Agenda 3 Project Schedule and upcoming activities

Dr.Kitti presented on three major activities which are 1) the forming of working group, 2) system operation plan 3) testing plan.

- Two working groups, Technical working group and Application Usage working group, will be established.
- Main activities of technical working group is for service operation and support, training and knowledge sharing
- Test plan is designed to provide the basic data for developing the RWCS (Rural wireless communication system) model. The testing and the data collection will start from 1st caravan scheduled from 18th to 21st of July.
- Students from Maejo University participate to the project in the part of the system integration of WiMAX system and local site system. (Dr.Kitti)

Agenda 4 Confirmation of project term extension and PDM revision

- According to current project progress, JICA and NECTEC revised the project PDM (Project Design Matrix), PO (Plan of Operation) and decided project extension as attachment Annex 1.
- Term of the project is extended for 9 months.
- Several word expressions were changed in Output 2 of PDM.
- NECTEC ask NTC to extend the term of trial license.(Dr.Pansak)
  -NTC agreed.(Mr.Peerachaid)
- All project members agreed and confirmed.

Agenda 5 Conclusion of M/M between NECTEC and JICA (Ceremony)

According to the confirmation of project term extension and PDM revision, M/M[5] between NECTEC and JICA was concluded as attachment Annex2.

- Dr.Pansak and Mr.Motomura signed the M/M.

EOF

Attachment:

Annex1: revised PDM and PO

Annex2: M/M of JICA consulting team

[5] M/M:Minutes of meeting

Attachment:

Annex1: Revised PDM and PO

Project Design Matrix (PDM)

Version 2.0

Date of formulation: 16 July 2010

Project Title: 'the Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization'

Project Term :26th Apr 2009 – 26th Jan 2012 (2 years and 9 months) project sites: NECTEC at Science Park in Pathumthani Province, Mae Hong Son Province,

Target group: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province.

Narrative Summary	Objectively verifiable Indicators	Means for obtaining Indicators	Important Assumption
[Super Goal] (Long term goal) Enhancement of accessibility to Information Technologies (IT) in rural areas.	1. Expansion of internet access users among general households, schools and local business in rural areas.	1-1. NECTEC ICT Indicators 1-2. Report of Socio-Economic Survey by National Statistics Office (NSO)	
[Overall Goal] (Middle term goal) Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System. 2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	1&2 1) Interview Survey to NECTEC, NSTDA and NTC 2) NECTEC ICT Indicator	The Government of Thailand sustains the current IT policy aiming at community development.
[Project Purpose] To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test. 2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System. 3. Increase of Local trainers who have capacities for training and system operation. 4. Enhancement of skills and knowledge of Field Trial Testing. 5. Proposal and Recommendation made to NTC about proposed RWCS Model. 6. Satisfaction of model users in model site.	1. `The Study Report of RWCS '(Draft) 2-1. Interview Survey to NECTEC personnel, Japanese Experts, other actors 2-2. Evaluation Study Report of Trial Testing 3. The number of local trainers developed 4-1. Guideline for Field Trial Testing of Wireless Communication System 4-2. Monitoring report of Field Trial Testing 4-3. Interview Survey to NECTEC personnel, Japanese Experts, other actors 5. Proposal to NTC on Rural Wireless Communication Model 6. The result of Impact Survey (report)	NTC establishes the standards of Wireless Communication System
[Outputs] 1. Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site. 1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. 1-3. The design of Rural Wireless Community System Model and its parameter identified. 1-4. The Discussions held about feasibility and its usefulness of applications among related organizations.	1-1. Survey Report 1-2. Technical Training Report, Interview Surveys with Trainees 1-3. `The Study Report of Rural Wireless Communication Network Development' (Draft), Interview Survey with developers, Japanese Experts, and other actors. 1-4. Meeting Records	Personnel of NECTEC who were trained thru the Project continue to work at NECTEC

2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.	2-1. Quality and number of Curriculum developed by NECTEC in collaboration with local organizations 2-2. Number of users who use e-Learning applications[i] 2-3. Quality and number of Contents[ii] developed by the users of Curriculum[iii]	2-1. Curriculum Developed, Users Satisfactory Survey, Number of access to the Curriculum 2-2. Impact Survey(Report) with NECTEC 2-3. Contents developed, Interview Survey with NECTEC and users (developer), Number of access to the contents	
[Activities] **1. Activities for Output1.** 1-1. To carry out the survey of wireless communication technologies trend at model site. 1-2. To design and implement the wireless communication system at the model site. 1-3. To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision and acceptance). 1-4. To conduct the "On the Job Training (OJT)" for NECTEC's personnel in the field of site planning and system design of WiMAX (Worldwide Interoperability for Microwave Access) and other training courses in Japan. 1-5. To conduct training to the targeted local users using sample equipment. 1-6. To test and measure the performance of wireless communication system including applications running (e.g. internet access, voice over IP, video conferencing, e-Learning, and e-Community). 1-7. To examine and analyze the results of testing of wireless communication system and propose an evaluation study report including impact survey about socio-economic status. 1-8. To hold seminar to share the information about wireless communication system trial test with participants from relevant organizations, such as National Telecommunications Commission (hereinafter referred to as "NTC"), Universities, Institute, etc. 1-9. To identify and recommend the technical regulations to relevant authorities to be applied for rural wireless communication system. 1-10. To draft `The Study Report of Rural Wireless Communication System Development '.	[inputs] 【Thailand Side】 (1) Human Resources (Counterparts personnel) 1) Project Director(NECTEC) 2) Project Manager(NECTEC) 3) WiFi/WiMAX Research Members(NECTEC) 4) Technical Staff(NECTEC) 5) Other necessary project staff from NECTEC 6) School Teachers as Trainer from Mae Hong Son Province (2) Facilities - Office for Japanese Experts(including telephone line and internet facility) - Other necessary facility for project activities (3) Budget for Project Activities - Cost for Field Trial Testing - Domestic Training of NECTEC personnel	【Japan Side】 (1) Human Resources(Japanese experts) 1) Japanese Experts as Chief Advisor: One person 2) Other Japanese Experts for: System Design Site Planning Contents Development for e-Learning (2) Equipment and material Equipment and material for Trial Test(Including installation cost) Software for WiMAX Site Planning (3) Other necessary cost for Project Activities - Counterparts Training in Japan - Other	Unforeseen natural calamity or disaster by forced major which affects the Field Trial Test does not occur. Personnel of NECTEC who were trained thru the Project continue to work at NECTEC. [Pre-conditions] Frequency allocation, which is required for the Trial Test, was allocated. The procurement of Equipment needed

1-11 To propose the developed rural wireless communication system model to NTC. **2. Activities for Output2.** 2-1. To discuss with local school teachers and local authorities (e.g. governments, hospitals, police departments, libraries etc.) of Mae Hong Son Province to develop the curriculums. 2-2. To collaborate with targeted local users for creating the sample contents for e-Learning. 2-3. To conduct training for local instructors in Mae Hong Son Province. 2-4. To facilitate training for local users by local instructors. 2-5. To conduct the impact survey about the use of contents of the said curriculum. 2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed curriculums in other areas in the Kingdom of Thailand.			for the Trial Test is available.

Word definition

[i] E-Learning Application(s): Existing application(s) (e.g. learning management system (LMS), video conference system etc.) used when conducting e-learning.

[ii] Contents: Defined as those materials used as eLearning. It is possible to place several contents in one curriculum. For example, if mathematics composes of "basic math content" and "basic math comprehension test", then it has one curriculum and two contents.

[iii] Curriculum: Defined as those subjects which use eLearning, not only at schools but also at governmental authorities, police departments, hospitals, and libraries. For example, "mathematics" and "computer basics" signify curriculum for school, whereas "hospital client service" for hospitals, and "library eBook management" for libraries.

Plan of Operation, Version 2.0

Year	2009									2010												2011												'12
Counting month	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1
Activities																																		
1. Activities for Output1.																																		
1-1. To carry out the survey of wireless communication technologies trend at model site.																																		
1-2. To design and implement the wireless communication system at the model site.																																		
1-3. To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision and acceptance).																																		
1-4. To conduct the "On the Job Training (OJT)" for NECTEC's personnel in the field of site planning and system design of WiMAX (Worldwide Interoperability for Microwave Access) and other training courses in Japan.																																		
1-5. To conduct training to the targeted local users using sample equipment.																																		
1-6. To test and measure the performance of wireless communication system including applications running (e.g. internet access, voice over IP, video conferencing, e-Learning, and e-Community).																																		
1-7. To examine and analyze the results of testing of wireless communication system and propose an evaluation study report including impact survey about socio-economic status.																																		
1-8. To hold seminar to share the information about wireless communication system trial test with participants from relevant organizations, such as National Telecommunications Commission (hereinafter referred to as "NTC"), Universities, Institute, etc.																																		
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2-1. To discuss with local school teachers and local authorities (e.g. governments, hospitals, police departments, libraries etc.) of Mae Hong Son Province to develop the curriculums.																																		
2-2. To collaborate with targeted local users for creating the sample contents for e-Learning.																																		
2-3. To conduct training for local instructors in Mae Hong Son Province.																																		
2-4. To facilitate training for local users by local instructors.																																		
2-5. To conduct the impact survey about the use of contents of the said curriculum.																																		
2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed curriculums in other areas in the Kingdom of Thailand.																																		

To be conducted

Annex1

Annex2: M/M of JICA joint evaluation team

Annex2

MINUTES OF MEETING
BETWEEN
JAPANESE PROJECT CONSULTATION TEAM
AND
NATIONAL ELECTRONICS AND COMPUTER TECHNOLOGY CENTER
ON
JAPANESE TECHNICAL COOPERATION
FOR
THE PROJECT OF HUMAN RESOURCE DEVELOPMENT THROUGH UTILIZING THE INFORMATION TECHNOLOGY FOR RURAL COMMUNITY VITALIZATION

The Japanese Consultation Team (hereinafter referred to as "the Team") of Japan International Cooperation Agency (hereinafter referred to as "JICA") headed by Mr. Hiromi Motomura conducted a survey from 13 July to 16 July, 2010 in order to discuss on major issues related to the implementation of the project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization (hereinafter referred to as "the Project") and review the Project Design Matrix (hereinafter referred to as "PDM").

During its stay in the Kingdom of Thailand, the Team exchanged views and had a series of discussions with National Electronics and Computer Technology Center (hereinafter referred to as "NECTEC") with respect to desirable measures to be taken by JICA and NECTEC for the successful implementation of the Project.

As a result of the discussion, the Team and NECTEC agreed the matters referred to in the document attached hereto.

Bangkok, 16 July, 2010

Mr. Hiromi Motomura
Leader
Project Consultation Team
Japan International Cooperation Agency,
JICA

Dr. Pansak Siriruchatapong
Executive Director,
National Electronics and Computer
Technology Center,
The Kingdom of Thailand

THE ATTACHED DOCUMENT

I. OVERALL PROGRESS OF THE PROJECT

The Project team, briefed the meeting on the overall progress of the Project for the thirteen (13) month period from the official initiation to the third progress report.
NECTEC and JICA accepted the Progress Report, shown in ANNEX I (summary), and approved the progress of the Project by each expected output enumerated in the PDM version 1.0.

II. OPERATIONAL PLAN OF THE PROJECT

After the commencement of the project, several conditions surrounding the project such as the delay on procurement and installation of the equipment for the Project have been changed unexpectedly. It is difficult to achieve the outputs and purpose of the project within the term of cooperation owing to the influence above.

The Project team presented the modified version on the PDM (PDM ver.2.0) and the Plan of Operation (hereinafter referred to as "PO"), which builds on the modified PDM as the operational future plan of the Project.
Both NECTEC and JICA agreed upon the PDM ver.2.0, shown in ANNEX II, and the PO ver.2.0, shown in ANNEX III, with the following understanding:

(1) Term of Cooperation

The Project period will be extended by nine (9) months and to 26th January 2012.

(2) Revised PDM

The current effective PDM of the Project dated on 20 Jan, 2009, needs to be revised for the changed condition. After the discussions, both sides agreed on the revised PDM ver.2.0 as attached in ANNEX II. The major points of revised PDM are follows:

Overall:

- Word "IT curriculum" in Outputs, Activities, and Objectively Verifiable Indicators were changed into "curriculum" since the developed contents and curriculums are not necessarily IT.
- Word "school(s)" in Outputs, Activities, and Objectively Verifiable Indicators was changed into "targeted local users" since in 45 project sites there are various institutions other than schools.
- Ambiguous expressions in PDM were modified.
- Indicators and means for obtaining indicators were changed into realistically obtainable ones.

Project Term: 26th Apr 2009 – 26th January 2012 (2years and 9 months)

- Following the delay in WiMAX equipment procurement schedule, Project Term was extended accordingly.

Target groups: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province

- In PDM 1.0, Target Groups were "NECTEC, Schools, Communities, Local Authority, and local business of model site in Mae Hong Son Province. However, "local business" was deleted since among 45 project sites, there are no private business entities.

Output 2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.

- In PDM 1.0, Output 2 was "IT curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local schools in the Kingdom of Thailand.". The change was made since NECTEC would collaborate with institutions other than schools when developing curriculum.

Activity 1-3: To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision, and acceptance).

Activity 1-3 was newly added in PDM to reflect the additional works by the Project for approaching the Project purpose.

Activity 1-5: To conduct training to the targeted local users using sample equipment.

Activity 1-5 was newly added in PDM to reflect the additional works by the Project for approaching the Project purpose.

Activity 2-3: To conduct training for local instructors in Mae Hong Son Province.

- Activity 2-3 was changed from the original phrase "To conduct the Training of Trainers to counterpart from Mae Hong Son Province". In the Project trainers at Mae Hong Son Province are called "Instructors". Terminology in PDM was changed from "trainers" to "instructors" to avoid confusion accordingly.

Activity 2-4: To facilitate training for local users by local instructors.

- Activity 2-4 was changed from the original phrase "To conduct the training to local school teachers. (by the trained Trainers)". In the Project, local school teachers at each site in Mae Hong Son Province are called "local users" and similarly, trainers as "instructors". Terminologies in PDM were changed to avoid confusion accordingly

(3) Revised PO

To attain the Project purpose, the revised PO (ver. 2.0) derived from PDM ver.2.0 is shown in ANNEX III.

(4) Financial Sustainability

NECTEC will take necessary measures to ensure that the self-reliant operation of the Project will be sustained during and after the period of Japanese technical cooperation, through full and active involvement in the Project by all related authorities, beneficiary groups and institutions.

(5) Others

The Team gave the Project some recommendations to raise the positive output of the Project as follows;

- Improve the quality of fiber-optic network from Mae Hong Son to Pai and from Mae

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Hong Son to Mae Sariang.

- Improve the quality of Internet connection at ADSL sites (6 sites).
- Improve the instability of power supply for servers in Mae Hong Son core center.

III. ATTENDEES OF THE MEETING

The list of the attendees of the meeting is as shown in ANNEX IV.

(End of Document)

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ANNEX I
Annex2

THE PROJECT
OF
HUMAN RESOURCE DEVELOPMENT
THROUGH UTILIZING
THE INFORMATION TECHNOLOGY FOR
RURAL COMMUNITY VITALIZATION
IN
THE KINGDOM OF THAILAND

PROGRESS REPORT (3)

MAY 2010

JAPAN INTERNATIONAL COOPERATION AGENCY
JAPAN DEVELOPMENT SERVICE CO., LTD

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1. Achievement Status of Outputs and Activities

This report describes the situation regarding the achievement of outputs and activities in the Project for Human Resources Development for Local Vitalization using Information Technology between the submission of Progress Report 2 (PRGR2) (November 2009) and May 2010.

(1) Achievement Status of Outputs

1) Results seen in terms of presented reports and major activities:

• December	Planning and preparation for the opening ceremony
• 12/24	Report meeting on return to Japan (Yasui, Kishimoto, Murakami, Shiraishi, and Kobayashi)
• January	Support and OJT (on the job training) for receipt and PAT (Provisional Acceptance Test), installation, unified testing and FAT (Final Acceptance Test) of the first batch of equipment
• 2/8	Report meeting on return to Japan (Murakami and Kobayashi)
• February - Start of March	Confirmation of operation of the first batch of equipment
• 2/25	2nd JCC (Mae Hong Son)
• 3/5	Contents development seminar
• 3/18-3/20	eLearning workshop (Mae Hong Son)
• 3/28	Opening ceremony
• Middle of February - End of May	Support and OJT for receipt, PAT, installation, unified testing and FAT of the second batch of equipment
• Middle of April – May	Preparation of the draft PDM revision
• End of May	Presentation of the Progress Report 3 (PRGR3)

2) Formation and Composition of the Project Team

The Project is currently composed of four teams. Dr. Kitti, the Project Leader on the NECTEC side, and Mr. Yasui from the Japanese side jointly assigned tasks and managed progress for Teams 1 to 4 while supervising the overall Project. Management of the scheduled and actual Project activities and the state of progress of the Project is discussed every two months in the Steering Committee, and items requiring clearance are decided by the board members.

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- Team 1 : Responsible for WiMAX (System Design Expert and Site Planning Expert, and Thai C/Ps)
- Team 2 : Responsible for eLearning contents development and application (E-learning Contents Development Expert and Thai C/Ps)
- Team 3 : Responsible for training planning (Training Planning Expert and Thai C/Ps)
- Team 4 : Responsible for socioeconomic impact (Thai C/Ps)

(2) Achievement Status of Activities

The following table shows the tasks that must be performed in order to achieve the outputs according to the PDM and Inception Report (IC/R). The work that was implemented during the period of this progress report (PRGR3) is shaded. Also, the additional C/P training that was proposed in PRGR3 is shown in bold lettering as Work 2-1.

<First Half>	
Preparatory activities, etc.	
[Work 1-1]	Collection and analysis of related information
[Work 1-2]	Preparation and submission of the Inception Report (IC/R)
[Work 1-3]	Preparation of the technology transfer plan
[Work 1-4]	Compilation of the detailed plan of technology transfer activities
[Work 1-5]	Support for equipment procurement
[Work 1-6]	Implementation of additional training for the C/Ps
[Work 1-7]	Response to issues ascertained in the technical trend survey
Output 1 activities	
[Work 1-8]	Support for the wireless communications technology trend survey (including baseline survey) on the model site
[Work 1-9]	Support for implementation of wireless communications system demonstration testing on the model site
[Work 1-10]	Technology transfer (OJT) for Site Planning and System Design
[Work 1-11]	Preparation for and implementation of the training in Japan
[Work 1-12]	Measurement and testing of wireless communications system operating conditions. Survey of conditions of use of applications (internet access, IP voice, video conference, eLearning, e-community)
[Work 1-13]	Support for verification and analysis of the wireless communications system demonstration test results
[Work 1-14]	Support for the wireless communications system impact survey
[Work 1-15]	Support for workshops relating to demonstration testing of the model wireless communications system
Output 2 activities	
[Work 1-16]	Preparation of an IT curriculum and contents development plan
[Work 1-17]	Correction of the Contents Development Plan
[Work 1-18]	IT curriculum survey
[Work 1-19]	Support for preparation of eLearning prototype contents together with local school teachers
[Work 1-20]	Instructor training support for C/Ps in Mae Hong Son Province
[Work 1-21]	Implementation of training for local school teachers by the above instructors
[Work 1-22]	Support for the survey of effects of utilizing IT curriculums and contents

<Second half>	
Output 1 activities	
[Work 2-1]	**Implementation of the additional training for C/Ps**
[Work 2-2]	Implementation of the training in Japan
[Work 2-3]	Measurement and testing of wireless communications system operating conditions. Survey of conditions of use of applications (internet access, IP voice, video conference, eLearning, e-community) (continued)
[Work 2-4]	Support for verification and analysis of the wireless communications system demonstration test results (continued)
[Work 2-5]	Support for the wireless communications system impact survey (continued)
[Work 2-6]	Support for workshops relating to demonstration testing of the model wireless communications system (continued)
[Work 2-7]	Identification of wireless regulations for the local wireless communications system
[Work 2-8]	Preparation of the Local Wireless Communications Model Development Document (draft)
[Work 2-9]	Recommendation of the local wireless communications model to the National Telecommunications Committee (NTC)
Output 2 activities	
[Work 2-10]	Support for preparation of eLearning prototype contents together with local school teachers (continued)
[Work 2-11]	Instructor training support for C/Ps in Mae Hong Son Province (continued)
[Work 2-12]	Implementation of training for local school teachers by the above instructors (continued)
[Work 2-13]	Support for the survey of effects of utilizing IT curriculums and contents (continued)
[Work 2-14]	Support for discussions with related agencies concerning the feasibility of utilizing the developed IT curriculums and contents in other areas
Other activities	
[Work 2-15]	Preparation of the work completion report

The following paragraphs give a detailed account of the work contents that were implemented during the target period of PRGR3 (bold lettering).

(3) Detailed account of work contents implemented during PRGR3

(Preparation and Other Activities)

Support for equipment procurement (Work 1-5)

The following activities were implemented during this period: procurement of the first batch equipment, PAT, delivery, installation, unified tests, FAT and test run, followed by procurement of the second batch equipment, PAT, delivery, installation, unified tests, FAT and test run. JDS provided support for the vendor and C/Ps.

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(Output 1 activities) (Support for development of a model system (proposal) for local wireless communications)

Technology transfer (OJT) for site planning and system design (Work 1-10)

In addition to conducting support for equipment procurement and installation, technology transfer was implemented for the C/Ps concerning the following items:

- Acceptance tests (PAT, FAT)
- Test run plan
- Installation and unified tests
- OJT based on training by the vendor

Preparation for and implementation of the training in Japan (Work 1-11)

In the training in Japan, the trainees learn about the private companies, universities and research agencies that are involved in actual wireless communications in cities and regional areas, i.e. they observe operating conditions of commercial networks and information systems. In addition, they learn about examples of ubiquitous computing by private companies, the business conditions of network companies, and methods of business extension and operation based on collaboration between research agencies (universities, etc.) and the private sector. The experience and knowledge acquired by the counterparts in the training in Japan will contribute to the formulation and technical verification of the telecommunications environment (wireless communications model) in the regional areas of Thailand and improvement in the quality of the sustainable technology transfer environment.

It was originally intended to stage the training in Japan around February 2010, however, due to circumstances on the JICA side, it was been postponed until June 6~15, 2010. The following four personnel of NECTEC have been selected as the trainees. Preparations are currently being advanced between the project side and JDS headquarters for the training in Japan.

1. Dr. Kitti Wongthavarawat (Project management)
2. Dr. Supakorn Siddhichai (Network)
3. Mr. Kitiwat Limmongkol (WiMAX research)
4. Mr. Matanee Kitjaroen (Hardware development)

(Output 2 activities) (Support for development of IT curriculums that will contribute to local vitalization through the collaboration of NECTEC and schools in the model area

Support for preparation of eLearning prototype contents together with local school teachers (Work 1-19)

The contents development seminar "How to Develop Contents Utilizing WiMAX Technology" was implemented for the C/Ps on March 5, while the eLearning workshop "How to Create eLearning Contents" for instructors in Mae Hong Son Province was implemented from March 18-20. Details will be described later.

Instructor training support for C/Ps in Mae Hong Son Province (Work 1-20) and Implementation of training for local school teachers by the above instructors (Work 1-21)

So far no particular training has been implemented for instructors. Arrangement is currently being made with the C/Ps with a view to implementing a mini-workshop on LearnSquare management and operation in August. However, teachers who have already attended workshops appear to be autonomously passing on technique to other teachers at schools. Also, it was scheduled for LICT and the IT supervisor at Suksa Song Kroa to implement a LearnSquare seminar on March 26-27 (targeting approximately 60 people). In future it is scheduled to grasp the teacher training that has been conducted internally and autonomously.

Support for the survey of effects of utilizing IT curriculums and contents (Work 1-22)

Concerning survey of contents utilization, basically the contents haven't been prepared yet and only a question about use of Web online tests has been added to the questionnaire. See Annex 6 for the results of the workshop questionnaire.

Project Design Matrix (PDM)

Version 2.0

Date of formulation: 16 July 2010

Project Title: 'the Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization'

Project Term :26th Apr 2009 – 26th Jan 2012 (2 years and 9 months) project sites: NECTEC at Science Park in Pathumthani Province, Mae Hong Son Province.

Target group: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province.

Narrative Summary	Objectively verifiable Indicators	Means for obtaining Indicators	Important Assumption
[Super Goal] (Long term goal) Enhancement of accessibility to Information Technologies (IT) in rural areas.	1. Expansion of internet access users among general households, schools and local business in rural areas.	1-1. NECTEC ICT Indicators 1-2. Report of Socio-Economic Survey by National Statistics Office (NSO)	
[Overall Goal] (Middle term goal) Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System. 2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	1&2 1) Interview Survey to NECTEC, NSTDA and NTC 2) NECTEC ICT Indicator	The Government of Thailand sustains the current IT policy aiming at community development.
[Project Purpose] To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test. 2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System. 3. Increase of Local trainers who have capacities for training and system operation. 4. Enhancement of skills and knowledge of Field Trial Testing. 5. Proposal and Recommendation made to NTC about proposed RWCS Model. 6. Satisfaction of model users in model site.	1. 'The Study Report of RWCS '(Draft) 2-1. Interview Survey to NECTEC personnel, Japanese Experts, other actors 2-2. Evaluation Study Report of Trial Testing 3. The number of local trainers developed 4-1. Guideline for Field Trial Testing of Wireless Communication System 4-2. Monitoring report of Field Trial Testing 4-3. Interview Survey to NECTEC personnel, Japanese Experts, other actors 5. Proposal to NTC on Rural Wireless Communication Model 6. The result of Impact Survey (report)	NTC establishes the standards of Wireless Communication System
[Outputs] 1. Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site. 1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. 1-3. The design of Rural Wireless Community System Model and its parameter identified. 1-4. The Discussions held about feasibility and its usefulness of applications among related organizations.	1-1. Survey Report 1-2. Technical Training Report, Interview Surveys with Trainees 1-3. 'The Study Report of Rural Wireless Communication Network Development' (Draft), Interview Survey with developers, Japanese Experts, and other actors. 1-4. Meeting Records	Personnel of NECTEC who were trained thru the Project continue to work at NECTEC

ANNEX II
Annex2

2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.	2-1. Quality and number of Curriculum developed by NECTEC in collaboration with local organizations 2-2. Number of users who use e-Learning applications[i] 2-3. Quality and number of Contents[ii] developed by the users of Curriculum[iii]	2-1. Curriculum Developed, Users Satisfactory Survey, Number of access to the Curriculum 2-2. Impact Survey(Report) with NECTEC 2-3. Contents developed, Interview Survey with NECTEC and users (developer), Number of access to the contents	
[Activities] **1. Activities for Output1.** 1-1. To carry out the survey of wireless communication technologies trend at model site. 1-2. To design and implement the wireless communication system at the model site. 1-3. To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision and acceptance). 1-4. To conduct the "On the Job Training (OJT)" for NECTEC's personnel in the field of site planning and system design of WiMAX (Worldwide Interoperability for Microwave Access) and other training courses in Japan. 1-5. To conduct training to the targeted local users using sample equipment. 1-6. To test and measure the performance of wireless communication system including applications running (e.g. internet access, voice over IP, video conferencing, e-Learning, and e-Community). 1-7. To examine and analyze the results of testing of wireless communication system and propose an evaluation study report including impact survey about socio-economic status. 1-8. To hold seminar to share the information about wireless communication system trial test with participants from relevant organizations, such as National Telecommunications Commission (hereinafter referred to as "NTC"), Universities, Institute, etc. 1-9. To identify and recommend the technical regulations to relevant authorities to be applied for rural wireless communication system. 1-10. To draft "The Study Report of Rural Wireless Communication System Development".	[inputs] 【Thailand Side】 (1) Human Resources (Counterparts personnel) 1) Project Director(NECTEC) 2) Project Manager(NECTEC) 3) WiFi/WiMAX Research Members(NECTEC) 4) Technical Staff(NECTEC) 5) Other necessary project staff from NECTEC 6) School Teachers as Trainer from Mae Hong Son Province (2) Facilities - Office for Japanese Experts(including telephone line and internet facility) - Other necessary facility for project activities (3) Budget for Project Activities - Cost for Field Trial Testing - Domestic Training of NECTEC personnel	【Japan Side】 (1) Human Resources(Japanese experts) 1) Japanese Experts as Chief Advisor: One person 2) Other Japanese Experts for: System Design Site Planning Contents Development for e-Learning (2) Equipment and material Equipment and material for Trial Test(Including installation cost) Software for WiMAX Site Planning (3) Other necessary cost for Project Activities - Counterparts Training in Japan - Other	Unforeseen natural calamity or disaster by forced major which affects the Field Trial Test does not occur. Personnel of NECTEC who were trained thru the Project continue to work at NECTEC. [Pre-conditions] Frequency allocation, which is required for the Trial Test, was allocated. The procurement of Equipment needed

1-11. To propose the developed rural wireless communication system model to NTC. **2. Activities for Output2.** 2-1. To discuss with local school teachers and local authorities (e.g. governments, hospitals, police departments, libraries etc.) of Mae Hong Son Province to develop the curriculums. 2-2. To collaborate with targeted local users for creating the sample contents for e-Learning. 2-3. To conduct training for local instructors in Mae Hong Son Province. 2-4. To facilitate training for local users by local instructors 2-5. To conduct the impact survey about the use of contents of the said curriculum. 2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed curriculums in other areas in the Kingdom of Thailand.			for the Trial Test is available.

Word definition

[i] E-Learning Application(s): Existing application(s) (e.g. learning management system (LMS), video conference system etc.) used when conducting e-learning.

[ii] Contents: Defined as those materials used as eLearning. It is possible to place several contents in one curriculum. For example, if mathematics composes of "basic math content" and "basic math comprehension test", then it has one curriculum and two contents.

[iii] Curriculum: Defined as those subjects which use eLearning, not only at schools but also at governmental authorities, police departments, hospitals, and libraries. For example, "mathematics" and "computer basics" signify curriculum for school, whereas "hospital client service" for hospitals, and "library eBook management" for libraries.

Year	2009									2010												2011												'12
Counting month	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1
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2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed curriculums in other areas in the Kingdom of Thailand.																															—	—	—	

— To be conducted

ANNEX IV

List of Attendants

(Thai Side)

Thailand International Development Cooperation Agency (TICA)

Mrs.Charinthip Yosthasan	Development Cooperation Officer
Mrs.Pantila Seangchan	Development Cooperation Officer

National Telecommunications Commission (NTC)

Mr. Pecrachaid Pongsiri	Senior Officer, Universal service Bureau

Mae hong son Governor's Office

Ms.Raphat Sethavorakul	Personnel Analyst Officer, HRD Division

Mae hong son Educational Service Area2

Mr.Chukiat Dantanasap	Director

National Electronics and Computer Technology Center (NECTEC)

Dr.Pansak Siriruchatapong	Executive Director
Dr.Kitti Wongthavarawat	Project Coordinator/ Researcher
Dr.Supakorn Siddhichai	Researcher
Mr.Kitiwat Limmongkol	Project administrator/Assistant Researcher

H. M

(Japanese Side)

Japan International Cooperation Agency (JICA) Consultation Team

Mr. Hiromi Motomura	Leader
Mr. Yuichi Ichikawa	Study Planning

Japan International Cooperation Agency (JICA) Thailand Office

Mr. Akihisa Tanaka	Senior Representative
Mr. Katsuya Miyoshi	Project Formulation Adviser
Ms.Chayanum Artakul	Program officer

Japan International Cooperation Agency (JICA) Expert

Mr. Mamoru Yasui	Chief Advisor/ Test planning
Mr. Akira Kishimoto	WiMAX system design
Mr. Yoji Murakami	Site planning
Ms. Mayuka Kobayashi	Training planning/Project coordinator

Meeting Minutes of 4th JCC

The Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization

Date	6th Mar, 2012		
Participant	Thailand side		
	Chairperson		
	NECTEC	Executive Director	Dr.Pansak Siriruchatapong
	TICA	Development Cooperation Officer	Mrs.Somsuan Howe
	TICA	Development Cooperation Officer	Mrs.Malaiwan Lertkhumsup
	NBTC	Division Director Universal service Bureau	Mr. Peerachaid Pongsiri
	Mae hong son Governor's Office	Vice Governor	Mr. Sutha Saiwanich
	NECTEC	Project Co-Manager/ Senior Researcher	Dr.Kitti Wongthavarawat
	NECTEC	Senior Researcher	Dr.Supakorn Siddhichai
	NECTEC	Researcher	Ms. Kasama Kongsmak
	NECTEC	Project administrator /Assistant Researcher	Mr.Kitiwat Limmongkol
	Japan side		
	JICA Head quarters	Consultation Team Leader/ Study Planning	Mr. Tomonari Takeuchi
	JICA Head quarters	Consultation Team/ Evaluation	Mr. Sunao Sato
	JICA Thailand office	Senior Representative	Mr. Tomoyuki Kawabata
	JICA Thailand Office	Project Formulation Adviser	Mr. Katsuya Miyoshi
	JICA Expert	Chief Advisor/ Test planning	Mr. Mamoru Yasui
	JICA Expert	WiMAX system design	Mr. Akira Kishimoto
	JICA Expert	Site planning	Mr. Yoji Murakami
	JICA Expert and coordinator	Training planning/Project coordinator	Ms. Mayuka Kobayashi
M/M recorder	Mr. Witit Sujjapong,Mr. Kitiwat Limmongkol,Ms. Mayuka Kobayashi		
Signature	Thailand Dr. Pansak Siriruchatapong (NECTEC)	Japan: Mr. Kazuhiro Yoneda (JICA)	

Minutes:

Dr. Pansak declared the opening of the 4th JCC meeting to JCC members and participants. Mr. Takeuchi gave the opening speech to all participants.

Agenda 1 Announcement of Project extension and PDM revision

Mr. Yasui explained about Project extensions. The first extension extended the Project period for 9 months due to equipment procurement delay. The Second Extension extended the Project terminal date to March 10, 2012 due to flooding situation in Thailand.

The Meeting acknowledged the extensions.

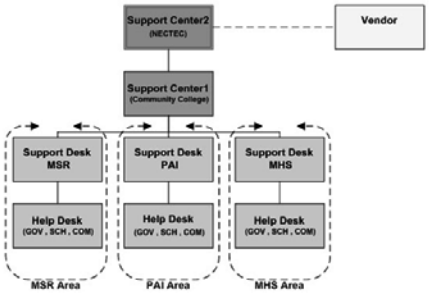
Agenda 2 Project Final Report

- **Completion of the JICA Technology Transfer Activities**

Mr. Yasui reported about activities and achievements by key project components

- WBB Network Infrastructure setup: A total of 45 school, government and community sites and a core center were successfully set up.
- Training: OJTs and seminars for technology transfer to NECTEC team were performed by JICA experts. NECTEC team then performed trainings for system administrators, local instructors and users in MHS.
- Field Trial Testing: 5 major criteria and a testing process were set up for field trial testing and was successfully implemented.
- PPO and Workgroup Activities: NECTEC and JICA supported Project Promotion Office (PPO) to implement application usage and technical workgroups.
- System Supports: A 4-tier structure for system support was set up with escalation path up to NECTEC and vendors as the following chart.

HELPDESK ORGANIZATION CHART



- **Completion of Field Trial Testing and the Deliverable: RWCS development model**

  Dr. Kitti presented as below:

  - Background: NBTC study reported a digital divide problem where only 19% of the area had broadband access. Thailand ICT Policy Framework called for broadband as basic infrastructure coverage targets of 80% by 2015 and 95% by 2020.
  - A development model and CAPEX simulation toll for Rural Wireless Communications Model (RWCS) was established, targeting Zone B under NBTC USO zoning concept.
  - All the processes of preliminary assessment, system design, equipment procurement and delivery, system implementation and system operation were successfully implemented.
  - Key points for application, implementation and post-implementation of RWCS model were cited as lessons learned and recommendations.

- **Project achievements and lessons learned**

  Dr. Supakorn presented as below:

  - RWCS Model Development trainings:
    - 6 seminars and 13 OJTs by JICA team for NECTEC team
    - 6 workshops, 4 practical trainings and 3 vendor trainings by NECTEC and vendors
    - Workgroup meetings were performed by project participants for end-users
  - Content Development trainings:
    - 6 seminars by JICA team for NECTEC team
    - 6 workshops,7 mini-workshops and 6 remote classes by NECTEC and vendors
    - 118 curriculum and 781 contents were developed by end-users. Workgroup meetings were performed by project participants for end-users
  - Vision of local leaders was cited as the most important factor for success of local vitalization.
  - High rate of local staff turnover and unstable power supply were cited as obstacles.

- **Impact survey results**

  Ms. Kasama presented about project impacts as below:

  - System
    - There was a marked improvement in PC and network conditions.
    - There was a marked increase in availability, bandwidth and choices of wireless communication
  - Training
    - There were more wireless technology instructors with expanded technical skills
  - Usage & E-Learning
    - More frequent Internet access.
    - Schools expanded their IT curriculum. Teachers and students became more interested in e-

learning and studying IT subjects

- Socio-economic impacts
  - Socio-economic impact survey will be held after 1-2 years. The current impact is remitted because the operation has been only for 1 year after installation.
  - Reduction in traveling time, improvement in job skills and vitalized business and IT community were evidenced
  - Social network among MHS administrators, instructors and users was expanded. It is greatest impact.

- **Sustainability Plan and further cooperation requested after the Project transitions**

Dr.Kitti presented as below:

- Sustainability plan must be drawn up to ensure smooth transition of ownership of the service and maintenance to the local organization.
- Local ownership, budget to maintain the system and service and capabilities of staff were cited as key success factors.
- A transition plan specifying project ownership, organization, management and operation was to be established.
- Roles and responsibilities of NECTEC, PPO, technical workgroup and application usage workgroup needed to be specified
- Activity Plan for NECTEC, PPO, technical workgroup and application usage workgroup needed to be established.
- Current developments:
  - NECTEC was under discussion with MHS provincial administration and municipality
  - NECTEC continued the technical supports and helped transition
  - Expansion of access points

Agenda 3 Joint terminal evaluation results

Mr. Takeuchi explained about the result of joint terminal evaluation implemented by JICA and NECTEC during February 24 - March 5, 2012.

- Results: RWCS Development Model and more than 100 curriculum were developed
- Summary of evaluation based on 5 criteria:
  - Relevance- very high
  - Effectiveness - very high
  - Efficiency - medium plus (due to delay in equipment installation)
  - Impact - high
  - Sustainability - medium plus (due to maintenance issues, unstable power supply and uncertainty of WiMAX licensing)
- Good implementation process (very practical OJT, stepwise technology transfer and transfer of project management skills) were cited as success factors.
- Server environment (unstable power supply and natural disaster) was cited as negative factor.
- Conclusion: Project had been implemented successfully.
- Recommendations:
  - Execute the sustainability plan by November 2012
  - Integrate WiMAX with other communication technologies
  - Utilize in other fields (tourism, e-government, remote court, remote medical service, disaster prevention, etc).
  - Disseminate to minimize a gap between schools

Agenda 4 Discussion and Q&A

- TICA participant hailed the Project as a good cooperation between Japan and Thailand to achieve technology transfer. Sustainability needed to be workout and more areas of Thailand should move to ICT development.
- NBTC participant expressed gratitude. NBTC would use experience and knowledge from the Project for future development.
- JICA participants expressed appreciation. NECTEC and MHS administration should try to set budget and human resources to sustain the Project. Knowledge from the project might also be useful for Thailand disaster management which Japan was very keen to cooperate. JICA would continue to monitor the progress and keep close communication with NECTEC and MHS.
- MHS Vice Governor thanked JICA, NECTEC, TICA and NBTC. Not only equipment but also knowledge gained was appreciated. MHS would try their best to sustain the Project.
- NECTEC Executive Director appreciated all members' efforts. NECTEC would cooperate with NBTC and MICT to achieve targets of national broadband policy. NECTEC would try to disseminate knowledge and knowhow gained from the Projects to other areas.

Agenda 5 Ceremony

- **RWCS Document submission to NBTC**

RWCS development model document was delivered to NBTC by NECTEC.

- **Conclusion of M/M between NECTEC and JICA (Ceremony)**

According to the confirmation of project term extension and PDM revision, M/M[1] between NECTEC and JICA was concluded as attachment Annex2.

- Dr. Pansak and Mr. Takeuchi signed the M/M

EOF

Attachment:

Annex1: Revised PDM and PO

Annex2: M/M of JICA joint evaluation team

[1] M/M :Minutes of meeting

Project Design Matrix (PDM)

Version 3.0

Date of formulation: 4 January 2012

Project Title: 'the Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization'

Project Term :26th Apr 2009 – 10th Mar 2012 (2 years and 11 months) project sites: NECTEC at Science Park in Pathumthani Province, Mae Hong Son Province,

Target group: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province

Narrative Summary	Objectively verifiable Indicators	Means for obtaining Indicators	Important Assumption
[Super Goal] (Long term goal) Enhancement of accessibility to Information Technologies (IT) in rural areas.	1. Expansion of internet access users among general households, schools and local business in rural areas.	1-1. NECTEC ICT Indicators 1-2. Report of Socio-Economic Survey by National Statistics Office (NSO)	
[Overall Goal] (Middle term goal) Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System. 2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	1&2 1) Interview Survey to NECTEC, NSTDA and NTC 2) NECTEC ICT Indicator	The Government of Thailand sustains the current IT policy aiming at community development
[Project Purpose] To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test. 2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System. 3. Increase of Local trainers who have capacities for training and system operation. 4. Enhancement of skills and knowledge of Field Trial Testing. 5. Proposal and Recommendation made to NTC about proposed RWCS Model. 6. Satisfaction of model users in model site.	1. The Study Report of RWCS '(Draft) 2-1. Interview Survey to NECTEC personnel, Japanese Experts, other actors 2-2. Evaluation Study Report of Trial Testing 3. The number of local trainers developed 4-1. Guideline for Field Trial Testing of Wireless Communication System 4-2. Monitoring report of Field Trial Testing 4-3. Interview Survey to NECTEC personnel, Japanese Experts, other actors 5. Proposal to NTC on Rural Wireless Communication Model 6. The result of Impact Survey (report)	NTC establishes the standards of Wireless Communication System
[Outputs] 1. Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site. 1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. 1-3. The design of Rural Wireless Community System Model and its parameter identified. 1-4. The Discussions held about feasibility and its usefulness of applications among related organizations.	1-1. Survey Report 1-2. Technical Training Report, Interview Surveys with Trainees 1-3. 'The Study Report of Rural Wireless Communication Network Development' (Draft), Interview Survey with developers, Japanese Experts, and other actors. 1-4. Meeting Records	Personnel of NECTEC who were trained thru the Project continue to work at NECTEC

2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.	2-1. Quality and number of Curriculum developed by NECTEC in collaboration with local organizations 2-2. Number of users who use e-Learning applications 2-3. Quality and number of Contents" developed by the users of Curriculum"	2-1. Curriculum Developed, Users Satisfactory Survey, Number of access to the Curriculum 2-2. Impact Survey(Report) with NECTEC 2-3. Contents developed, Interview Survey with NECTEC and users (developer), Number of access to the contents	
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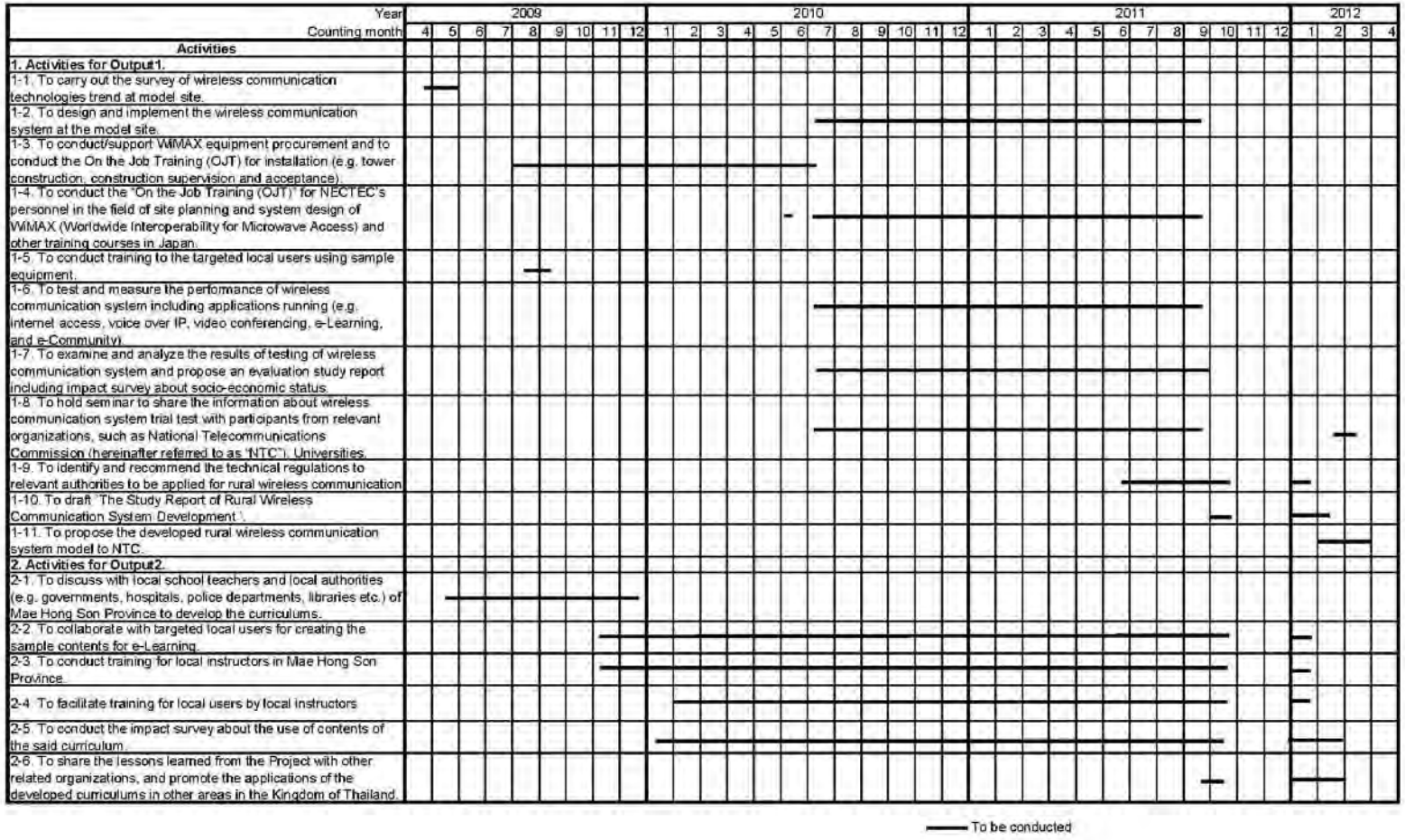
Plan of Operation, Version 3.0



Annex2: M/M of JICA joint evaluation team

MINUTES OF MEETING
BETWEEN
JAPAN INTERNATINAL COOPERATION AGENCY
AND
AUTHORITIES CONCERNED OF THE GOVERNMENT OF THE KINGDOM OF THAILAND ON THE JAPANESE TECHNICAL COOPERATION FOR THE PROJECT OF HUMAN RESOURCE DEVELOPMENT THROUGH UTILIZING THE INFORMATION TECHNOLOGY FOR RURAL COMMUNITY VITALIZATION

The Japanese Terminal Evaluation Team (hereinafter referred to as "the Japanese Team") organized by Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Tomonari Takeuchi, visited the Kingdom of Thailand from February 23 to March 6, 2012 for the purpose of conducting a terminal evaluation of "The Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization" (hereinafter referred to as "the Project").

During its stay in the Kingdom of Thailand, the Japanese Team had series of discussions and exchanged views with the National Electronics and Computer Technology Center (hereinafter referred to as "NECTEC") and authorities concerned of the Government of the Kingdom of Thailand (hereafter referred to as "the Thai side"), in order to jointly evaluate the achievements of the Project.

As a result of the discussions, both sides agreed to the matters in the documents attached hereto.

Bangkok, March 6, 2012

竹内 知成

Mr. Tomonari Takeuchi
Team Leader
Japanese Terminal Evaluation Team
Japan International Cooperation Agency,
Japan

P. Siriruchatapong

Dr. Pansak Siriruchatapong
Executive Director
National Electronics and Computer
Technology Center,
Thailand

i

ATTACHED DOCUMENT

JOINT TERMINAL EVALUATION REPORT

ON

THE PROJECT ON
HUMAN RESOURCE DEVELOPMENT
THROUGH UTILIZING THE INFORMATION TECHNOLOGY FOR
RURAL COMMUNITY VITALIZATION

March 6, 2012

FISCAL YEAR

Fiscal year of the Government of Japan (JFY): April 1 – March 31

Fiscal year of the Government of the Kingdom of Thailand (TFY): October 1 – September 30

LIST OF ABBREVIATION AND ACRONYMS USED

ASEAN	Association of Southeast Asian Nations
C/P	Counterpart
DAC	Development Assistance Committee
ICT	Information and Communication of Technology
IT	Information Technology
JCC	Joint Coordinating Committee
JICA	Japan International Cooperation Agency
MICT	Ministry of Information and Communication of Technology
M/M	Minutes of Meeting
MHS	Mae Hong Son
NBTC	National Broadcasting and Telecommunications Commission
NECTEC	National Electronics and Computer Technology Center
NGN	Next Generation Network
NSTDA	National Science and Technology Development Agency
OJT	On the Job Training
OECD	Organization for Economic Co-operation and Development
PAO	Provincial Administration Organization
PEA	Provincial Electricity Authority
PDM	Project Design Matrix
R/D	Record of Discussions
RWCS	Rural Wireless Communication System
SIPA	Software Industry Promotion Agency
TELMIN	Ministerial Meeting on Telecommunications and Information Industry
TICA	Thailand International Development Cooperation Agency

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05 - List of Equipment Provided by Japanese Side
06 - Budget Secured by Japanese Side
07 - Budget Secured by Thai Side (NECTEC)
08 - List of C/P Allocation
09 - List of Equipment Provided by Thai Side
10 - Details of Project Achievement
11 - Organizational Structure
12 - Results of Questionnaires
13 - Evaluation Grid
14 - Record of Site Visits

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1. Introduction

1.1 Objectives of the Evaluation Study

The terminal evaluation of the Project was conducted with the following objectives.

- To confirm process on the implementation of the Project.
- To confirm the achievement of the Project and put forward effective recommendations for sustainability of the Project.
- To clarify in the logical framework how to achieve the Overall Goal, "Rural wireless communication system is applied for rural communities' vitalization."
- To confirm the current status of the issues.

1.2 Evaluation Team Members

The evaluation and the recommendations on the Project were made by the following members of the Joint Evaluation Team (hereinafter referred to as "the Team").

Japanese Side

Name	Assignment	Title/Organization
Mr. TAKEUCHI Tomonari	Leader /Cooperation Planning	Assistant Director Transportation and ICT Division 2, Transportation and ICT Group, Economic Infrastructure Department, Japan International Cooperation Agency (JICA)
Mr. SATO Sunao	Evaluation Analysis	Independent Consultant

Thai Side

Name	Assignment	Title/Organization
Dr. Pansak Siriuchatapong	Project Director	Executive Director, National Electronics and Computer Technology Center (NECTEC)
Dr. Kitti Wongthavarawat	Co-Manager	Senior Researcher, National Electronics and Computer Technology Center (NECTEC)

1.3 Schedule

The Team conducted documentary reviews, interviews and site visits from February 23 to March 6, 2012. Based on these activities, the Project was evaluated jointly. During the evaluation process, the Team members discussed issues relevant to the execution of the Project with the government authorities and institutions. The following table shows the detailed schedule.

Study Schedule

	Date		Leader /Cooperation Planning	Evaluation Analysis
1	Feb.23	Thu		Flight to Bangkok Meeting with JICA Office
2	24	Fri		Meeting with Japanese Experts Meeting with NECTEC
3	25	Sat		Analysis of collected materials
4	26	Sun		Flight to the Project Site (Mae Hong Son)
5	27	Mon		Visit to 4 Project Sites in Mae Sarieng, Visit to 1 Project Site in Mae Hong Son
6	28	Tue	Flight to Mae Hong Son Visit to 2 Project Sites, 1 Base Station, 1Support Center in Mea Hong Son	Visit to 3 Project Sites, 1 Base Station, 1 Support Center in Mea Hong Son
7	29	Wed	Visit to 1 Project Site, 1 Base Station in Pai Flight to Bangkok	Visit to 2 Project Sites, 1 Base Station, 1 Support Center in Pai Flight to Bangkok
8	Mar. 1	Thu	Meeting with JICA Office Meeting with Japanese Experts Meeting with Counterparts of NECTEC	
9	2	Fri	Meeting with Japanese Experts Meeting with NECTEC Meeting with NBTC	
10	3	Sat	Analysis of collected materials	
11	4	Sun	Analysis of collected materials	
12	5	Mon	Meeting with JICA Office Meeting with Ministry of Education Meeting with Ministry of ICT	
13	6	Tue	Project Final Seminar JCC M/M signing between NECTEC and JICA Departure at Bangkok	
14	7	Wed	Arrival at Tokyo	

2. Project Outline

2.1 Background

The Kingdom of Thailand has been aiming for the construction of a knowledge-based economy and society by adopting an aggressive approach to creating an information-oriented society. Examples of this approach are the 10th Socioeconomic Development Plan of the Kingdom of Thailand 2007-2011 (the superior level plan) and the National IT Policy Framework: IT2010 (2001-2010). IT2010 has been advanced with emphasis placed on the utilization of basic information technology, development of IT human resources and construction of information and telecommunications infrastructure. This has led to the rapid advancement of information orientation in Thailand and makes the country a medium-level IT nation in international terms. On the other hand, construction of the information and telecommunications infrastructure in provincial cities has been slow: rural areas still do not have access to telephones, the internet and other information and telecommunications infrastructure. As a result, this has led to the emergence of a so-called digital divide between urban and rural areas, and this is seen to be contributing to other disparities in terms of economy, education and quality of life in recent years. Rectification of the digital divide has thus become one of the priority development issues facing Thailand.

Against this background, the Government of Thailand in 2005 submitted a request to the Government of Japan for technical cooperation concerning model development and demonstration testing technology for a wireless communications system in provincial areas. Following this, the feasibility of receiving permission for allocation of frequency for the implementation of demonstration testing by the National Broadcasting and Telecommunications Commission (NBTC) was confirmed and preconditions for the full-scale implementation of cooperation were prepared. Consequently, work on the Project was ready to commence with the National Electronics and Computer Technology Center (NECTEC) as the project implementing agency in April 2009, and then "The Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization" was started.

2.1 Project Summary

Here is an outline of basic information of the Project.

Project name	The Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization
Related organizations	[Thai side] • Ministry of Science and Technology (MOST) • Ministry of Information and Communication Technology (MICT) • National Science and Technology Development Agency (NSTDA) • National Broadcasting and Telecommunications Commission (NBTC) • National Electronics and Computer Technology Center (NECTEC) • Mae Hong Son Government Office • Mae Hong Son Provincial Administration Organization (PAO) • Mae Hong Son Municipality • Ministry of Education (MOE) • Schools related to the Project in Mae Hong Son Province • Authorities of Mae Hong Son Province • Software Industry Promotion Agency (SIPA) • Thailand International Development Cooperation Agency (TICA) [Japanese side] • Japan International Cooperation Agency (JICA) • Embassy of Japan in Thailand
Administrative system	Project Steering Committee [Thai side] • Project Director (Executive Director of NECTEC) • Project Manager(Director of WISRU, NECTEC) • WiFi, WiMAX technical team (NECTEC) • Representative from technical team (NECTEC) [Japanese side] • Experts (Chief Advisor and others) • Local Supporting Staff
Date of signing (R/D)	January 20, 2009
Cooperation period	Two years and 11 months from the date of commencement, which means from April 26, 2009 to March 10, 2012
Cooperation scheme	Technical Cooperation Project
Related cooperation by JICA	Nothing
Other donors and related cooperation	Mae Hong Son IT Valley Project

The Project, the period of which is from April 26, 2009 to March10, 2012, aims to strengthen the capability of NECTEC in developing the effective rural wireless communication system in Thailand in order to enhance accessibility to Information Technologies (IT) in rural areas.

To achieve the purpose, two outputs are set up in the Project. The first one is the rural wireless communication model that has been developed by NECTEC. It enables NBTC to apply the rural wireless communication system for other potential areas in the future. The other one is the curriculum developed by NECTEC in collaboration with local organizations so as to vitalize the rural areas. It is also used for other possible rural districts.

In order to accomplish the above mentioned outputs, the rural wireless communication system was experimentally established in 45 sites in three areas, Mae Hong Son, Mae Sarieng, and Pai, in Mae Hong Son province. The WiMAX technology was utilized to realize the rural wireless communication network in the areas. Those 45 sites consist of schools/community colleges, local government offices, and communities such as libraries, hospitals, and health offices (See Annex 4 'List of Project Sites') and the project provides the network-enabled services such as e-Learning and video conference for users (i.e. teachers, students, government officials, local communities).

Breakdown of 45 sites

Areas	School/Community College	Government office	Community	Total
Mae Hong Son	9	8	2	19
Mae Sariang	12	3	1	16
Pai	6	3	1	10
Total	27	14	4	45

The Japanese cooperation is to provide the equipment, to dispatch the experts (See Annex 3 'the list of Japanese Experts Allocation'), and to conduct the training in Japan. Through establishing and managing those 45 sites, the JICA experts provided NECTEC with necessary technology transfer by conducting OJT as well as regular seminars and trainings.

At first, the period of the Project was from April 2009 to April 2011. However, due to the delay of equipment procurement, the Project period was extended till January 2012. The further Project extension was required to March 2012 because the flood in the country interrupted the Project to continue according to the plan. To overcome the delay caused by the flood, additional support by the JICA experts were provided and the Project is being terminated on March 10, 2012.

2.3 Project Design Matrix (PDM)

The original Project Design Matrix (hereinafter referred to as "PDM") was attached to the Record of Discussions (hereinafter referred to as "R/D") signed between the JICA Thailand Office on January 20, 2009. Then, R/D was revised in the Joint Coordinating Committee (hereinafter referred to as "JCC") on July 16, 2010 when the period of the Project was extended due to the delay of the equipment procurement. Then, the PDM was revised again when the Project was extended till March 10, 2012 due to the flood. Therefore, the revised PDM (Ver. 3.0) indicates the current framework of the Project.

The original PDM (version 1.0) and the revised ones (version 2.0 and 3.0) are attached in "Annex1: Project Design Matrix (PDM)"

3. Methods of Evaluation

The entire evaluation was conducted based on the Project Cycle Management (PCM) method. The Team examined PDM, process of project preparation and implementation, and achievement of the Outputs through analysis of related documents. Then the Team visited the Project sites and had a series of interviews with the Japanese experts, C/P and other relevant stakeholders. Subsequently, the Team confirmed the status of the Project's achievement in terms of Inputs, Activities, Outputs, Project Purpose and Overall Goal stated in PDM. The Team also evaluated the Project in the light of the five criteria of

evaluation by DAC/OECD: Relevance, Efficiency, Effectiveness, Impact, and Sustainability. These criteria are defined as follows.

Five criteria for evaluation

Evaluation criteria	Descriptions
Relevance	Relevance refers to the validity of the Project purpose and the overall goal in connection with the development policy of the recipient governments as well as the needs of beneficiaries.
Effectiveness	Effectiveness refers to the extent to which the expected benefits of the Project have been achieved as planned, and examines if the benefit was brought about as a result of the Project (not of external factors).
Efficiency	Efficiency refers to the productivity of the implementation process, examining if the input of the Project was efficiently converted into the Output.
Impact	Impact refers to direct and indirect, positive and negative impacts caused by implementing the Project, including the extent to which the overall goal has been attained.
Sustainability	Sustainability refers to the extent to which the recipient country can further develop the Project, and the benefits generated by the Project can be sustained under the recipient country's policies, technology, systems, and financial state.

4. Inputs

4.1 Inputs from Japanese side

(1) Human Resources(Japanese experts) (See Annex 3 'List of Japanese Experts Allocation')
   1) Japanese Experts as Chief Advisor / Test Planning: One person
   2) Other Japanese Experts for:
      - System Design: One person
      - Site Planning: One person
      - Contents Development for e-Learning: One person
      - Training Planning / Project Coordinator: One person

(2) Equipment and material (See Annex 5 'List of Equipment Provided by Japanese Side')
   1) Equipment and material for Trial Test (Including installation cost)
   2) Software for WiMAX Site Planning
   3) Others

Provision of equipment

No	Equipment	Quantity	Remarks
1	Equipment for Base Station	4	Procured in Japan
2	Equipment for Core Center	2	Procured in Japan
3	Equipment for Schools	27	Procured in Japan
4	Equipment for Government Center	14	Procured in Japan
5	Equipment for Community Center	4	Procured in Japan
6	Experimental vessel and software	1	Procured in Japan

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7	Tower for Base Station	2	Procured in Thailand
8	Cabinet	3	Procured in Thailand
9	AcuLearn	1	Procured in Thailand
10	Weather Monitoring System	3	Procured in Thailand
11	Cabinet Cooling System	3	Procured in Thailand

(3) Other necessary cost for Project Activities

1) Counterparts Training in Japan

The following members from NECTEC participated in the Training in Japan from June 6 to June 15, 2010.

- Dr.Wongthavarawat Kitti (Researcher, Wireless Innovations and Security Lab)
- Dr.Siddhichai Supakorn (Researcher(Research Scientist), Image Technology Lab)
- Mr.Limmongkol Kitiwat (Assistant researcher, Wireless Innovations and Security Lab)
- Mr.Kitjaroen Matanee (Assistant researcher, Wireless Innovations and Security Lab)

Objective:

To observe and learn the following matters:

- Integration of Internet, NGN, WiMAX and wireless network
- Training of broadband ubiquitous network technology and nationwide and local area WiMAX
- Training of measurement of mobile WiMAX throughput
- Synchronized Handover Technique among different wireless
- New effective scenario by means of open wireless platform
- Strategy and policy towards spread of open wireless platform
- Utilization of WiMAX at Keio Research Institute at SFC
- The role of Keio Research Institute at SFC and the role of openbwireless platform laboratory in the open wireless platform

(4) Japanese Budget Allocation (Unit: 1000 Yen)

2009	2010	2011	2012	Total
343,679	197,174	5,025	28,176	574,054

Note: Japanese Fiscal Year

4.2 Inputs from Thai side

(1) Human Resources (Counterparts personnel)

- Project Director(NECTEC)
- Project Manager(NECTEC)
- WiFi/WiMAX Research Members(NECTEC)
- Technical Staff(NECTEC)
- Other necessary project staff from NECTEC
- School Teachers as Trainer from Mae Hong Son Province

The personnel assignment of C/P is shown below (See Annex 8 'List of C/P Allocation')

	2009	2010	2011
NECTEC	23	22	21

Note: Thai Fiscal Year (TFY)

(2) Facilities

1) Office for Japanese Experts(including telephone line and internet facility)
2) Other necessary facility for project activities

(3) Budget for Project Activities

1) Cost for Field Trial Testing
2) Domestic Training of NECTEC personnel

Counterparts' Budget Allocation (Unit: Thai baht)

2009	2010	2011	2012	Total
1,890,000	5,056,000	5,274,000	2,342,500	14,562,500

Note: Thai Fiscal Year (TFY) when the budget was allocated.

5. Project Achievements

5.1 Outputs

Narrative Summary	Indicators	Summary of Achievement
Output 1 Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site.	● Baseline, Technology trend and Demand survey was conducted and made a report in May,2009
	1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. SEM(Seminar): Training from expert to NECTEC C/P WS(Workshop): Training from NECTEC C/P to MHS sites PT(Practical training): Training from NECTEC C/P to MHS sites that NECTEC C/P proposed in wireless technology area mini WS(mini workshop): Training from NECTEC C/P to MHS sites that NECTEC C/P proposed in application area Training from MHS instructor to MHS sites and users that NECTEC C/P proposed in application area RC(Remote class): Training from NECTEC C/P to MHS sites using AcuLearn system Training from MHS instructor to MHS sites and users using AcuLearn	● Experts have provided 12 seminar to NECTEC C/P <u>Wireless Technology area</u> 6 Seminars were conducted about this topic. <u>Contents Development area</u> 6 Seminars were conducted about this topic. ● NECTEC C/P have provided 21 workshop to MHS sites and support 5 workshop by MHS local instructors <u>Wireless Technology area</u> 6 Seminars and 4 Practical Training were conducted about this topic. <u>Contents Development area</u> 13 Workshops were conducted. <u>Remote class area</u> 6 Seminars were conducted.

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	system	
	1-3. The design of Rural Wireless Community System Model and its parameter identified. OJT(On the job training): Training from experts to NECTEC C/P on the job VN(Vender training): Training from AcuLearn and WiMAX vender to experts, NECTEC C/P and MHS sites	● Experts have provided 13 OJT to NECTEC C/P ● Venders have provided 3 seminars to experts, NECTEC C/P and IT administrators and local instructors of MHS sites
	1-4. The Discussions held about feasibility and its usefulness of applications among related organizations.	● Project have held 3 JCC meetings 1st JCC 17th June 2009 at NECTEC 2nd JCC 25th February 2010 at MHS government office 3rd JCC 16th July 2010 at NECTEC ● Project has held 2 PPO meetings with MHS governments and sites 1st PPO 15th December 2010 at MHS government office 2nd PPO 24th May 2011 at MHS government office ● Project has held several meetings with related organizations. Meeting with NTC(NBTC) 13th July 2010, 18th March 2011, 21st March 2011, 24th August 2011 at NTC(NBTC) Meeting with MICT 20th November 2009, 19th April 2011
【General Achievement of Output 1】 The output1 has been achieved successfully by the end of the Project period.		
Output 2 Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.	2-1. Quality and number of Curriculum developed by NECTEC in collaboration with local organizations	● The number of Curriculum in LMS server is 118. ● On average, there are 16 good Curriculum every month in LMS server since September 2009. ● Samples of good curriculum are as follows(Project decide that over 5 access curriculums are good curriculum monthly) 1)หลักการแก้ปัญหาและการโปรแกรม (IT Valley) (Principles of problem solving and programming (IT Valley).) 2)การใช้โปรแกรม Microsoft Word เบื้องต้น (Introduction to Microsoft Word) 3)เทคโนโลยีสารสนเทศและการสื่อสาร1 (Information and Communication Technology 1.) 4)การโปรแกรมภาษาซีชาร์ป(C#) (C# Programming) 5)ภาษามือภาษาสมอง (the brain and hand language.)
	2-2. Number of users who use e-Learning applications	● Number of access users to the main page of the LMS increased from 0 to 2377. ● Number of page views of the LMS increased from 0 to 47483.

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		● According to impact survey No.6 (page25), Schools expanded their curriculum, including IT curriculum. Teachers and students became more interested in e-Learning and studying IT subjects ● The number of users who attended 6 remote classes using AcuLearn increased from 0 to 240 since November 2009 (Training history) ● The number of users who used AcuConference system for video conferencing increased from 0 to 521 since November 2009 (AcuLearn Log data, Aculearn use history)
	2-3. Quality and number of Contents developed by the users of Curriculum	● The number of contents in LMS server increased from 0 to 781. ● On average there are 19 good contents every month in LMS server. ● Samples of good contents are as follows(Project decide that over 5 access contents are good contents) 1)การโปรแกรมภาษาซีชาร์ป(C# programming) 2)การจัดรูปแบบตัวอักษรโปรแกรมMicrosoft Word (Change font in Microsoft Word) 3)แบบประเมินหลังเรียน (Microsoft Word post test) 4)การสร้างตัวละครเคลื่อนไหวอย่างง่าย (Introduction to Computer animation) 5)บทเรียนภาษาปวาเก่อเบอ (กะเหรี่ยง) ออนไลน์ (Karen language online
【General Achievement of Output 2】 The output 2 has been achieved successfully by the end of the Project period.		

Definition of 'Good' Contents and Curriculum: 'Good' means the number of access is higher than others

5.2 Project Purpose

Narrative Summary	Indicators	Summary of Achievement
Project Purpose To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test.	Achieved very well; RWCS Development Model was completed on February 2012.
	2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System.	Achieved very well; Technology transfer has been conducted from the Japanese experts to NECTEC. As a result, NECTEC has acquired knowledge and skills about technologies of Wireless Communication System.

	3. Increase of Local trainers who have capacities for training and system operation.	Achieved very well; According to Impact Survey (2.2. System training) the number of local training instructors is increased and their skills in wireless communication system are improved.
	4. Enhancement of skills and knowledge of Field Trial Testing.	Achieved very well; The field trial test was conducted by NECTEC. According to the Evaluation Study Report of RWCS Field Trial Testing, it is well designed and successfully conducted.
	5. Proposal and Recommendation made to NBTC about proposed RWCS Model.	Achieved very well; RWCS Development Model was proposed to NBTC at the final seminar on March 2012.
	6. Satisfaction of model users in model site.	Achieved to some extents; According to the Impact Survey, the Questionnaire, and the interviews, the level of the end users' satisfaction is generally higher than at the start of the project because of better and more hardware (improved network, more Wi-Fi access points, more PCs) and more e-Learning contents provided as a result of the project. However, there are still demands and requests from the end users such as more stability of WiMAX service, reliable electricity supply, more coverage of WiMAX service, Internet access through WiMAX network, quick restore from the system problem, and so on. These demands and requests are not necessarily stemmed from negative impacts of the project, but from being able to use WiMAX service more effectively and efficiently.
【General Achievement of Project Purpose】 The Project Purpose has been achieved successfully by the end of the Project period.		

5.3 Overall Goal

Narrative Summary	Indicator	Summary of Achievement
Overall Goal Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System.	Limited; The number of provinces introducing the RWCS is not increased and is limited to MHS. However, it is expected that the RWCS Development Model created by the Project will be utilized by NBTC in near future in order to expand the RWCS to other areas in the country.

	2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	Limited; Types and scale of users are limited within MHS and the service field is limited to education. However, some of the local stakeholders have ideas to use wireless service for more fields especially tourism business incubation and to involve private companies. Therefore, in near future, it is expected there will be more types and scales of RWCS users.
Outlook for fulfillment of the Important Assumptions in the level of the Project Purpose		
The Government of Thailand sustains the current IT policy aiming at community development.	Fulfilled; The Thai government IT policy aiming at community development has not been changed.	
【Appearance of Overall Goal】	The possibility to achieve the Overall Goal, "Rural wireless communication system is applied for rural communities' vitalization.", is high because the project successfully made foundation for this purpose; NECTEC has acquired necessary knowledge and skills and the RWCS Development Model was developed. NBTC also agrees to utilize it to expand RWCS to other areas. However, it may take time since there are remaining issues, which are out of control by NECTEC personnel capacity, such as supply of reliable electricity and permission for business usage of WiMAX, which depend on initiative of NBTC.	

6. Implementation Process of the Project

The Project has been implemented based on the R/D, PDM.

1) Process to achieve the output 1 "Rural wireless communication model has been developed by NECTEC"

The C/P of NECTEC acquired necessary technical skills through establishing and managing the 45 model sites jointly with the Japanese experts. From the first stage of the implementation, namely the survey of wireless communication technologies trend at model site, to the final stage to develop the RWCS Development Model, technology transfer has been conducted by the Japanese experts to the C/P of NECTEC through OJT and regular seminars/workshops. Enhancement of required knowledge and skills is designed to be completed not only by different layers of lectures (i.e. seminar and data collection) but also with practical trainings through OJT which enables C/P to utilize the knowledge and skills practically.

2) Process to achieve the output 2 "Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand."

In order to involve and collaborate with the local stakeholders, the C/P and Japanese experts conducted the survey to grasp the local needs, and made the practical seminar/workshop plan. Technology transfer has been conducted in the stepwise manner like the following steps; 1) From Japanese experts to the C/P of NECTEC, 2) From the C/P to the Mae Hong Son local instructors, 3) From the Mae Hong Son local instructors to local school teachers. In addition, the baseline survey and the impact survey were conducted to evaluate the result of the project activities.

The C/P of NECTEC evaluated this method as an appropriate way to improve the knowledge and skills as well as to motivate different level of stakeholders. Through the interview of local teachers at the site visit, it is clarified that they have ownership of the project.

3) Overall approach

There are several approaches applied for smooth implementation of the project and the future sustainability.

- From the interview with C/P, it is clarified that all C/P highly evaluated technology transfer by Japanese experts. Especially, they appreciated the points that they acquire the knowledge and skills enough to revise and update the RWCS Development Model by themselves after the project termination.
- Information Sharing and Project Management: Tools and methods of information sharing and project management were also transferred to the C/P of NECTEC.
- Documentation: In the project, important information and knowledge transferred are kept as document to be referred to others in case that staff reassignment is happened.

7. Results of Terminal Evaluation by Five (5) Criteria

The terminal evaluation was conducted by five (5) criteria based on 'The New Guidelines for Project Evaluation Version 1.0). The overall results of the evaluation are shown on the table below.

The overall results of the evaluation

Criteria	HIGH		MEDIUM		LOW	
	+		+		+	
Relevance	X					
Effectiveness	X					
Efficiency			X			
Impact		X				
Sustainability			X			

The outlines of the evaluation are as follows (All of the results by five (5) criteria are shown in Annex 13 'Evaluation Grid').

7.1 Relevance

Relevance of the Project is clearly assessed "HIGH (+)", as the Project is consistent with the Thai policy as well as the Japanese aid policy. Moreover, it also meets the local needs.

1) Consistency with the Thai Policies

The Project progresses human resource development through utilizing the information technology for rural community vitalization. The goal is to enhance the economy and quality of life of the Thai people and lead Thailand towards a knowledge-based economy and society based on the upper national plan, which is 'Tenth Economic and Social Development Plan (2007−2011)', and 'Thailand Information Technology (IT) Policy Framework (2001 – 2010) (IT2010) in 2000.

Furthermore, the new national policies 'National Broadband Policy' was set up in November 2010, and 'Thailand Information and Communication Technology (ICT) Policy Framework (2011 – 2020)' (ICT2020) was developed in November 2011.

The Thai government plans a new goal that is named as 'Smart Thailand'. One of the main goals of the Smart Thailand is 'A universal broadband access to all people on an equitable basis, similar to accessing other basic public utilities will be in place. By 2015, 80 percent of the population will be able to access the broadband, which will increase to 95 percent by 2020 (ICT2020; pp.7)'.

2) Consistency with ASEAN's Policies

ASEAN adopted 'The ASEAN ICT Master plan 2015' (AIM2015). The goal of AIM2015 is to improve the broadband connectivity and to dissolute the digital divide in ASEAN area.

3) Consistency with Japan's Aid Policies

Japan proposed 'Smart Network Structure', and the proposal was approved by the members on the 11th ASEAN Ministerial Meeting on Telecommunications and Information Industry (TELMIN) in December

2011. Japan promised to strengthen the cooperation to ASEAN countries.

Since the Project is a pilot project in the field of ICT, it is linked to the movement of Thai, Japan and ASEAN. The result of this experimental project will contribute to consider the future direction and policy in ICT field, and be worthwhile and relevance.

4) Relevance with the Needs of the Target Groups

In the Northern Thailand, some areas are left without sufficient infrastructures for communications and the 'Digital Divide' is one of the factors which cause the several levels of divides such as divide in economy, education and life. Therefore, to solve the Digital Divide is first priority. The Project contributes to solving such a Digital Divide in the Northern Thailand.

The Project also transferred knowledge and skills to develop digital contents and to use e-Learning for local users. The demand survey was conducted to grasp the local demands. The contents of seminars/workshops for technology transfer are planned to the local needs. According to the result of questionnaire (See Annex 12 'Result of Questionnaire'), 40 of 45 sites administrators think that the Project has served the needs of intended end-users.

Moreover, in relation to the existing project 'IT Valley', the Project supplies the wireless network and applications which are not provided by the 'IT Valley' project. In this regard, the Project has been well collaborating with the 'IT Valley' project.

Considering these points, it is possible to say that the Project is relevant to meet the needs of the target group in lessening the Digital Divide generally as well as in providing contents they need specifically.

7.2 Effectiveness

Effectiveness of the Project is assessed "HIGH (+)". Through achieving two sorts of the Project outputs, NECTEC and local users have acquired knowledge and skills which are necessary for realizing the Project purpose. Therefore, it is concluded that the effectiveness of the Project is high.

1) **Output 1:** The Project completed the technology transfer to NECTEC through training and OJT for the every necessary process to develop the RWCS Development Model such as the technology trend survey, system design, instruction, and maintenance. According to the result of the field trial testing, NECTEC is able to conduct such necessary processes by themselves. As a result, the RWCS Development Model can be applied to other rural areas.

   Therefore, setting up the output 1 'Rural wireless communication model has been developed by NECTEC' is adequately designed to lead the project purpose 'To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.' Moreover, through the Field Trial Testing, the factors in the rural areas environment were identified, and the countermeasures are additionally introduced to make use of the RWCS Development Model more practical.

2) **Output 2:** Since NECTEC conducted technology transfer to enable local users to utilize contents development technique and to be accustomed to teaching method with e-Learning systems, NECTEC has acquired knowledge and skills to plan and hold such seminars/workshops by themselves from grasping the local needs till following up what they learn. In fact, through the Project, the local teachers are able to create and use e-Learning for the regular classroom teaching in the rural areas. Moreover, the produced contents and e-Learning provide the uniformed efficient education. Achieving the output 2 means the capacity building in NECTEC as well as in the local instructors and users.

7.3 Efficiency

Efficiency of the Project is "MEDIUM (+)". The efficiency of the input for C/P and experts was high. The efficiency of the Project would have been higher if the procurement of facilities and equipment by JICA were not delayed.

1) Assignment of Counterpart Personnel

Well qualified counterpart personnel were allocated with enough number during the operation of the Project.

2) Dispatch of Japanese experts and Counterparts personnel training in Japan

There are inputs of the Japanese experts, in terms of period and skill level, enough to conduct necessary technology transfer. In addition to transferring technical knowledge and skills, through working with Japanese experts, C/P has learned Japanese way of project management including information sharing, well-organized work flow, detail coordination, and precise planning. Similarly, the training in Japan provided an opportunity for C/P to know more about technical matters as well as Japanese management

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style. It encouraged C/P to manage the project for better implementation. Therefore, the inputs are properly implemented.

3) Others

- Output 1: The input of equipment for RWCS was delayed compared to the first plan. However, the Japanese experts made the most use of such unexpected period to conduct the training towards the C/P and produced various kinds of documents and manuals so as for C/P to be ready for using the equipment as soon as it is delivered. In addition, C/P assisted the system vender to complete the implementation on time.
- Output 2: Because the Project sites are geographically separated to 3 areas, the rate of participation of training/workshop from the target groups was sometimes not as much as expected. To solve this problem, the Project adopted different kinds of locations for the training. Additionally, the project further promoted for more participation. The positive result was confirmed by the Impact Survey.
- The number of seminars and workshops reached 54 times, total 319 days, and 977 participants. About 700 contents out of more than 1000 contents developed through the Project are repeatedly used by local users.

7.4 Impact

Impact of the Project is expected "HIGH"

1) Output 1: Through the technology transfer by Japanese experts, NECTEC is able to develop and to conduct planning to apply the RWCS Development Model for other rural areas by themselves. The impact of the area vitalization is realized specially in the education field because the applications used by the Project were mainly for education. In addition, people from local community are also able to participate in the trainings. Therefore, impact reached not only to teachers and students but also to people from local IT community in the rural area.

2) Output 2: By the technology transfer of content development skills, the teachers in rural area are able to create the e-Learning contents. Morcover, other teachers are able to use the contents and students are able to learn efficiently.

People from local IT community also participate in the training for producing contents, and they are inspired to utilize IT.

In addition, there is a kind of social networking among IT and education community which would not be happened without the Project. Through the Project, people in IT and educational fields can acknowledged each other and it enabled IT and education community to have tight relationship which may provide more job opportunities and other kinds of benefits.

7.5 Sustainability

Sustainability of the Project is assessed "MEDIUM (+)"

There are two aspects to consider the sustainability of the project. The first one is to focus on the PDM and the other one is to focus on the future of the project sites in MHS district. Since the project super goal "Rural wireless communication system is applied for rural communities' vitalization" does mean to spread out the same model to more areas according to the RWCS Development Model. It does not necessarily mean the current project sites in MHS will be vitalized in the future. Therefore, the sustainability should be evaluated as below.

1) According to the project super goal in PDM

Through the Project, the capacity of NECTEC in developing the effective rural wireless communication system has been improved enough to apply RWCS Development Model to other areas in Thailand. If necessary, the C/P of NECTEC can modify and/or update the RWCS Development Model by themselves to make it suitable to different situation and condition. It indicates that the project super goal "Rural wireless communication system is applied for rural communities' vitalization" will be achieved. Therefore, in this point, the sustainability is HIGH (+).

2) Future of the project sites in MHS district

On the other hand, it is also necessary to consider what the current project sites will be like in the future. According to the result of the questionnaire and the interviews to local stakeholders, sustainability is the most challenging issue to be discussed. There are two kinds of issues.

The first one is to maintain the system itself. The issues include "Who is responsible for maintenance?",

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"How to provide reliable electric supply", "How to expand the network capacity when the WiMAX is used by more users for more purposes", and so on. It is necessary to decide who will be responsible for the WiMAX system as an owner. The NECTEC is not the best owner of the WiMAX system because the role of the organization is not system operation but research. Currently, NECTEC is making a plan for the project sustainability regarding the above-mentioned issues and four related bodies (i.e., NECTEC, MHS governmental office, MHS PAO (Provincial Administration Organization), and MHS Municipality) are ready to discuss to mutually agree on the sustainability plan which will be proposed by NECTEC by the end of March 2012.

The other one is to utilize the WiMAX service for vitalizing rural community. The project has already shown the merit of the WiMAX system to local stakeholders. After the project completion, it depends on the local stakeholders whether or not the WiMAX contribute to the vitalization of the community in MHS district. In fact, in some project sites, the stakeholders are eager to utilize the WiMAX for classroom teaching as well as more purposes like IT related business incubation if the WiMAX usage for such a business purpose is permitted. MHS PAO also is interested in expanding the WiMAX service coverage in other fields besides education such as tourism, government administration and e-health in near future.

As observed above, though there are still uncertain factors for the future of the project sites, the local stakeholder are willing to sustain the WiMAX services for their community vitalization. Therefore, the overall suitability of the Project is evaluated as MEDIUM (+).

8. Conclusion

Based on a series of the result of evaluation, the overall evaluation of the Project is relatively high.
As mentioned above, the evaluation results in "Relevance" and "Effectiveness" are HIGH. "Efficiency" is MEDIUM (+) since the necessary effort was made to overcome the equipment procurement delay. Regarding "Sustainability", though the capacity building of NECTEC is successfully completed, there are still issues to be solved. However, several positive factors are observed through the evaluation study.

There are several remaining issues regarding the sustainability and not all 45 project sites are necessarily the best role model. In fact, the impact of WiMAX service is limited in a few project sites. However, the result of the project will definitely contributes to Rural Wireless Communication System integration in other areas by referring to and analyzing the data acquired by the Project and sharing it within NECTEC and NBTC. As an experimental project, this project is regarded to provide the expected result.

From the point of the local stakeholders' view, according to the questionnaire, 41 out of 45 sites said 'Yes' to the question "Has the level of knowledge and skills of the site instructors improved over the period of the Project?' During the project period, a number of e-Learning contents were developed and knowledge and skills of instructors and teachers were improved. These educational materials will be used continuously and additional contents will be developed by themselves.

Considering the result of the evaluation study mentioned so far, it is concluded that the project is successfully implemented according to the PDM.

9. Recommendations and Lessons Learned

9.1 Recommendations

- Continue to discuss on the issues regarding the sustainability with the local stakeholders and mutually agree on the sustainable plan to be executed by November 2012 during which NECTEC will provide technical trainings and financial support for the system operation and maintenance.
- Continue to update and revise the RWCS Development Model as necessary.
- Integrate the WiMAX service with the other communication technologies such as ADSL, fiber optical cables, mobile network (3G), and Wi-Fi, etc. to realize full potential of the WiMAX.

- Consider the possibility to utilize the result of the Project to other fields such as tourism business, e-Government, remote court, remote medical service, disaster prevention, etc.
- Since e-Learning is a new tool for education, some schools adopt it actively, others are reluctant. In the long run, it may cause the new divide between schools which enjoy the benefits of IT and ones which cannot. This is an emerging issue to be solved in the future, for example, by dissemination of successful model to those who lack behind.

9.2Lessons Learned

1) Regarding the Output 1

From the Project, the followings are learned for future ICT for development projects;

- It is important to select a vender from not only cost competiveness but also knowledge and skills enough to meet requirement in remote areas which require different needs from city areas, especially, equipment is procured from foreign countries. The Project faced some difficulties because of the lack of capacity of the equipment vender. In addition, local technical support availability is mandatory for success in system integration and operation.
- It is crucial to secure reliable power supply. It would be a solution to use generators and/or solar power generation technology in some cases if a power supply authority does not provide the sufficient service. The Project faced problems about unstable electricity supply, though this Project had negotiated with the PEA (Provincial Electricity Authority) at the beginning and pointed out this issue as an important assumption.
- How to secure sustainability including technical assistance, maintenance service, and financial support, is one of the most serious issues to be discussed with related stakeholders from the beginning of a project. For this purpose, it is necessary to involve all level of stakeholders from local to higher level of organization to discuss the issue and mutually understand overall picture in the future.

2) Regarding the Output 2

From the Project, the followings are learned for future e-Learning related projects;

- It is important to motivate participants to join workshops/seminars by providing contents meeting their demands and interests. The Project conducted the demand survey to grasp their interests and reflect them in workshops/seminars planning.
- On the other hand, it is also necessary to consider how to cover their travel expanse for participants to join workshops/seminars.
- To make the most use of e-Learning contents, it is important not only to improve the quality of materials but also to encourage users to use them such as, to develop and manage archive library by which users can easily search for and access relevant materials, to publicize good contents, and to share them with other schools.

10. Request from the Thai Side

10.1 Request from NECTEC

1) Disaster Recovery Plan

NECTEC already requested assistance for JICA Thai Office to implement Disaster Recovery Plan to the system integrated by the Project so that it will be ready for the potential disaster in the future.

2) Assistance to Improve Service Availability

NECTEC requests assistance in the area of network topology reconfiguration to secure the network redundancy and to improve service availability. NECTEC also requests assistance to redesign system to minimize the negative impact of repetitive blackout by implementing emergency automatic shutdown/reboot system and network redundancy. In addition, generators for core sites and base stations remain as an important key factor to secure the service availability.

3) Assistance to Backup Policy Management and Execution

The backup policy has already been proposed by the Japanese experts. NECTEC requests assistance to design and test the policy implementation.

End

Annex 1

Project Design Matrix (PDM)

Version 1.0

Date of formulation: 20th January 2009 (R/D)

Project Title: 'the Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization'

Project Term :XX XX 2009 – XX XX (2years) project sites: NECTEC at Science Park in Pathumthani Province, Mae Hong Sonn Province,

Target group: NECTEC, Schools, Communities, Local Authority, and Local business of Model Site Mae Hong Son Province

Narrative Summary	Objectively verifiable Indicators	Means for obtaining Indicators	Important Assumption
[Super Goal] (Long term goal) Enhancement of accessibility to Information Technologies (IT) in rural areas.	1. Expansion of internet access users among general households, schools and local business in rural areas.	1-1. NECTEC ICT Indicators 1-2. Report of Socio-Economic Survey by National Statistics Office (NSO)	
[Overall Goal] (Middle term goal) Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System. 2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	1&2 1) Interview Survey to NECTEC, NSTDA and NCT 2) NECTEC ICT Indicator	The Government of Thailand sustains the current IT policy aiming at community development.
[Project Purpose] To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test. 2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System. 3. Increase of Local trainers who have capacities for training and system operation. 4. Enhancement of skills and knowledge of Field Trial Testing. 5. Proposal and Recommendation made to NTC about proposed RWCS Model. 6. Satisfaction of model Users in Model site.	1-1. 'The Study Report of RWCSt '(Draft) 2-1. Interview Survey to NECTEC personnel, Japanese Experts, other actors 2-2. Evaluation Study Report of Trial Testing 3. The number of local trainers developed 4-1. Guideline for Field Trial Testing of Wireless Communication System 4-2. Monitoring report of Field Trial Testing 4-3. Interview Survey to NECTEC personnel, Japanese Experts, other actors 5. Proposal to NTC on Rural Wireless Communication Model 6. The result of Impact Survey (report)	NTC establishes the standards of Wireless Communication System
[Outputs] 1. Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site. 1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. 1-3. The design of Rural Wireless Community System Model and its parameter identified. 1-4. The Discussions held about feasibility and its usefulness of use of Applications developed among relative organizations.	1-1. Survey Report 1-2. Technical Training Report, Interview Surveys with Trainees 1-3. 'The Study Report of Rural Wireless Communication Network Development' (Draft), Interview Survey with developers, Japanese Experts, and other actors. 1-4. Meeting Records	Personnel of NECTEC who were trained thru the Project continue to work at NECTEC

2. IT Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local schools in the Kingdom of Thailand.	2-1. Quality of IT Curriculum developed by NECTEC 2-2. Number of Users 2-3. Contents developed by the users of IT Curriculum	2-1. IT Curriculum Developed, Users Satisfactory Survey 2-2. Interview Survey with NECTEC 2-3. Contents developed, Interview Survey with NECTEC and users (developer)	
[Activities] **1. Activities for Output1.** 1-1. To carry out the survey of wireless communication technologies trend at model site. 1-2. To design and implement the wireless communication system at the model site. 1-3. 1-4. 1-5. supervision, 1-6. To conduct the "On the Job Training (OJT)" for NECTEC's personnel in the field of site planning and system design of WiMAX (Worldwide Interoperability for Microwave Access) and other training courses in Japan. 1-7. To test and measure the performance of wireless communication system including applications running (e.g. Internet access, voice over IP, video conferencing, e-Learning, and e-Community). 1-8. To examine and analyze the results of testing of wireless communication system and propose an evaluation study report including impact survey about socio-economic status. 1-9. To hold the workshop to share the information about wireless communication system trial test with participants from relevant organizations, such as National Telecommunications Commission (hereinafter referred to as "NTC"), Universities, Institute, etc. 1-10. To identify and recommend the technical regulations to relevant authorities to be applied for rural wireless communication system. 1-11. To draft "The Study Report of Rural Wireless Communication System Development ". 1-12. To propose the developed rural wireless communication system model to NTC.	[inputs] 【Thailand Side】 (1) Human Resources (Counterparts personnel) 1) Project Director(NECTEC) 2) Project Manager(NECTEC) 3) WiFi/WiMAX Research Members(NECTEC) 4) Technical Staff(NECTEC) 5) Other necessary project staff from NECTEC 6) School Teachers as Trainer from Mae Hong Sorn Province (2) Facilities - Office for Japanese Experts(including telephone line and internet facility) - Other necessary facility for project activities (3) Budget for Project Activities - Cost for Field Trial Testing - Domestic Training of NECTEC personnel	【Japan Side】 (1) Human Resources(Japanese experts) 1) Japanese Experts as Chief Advisor: One person 2) Other Japanese Experts for: System Design Site Planning Contents Development for e-Learning (2) Equipment and material Equipment and material for Trial Test(Including installation cost) Software for WiMAX Site Planning (3) Other necessary cost for Project Activities - Counterparts Training in Japan - Other	Unforeseen natural calamity or disaster by forced major which affects the Field Trial Test does not occur. Personnel of NECTEC who were trained thru the Project continue to work at NECTEC. [Pre-conditions] Frequency allocation, which is required for the Trial Test, was allocated. The procurement of Equipment needed for the Trial Test is available.

2. Activities for Output2. 2-1. To discuss with local school teachers and local authorities of Mae Hong Son Province to develop the IT curriculums. 2-2. To collaborate with local school teachers for creating the sample contents for e-Learning. 2-3. To conduct the Training of Trainers to counterpart from Mae Hong Son Province. 2-4. To conduct the training to local school teachers. (by the trained Trainers) 2-5. To conduct the impact survey about the use of contents of the said IT curriculum. 2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed IT curriculums in other areas in the Kingdom of Thailand.			

Annex 1

Project Design Matrix (PDM)

Version 2.0

Date of formulation: 16 July 2010

Project Title: 'the Project of Human Resource Development through Utilizing the Information Technology for Rural Community Vitalization'

Project Term :26th Apr 2009 – 26th Jan 2012 (2 years and 9 months) project sites: NECTEC at Science Park in Pathumthani Province, Mae Hong Son Province,

Target group: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province.

Narrative Summary	Objectively verifiable Indicators	Means for obtaining indicators	Important Assumption
[Super Goal] (Long term goal) Enhancement of accessibility to Information Technologies (IT) in rural areas.	1. Expansion of internet access users among general households, schools and local business in rural areas.	1-1. NECTEC ICT Indicators 1-2. Report of Socio-Economic Survey by National Statistics Office (NSO)	
[Overall Goal] (Middle term goal) Rural wireless communication system is applied for rural communities' vitalization.	1. Provinces introducing the Rural Wireless Communication System. 2. Types and scale of users in the provinces introducing the Rural Wireless Communication System.	1&2 1) Interview Survey to NECTEC, NSTDA and NTC 2) NECTEC ICT Indicator	The Government of Thailand sustains the current IT policy aiming at community development.
[Project Purpose] To strengthen the capability of NECTEC in developing the effective rural wireless communication system in the Kingdom of Thailand.	1. Development of the Rural Wireless Communication System Model which was examined by Trial Test. 2. Enhancement of knowledge and skills of NECTEC about technologies of Wireless Communication System. 3. Increase of Local trainers who have capacities for training and system operation. 4. Enhancement of skills and knowledge of Field Trial Testing. 5. Proposal and Recommendation made to NTC about proposed RWCS Model. 6. Satisfaction of model users in model site.	1. 'The Study Report of RWCS '(Draft) 2-1. Interview Survey to NECTEC personnel, Japanese Experts, other actors 2-2. Evaluation Study Report of Trial Testing 3. The number of local trainers developed 4-1. Guideline for Field Trial Testing of Wireless Communication System 4-2. Monitoring report of Field Trial Testing 4-3. Interview Survey to NECTEC personnel, Japanese Experts, other actors 5. Proposal to NTC on Rural Wireless Communication Model 6. The result of Impact Survey (report)	NTC establishes the standards of Wireless Communication System
[Outputs] 1. Rural wireless communication model has been developed by NECTEC	1-1. Implementation of Trend Surveys of Wireless Communication technologies at Model site. 1-2. Knowledge and Skills acquired by the Trainees who participated to the Technical Training. 1-3. The design of Rural Wireless Community System Model and its parameter identified. 1-4. The Discussions held about feasibility and its usefulness of applications among related organizations.	1-1. Survey Report 1-2. Technical Training Report, Interview Surveys with Trainees 1-3. 'The Study Report of Rural Wireless Communication Network Development' (Draft), Interview Survey with developers, Japanese Experts, and other actors. 1-4. Meeting Records	Personnel of NECTEC who were trained thru the Project continue to work at NECTEC

2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.	2-1. Quality and number of Curriculum developed by NECTEC in collaboration with local organizations 2-2. Number of users who use e-Learning applications[i] 2-3. Quality and number of Contents[ii] developed by the users of Curriculum[iii]	2-1. Curriculum Developed, Users Satisfactory Survey, Number of access to the Curriculum 2-2. Impact Survey(Report) with NECTEC 2-3. Contents developed, Interview Survey with NECTEC and users (developer), Number of access to the contents	
[Activities] **1. Activities for Output1.** 1-1. To carry out the survey of wireless communication technologies trend at model site. 1-2. To design and implement the wireless communication system at the model site. 1-3. To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision and acceptance). 1-4. To conduct the "On the Job Training (OJT)" for NECTEC's personnel in the field of site planning and system design of WiMAX (Worldwide Interoperability for Microwave Access) and other training courses in Japan. 1-5. To conduct training to the targeted local users using sample equipment. 1-6. To test and measure the performance of wireless communication system including applications running (e.g. internet access, voice over IP, video conferencing, e-Learning, and e-Community). 1-7. To examine and analyze the results of testing of wireless communication system and propose an evaluation study report including impact survey about socio-economic status. 1-8. To hold seminar to share the information about wireless communication system trial test with participants from relevant organizations, such as National Telecommunications Commission (hereinafter referred to as "NTC"), Universities, Institute, etc. 1-9. To identify and recommend the technical regulations to relevant authorities to be applied for rural wireless communication system. 1-10. To draft 'The Study Report of Rural Wireless Communication System Development '.	[inputs] 【Thailand Side】 (1) Human Resources (Counterparts personnel) 1) Project Director(NECTEC) 2) Project Manager(NECTEC) 3) WiFi/WiMAX Research Members(NECTEC) 4) Technical Staff(NECTEC) 5) Other necessary project staff from NECTEC 6) School Teachers as Trainer from Mae Hong Son Province (2) Facilities - Office for Japanese Experts(including telephone line and internet facility) - Other necessary facility for project activities (3) Budget for Project Activities - Cost for Field Trial Testing - Domestic Training of NECTEC personnel	【Japan Side】 (1) Human Resources(Japanese experts) 1) Japanese Experts as Chief Advisor: One person 2) Other Japanese Experts for: System Design Site Planning Contents Development for e-Learning (2) Equipment and material Equipment and material for Trial Test(Including installation cost) Software for WiMAX Site Planning (3) Other necessary cost for Project Activities - Counterparts Training in Japan - Other	Unforeseen natural calamity or disaster by forced major which affects the Field Trial Test does not occur. Personnel of NECTEC who were trained thru the Project continue to work at NECTEC. [Pre-conditions] Frequency allocation, which is required for the Trial Test, was allocated. The procurement of Equipment needed

1-11. To propose the developed rural wireless communication system model to NTC. **2. Activities for Output2.** 2-1. To discuss with local school teachers and local authorities (e.g. governments, hospitals, police departments, libraries etc.) of Mae Hong Son Province to develop the curriculums. 2-2. To collaborate with targeted local users for creating the sample contents for e-Learning. 2-3. To conduct training for local instructors in Mae Hong Son Province. 2-4. To facilitate training for local users by local instructors 2-5. To conduct the impact survey about the use of contents of the said curriculum. 2-6. To share the lessons learned from the Project with other related organizations, and promote the applications of the developed curriculums in other areas in the Kingdom of Thailand.			for the Trial Test is available.

Word definition

[i] E-Learning Application(s): Existing application(s) (e.g. learning management system (LMS), video conference system etc.) used when conducting e-learning.

[ii] Contents: Defined as those materials used as eLearning. It is possible to place several contents in one curriculum. For example, if mathematics composes of "basic math content" and "basic math comprehension test", then it has one curriculum and two contents.

[iii] Curriculum: Defined as those subjects which use eLearning, not only at schools but also at governmental authorities, police departments, hospitals, and libraries. For example, "mathematics" and "computer basics" signify curriculum for school, whereas "hospital client service" for hospitals, and "library eBook management" for libraries.

Modifications in PDM 2.0.

The following components were modified in PDM version 2.0.

Overall:

- Word "IT curriculum" in Outputs, Activities, and Objectively Verifiable Indicators were changed into "curriculum" since the developed contents and curriculums are not necessarily IT.
- Word "school(s)" in Outputs, Activities, and Objectively Verifiable Indicators was changed into "targeted local users" since in 45 project sites there are various institutions other than schools.
- Ambiguous expressions in PDM were modified.
- Spelling and grammatical mistakes were corrected.
- Indicators and means for obtaining indicators were changed into realistically obtainable ones.

Project Term: 26th Apr 2009 – January 2012 (2.75 years)

- Following the delay in WiMAX equipment procurement schedule, Project Term was extended accordingly.

Target groups: NECTEC, Schools, Communities, Local Authority in Mae Hong Son Province

- In PDM 1.0, Target Groups were "NECTEC, Schools, Communities, Local Authority, and local business of model site in Mae Hong Son Province. However, "local business" was deleted since among 45 project sites, there are no private business entities.

Output 2. Curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local organizations in the Kingdom of Thailand.

- In PDM 1.0, Output 2 was "IT curriculum aimed to vitalize the rural areas will be developed by NECTEC in collaboration with local schools in the Kingdom of Thailand.". The change was made since NECTEC would collaborate with institutions other than schools when developing curriculum.

Activity 1-3: To conduct/support WiMAX equipment procurement and to conduct the On the Job Training (OJT) for installation (e.g. tower construction, construction supervision, and acceptance).

- Activity 1-3 was newly added in PDM to reflect the additional works by the Project associated with the delay in equipment procurement.

Activity 1-5: To conduct training to the targeted local users using sample equipment.

- Activity 1-5 was newly added in PDM to reflect the additional works by the Project associated with the delay in equipment procurement.

Activity 2-3: To conduct training for local instructors in Mae Hong Son Province.

- Activity 2-3 was changed from the original phrase "To conduct the Training of Trainers to counterpart from Mae Hong Son Province". In the Project trainers at Mae Hong Son Province are called "Instructors". Terminology in PDM was changed from "trainers" to "instructors" to avoid confusion accordingly.

Activity 2-4: To facilitate training for local users by local instructors.

- Activity 2-4 was changed from the original phrase "To conduct the training to local school teachers. (by the trained Trainers)". In the Project, local school teachers at each site in Mae Hong Son Province are called "local users" and similarly, trainers as "instructors". Terminologies in PDM were changed to avoid confusion accordingly.