EDUCATION DEVELOPMENT PLAN FOR MALAYSIA 2001-2010

Generating Educational Excellence Through Collaboration Planning

Executive Summary

1 AIMS OF THE PLAN

1.1 The Education Development Plan for Malaysia (2001-2010), henceforth referred to as the Blueprint, takes into account the goals and aspirations of the National Vision Policy to build a resilient nation, encourage the creation of a just society, maintain sustainable economic growth, develop global competitiveness, build a knowledge-based economy (K-economy), strengthen human resource development, and maintain sustainable environment development. The Third Outline Perspective Plan (2001-2010) and the Eighth Malaysia Plan (2001-2005) outlined the strategies, programmes, and projects to increase the nation's economic growth towards building a united, just and equitable society as well as meeting the challenges of globalisation and K-economy. The ultimate aim of these long and medium-terms plans is to build Malaysia into a developed nation based on its own mould. These plans have great implications on the national education system.

1.2 The Blueprint aims to ensure that all citizens have the opportunity to twelve years of education in terms of access, equity, and quality. The Blueprint also aims to further develop the potentials of individuals in a holistic and integrated manner so as to produce

individuals who are intellectually, spiritually, emotionally, and physically balanced in line with the National Education Philosophy. In addition, the Blueprint plans to nurture creativity and innovativeness among students; enhance learning culture; effective, and world-class quality education system; and promote Malaysia as a center of education excellence.

1.3   The major thrusts of the Blueprint are to increase access to education, increase equity in education, increase quality of education, and improve the efficiency and effectiveness of education management. The Ministry of Education (MOE) will continue with the equitable distribution of educational inputs to ensure students obtain appropriate learning experiences from all educational programmes.

1.4   The Blueprint focuses on the development of preschool, primary, secondary, and tertiary education levels which will be strengthened through the development of support programmes, funding, management, and integration of information and communication technology (ICT).

2   PRESCHOOL AND PRIMARY EDUCATION

Aims for Development

2.1   The Blueprint aims to institutionalise preschool education, provide preschool education for children aged 5+ years, make the National Preschool Curriculum compulsory in all kindergartens, and strengthens the monitoring and evaluation of preschool programmes.

2.2   The development plan for primary education aims to provide appropriate and adequate infrastructure for the provision of compulsory primary education; further reduce the attrition rate; improve reading, writing, and arithmetic (3R) skills; increase the development of social skills and basic computer skills; increase the mastery of Malay language, English language, Mathematics, and Science; improve the reading and writing skills of the Jawi script; reinforce national unity by introducing Mandarin and Tamil languages as subjects in national schools; provide adequate trained teachers; and ensure that 50 percent of primary school teachers are university graduates by 2010.

Issues and Challenges

2.3 One of the pertinent issues for preschool is the low enrolment rate of preschool among children aged 5+ years. At the primary level, the MOE has not met its goal to ensure all Year One school children complete 6 years of primary education.

2.4 The challenge to MOE is to increase accessibility to preschool and primary education to ensure all children aged 5+ years obtain education and all children aged 6+ to 11+ years complete primary education. The MOE faces the challenge to provide all schools with computers and increase the use of ICT in teaching and learning. The MOE also needs to increase equity in preschool and primary education, especially to provide equal access to quality educational facilities for all children; increase provision of special education opportunities; encourage greater participation of the private sector, NGO's, community, and individuals in education funding; and ensure sharing of school facilities in the implementation of Vision Schools.

2.5 Other issues at the primary level include the wide differences in academic and co-curricular achievements according to school types and location as well as low proficiency of Malay and English languages as preparation for secondary education among primary school children. The challenge to the MOE is to increase the quality of preschool and primary education including the provision of adequate numbers of trained teachers and increasing basic education facilities.

Implementation Strategies

2.6 Preschool education will be further developed by institutionalising preschool education and making compulsory the use of the National Preschool Curriculum at all preschool institutions, providing training facilities for preschool teachers, and strengthening the monitoring of preschool teachers, and strengthening the monitoring of preschool programmes conducted by public and private agencies.

2.7 Strategies to further promote access to and equity in primary education include increasing the participation rate particularly among the children of indigenous groups such as the Orang Asli in Peninsular Malaysia and the ethnic groups in rural and remote areas of Sabah and Sarawak. The Blueprint plans to make primary

education compulsory and this entails the building of more schools, providing more trained teachers, and increasing monitoring activities.

2.8   The Blueprint plans to strengthen special education programmes and expand opportunities for special education by providing more trained teachers in special education schools and schools with inclusive programmes. Efforts will be made to encourage public participation and contribution in the development of special education.

2.9   Strategies to improve the quality of primary education include increasing basic education infrastructure, revising the norms for teacher allocation, and ensuring 50 percent of primary school teachers are university graduates by 2010. Other strategies include strengthening the Integrated Primary School Curriculum (Kurikulum Bersepadu Sekolah Rendah, KBSR) to further improve the 3R skills among pupils, making the curriculum more relevant to current and emerging needs of the country, and strengthening all co-curriculum programmes to reinforce the development of intellectually, spiritually, emotionally, and physically balanced individuals. In addition, the strategies include revising school textbooks, improving integration of ICT in teaching and learning, expanding the Smart School concept nation wide, increasing the role of school administrators as curriculum leaders, strengthening monitoring and evaluation activities on teaching and learning, strengthening evaluation mechanism of student performance, increasing school and community collaborations, and reviewing the rate of per capita grant to schools.

3   SECONDARY EDUCATION

Aims for Development

3.1   The development plan for secondary education aims to restructure secondary education from the present structure of 3+2+2 (7 years) to 4+2 (6 years) and revise the integrated Secondary School Curriculum (KBSM) to fit the new structure. The plan also aims to enhance students critical and creative thinking skills; improve acquisition and application of ICT skills; emphasise science and technology; improve mastery of Malays and English language; strengthen the infusion positive values and attitudes in teaching and learning; provide adequate numbers of trained, knowledgeable,

and skilled teachers; equip secondary schools with appropriate infrastructure; and provide adequate and quality teaching and learning facilities in line with current developments in ICT.

3.2   The purpose of these aims is to produce students who are knowledgeable and skilful in various fields especially in science, technology and ICT; are proficient in Malay and English languages; have positive attitudes; practise good moral values; are critical and creative possess employability skills; and are prepared for higher learning.

Issues and Challenges

3.3   The current secondary education structure has raised several issues including the different number of schooling years as compared to most other countries, a curriculum that is too broad in scope, the choice of exiting from formal schooling after the Malaysia Certificate of Education (SPM), and the unstandardised entrance qualifications into institutions of higher learning. To overcome these issues, it is pertinent for the MOE to restructure the current secondary education structure from a 3+2+2 system to a 4+2 system.

3.4   With regards to increasing access to secondary education, the MOE faces the issue of significant attrition rate of students from Form 1 to Form 5 (20% for the 1996-2000 cohort). The MOE also faces the issues of low participation rate in the science stream (27.7% for the year 2000) which is far from the targeted ratio of 60 percent in science and technology compared to 40 percent in arts; the issue of decreasing enrolment rate for the Form 6 programme; and the challenge of increasing opportunities for secondary education for students who are poor and with long-term health problems.

3.5   To increase equity in secondary education, the MOE faces the challenge of fulfilling the increasing demands for residential, religious, and technical/vocational schools. The MOE needs to focus on rural secondary schools that are facing more infrastructure development problems and are more dependant on government allocation as compared to urban secondary schools; and problems of teacher deployment according to option and location; and the need to ensure all secondary school teachers are university graduates by 2010.

3.6   To improve the quality of secondary education, the MOE faces the challenge of improving and strengthening the present secondary education programmes as well as introducing new ones. The improvement of quality in secondary education covers aspects such as curricular and co-curricular activities, science and technology education, English language, infrastructure, teaching aids, student assessment, student welfare, quantity and quality of teachers, and special education.

Implementation Strategies

3.7   The first strategy in the development plan is to restructure secondary using the 4+2 system, followed by efforts to review and strengthen the secondary education curriculum as well as assessment and evaluation system according to the new structure.

3.8   To increase access and equity, the MOE will improve and expand the provision of infrastructure and build new secondary schools using new building approaches which saves space and land, maximise usage of education resources, reduce attrition rate, upgrade student safety programmes, and improve welfare of students who are poor and/or with chronic and long-term health problems.

3.9   To improve the quality of secondary education, the Blueprint plans to review and strengthen the secondary school curriculum. Emphasis will be given to the development of academic skills, especially in mastering skills of learning, communication, critical and creative thinking, and self-management; acquiring basic industrial skills; and possessing positive values. The secondary education curriculum will strengthen intervention programmes for students with learning problems, integrate ICT in the curriculum and strengthens co-curriculum programmes.

3.10   The Blueprint plans to increase the participation of students in science and technology by building new residential schools and technical/vocational schools, expand provision of technical and vocational education in normal schools, and award scholarships to outstanding students in science. Other strategies include improving teaching and learning of science by providing more science teachers, laboratories, and science materials; implementing contextual teaching and learning methods and inclusion of new educational elements such as biotechnology and microelectronics to make learning of science more interesting and relevant; and

intensifying the integration of ICT in teaching and learning of science.

3.11 The MOE will implement strategies to improve the mastery of Malay and English languages; introduce changes to the assessment and evaluation system by emphasizing of formative evaluation and further developing effective measurement of students intellectual, spiritual, emotional, and physical development; and strengthen career guidance and counseling programmes.

3.12 The MOE plans to increase the number of graduate teachers in secondary schools to achieve 100 percent by 2010, increase the number of teachers for critical subjects such as English Language, Science, and Technology; fulfill professional development needs of teachers especially in rural areas; improve incentives, and provide conducive working environment. Efforts will be made to encourage the use of teaching aids and technology in teaching and learning.

3.13 To expand opportunity and improve the quality of special education, the Blueprint outlines programmes for expanding technical/vocational education for visually impaired students, equipping special education schools with appropriate teaching aids and with the latest and user friendly infrastructure, and strengthening the monitoring of special education programmes.

3.14 The MOE will improve community involvement in the development of secondary schools by extending Parents and Teachers Association (PTA) membership to community members and widening the scope of PTA activities in curricular and co-curricular activities.

4   TERTIARY EDUCATION

Aims of Development

4.1 The development plan for community colleges aims to provide training and retraining facilities in various industrial skills as well as providing an alternative route to higher education for school leavers and the local community and industries for education and other purposes that can benefit both parties.

4.2 The development plan for polytechnics aims to further provide and upgrade education and training facilities at semi-professional level

in technical, commerce, and service fields and provide an alternative route for higher education for secondary school leavers.

4.3   The development plan for higher educations aims to produce sufficient quality human resources geared towards the needs of the nation and the K-economy. Specifically, the plan aims to achieve democratisation of higher education and socio-economic balance among the different races. Emphasis will be made on science and technology, the use of ICT, and the mastery of the Malay language and other international languages. The plan also aims to improve post-graduate programmes, produce students of excellence and quality, further develop students character, encourage research and development (R&D) of international standards, inculcate a culture of quality in higher education, and promote lifelong learning.

4.4   The development plan for private higher education aims to provide more opportunities for tertiary education, reduce the number of students studying abroad, help promote Malaysia as a center of academic excellence, reduce government's funding costs for tertiary education, and encourage private higher education institutions to undertake R&D activities.

Issues and Challenges

4.5   At present, only 11 percent of the population aged 18-21 years have the opportunity to enroll in non-degree programmes and only 5 percent of the age cohort enrolled in degree programmes. The challenge to the MOE is to further increase accessibility to tertiary education in line with the democratisation concept, meet the growing demand of society for higher education, and fulfill the increasing need for knowledgeable and skilled manpower.

4.6   To promote lifelong learning, the challenge to the MOE is to ensure tertiary education institutions are able to provide opportunities to those who want to acquire knowledge, skills, training, and retraining as well as to enable those who had dropped out of school an opportunity to resume their education. To provide access to tertiary education for Bumiputera students in the rural areas, the MOE faces the challenge to encourage the establishment of private higher education institutions in these areas.

4.7   To meet the target of 60 percent students in science and technology, the MOE faces the challenge to increase science and technology-based programmes at local higher education institutions; ensure the enrolment ratio in certificate, diploma, and

undergraduate programmes at both the public and private higher educational institution matches the demands for skilled and semi-skilled workers; and improve communication skills in international languanges, especially the English Language.

4.8   The MOE also faces the challenge to acquire qualified teaching staff; overcome the shortage of experienced teaching staff in various fields of industry; retain qualified teaching staff at polytechnics and other public tertiary institutions; and reduce the ratio of student to teaching staff.

4.9   In addition, the MOE has to ensure higher education institutions has the capability to produce more R&D activities which are of quality and commercial value; generate new knowledge; intensify the learning and usage of ICT; and to further increase the role of higher education institutions in transforming Malaysia into a center of academic excellence by providing courses that are relevant to the needs of the local workforce, innovative, and internationally competitive.

4.10   Other issues and problems that need to be addressed are higher students costs especially at private higher institutions and the escalating development and management costs at public higher education institutions.

Implementing Strategies

4.11   The plan to increase access and participation rates in tertiary education will be implemented in stages by increasing student intake at tertiary level from 25 percent (17+-23+cohort) in 2000 to 30 percent by 2005 and 40 percent (16+-22+ cohort) b 2010, and to realize lifelong learning.

4.12   To increase opportunities to tertiary education, the Blueprint plans to further encourage the private sector to expand their involvement in the provision of tertiary education and to transform Malaysia into a center of academic excellence.

4.13   To fulfill the national needs in science and technology, a planned and comprehensive effort will be made to increase enrolment at the tertiary level to 60 percent in these fields as compared to other fields. The strategy also aims to increase the ratio of scientists and technologist to the population in order to be at par with developed countries.

4.14   To achieve a balance in producing skilled and semi-skilled workers, the Blueprint plans to widen opportunities for tertiary education based on the enrolment ratio of 1:2 for undergraduate programmes as compared to diploma/certificate programmes. This strategy will be implemented in concurrent with the establishment of Technical University and technical private institutions of higher learning, aimed at increasing the number of hands on professionals. Programmes offered at the tertiary level will be improved to ensure their quality, relevance, and ability to fulfill the manpower needs of the nation and competitiveness at the global level.

4.15   The Blueprint aims to provide adequate and quality teaching staff by increasing training programmes locally and abroad as well as expanding training programmes with industries, providing a more competitive salary scheme, and increasing the number of qualified teaching staff.

4.16   The strengthening and expansion of R&D activities at institutions of higher learning will be achieved through inculcating R&D culture among lecturers and students, increasing the number of R&D experts and personnel, establishing existing premier public university as research universities, establishing more research centers of international standard by increasing research facilities, and increasing smart partnerships between public and private higher education institutions with local and international industries. These strategies will be complemented with an increase in the use and mastery of ICT by providing appropriate infrastructure and increasing the use of ICT in tertiary education as well as creating an environment conducive to e-university.

4.17   Strategies to establish Malaysia as a center of academic excellence include increasing the number of foreign students at undergraduate and post-graduate levels by the year 2010 at the rate of 5 percent (except for International Islamic University Malaysia which will be at 20 percent) and 25 percent respectively, establishing R&D centers at local universities that are of international standards, and accounting for the internationalization of local universities.

4.18   Strategies to expand financial aid for students encompass increasing allocation and seeking various sources of fund for tertiary education institutions, especially universities, in addition, student welfare programmes and facilities will be upgraded to complement the management of tertiary education institutions.

5 SUPPORT SERVICES

Aims for Development

5.1 The development plan for support service aims to provide quality support services which will enable students to be better for schooling; minimize school drop-out rates, promote greater academic excellence among students from low-income families; ensure students of low-income families receive the same educational opportunities afforded to other students, and ensure a more efficient and effective management of support services programmes.

Issues and Challenges

5.2 The main challenge of the MOE in the development of support services is to improve the quality of school hostels with sub-standard facilities and is unsafe for accommodation in the rural areas. Such hostels were built through *gotong royong* projects or on ad hoc basis initiated by the local community, using low quality building materials and sub-standard building plans. The MOE also faces an increasing demand for residential schools to cater for the growing number of qualified and excellent students. At the same time, many hostels at teacher training colleges are underutilised due to the reduction in teacher trainee intakes for pre-service training. The overall cost of managing and operating these hostels have also risen with the increasing number of hostels and boarders as well as escalating prices of materials and services.

5.3 The operational costs for the text-book loan scheme (*Skim Pinjaman Buku Teks, SPBT*) have also increased. Furthermore, if the plan to replace the present printed text books with electronic books or e-book is realized, the MOE will need a bigger allocation to supply these e-books to students; train teachers and personnel in managing, maintaining, and storing such books; and provide for a systematic and effective e-book distribution system.

5.4 The MOE also faces the challenge of providing sufficient funds for scholarships and study loans to all students and ensuring an effective management of the funds. For the Integrated School Health Programme (Program Bersepadu Sekolah Sihat, PBSS), the MOE has to ensure that all schools receive the services provided under the programme and to increase the frequency of these services. For the Supplementary Food Programme (Rancangan

Makanan Tambahan, RMT) for primary schools, the challenge is to increase its allocation in order to expand the services to more poor students and ensure that the meals provided are nutritious and well balanced.

5.5   The MOE also faces the challenge of providing sufficient numbers of full-time student counselors to schools. At present, the number of counselors provided for each school is determined by using the existing ratio for teacher allocation.   This practice is a disadvantage, especially to schools with small enrolment where the school heads usually have to assume the role of the counselor as well.

Implementation Strategies

5.6   The strategies for the development of hostels are to build more residential schools, school hostels, and 'central concept' hostels; add more physical and non-physical facilities to all existing hostels, and maximise the use of hostels facilities at teacher training colleges.

5.7   The textbook loan scheme will be strengthened through a review of its existing qualification policy to cater to the needs of the public and review the present policy if e-books are to be used as a teaching aid.

5.8   The strategies to strengthen other support services programmes will also include increasing the allocation for scholarships and loan, continuing and expanding the coverage of the Integrated School Health Programme, increasing the coverage of the Supplementary Food Programme, and increasing the number, roles, and effectiveness of full-time counselors through continuous in-service training.

6   EDUCATION FUNDING

Aims for Development

6.1   The development plan for education funding aims to expand and increase the sources of funds as well as to ensure effective financial management at all levels of the MOE.

Issues and Challenges

6.2   A continuous increase in the population has resulted in an increase in enrolment and a growing demand for teachers and educational facilities. The challenge for the Federal Government is to provide a larger allocation for education to ensure sustainable development of the education system. The MOE will continue to be the main provider of funds for education since the private sector involvement in providing educational services at both the primary and secondary levels is still small. In its effort to build a world-class education system, the MOE, as the main provider of funds, faces the burden of financing the various improvement and intervention efforts; upgrading the quality of teaching and learning; expanding educational programmes such as technical education; expanding and improving the quality of education; upgrading educational infrastructure; improving the quality of teachers; and increasing the efficiency of supervision, monitoring, and evaluation of education programmes.

6.3   The source of education funds, especially from the Federal Government is very limited. In addition, public donations to schools especially primary schools in the rural areas are still very small and limited. Thus, the allocated fund has limited activities in areas such as counseling, monitoring, inspectorate, and supervision of educational institutions. The challenge for the MOE is to expand its sources of funds and increase its efficiency and effectiveness in financial management.

Implementation Strategies

6.4   The MOE will expand its sources of funds by encouraging the private sector and individuals to provide funds directly to educational institutions; increase the participation of the private sector, non-governmental organisations, and individuals in financing education programmes; introduce competitive fees for foreign students at all public educational institutions; and issue bonds that are backed by the Federal Government.

6.5   The strategies to enhance efficiency in financial management include upgrading of knowledge and skills in financial management among education managers; giving more empowerment to those managing education finance; establishing more educational institutions as Responsibility Centres (Pusat Tanggungjawab); strengthening financial monitoring activities; and providing

continuous supervision of the expenditure of all educational programmes.

6.6　Steps will also be taken to increse the number of income-generating agencies especially those involved in training, consultancy services, publishing, and marketing their own products; increase the quality of R&D carried out in all departments, divisions and corporate bodies of the MOE and other public higher education institutions, and commercialising the R&D products; expand the operations and increase the effectiveness of income-generating agencies; and establish more trust accounts for educational institutions.

6.7　The Blueprint plans to increase private sector participation in funding educational programmes through provision of incentives and encouragement for direct financial contributions to educational institutions, create smart partnerships between public and private higher education institutions with the private sector, and create a cost sharing mechanism in providing facilities for training and R&D activities.

7　EDUCATION MANAGEMENT

Aims for Development

7.1　The education management development plans aims to improve and strengthen the level of efficiency and effectiveness of management in the aspects of administration, monitoring and evaluation, curriculum and assessment, personnel, information and communication, R&D, finance, and infrastructure.

Issues and Challenges

7.2　The challenge to the MOE in education management is to overcome issues and problems due to its structure that is hierarchical, centralised, and heavy at the top (departments/ divisions) but small at the bottom (state/district education departments), bureaucratic issues, as well as inefficient and ineffective management of resources and personnel, and the implementation of certain policies. The MOE needs to improve the quality of leadership at all levels of the ministry and develop a group of competent top-level managers equipped with the highest

professional qualification and who have expertise in management and education. To improve the quality of school management, the MOE needs to strengthen the role of principal/head master as curriculum leaders and ensure that the monitoring, evaluation, and assessment activities of education programmes are carried out in accordance to the objectives of Education High Quality Standard. These activities can only be implemented effectively by having sufficient numbers of inspectorate personnel and distributing the monitoring and evaluation reports to the educational institutions concerned.

7.3   Problems concerning teacher deployment are influenced not only by the actual needs of schools but also by humanitarian factors, the employment of temporary untrained teachers, and the attachment of teachers as administrative officers in the ministry, state education departments, and division/district education offices. At the same time there are other factors beyond the control of management such as the shortage of teachers for critical subjects, limited opportunities for in-service teacher training, teachers taking non-paid leave, and the difficulties in recruiting replacement teachers.

7.4   To further strengthen its organization, the MOE faces the challenge of modernizing its Management and Human Resource Information System by reorganizing its present personnel data base, increasing training activities in ICT, establishing MOE into a learning organization, making the teaching profession attractive to university graduates especially in critical subjects, and increasing the commitment of teachers and other personnel.

7.5   The MOE also faces the challenge of creating an integrated and efficient management information system.   This can only be achieved by providing appropriate ICT infrastructure and having a common understanding in the interpretation and implementation of policies among various education agencies. At the same time, the MOE needs to create a favourable environment that encourages more R&D activities and develops a research culture.

Implementation Strategies

7.6   To increase the efficiency and effectiveness of education management, the strategies include strengthening the management system of the MOE by increasing autonomy and decentralising the process of decision making and problem solving, providing greater utilisation of ICT facilities at all levels of management, restructuring

the state education departments and district education offices to complement the roles of departments and division at the ministry level, creating a pool of professional education officers at top management level, creating more administrative posts, and strengthening the administrative mechanisms to overcome the shortage of teachers.

7.7   The Blueprint plans to strengthen the management of human resources and development by developing an efficient Human Resource Information system, strengthening ICT training programmes for all personnel towards transforming MOE into a learning organization, and upgrading the education service scheme by providing better incentives and welfare, opportunities for promotion, competitive salaries, and due recognition of additional qualifications.

7.8   The strategies for strengthening the monitoring, inspection, and evaluation system include extending the role of school heads/principals as curriculum leaders and main supervisors on teaching and learning in schools, increasing the number of qualified personnel in the field of inspection, strengthening the implementation of Education High Quality Standard in all educational institutions and a wider dissemination of inspectorate reports.

7.9   The information management and communication system will be strengthened by reorganizing the system of information flow towards a more efficient and effective understanding of policies and information acqusition, creating an integrated and comprehensive information management policy, integrating the various information systems and databases at the MOE, strengthening the dissemination of education information, and expanding the ICT systems and applications for managing information at all levels of the MOE.

7.10   The R&D activities will be strengthened through the identification of areas of education requiring research, revitalizing the mechanism which coordinates R&D activities and disseminates R&D products, providing sufficient allocation for R&D, providing greater access to R&D findings carried out at all public educational institutions, and providing continuous support for R&D activities.

8   ICT IN EDUCATION

Aims for Development

8.1   The development plan for ICT in education within the next 10 years aims to intensify the development of ICT infrastructure; expand access to and equity for ICT facilities; expand ICT-based curriculum; improve on the assessment and evaluation systems using ICT; emphasise ICT integration in teaching and learning processes; improve on ICT knowledge and skills among students, teachers and personnel; intensify ICT usage in education management; improve on the management and maintenance of ICT equipment; increase R&D efforts in ICT; and increase cooperation between educational institutions and the community towards expansion of ICT in education.

Issues and Challenges

8.2   One of the challenges faced by the MOE is to provide sufficient and the latest ICT facilities with internet to all levels of the education organization in order to expand the usage of ICT in teaching and learning as well as in education management. To meet this challenge, the MOE has to provide sufficient and the latest facilities to all levels of management in order to strengthen the ICT infrastructure in education. The MOE has to continuously provide more effective training programmes to the teaching staff and personnel concerned.

8.3   The need to integrate ICT in teaching and learning at all levels has become greater. In this regard, computer literacy elements need to be included in the National Preschool Curriculum, which will be implemented in the year 2002. At the primary level, ICT has increasingly become a necessity in order to gain students interest in learning subjects such as Malay and English languages, mathematics, and Science. At the secondary level, the integration of ICT in teaching and learning is aimed at developing students with knowledge and skills in ICT and the ability to use information critically and creatively to improve their academic understanding and performance. At the tertiary level, ICT must be expanded to all fields of knowledge. For special education, the integration of ICT in teaching and learning should bring about greater interest towards learning among students with hearing, sight, and learning disabilities.

8.4   The number of teachers who incorporate ICT in their lessons in order to develop interesting and effective teaching and learning methods is still low. To enable teachers to gain access to education portals, such portals must be constantly updated and made available to all schools. In addition, all ICT training will be strengthened to overcome problems of teachers who sill use traditional methods of teaching and learning and are less inclined to use ICT. Between 1996-2000, only 30 percent of teachers received some form of ICT training and only a small number were able to integrate ICT in teaching and learning and have the expertise to build courseware. The challenge to the MOE is to provide sufficient ICT facilities and expertise at all state education resource centers, teacher activity centers, and teacher training colleges to provide consultancy services and training in ICT to teachers.

8.5   A number of departments/divisions face the problem of shortage in technical support and quality applications as well as limited sharing of information. It is a challenge to the MOE to coordinate and integrate ICT development more effectively because currently each department/division and several state education departments and division/district education offices develop their own ICT applications to cater to their own organizational needs.

8.6   Another issue regarding the development of ICT application that has to be immediately addressed is the issue of computer maintenance in terms of system integrity, application, and information.

8.7   R&D activities in the development of systems and applications, and courseware beneficial to teaching and learning are still very low. Thus, there is a great need to intensify such activities in a planned and integrated manner.

Implementation Strategies

8.8   The Blueprint plans to intensify efforts in the coordination of ICT development in education to ensure greater integration and holistic development. The MOE will expand access to and increase equity in ICT facilities through the provision of sufficient ICT infrastructure and facilities to all levels of education institutions. ICT integration in teaching and learning will be intensified through the expansion of ICT related subjects in all education institutions, expansion in usage of ICT in teaching and learning for all subjects, and expansion of computerized examination system (On-line

Assessment System) at the Malaysia Certificate of Education (SPM) and Malaysia Higher School Certificate (STPM) levels.

8.9 The Blueprint also plans to strengthen ICT knowledge and skill among students by improving ICT based learning methods, enhancing the knowledge and skill of ICT integration in teaching and learning among teachers, increasing the number of courseware development and usage that contains indigenous and international content, and upgrading the basic skill of computer installation and maintenance.

8.10 Management effectiveness and efficiency will be continuously improved by expanding e-management at all levels of education management and increasing knowledge and skills among officers and staff through continuous training. The MOE will also intensify efforts to improve the management and maintenance of ICT tools at all levels of education institutions, and increase bilateral cooperation between educational institutions under MOE with the local community and the private sector in the development of ICT in education.

9   CONCLUSION

9.1 The Education Development Plan for Malaysia aims to provide opportunities for quality education to all Malaysians from preschool to tertiary level in terms of access, equity , and quality. It also aims to improve the efficiency and effectiveness of education management.

9.2 The Blueprint will be used as a framework for preparing action plans for education development, which encompass the expansion and strengthening of existing educational programmes, as well as, the replacement of non-relevant programmes with new programmes that are more realistic to the current and future needs. The success of the Blueprint will depend on the right combination of financial resources, personnel, time and commitment of the MOE management and personnel in implementing the Blueprint.

9.3 The Blueprint is a rolling plan based on realistic, pragmatic, and futuristic assumptions of the national education system. To ensure implementation of the Blueprint as planned, a steering committee will be formed to lead, initiate, and continuously monitor and evaluate all development projects. Implementation agencies need

to act upon the educational issues and challenges that have been identified and detail out the strategies and action plans outlined in the Blueprint. Performance indicators have to be identified in order to ascertain the implementation of educational projects is efficient and effective. The MOE will conduct a mid-term review of the Education Development Plan in the year 2005 and evaluate the overall plan at the end of the year 2010 to ensure the success of providing quality education to all Malaysians.

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