manufacturing workers with any kind of training.** Returns also increase with more training. Workers with training only from their current employers receive the lowest premium (7 percent), those with training only from their previous employers receive higher premiums (11 percent), and those with training from both their current and their previous employers receive the highest premiums (15 percent). The returns to training also differ by level of workers’ education. By industry, the training premiums are concentrated in food processing, rubber and plastics, household electrical appliances, and automobile parts.

17. **Malaysia’s higher education rates are lower than the norm for its income level.** Figure 4 below shows the relationship between real per capita GDP (on the horizontal axis) and the fraction of the population with a higher education (on the vertical axis). Data for comparator countries refer to 2000, while data for Malaysia are shown for 1980, 1990, and 2000. In all three periods, Malaysia’s higher education rates are lower than the norm for its income level, as indicated by the simple line of best fit through this graph. Although the gap has narrowed over time, the current fraction of Malaysia’s population completing higher education of 6 percent is still below that of Thailand or Chile (at nearly 10 percent).

18. **Firms are concerned about the quality of Malaysian-educated workers, especially professionals.** Managers were asked in the survey to rate Malaysian professionals against their
foreign counterparts. Twenty-nine percent of managers believe that foreign trained professionals performed better than Malaysian trained professionals. Workers were also asked in the survey to do a self-assessment and identify important areas of deficiency in firm-specific skills and general skills. On firm-specific skills, almost half of the workers surveyed reported English language proficiency as the skill that they lacked most. Information and technology skills emerged as the second most needed skill. Lack of adequate professional/technical skills ranked third. On general skills, workers identified lack of communication skills to do their job and/or adapt to changes in labor market conditions. Given that general skills are usually better provided through the education system and that firms have little incentive to provide training in general skills, the workers survey also highlights deficiencies in the education system.

Figure 4: Malaysia’s Higher Education Stocks Lag Behind Its Level of Development

Source: Barro and Lee (2000), Penn World Tables.

19. **There is an education mismatch, especially at the tertiary level.** Because of the shortage of university graduates, firms are forced to hire workers with a diploma to do the job of a graduate. The shortage in tertiary education graduates has contributed to sub-optimal hiring policies and loss of productivity at the plant level. The education background mismatch is also noticed from the qualifications of unemployed graduates registered for training schemes. Around 40 percent of the unemployed are in areas that are not of interest to manufacturing activity.

20. **Evidence suggests that increases in the skills of the workforce can have substantial benefits.** From the standpoint of individual firms that are unable to hire as many skilled workers as they would like, the benefit in terms of higher sales is estimated to be on the order of 10 percent. The industries in which an increase in skilled employment would have the greatest benefits in terms of increased sales also have larger proportions of firms reporting concerns about skill shortages. Moreover, to the extent that an expansion in the supply of skilled workers would allow Malaysia to expand into sectors that are intensive in skilled workers, there are also likely to be substantial increases in average earnings.
21. Although Malaysia has a world class skills training infrastructure, the number of firms that use these facilities is low. A large number of firms reported that the availability of skills training institutes and the existence of the Human Resource Development Fund (HRDF), a levy-grant scheme for the retraining and skills upgrading of employees administered by the Pembangunan Sumber Manusia Berhad (PSMB), was critical to their decision to train. Firms believe that they would provide more training if the processes for training were made more efficient. But firms, especially the SMIs, seldom use the skills training programs. However, the plants that use skills development institutes rate them very high. From the PICS survey, more than 75 percent of managers rank the top three institutes they use as of “good quality,” and around 20 percent believe they are of “very good” quality.

**Innovation Readiness**

22. Malaysian firms have benefited from technology diffusion. With a backdrop of openness to trade and FDI, Malaysians have been technologically active in terms of undertaking technology adoption and adaptation. The PICS data show that nearly 40 percent of firms report making some improvements to their products or processes, and over 60 percent of firms have upgraded machinery and equipment in the last two years.

23. But there is room for expanding technological diffusion among firms. The data also show that nearly 70 percent of firms have not introduced a substantially new technology and over 50 percent have not been able to enter new markets on the basis of quality or cost improvements. The use of new or computerized technology varies very widely among firms, and inter-sectoral variations in technological activity are also quite notable. Non-exporters and SMEs lag behind exporters and large firms in technological activity. While this is to be expected, understanding the extent of linkages between large multinational corporations (MNCs) and small domestic firms is being taken seriously in Malaysia and should continue to be the focus of investment and technology policies.

24. In-house skilled resources, fiscal incentives, and inter-firm collaboration influence technology diffusion. The empirical analysis of the data shows that human resources dedicated to undertaking technological activity in a firm, the use of fiscal incentives by the firm, and the level of inter-firm collaboration are significant determinants of the level of technology adoption and adaptation at the firm level. Hence, as a matter of public policy, attention to the quality and availability of skills in the labor force, and efforts to address any regulatory or institutional constraints preventing the take-up of fiscal incentives by firms (outlined in the policy matrix), are proposed as priority items for policy work. However, it is not clear what role exists for public policy in facilitating firm-firm collaboration; hence, this is identified as a role for the private sector to assume.

25. The move from technology diffusion to technology generation is also overdue. After controlling for income level, Malaysia exhibits a “deficit” in R&D expenditures as well as scientific publications and patents – measures of inputs and outputs of technology generation, respectively. Further evidence of this is provided by the findings of a qualitative technology audit conducted on a sample of 81 Malaysian firms to complement the data emerging from the

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1 There may be sector-specific reasons driving this variation.
PICS survey. These industry case studies corroborate the PICS finding that most Malaysian firms are reactive (i.e., firms that recognize the need to keep up with technology, but lack skills and capabilities and are slow in responding) rather than creative (i.e., knowledge-intensive firms with fully developed capabilities that are able to redefine technology frontiers, challenge existing business models, and create new markets).

26. **Collaboration with technology institutions matters for technology generation.** The empirical analysis shows that collaboration with research or technology institutions (RTIs) increases the probability that a firm will be able to produce technological innovations. The incidence of such collaboration is quite low in Malaysia, and firms surveyed under the PICS reported some constraints to greater collaboration which should receive attention in the follow-up diagnostic work that is intended to produce specific recommendations for improving the design and delivery of services from RTIs. Tentatively, a review of the governance structures of RTIs, the nature of financial incentives for collaboration on the part of RTIs, and the outreach programs for improving awareness among firms are identified as starting points.

27. **Learning-by-hiring and the improved appropriability of investments are identified as important to technology creating firms.** Firms surveyed under the PICS have identified new hires in a firm as a significant source of technical knowledge. This also conforms to the emerging consensus in the broader innovation literature which identifies “tacit” (rather than “coded”) knowledge as the key to building the innovative capacity of firms. Hence, some attention to increasing the international mobility of labor in technology-intensive sectors may be worth considering. The increased certainty of the contractual environment through an improved intellectual property rights regime (the regime is WTO-compliant but the efficiency of the Patent Office needs to be enhanced: some items are suggested in the policy matrix at the end of this summary) would provide the needed impetus for undertaking risky investments in innovation and would also reinforce learning from the mobility of labor.

**ISSUES FOR CONSIDERATION**

28. The matrix that follows (Table 2), identifies the problems to be considered and suggests measures that could address the concerns of the firms. The Malaysian authorities are already addressing these concerns. The key areas of policy challenges are the following:

- Strengthening the investment climate (e.g., reducing the high cost of the regulatory burden)
- Accelerating tertiary education
- Rebalancing the economic and social objectives of the education policies
- Reducing the restrictions on the import of professional skills
- Scaling up the relevant skills and technology programs.
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<th>Suggested Measures</th>
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| A. Improve Investment Climate     | High cost of regulatory burden | • Carry out a detailed assessment of key elements of the regulatory environment.  
• Strengthen the procedures for cost/benefit analysis of new and existing regulations.  
• Carry out regular investment climate surveys.  
• Improve inter-agency collaboration on the monitoring of the investment climate.                                                                 |                       |
| B. Improve Skills and Education   | Shortage of skilled and unskilled workers | • Sustain the effort that led to tripling of enrollment rates in the past three years.  
• Increase the private sector’s role in tertiary education.  
• Reinforce the National Accreditation System.  
• Encourage “corporatization” of higher education (universities as service providers to firms, Malaysia Inc., Petronas, Telekom...). | Ongoing               |
| Tap into the international supply of labor | Poor quality of education (Mismatch) | • Relax further restrictions on the import of professional skills.  
• Relax constraints on hiring foreign unskilled labor.  
• Attract Malaysians working abroad.                                                                                                                                 | Ongoing               |
| Improve the content of education for the skills that are most needed (English language proficiency and IT skills) | Low and decreasing employer-provided training incidence for SMIs  
Poor quality of education (Mismatch)  
Positive relationship between formal and outside | • Reinforce English and IT skills content of the tertiary education curricula.  
• Consider teaching more courses in English in Skills Development Centers for Certificate level in 5 years.  
• Make English language compulsory in SDC for Diploma level.  
• Improve the training of teachers.  
• Use providers to train workers (Example Proton/Mitsubishi).  
Government Funding could provide up to 20 percent of the previous year’s contribution to the HRDF to help set up classrooms in firms.  
Encourage training providers to deliver training on-site.  
Encourage training during the weekends.  
Lower the costs of hiring new workers for firms. | 20 percent of curriculum in English each year as starting 2004 |
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| training and quitting | | • Develop mentoring and bonding programs in smaller firms to reduce quitting.  
• Reduce the registration cost of PROLUS (approved training program) from RM300 to RM200 per subject, to increase the number of courses supplied by training providers.  
• Increase outreach activities and funding in order to make life-long learning a reality. | |
| Scale up Skills Development Institutes (SDI) | Low usage despite good quality of pre-employment and Skills Development Infrastructure | • Increase the intake of SDCs from 10,000 to 50,000.  
• Accelerate the construction of the planned 10 additional SDCs (in less than 5 years as planned).  
• Improve access to land for SDI (Land’s Banks) for new SDCs.  
• Increase calibration of training with industries, especially with the SMIs.  
• Obtain qualified instructors for Skills Development Centers (SDCs) by:  
  ○ Easing the process for sending instructors abroad for training not available in Malaysia. 
  ○ Increasing the capacity of instructor training centers in the country. 
  ○ Tapping into private sector expertise for instruction. 
  ○ Increasing collaboration between private and public sectors in the provision of skills. | |
| Change management in the institutions | | • Better align Skill Development Institutes service provision to reflect the demand for skills from the private sector. | Phase 2 of the Work Program |
| Reduce the total time to process claims from 5 weeks to 18 days | Human Resource Development Fund (HRDF) administered by PSMB: Critical for firms’ decision to train, but slow in reimbursing claims | • Improve information on application procedure and supporting documents.  
• Encourage an extended use of the e-application system and implement e-payment of claims.  
• Authorize training providers to also provide help in filling out the applications for first-time SMI applicants.  
• Set up an insurance system for small employers that could be financed by a raise in levy rate. HRDF could credit back 60 to 80 percent of the training cost to the account of the SMI if the trainee quits in the two years following training.  
• Encourage employers to implement workers’ retention programs such as job scope enlargement and job enrichment after training. | |
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| C. Strengthen National Innovation System (Promote Firm-Institution Collaboration) | Institutions | • Improve outreach programs to build awareness.  
• “Corporatize” RTIs.  
• Allow government RTIs to keep remuneration from private sector collaboration.  
• Governance review: Board composition of RTIs reviewed. | |
| | | Incentives (Improve Delivery of Fiscal Incentives) | • Review definition of R&D (is it too narrow?).  
• Improve procedures for fast-track clearance of applications without diluting integrity.  
• Review compensation style – currently reimbursement rather than seed capital.  
• Review early-stage VC prospects. | Phase 2 work picks this up. |
| | | Intellectual Property Rights (Strengthen grant procedures and enforcement) | • Accelerate accession to patent cooperation treaty (PCT) to lift burden on Patent Office staff.  
• Or hire more examiners in the interim to reduce granting time from 5 to 3 years.  
• Adopt online filing and search. | Phase 2 work |
| | | International Mobility of Labor (Promote learning-by-hiring) | • Consider reduction in restrictions for hiring highly skilled foreign labor in technology intensive sectors. | TA to IPR office for training officers to process more rapidly.  
EU/WIPO funding is probably available. |