No.

JAPAN INTERNATIONAL COOPERATION AGENCY(JICA)

THE MINISTRY OF ENERGY, COMMUNICATIONS AND MULTIMEDIA

THE STUDY
ON
ENHANCEMENT OF INFO-COMMUNICATIONS ACCESS IN RURAL COMMUNITIES
IN
MALAYSIA

FINAL REPORT
VOL.1 : SUMMARY

March 2003

NIPPON KOEI CO., LTD.
INFOCOM RESEARCH, INC.

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FINAL REPORT

COMPOSITION OF REPORTS

VOLUME 1 SUMMARY

VOLUME 2 MAIN REPORT

VOLUME 3 SUPPORTING REPORT

VOLUME 4 DATA BOOK

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(As of February 2003)

PREFACE

In response to a request from the Government of Malaysia, the Government of Japan decided to conduct a study on Enhancement of Info-communications Access in Rural Communities in Malaysia and entrusted the study to the Japan International Cooperation Agency.

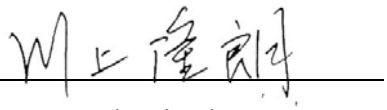
JICA selected and dispatched a study team headed by Mr. Akagawa Masatoshi of Nippon Koei Co., Ltd. to Malaysia, four times between January and December 2002. In addition, JICA set up an Advisory Committee chaired by Mr. Miyashita Takashi of the Ministry of Public Management, Home Affairs, Posts and Telecommunications between January 2002 and March 2003, which examined the Study from specialist and technical points of view.

The team held a series of discussions with the officials concerned of the Government of Malaysia and conducted field surveys at the study area. Upon returning to Japan, the team conducted further studies and prepared this final report.

I hope that this report will contribute to the promotion of this project and to the enhancement of friendly relationship between our two countries.

Finally, I wish to express my sincere appreciation to the officials concerned of the Government of Malaysia for their close cooperation extended to the study.

March 2003



Kawakami Takao

President

Japan International Cooperation Agency

March, 2003

Mr. Takao Kawakami
President
Japan International Cooperation Agency
Tokyo, Japan

Subject: Letter of Transmittal

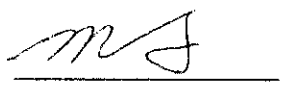
Dear Sir,

We are pleased to submit herewith the Final Report of "The Study on Enhancement of Info-Communications Access in Rural Communities in Malaysia". This study was conducted by, Nippon Koei Co., Ltd. in association with Infocom Research, Inc., under the contract with JICA, during the period from January 2002 to March 2003. The report consists of Summary, Main Report, Supporting Report, and Data Book.

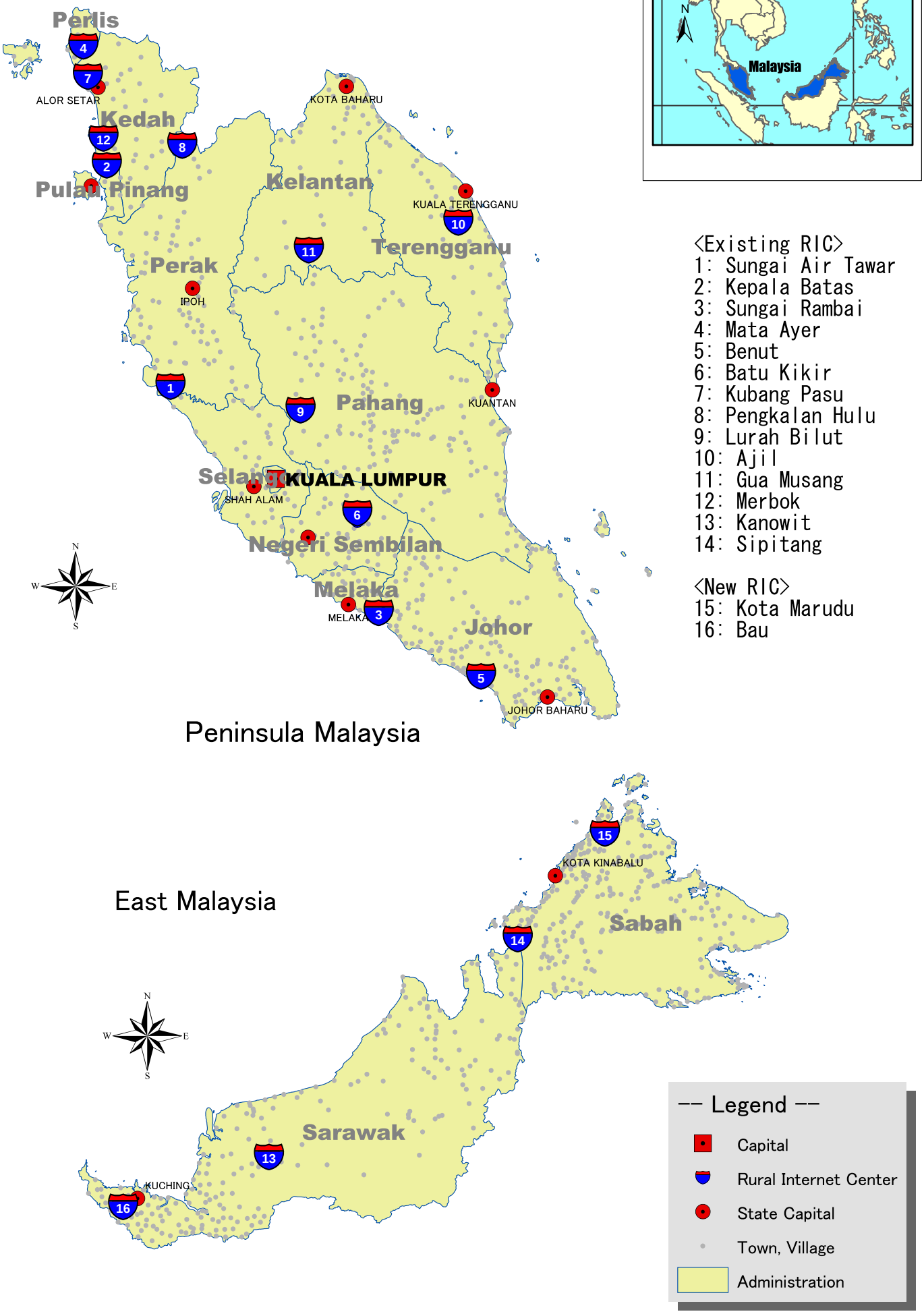
The report presents the Action Plan for the effective implementation of the Rural Internet Program (RIP) in Malaysia, which reflects the results of review on the current situation related to the enhancement of info-communications access in the rural communities in Malaysia and the other advanced countries as well as the feedback from the model projects implemented in the Study.

We would like to take this opportunity to express our sincere gratitude to your Agency, the Ministry of Foreign Affairs, Ministry of Public Management, Home Affairs, Posts and Telecommunications. We are also most grateful for the cooperation and assistance from the officials concerned in Malaysia, the JICA Malaysia office, and the Embassy of Japan in Malaysia. The Final Report is a fruit of excellent collaboration of all participants in this study.

Yours Faithfully,



Masatoshi Akagawa
Team Leader, JICA Study Team
The Study on Enhancement of Info-Communications Access in
Rural Communities in Malaysia



<Existing RIC>
1: Sungai Air Tawar
2: Kepala Batas
3: Sungai Rambai
4: Mata Ayer
5: Benut
6: Batu Kikir
7: Kubang Pasu
8: Pengkalan Hulu
9: Lurah Bilut
10: Ajil
11: Gua Musang
12: Merbok
13: Kanowit
14: Sipitang

<New RIC>
15: Kota Marudu
16: Bau

Location Map of Study Area

EXECUTIVE SUMMARY

SUMMARY

S1. BACKGROUND AND OBJECTIVES OF THE STUDY

S1.1 Background

- Aiming at contributing to bridging the digital divide between the urban and rural areas, MECM initiated the Rural Internet Program (RIP) in 2000 in pilot scale, establishing 14 pilot Rural Internet Centers (RIC). In order to launch a full scale RIP and bring it into success, the Government of Malaysia was desirous that the Government of Japan should extend technical cooperation, utilizing the experience and know-how in this field. In response, Japan International Cooperation Agency decided to implement the Study on Enhancement of Info-Communications Access in the Rural Communities in Malaysia and agreed on the Scope of the Work of the Study. Accordingly, the Study started in January 2002.

S1.2 Objectives of the Study

- Formulate an Action Plan for the enhancement of the info-communications access in the rural communities in Malaysia, in particular for the implementation of RIP and thereby bridge the digital divide between the urban and rural areas, and
- Carry out the technology transfer in the field of the enhancement of info-communications access in rural communities, to counterpart personnel and the people concerned in the course of the Study through the workshops, seminar and training in Japan as well as the joint implementation of the model RIC projects.

S2. SCHEDULE AND IMPLEMENTATION ORGANIZATION FOR THE STUDY

S2.1 Schedule of the Study and Outputs

- The Study was started at the end of January 2002 and completed in March 2003. The gross period of the Study extended over 14 calendar months with activities taking place for a period of 12.5 months in net.

- In the course of the Study, 5 kinds of reports: Inception, Progress, Interim, Draft Final and Final Reports, were prepared and submitted to the Government of Malaysia as well as to JICA. For technology transfer, one seminar and 10 workshops were held.

S2.2 Organization for the Study

- On the Malaysian side, a Steering Committee (SC) was set up, aiming at the effective and well-coordinated implementation of the Study, with the chairmanship of the Secretary General of MECM and with the representatives of seven (7) Ministries and organizations concerned with the enhancement of info-communications access in the rural communities as members. For daily coordination works and assisting the Study Team, a Working Group comprising the experts of the member organizations of SC was set up as well. From the main coordinating ministry of MECM, seven (7) counterparts were also assigned. To work with the Study Team at the model project sites, chairmen of the three (3) RIC Committees were appointed as sub-counterparts.
- On Japanese side, the Study Team implemented the Study with the supervision by JICA and Japanese Advisory Committee.

S3. CURRENT CONDITIONS OF INFO-COMMUNICATIONS ACCESS ENHANCEMENT IN RURAL AREA

S3.1 Socio-Economic Conditions of Malaysia

- In 2000, total population of Malaysia was 23.27 million while gross national product (GNP) was RM311 billion (US$81.8 billion). Per capita GNP was RM13,359 (US$3,516). In the country, there exists wide gap in economic development between the urban and rural areas. As of 1999, poverty level population was for 12.4 % in the rural area whereas it was 3.4 % in the urban area.

S3.2 Government Policy and Legal Framework for Info-Communications Access Enhancement in Malaysia

- The Malaysian Government has worked out a policy to ensure that their economy will catch up with the level of the advanced countries by 2020 and create a knowledge-based competitive economy. As an important component of the policy, the Government intends to extend the info-communications infrastructure into rural areas so that all the rural residents can afford adequate info-communications access.

- With regard to the legal framework, Malaysian Government has been placing emphasis to work out a system for guaranteeing the market oriented free competition and promoting the knowledge-based economy.

S3.3 Current Condition of Info-Communications Access in Malaysia

- As of the end of 2001, there were 4.71 million fixed telephone lines, 7.48 million mobile telephone lines and 2.12 million dial-up Internet subscribers.
- Although environment of info-communications access has been improving in Malaysia as a whole, regional disparity in info-communications related infrastructure still exists between the urban and rural areas. Coverage in the states where the majority of the population were living in the rural area, comprising Perlis, Kelantan and Kedah, in the national total of Internet subscribers and telephone lines were only 8% and 9%, in 2000, respectively whereas share of these states in the country's population was 15%. Though no separate data is available for the rural info-communications access condition, this clearly indicates the inferior access condition in the rural area.

S3.4 Demand for the Info-Communications Access in the Rural Communities

- According to the IT demand survey carried out in the Study which covered the communities where 13 pilot RICs and 3 model RICs are located with about 2,200 samples of the rural residents, 65% of the respondents do not own PC at home and 42 % had never used PC. Only 67 % of the respondents had Internet experience.
- On the other hand, about 65.0 % of the respondents who had never used PC show a willingness to learn , while 61.3 % of those who had never used Internet answered that they were willing to use it. These data clearly shows the willingness of the rural residents for having better info-communications access.

S3.5 On-going Projects for Info-Communications Access Enhancement in the Rural Communities

- Following the Government policy of bridging the digital divide between the urban and the rural areas, various Ministries and organization including MOE and MORD as well as aid organizations, are implementing projects with a view to enhancing the info-communications access in the rural communities including RIP under MECM. However, demarcation of the responsibilities seems unclear and coordination needs to be strengthened.

S3.6 Performance and Problems of Pilot RIP

- In order to contribute to bridging the digital divide between the urban and rural areas, MECM started the RIP on March 2000, establishing 14 pilot RICs in total in the country. Implementation of the pilot RIP was carried out under a tentative management organization with the assistance of various entities including Pos Malaysia, INTAN and Telekom Malaysia. Major components of RICs comprise i) Telecommunications infrastructure with Internet access, ii) 2 fixed telephone lines, and iii) 2 units of PC and printers.
- Due largely to the tentative management organization, pilot RICs have been suffering various problems including i) lack of full-time supervisor, ii) improper physical environment for equipment, iii) inadequate maintenance and repair, iv) inadequate publicity of RICs, v) low updating frequency of the local homepage, vi) inadequate IT training, resulting in inability to use RICs by the residents with low IT literacy. In consequence, 9 out of 14 pilot RICs are not functioning.

S3.7 Experiences of the Advanced Countries for Info-Communications Enhancement

- Trials have been made and experiences were accumulated in various advanced countries for the enhancement of the info-communications access on regional basis. Examples were collected and studied mainly referring to those in USA and Japan.
- Experiences were referred to mainly for i) collaborated management of RIC, ii) methodology for IT training, iii) Web contents and updating, iv) community involvement, and v) utilization of local area network.

S4. FORMULATION OF RIP FRAMEWORK AND INTERIM ACTION PLAN

- RIP being at the pilot stage, implementation and management organization still remains tentative and detailed scope and demarcation of responsibilities among the concerned parties are yet to be determined. Before the formulation of the Action Plan for full scale RIP, therefore, framework was firstly worked out.
- In line with the formulated RIP framework, Interim Action Plan was prepared as a tentative plan. Appropriateness of the Interim Action Plan was verified through the implementation of the model projects and feedback was reflected to formulate the final Action Plan.
- In the Framework, basic structure of RIP was determined including i) role of RIP, ii) characteristics of the project, iii) project period, iv) target group, v) project concept and scope.

S5. IMPLEMENTATION OF THE MODEL PROJECTS

S5.1 Objective of Model Project Implementation

- Model projects were formulated and implemented with the prime objective of verifying the appropriateness of the components and contents of RIP/RICs proposed in the interim Action Plan and to provide the feedback to work out the final Action Plan for RIP implementation.

S5.2 Selection of the Model Project Sites

- The 3 model project sites were selected based on the agreement between the Malaysian and Japanese sides: one in Peninsular Malaysia and one each in the states of Sabah and Sarawak. The one in Peninsular Malaysia was selected among the 14 on-going pilot RICs and the other 2 were newly set up.
- Specific locations and buildings to establish the model RICs were determined based on the MECM's criteria and availability of buildings. Accordingly, Sg. Air Tawar in Selangor state, Bau in Sarawak state and Kota Marudu in Sabah state were selected.

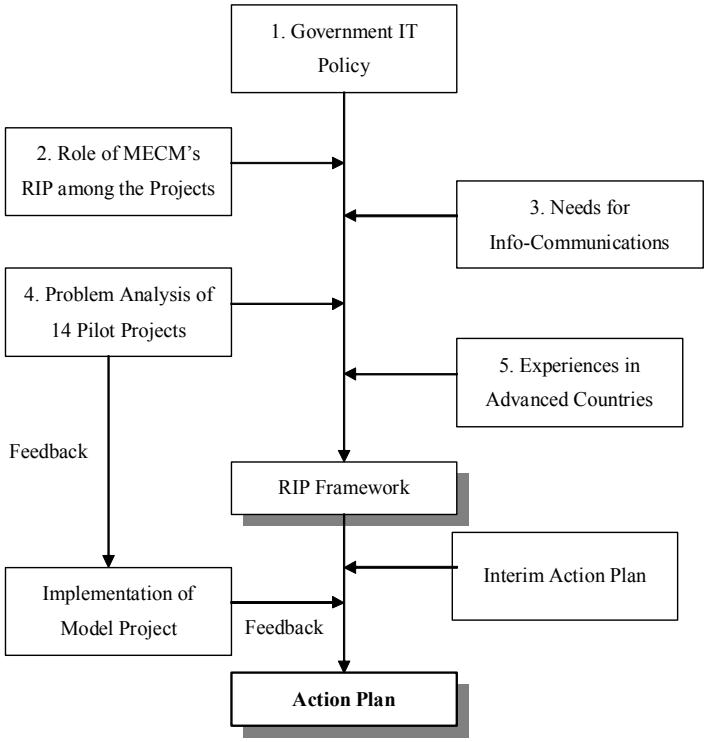
S5.3 Formulation and Implementation of the Model Projects

- The 3 model projects were formulated based on the structure and scope of the pilot RICs with some additions as trials for revitalizing and improving the RICs. The model project period was set at about 2 months.
- The Sg.Air Tawar model was characterized as a revitalization model for the existing pilot RICs. Emphasis was placed on management and software aspects including the revitalization of RIC Committees, frequent updating of local homepage and intensive provision of the IT training rather than the facility/equipment reinforcement and therefore only 3 PCs were installed.
- The Bau model was formulated to overcome the constraints of the existing post-office-based RICs in terms of business hours and space. Besides the fixed telephone lines, CDMA-FWA was applied to test its appropriateness as Internet access. Five PCs were placed there.
- The Kota Marudu model was established as a multi-station/high-speed network model to provide an option when one building can not provide the necessary space for a RIC. Three RIC stations: main and sub stations, were set up and connected by high-speed wireless communication system. Five PC were placed in total in the 3 RIC stations.

- Included as monitored items were i) Internet access speed, ii) frequency of access to Web contents, iii) frequency of homepage updating and level of acquiring updating skills, iv) attendance to the IT training beginners' courses and level of acquiring the skills, and v) degree of satisfaction of RIC users and IT training participants.

S6. FORMULATION OF ACTION PLAN

- Reflecting the feedback from the model project implementation into the Interim Action Plan, the final Action Plan was formulated as given below.
- Contents and recommendations made in the final Action Plan are given in the subsequent part: Recommendations.



Formulation Process of the Action Plan

S7. TECHNOLOGY TRANSFER

- Technology transfer was carried out in the various forms comprising, i) on-the-job training, ii) workshops and seminar, iii) IT training courses and, iv) site visit and lectures in Japan. In total, seven counterparts worked together with the Study Team and received technology transfer for the model project planning and implementation as well as action plan formulation. Two of the seven counterparts visited Japan for training.
- Besides the counterpart officials, RIC Committee/Task Force members were also the recipient of the transfer, 11 members having acquired the skills for homepage updating. In total, 179 community people attended the PC beginner's course and 158 for Internet beginner's course and acquired the skills.

RECOMMENDATIONS

R1. RECOMMENDATION ON THE POLICY FOR INFO-COMMUNICATIONS ACCESS ENHANCEMENT IN THE RURAL COMMUNITIES

- It is recommended that data should be collected with regard to the current development of IT infrastructures and IT demand in the rural communities and policy target including Internet subscription rate should be set up.
- Aiming at bridging the digital divide between the urban and the rural areas at the earliest possible time, it is recommended that broadband should be introduced into the rural area without much delay after its introduction into the urban areas.

R2. RECOMMENDATION FOR RIP FRAMEWORK

- It is recommended that primary objective of RIP should be to improve the info-communications access in the rural communities and thereby contribute to bridging the digital divide.
- It is recommended that distinctive features of RIP should be the provision of Internet access to the rural residents. Info-communications access enhancement for the school children should be the responsibility of MOE and that for the rural residents as a whole including those living in the remote rural areas should be the responsibility of MORD.
- It is recommended that RIP should be carried out as a public undertaking considering the national policy of digital divide bridging and low income level of the rural residents.
- It is recommended that RICs should be established at the sites where telephone lines are available to get Internet access. Appropriate sites are the centers of the districts and mukims(sub-districts).
- Considering the rapid change in the IT environment as well as the five year Malaysia Plan periods, the project period of RIP should be the 6 years starting from 2003: the midterm review year for 8th Malaysia Plan, through 2008: the midterm review year for 9th Malaysia Plan.
- It is recommended that the main target group of RIP should be the age group above 17 years of age including women, who have low IT literacy and are not taken care of the MOE's projects.
- It is recommended that RIP scope should comprise the following aiming at achieving its objective.

(i) Provide Internet access terminals in the places that can afford good access to rural residents. Though priority order is given, all the rural residents are welcome to use RIC except for small children.

(ii) Develop and update the local homepages to provide useful and interesting information for the rural residents. Homepage updating skills should be transferred to RIC Committee and Task Force members.

(iii) IT beginners' courses should be held frequently to raise the IT literacy level of the rural residents.

(iv) The services mentioned from (i) through (iii) above should be the core services of RIC and should be provided throughout the project period free-of-charge.

(v) It would be advantageous if any additional activities could be carried out utilizing the facility and software equipped in RICs to provide the core services on the condition that they should contribute to the promotion of social activities and regional economy. They would include i) community electronic bulletin board, mail magazine, ii) E-Government related activities including down-loading of official documents and various application forms, and iii) advertisement of local products and enterprises and opening of the virtual mall.

R3. ACTION PLAN FOR THE REVITALIZATION AND EXPANSION OF RIP

R3.1 Composition of the Action Plan

It is recommended that the composition of the Action Plan should be as follows.

(i) Determination of the scale of RIP (Number of RICs)

(ii) Selection of the sites and buildings for RIC

(iii) Planning for the telecommunication infrastructure and equipment to be installed in RICs and the operation and maintenance thereof

(iv) Development and updating of Web contents

(v) IT training program and publicizing plan

(vi) Operation and management plan for RIP/RICs

(vii) Institutional promotion measures for RIC activities

(viii) Monitoring program for the use of RICs

(ix) Implementation schedule for RIP

(x) Cost estimation and cost bearing for RIP

(xi) Evaluation of the contribution of RIP to bridging the digital divide

R3.2 Two Phase Strategy

- It is recommended that two phase strategy should be adopted with Phase 1: 2003 - 2005 and Phase 2: 2006 - 2008.
- In order to adapt to the rapid change of the external environment surrounding RIP, review should be carried out at the end of Phase 1 considering i) achievement of the objective of bridging the digital divide during Phase 1, ii) degree of satisfaction of the local communities for the function and services provided by RICs, iii) progress in the implementation of other relevant projects under other ministries/organizations and their impacts on RIP implementation, and iv) progress in the development of IT technology and IT infrastructure in the rural area as well as the socio-economic change and progress in internet access by the households in the rural area.

R3.3 Scale of RIP/Number of RICs

- It is recommended that the scale of RIP or the number of RICs should be determined so that the objective of digital divide bridging by RIP should be met together with the achievements of other relevant projects and increase of the Internet subscription rate.
- It is recommended that the index for measuring the bridging of the digital divide should be set as the number of the rural residents who are willing to take the opportunities and are given the opportunities for getting Internet access and for acquiring the necessary skills for using the Internet. If all these residents are given the opportunities, digital divide is considered to have been bridged.
- It is recommended that in order to meet the objective, 240 RICs including the existing 16 should be established in the country.
- RICs should be distributed to the states in proportion to the rural population of each state. In consequence, the smallest number of 4 RICs will be established in Perlis state while the largest number of 35 will be in Sabah state.

R3.4 Selection Criteria for RIC Sites

- It is recommended that besides the original MECM selection criteria, i) capacity and eagerness of the local government and the community to establish and operate RIC, and ii) avoidance of proximity with other relevant projects, aiming at improving the access condition evenly, should be added for the selection of the 224 new RICs.

R3.5 Selection of RIC Facility/Buildings

- Taking into account the verification results through the model project implementation, it is recommended that expansion of the post offices by constructing an annexes for the exclusive use for RICs should be placed in the first priority.
- In case this type of the expansion is not possible due to the shortage of land for expansion or some other reasons, it is recommended that RICs should be established either in i) a corner of the post office, ii) District Office, iii) Civic Center/Community Hall, or iv) State library. Though capacity and suitability for RIC is lower relative to a post office annex, these types were proven to be able to serve as an RIC through the model project implementation.
- If an adequate space can not be obtained in a single building/facility but instead, plural number of public buildings, which are located close each other, are available, and if installation of additional telephone lines is not possible or takes long of a time, RICs can be established by networking these buildings by wireless router system. Considering the high speed and high cost of the system, high speed access facility including leased line or broadband in the future, is recommended.

R3.6 Development of Telecommunication Infrastructure/Facility

- Considering the level of the users' requirement as well as lower cost, it is recommended that the fixed telephone line should be adopted during Phase 1, except for the case of a LAN/Multi-station.
- Though access condition would be improved with a larger number of RICs, total cost of "3 PCs per RIC option" is estimated to be about 50 % greater than that of the "5 PCs per RIC option". Together with the users' preference to the 5 PC option and PC utilization ratio in the model project implementation, it is recommended that 5 PC should be placed in each RIC.
- Specifications of PC should meet the requirement for uploading of the homepages. Scanner and digital camera will be useful for visualizing the local information and are recommended to be equipped in RICs.
- To avoid lightning damage, it is recommended that protection equipment should be installed at RICs including lightning rod and UPS (Uninterrupted power supply).

R3.7 Operation and Maintenance of Infrastructure/Facility

- To secure the RICs against the natural disasters including lightning and flooding, it is recommended that facility and equipment of RICs as well as the electronic data on the PCs should be insured. Theft insurance is also recommended.
- It is recommended that long-term maintenance and repair article should be included in the contract for equipment procurement and installation. To assure quick repair, on-site maintenance article should also be included.
- It is recommended that a full-time supervisor should be employed by MECM and assigned to each RIC who should be responsible for daily operation and management of RIC in cooperation with RIC Committee and Task Force.

R3.8 Development and Operation of Web Contents

- Considering the high level of skill required for the development, it is recommended that a Malaysian consultant should be employed by MECM to develop Web contents. On the other hand, it is recommended that its updating should be carried out consistently by RIC Committee/Task Force with community participation.
- The application softwares developed for the model project implementation have been proven very effective to fulfill the RIP function. It is therefore recommended that they should continue to be used in RICs
- It is recommended that links should be established with the Web sites which will provide useful and interesting information to the rural residents, aiming at enabling easy access.

R3.9 IT Training Plan: Beginners' Courses

- Strong demand for IT training for beginners, for both PC and Internet skills, were confirmed through the implementation of the model projects and pilot projects. It is therefore recommended that IT training for beginners should be carried out intensively throughout the RIP period.
- It is recommended that ,as much as possible, IT training should be provided to the residents in the forms of training courses, teaching by full-time supervisor and self-learning by self-tutorial materials.
- It is recommended that in principle beginners' courses should be held on Saturdays and Sundays to make the best use of RIC facility. Time length of each course should be around 4 hours but should be determined considering the IT skill level of the residents.

- It is recommended that training materials developed for the model projects should be continued to be used. Revision should be made to make the materials more adaptable to the respective communities including translating into the local languages. Trainers should be employed from among the community members.

R3.10 IT Training Plan: Homepage Updating

- It is recommended that IT training should be provided to the RIC Committee/Task Force members to acquire homepage updating skills so that local homepage can be continuously updated to provide useful and interesting information to the community.
- Considering the achievements of the model projects, it is recommended that young generation and those already having relatively high IT literacy should be included among the training participants so that around 5 members can acquire the necessary skills.

R3.11 Publicizing Plan

- It is recommended that pamphlets and signboards should be prepared to publicize the activities of RICs. Cooperation should be requested from the village chiefs and relevant community organizations for supporting RIC activities. Community events and photo-contests for homepage updating should be made good use of for RIC publicity.
- It is recommended that the common homepage developed for the model projects should be continuously updated and made good use of for RIC publicity.

R3.12 Operation and Management of RIP

- Considering the experiences of the pilot and model projects, it is considered essential for the success of the full scale RIP that a new division should be formed within MECM specialized in the overall management of RIP. It is recommended that a division comprising four (4) staff including a Chief, an IT/Communication expert, a Web contents expert and an accounting clerk, should be formed.
- This new division, "RIP Division", should be responsible for i) overall planning of RIP and budget preparation, ii) operation and maintenance of the 2 hosting servers, iii) employment and management of IT consultants/companies, iv) assigning one full-time supervisor for each RIC and periodic monitoring of the performance of RIC.
- Staffing of the division should be reviewed as RIP expands, in particular at the end of Phase 1 for any necessary reinforcement. It is worth consideration that RIP Division should assume concurrently the responsibility for the Universal Service Provision (USP) in the future with staff augmentation.

- It is recommended that a coordinating committee should be established comprising the representatives of the ministries and organizations concerned, aiming at supporting RIP and coordinating with other relevant projects. The Chairperson should be the Secretary General of MECM with the Deputy Secretary General as Deputy Chairman.

R3.13 Operation and Management of RICs

- It is recommended that rules should be made for the proper and efficient use of RICs in line with the objective of RIP, including prohibition on the improper use, maximum hour for use and a priority order among the users. Rules should be decided through the discussion and agreement between MECM and RIC Committees. Enforcement should be done by the full-time supervisors.
- It is recommended that a full-time supervisor should be assigned at each RIC by MECM for preventing the improper use, finding the troubles of the equipment and informing to the maintenance company, teaching the users for using Internet and monitoring of the RIC use.
- It is recommended that RIC Committee should comprise i) chairman, ii) deputy chairman, iii) secretary and iv) accountant. Major tasks for the RIC Committee/Task Force should comprise i) organizing events for publicity and promoting the use of RICs, ii) updating of the local homepage, iii) working out counter-measures for the problems, iv) taking on board the needs of the community, and v) formulation of the draft annual plan for RIC operation.
- To fulfill these tasks, it is recommended that RIC Committee should assume two distinctive functions: official function on behalf of the local authority and voluntary task force function. Consequently, RIC Committee should include the representatives of the Local Authority, schools, local companies, community-based organizations and people interested in RIC activities. Both in RIC Committee and Task Force, members of the younger generation and those with relatively high IT literacy should be included.
- To form the RIC Committee, MECM or the District Office should firstly call the concerned people and Committee members including the chairman, should be elected by mutual voting. The member list should be sent to MECM and State Government/District Office for consent.

R3.14 Manpower Development for RIC Management

- It is recommended that manpower should be developed from among the community members to take on board the needs of the community and reflect those needs to the RIC management. Manpower development should be done through on-the-job training by a facilitator, a Malaysian consultant to be employed by MECM, to acquire the capacity for

working out promotional measures, community involvement, absorbing community needs and updating of local homepages.

R3.15 Institutional Measures for RIP/RIC Promotion and Social Consideration

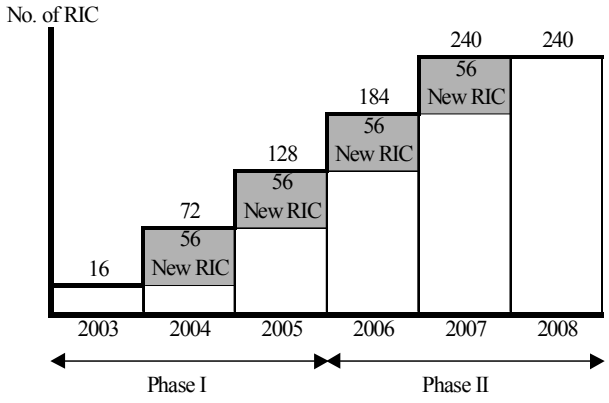
- In order to enhance the motivation of RIC users and stakeholders, it is recommended that i) an examination system to assess the skill level of the RIC users, and ii) a certification system for RIC Instructor, should be established by an appropriate Government institution with the arrangement of MECM.
- Aiming at enhancing the use of RICs by women and elderly people, "Women's Day and Elderly People's Day" will be held regularly when priority will be placed on those people. In the same context, special IT training courses will be held for those.

R3.16 Monitoring of the Performance

- In order to get the feedback for the improvement of operation and management of RICs, it is recommended that data for the performance and use of RICs should be obtained through observations and questionnaire survey for the RIC users and participants of IT training with the initiative of the supervisor. Monitoring data should include the number of RIC users and their attributes, frequency of browsing the local homepages and satisfaction of the users and IT training participants.

R3.17 Implementation Schedule of RIP

- Year 2003, the first year of full-scale implementation of RIP, should focus on the establishment of the new RIP Division and the revitalization of the existing pilot RICs, while no new RIC should be established.
- The same number (56) of new RICs should be established every year during four years from 2003 to 2006, considering the capacity of new RIP Division and ensuring at least two years operation of all RICs as well.
- The recommended implementation schedule is shown above.



R3.18 Cost of RIP

- Total cost of RIP is estimated at RM134.1 million (about 4.2 billion yen), of which capital cost or the sum of the facility cost and Web development cost is RM30.1 million (22.4 % of the total) and running cost including IT training cost and personnel cost is RM104.0 million (77.6 %). It is noted that the construction cost of the post office annex is included in the RIP cost.
- Of the total cost, RM42.0 million (31.3 %) is required during the current 8th Malaysia Plan whereas already-secured budget is RM 10 million. During the next 9th Malaysia Plan RM92.0 million (68.7 %) is required. Considering the substantial contribution of RIP to the digital divide bridging, it is recommended that the RIP budget for current Malaysia Plan should be increased to meet the required amount of RM42.0 million through the mid-term review to be carried out in 2003.

R3.19 Cost Bearing

- It is recommended that RIP should be carried out as a public undertaking and in principle all the capital and running costs required for RIP implementation should be borne by MECM except for a small part of the running cost.
- Post office annexes will be built for the exclusive use for RICs and therefore the cost should be borne by MECM. Pos Malaysia being a private organization, however, MECM can not directly finance the cost according to the Government rule. Under the circumstances, it is recommended that measure should be worked out so that the cost can be eventually financed by MECM. One possible way is that the annex is constructed by Pos Malaysia and leased to MECM.
- Aiming at effective management of RICs as well as promoting desirous collaboration among the concerned parties, maintenance cost and electricity cost for the building where RICs are placed, should be borne by the organization that owns and manages the building while printing paper cost should be borne by RIC users.

R3.20 Evaluation of RIP: Contribution to Bridging the Digital Divide between Rural and Urban Areas

- Total number of users of the recommended 240 RICs during the 6 years of project period is estimated at about 6,870 thousand of which the first time users above 17 years of age will be 1,260 thousand. Number of the attendees to the IT training courses for beginners will reach 460 thousand.
- Together with the contribution by other relevant projects and increase of the Internet subscription, digital divide between the urban and the rural areas will be bridged by 2008.

R3.21 Evaluation of RIP: Overall Effects

- Besides the digital divide bridging measured by index set in the Study, various beneficial effects are expected to be generated. As direct economic effect, telecommunication and transport costs can be reduced by obtaining information and doing applications by means of the Internet.
- By enhancing the information concerning health, public services and education as well as by attending the virtual education courses, the capacity and qualification as well as the lives of the RIC users are expected to be improved. In consequence, better employment opportunities and higher incomes can be expected.

R3.22 Selection of Priority Project and Evaluation of Contribution

- Considering that a large number of the on-going pilot RICs are not now functioning and augmentation of the experience of RIC management by the new Division of MECM is necessary and the lead time will be required for securing the additional budget for the new RIC, it is recommended that the revitalization of the 13 pilot RICs should be selected as the priority project.
- In implementing the project, it is recommended that the counter-measures against the prevailing problems of the pilot RICs should be worked out first and the experience of the model projects, in particular Sg. Air Tawar RIC should be referred to.
- Beneficial effects of the priority project will be sizable. Namely, 612 thousand rural residents will get Internet access through the project implementation, of which 114 thousand will be the first time users above 17 years of age. Number of IT training participants will be 42 thousand.

R3.23 Actions toward the Completion of RIP

- It is recommended that after-completion plan should be worked out in the final year of the project period, including the treatment and disposal of the equipment and facility.
- The plan should be worked out considering the progress of telecommunication infrastructure development in the rural area, introduction of IT devices into rural households and progress of digital divide bridging. Options may be to transfer RIC facility to the local communities or to other ministries/State Governments.

THE STUDY
ON
ENHANCEMENT OF INFO-COMMUNICATIONS
ACCESS IN RURAL COMMUNITIES
IN MALAYSIA

FINAL REPORT
SUMMARY

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ABBREVIATIONS

ADSL	: Asymmetric Digital Subscriber Line
APDIP	: Asia-Pacific Development Information Programme
ASP	: Active Server Pages
AVR	: Automatic Voltage Regulator
BBS	: bulletin board system
BEV	: Blacksburg Electronic Village
BOT	: Build-Operate-Transfer
BPPB	: Development, Privatization and Supply Division
C&M	: Communication and Multimedia
CCK	: Complementary Code Keying
CDMA	: Code Division Multiple Access
CDMA FWA	: Code Division Multiple Access Fixed Wireless Access
CD-R/RW	: Compact Disc - Recordable/ReWritble
CD-ROM	: Compact Disc – Read Only Memory
CGI	: Common Gateway Interface
CIO	: Chief Information Officer
CMA	: Malaysian Communications and Multimedia Communication Act
CMD	: Communications and Multimedia Division
COM	: Component Program
CPU	: Central Processing Unit
DAGS	: Demonstrator Application Grants Scheme
DHCP	: Dynamic Host Configuration Protocol
DLL	: Dynamic Link Library
DO	: District Office/Officer
DOS	: Disk Operating System
DOS	: Department of Statistics
DSL	: Digital Subscriber Line
DTTB	: Digital Cable TV
E-BP	: e-Bario Project
EC	: Electronic Commerce
ELFL	: e-Learning for Life
EPU	: Economic Planning Unit
FD	: Floppy Disk
FDI	: Foreign Direct Investment
FID	: Framework for Industry Development
FTP	: File Transfer Protocol
FTTH	: Fiber To The Home
GB	: Giga Bite
GDW	: Gerakan Desa Wawasan (Village Vision Movement in English)
GHz	: Giga-Hertz

GNP	: Gross National Product
HD	: Hard Disc
HP	: Home Page
HTML	: Hyper Text Markup Language
ICT	: Information and Communication Technology
IEEE	: Institute of Electronic and Electronics Engineers
IIS	: Internet Information Server
INFRA	: Institute for Rural Advancement
INTAN	: National Institute for Public Administration
IP	: Internet Protocol
ISAC	: IT Skill Assessment and Certification
ISDN	: Integrated Services Digital Network
ISP	: Internet Service Provider
IT	: Information Technology
JICA	: Japan International Cooperation Agency
JKKK	: Jawatankuasa Keselamatan dan Kemajuan Kampung (Village Security and Development Committee in English)
JKTPID	: PID Technical Committee
JPPID	: PID Steering Committee
JPY	: Japanese Yen
KB	: Kilo Bite
Kbps	: Kilo-bits per second
KL	: Kuala Lumpur
KPLB	: Kementerian Pembangunan Luar Bandar (Ministry of Rural Development in English)
KW	: Kilo-Watt
LAN	: Local Area Network
LCD	: Liquid Crystal Display
MANPU	: Malaysian Administrative Modernization and Management Planning Unit
MB	: Mega Byte(s)
Mbps	: Mega-bits per second
MCMC	: Malaysian Communications and Multimedia Commission
MDC	: Multimedia Development Corporation
MECM	: Ministry of Energy, Communications and Multimedia
MID	: Medan Info-Desa
MIMOS	: Malaysian Institute of Microelectronic Systems
MIU	: Mobile Internet Unit
MNCC	: Gabungan Komputer Nasional Malaysia
MODEM	: Modulator-demodulator
MOE	: Ministry of Education

MORD : Ministry of Rural Development
MRD : Ministry of Rural Development
MS : Microsoft
MSC : Multimedia Super Corridor
MTBF : Mean Time Between Failures
MTM : Mouse Training Module
MTS : Microsoft Transaction Server
MTTR : Mean Time To Repair
NGO : Non Governmental Organization
NPO : Non Profit Organization
O&M : Operation and Management
OJT : On the Job Training
OPP : Outline Perspective Plan
OS : Operating System
PC : Personal Computer
PID : Program Info-Desa
POS : Pos Malaysia Berhad
PSK : Phrase Shift
PTA : Parent Teacher Association
R&D : Research & Development
RAM : Random Access Memory
RIC : Rural Internet Center
RIP : Rural Internet Program
RM : Ringgit Malaysia
SC : Steering Committee
SEM : Self Examination Module
SMTP : Simple Mail Transfer Protocol
SNMP : Simple Network Management Protocol
STCD : Self Tutorial Compact Disc
STD : Standard
STIC : Strategic Thrust Implementation Committee
STM : Self Training Module
TM : Telecom Malaysia
TTM : Typing Training Module
TV : Television
UNDP : United Nations Development Programme
UNIMAS : Universti Malaysia Sarawak
UPS : Uninterrupted Power Supply
URL : Universal Resource Locater
US/USA : United States of America
USB : Universal Serial Bus

USO	: Universal Service Obligation
USP	: Universal Service Provision
VB	: Visual Basic
VBA	: Visual Basic for Applications
VCD	: Video Compact Disc
VSAT	: Very Small Aperture Terminal
WG	: Working Group
WID	: Web Info-Desa
WLL	: Wireless Local Loop
W/S	: Workshop
WS	: Workshop
WWW	: World Wide Web
XDE	: eXtended Development Environment