

Project 9ARB09017 Report

1. Background

Wireless technology seems quite suitable for rural and remote areas. For instance, for considerable time, Africa has been known as the continent of people with scarce means of access to telecommunication networks while people were working on a primary wireline, but actually the number of its mobile phone subscribers has been increasing in recent years at the world's fastest growth rate.

Now broadband telecommunications provide the basis for supplying various vital services (e.g. e-health, e-learning, e-government, etc.), which rural and remote areas especially aspire to receive. Wireless technology is expected to accelerate the promotion of the broadband telecommunications, by lowering the costs in such areas. The wireless technology for the broadband telecommunications also contributes for the extension of the mobile coverage, as it can be applied to the mobile backhaul networks. In fact, there are several types of wireless technologies which enable it.

Nevertheless, for developing countries, to identify which technology is suitable is sometimes difficult. The activities by ITU-D, such as the collection of relevant case studies, are surely helpful. However, some countries yet need further help in interpretation of the case study or wish to have direct assistance for the identifications.

Therefore, ITU will assist the countries in selecting a suitable solution to establishing wireless broadband infrastructure, which invites further extension of broadband networks, as well as mobile networks, to rural and remote areas, by organizing the Feasibility Study on Low-Cost Wireless Broadband Infrastructure for developing countries. The Feasibility Study is aimed at reviewing the wireless technologies to be applied to broadband infrastructure for developing countries, developing the case studies of establishing wireless broadband infrastructure at lower costs by the simulation, and planning the future pilot project which demonstrates the actual broadband infrastructure.

The Ministry of Internal Affairs and Communication (MIC), Japan committed its financial support for the Feasibility Study and further support for future pilot project is also expected. MIC wishes that the Feasibility Study would be carried out for two target countries in Arab region, subject to their acceptance..

Project Activities:

- Preparation for Field Survey
- Recruitment of experts
- Preparing the questionnaires to be sent to possible target countries
- Identification of the target countries and their focal points
- Field Survey
- Analysis and Study

2. Project objectives and main achievements

Objectives

The aim of this project is to review the wireless technologies to be applied to broadband infrastructure for developing countries, to develop the case studies of establishing wireless broadband infrastructure at lower costs by the simulation in several selected sites in Arab region, and to plan the future pilot project which demonstrates the actual broadband infrastructure.

Main achievements

- Questionnaire on broadband network developed to identify the target countries in Arab states and to outline their regional characteristics
- 27 May – 8 June 2009: Field Survey for the Feasibility Study on Low-Cost Wireless broadband infrastructure in Jordan
- 21 June – 5 July 2009: Field Survey for the Feasibility Study on Low-Cost Wireless broadband infrastructure in Tunisia
- 31 August – 4 September 2009: Input the preliminary feasibility study report to ITU-D SG2 meeting
- Feasibility study report on low-cost wireless broadband infrastructures, to identify potential technical solutions which enable various services for rural and remote areas
- Draft project document developed for implementation of future pilot project which demonstrates the actual broadband infrastructure

3. Outputs and Impact

Outputs: The following main outputs of the project achieved and submitted (attached to the report)

- Report/Case studies based on the study sites developed;
- Draft project document for future pilot project prepared;
- An input document concerning broadband access technologies to the Rapporteurs Group on Question 20-2/2, SG2, ITU-D prepared.

Impact:

- Wireless technologies to be applied to broadband infrastructure for developing countries were reviewed and the report was included in the feasibility study report on low-cost wireless broadband infrastructures
- Case studies to establish wireless broadband infrastructure at lower costs were conducted and the report was included in the feasibility study report on low-cost wireless broadband infrastructures
- The preliminary feasibility study report was input to the ITU-D SG2 meeting held from August 31 to September 4, 2009
- Draft project document of future pilot project was drafted

4. Lessons learned

- The BWA(Broadband Wireless Access), which is IP based and its managements are included in or capable to co-work with Next Generation Network (NGN) transport management, could be used as a supplementary to NGN for provision of last mile connection.
- From the point of fixed and mobile convergence (FMC) stream, BWA is better to serve not only for fixed, nomadic services but also for mobile services.
- From the economical point of view, following BWA system is preferable:
- popularising at many developed countries through large scale deployment,
- Many vendors and operators support that BWA technology and lowering cost and availability of various types of user terminals can be expected.
- From the point of both technical and economical views, if the anticipated operators are new entrant, fixed or 2G incumbent mobile operators, mWiMAX or XGP would be the most preferable. If anticipated user density is high in the highly populated areas or countries, mini to micro cell XGP

architecture is more preferable. If the operator is incumbent FDD 3G, adoption of LTE is the most appropriate solution. Other than these, mWiMAX is preferable.

- For point-to-point wireless approach link (PP radio), PP radio is the most cost effective.
- For BWA deployment, not only mWiMAX hardware costs but also CAPEX(CAPital EXpence) and OPEX(OperatiOn EXpence) could be a major barrier for sustainability of BWA infrastructure.
- For implementation of the project, more close collaboration between MIC, ITU and beneficiary countries would be preferable to share the status of progress of the project implementation, to exchange views for future pilot projects, etc.

5. Project Budget status

- All the necessary funds were secured in implementation of the project. Due to the exchange rate favorable to JPY, the actual budget was increased to 119'844.12 USD. (The original budget was established in terms of JPY and considered equivalent to 112'245 USD.)
- The remaining budget balance of the project recommended to be transferred to BDT projects

6. Annexes attached

The following attached to this report:

1. Work Plan
2. Questionnaire on broadband network;
3. Responses to Questionnaire
4. Feasibility study report on low-cost wireless broadband infrastructures;
5. Draft project document for future pilot project;
6. Input document concerning broadband access technologies for the ITU-D SG2 meeting held from August 31 to September 4, 2009;
7. Addendum no1. 9RAB09017;
8. MIC letter (for project period extension) dated 10 August 2010;
9. Addendum no2. 9RAB09017;
10. MIC letter (for project period extension) dated 30 April 2010;
11. Project document 9RAB09017;
12. Financial Situation at 01.09.2010;
13. Job Descriptions, Recruitment and Evaluation&Payment of experts;
14. Project Progress Report;
15. List of Focal Points;
16. Letter submit to Arab States (for focal point) dated 19 January 2010;
17. Letter received from Arab States (for focal point)
18. ITU/MIC Coordination meeting minutes (25 March 2010 at MIC, Japan).
19. Response from MIC (02 September 2010)