Internal Ex-Post Evaluation for Grant Aid Project

conducted by Uganda Office: March 2015

Country Name	**The Project for the Improvement of Uganda National Expanded Programme on Immunization**
Republic of Uganda	

I. Project Outline

Background	In Uganda, the Uganda National Expanded Programme on Immunization (UNEPI) and its head office was established in 1983. The role of UNEPI was to carry out a 5 year plan for expansion of immunization, to manage immunization programs, to supply and to control vaccines, to deliver trainings for health staff to be engaged in immunization as well as to conduct public awareness activities to extend immunization. Although the immunization rate of the country was in the upward trend through the activities conducted by UNEPI in 1990's, the growth of the immunization rate was stagnant since 2004. According to the Uganda Demographic and Health Survey 2006, proportion of the immunized children in 2006 dropped to 47%. Since half of the health institutions in the country faced difficulty to implement immunization in timely manner and the limited outreach activities on immunization due to the lack of cold chain equipment besides the lack of knowledge about immunization of the local people and the limited access of the local population to the health institutions. Furthermore, although the number of health centers, in particular, located in remote areas, have increased due to decentralization but faced the lack of equipment. Under such situation, the government of Uganda requested to the government of Japan to support procurement of cold chain equipment in order to enhance UNEPI.				
Objectives of the Project	To increase the number of health institutions providing regular immunization service by installation of cold chain equipment, thereby contributing to improvement of immunization rate in Uganda.				
Outputs of the Project	1. Project Site: 1,247 sites in all the 80 districts in Uganda (the health centres, hospitals, District Vaccine Store (DVS) and National Vaccine Store) 2. Japanese side Procurement of small electric refrigerators /ice pack freezers (242), large electric refrigerators (29), middle electric refrigerator/ice pack freezers (21), small gas-electric switching refrigerators/ice pack freezers (694), middle gas-electric switching refrigerators/ice pack freezers (72), large electric freezers (77), gas cylinders (500), small solar electric refrigerators /ice pack freezers (287), solar power systems (287), truck with cold storage and open gauge truck 3. Uganda's side: Securing necessary space for installation of procured cold chain equipment, preparation of necessary utilities for the equipment, inland transportation of the equipment, etc.				
Ex-Ante Evaluation	2010	E/N Date	12 April, 2010	Completion Date	29 August, 2011
Project Cost	E/N Grant Limit: 451 million yen, Actual Grant Amount: 338 million yen				
Implementing Agency	Uganda National Expanded Programme on Immunization (UNEPI)				
Contracted Agencies	INTEM Consulting Inc, Toyota Tsusho Corporation (lot 1), Nishizawa Ltd. (lot 2)				

II. Result of the Evaluation

1 Relevance

Consistency with Uganda's development policy at the time of ex-ante evaluation and ex-post evaluation

This project has been highly consistent with Uganda's development policy, such as "reduction of major diseases and mortality by those diseases" and "enhancement of basic immunization" set forth in the policy documents, including the health sector Strategic Plan III (2009/10-2014/15) and the Uganda National Expanded Immunization 5 year Plan (2006-2010) as well as the 2nd National Health Policy (2010).

Consistency with Uganda's development needs at the time of ex-ante evaluation and ex-post evaluation

This project has met the Uganda' development needs for improvement of immunization rates in the country, in particular, limited immunization rate for under 1 year children of 47%[1] and introduction of new vaccines in the routine immunization program.

Consistency with Japan's ODA policy at the time of ex-ante evaluation

The project was consistent with Japan's ODA policy supporting improvement of basic life including development of health and medical infrastructure at the time of ex-ante evaluation

Evaluation Result

Therefore, relevance of this project is high.

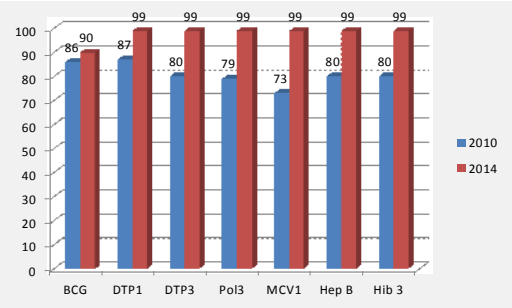
2 Effectiveness/Impact

Effectiveness

The project has achieved its objective, "to increase the number of health institutions providing regular immunization service by installation of cold chain equipment". As planned, 1,247 health institutions and vaccine stores without or lack of cold chain equipment have been equipped with the cold chain equipment procured by the project. The health institutions and vaccine stores equipped by the project accounts for 23.5% of the total health institutions and vaccine stores with cold chain equipment (5,303 institutions and stores). Also, the cold chain equipment procured by the project improved the immunization services in Uganda through the increase in the volume of vaccines stocked at the health institutions. Most health institutions have been delivering the regular immunization services one or two days a week and some of the institutions have delivered the service everyday but only when vaccines are available. Also, in 2014, 147 hospitals, excluding referral hospitals and 5,029 health centers, including all the health institutions equipped with cold chain equipment procured by

[1] The immunization rate for under 1 year children with BCG, DPT 3 and OPV 3 according to the Uganda Demographic and Health Survey in 2006.

the project have delivered the outreach immunization services in which the health staffs visit and deliver immunization in community. The target population for the routine immunization service is children under 1 year of age.



Immunization Rates of Major Vaccines in Uganda (%)

Impact

Adequate storage capacity of vaccines at health institutions through procurement of cold chain equipment contributed to improvement of immunization rates of major vaccines[2] in Uganda. According to the Health Management Information System (HMIS) of the Ministry of Health, for the period from 2010 to 2014, the immunization rates of DTP, Polio, MCV, Hepatitis B and Hib b increased to 99% while the immunization rate of BCG increased to 90%. In addition to the increased capacity to stock vaccines at the health institutions equipped by the cold chain equipment, the lifting suspension of GAVI's support for promotion of immunization in 2012 and improvements of administrative data from HMIS[3] led the improvement of immunization rates. No negative impact was observed at the time of ex-post evaluation.

Evaluation Result

In light of the above, effectiveness/impact of this project is high.

Quantitative Effects

Indicator	Year 2009 (before the project) Actual value	Year 2011 (target year) Target value	Year 2012 (target year) Actual value	Year 2014 (ex-post evaluation) Actual value
Indicator 1: The number of health institutions and vaccine stores without or lack of cold chain equipment	1,247	0	0	0
1) The number of health institutions and vaccine stores without cold chain equipment	532	0	0	0
2) The number of health institutions and vaccine stores with aged cold chain equipment (more than 10 years)	678	0	0	0
3) The number of health institutions and vaccine stores with insufficient capacity to store vaccines.	37	0	0	0

<Sources> Final Cold Chain Inventory Report (October, 2014)

3 Efficiency

Although the project cost was within the plan (ratio against the plan: 73%), project period exceeded the plan (ratio against the plan: 120%) due to the delay to install solar panels. The delay was caused by the request from the Uganda side to change 79 target sites out of 287 sites with solar electric refrigerators and solar systems after arrivals of the procured equipment since the changed sites have already been equipped by supports of other donors. However, finally all equipment were procured at appropriate places and the outputs of the project were produced as planned. Therefore, efficiency of this project is fair.

4 Sustainability

Institutional Aspect

In April, 2012, the Ministry of Health commissioned the National Medical Stores (NMS) to take over a part of responsibilities of vaccine supply and logistics and quality control from UNEPI, including management and maintenance of cold chain equipment, in order to improve overstretching responsibilities of UNEPI and to allow UNEPI focus on programmatic issues. Although the responsibility for maintenance of cold chain equipment was transferred from UNEPI to NMS(Uganda National Academy of Sciences, 2014, p26), all the 5 cold chain equipment technicians have remained at UNEPI and only 1 technician has been deployed to NMS. This organizational change has negatively affected the utilization and maintenance of the cold chain equipment installed by the project due to the insufficient number of technicians in NMS. Therefore, UNEPI is still doing maintenance and repairs of the cold chain equipment. In terms of vaccine supply, at the initial stage of transition process, several challenges such as stock-outs of vaccines and supply problems occurred because of unprepared staffing and budgeting. The Cold Chain Assistants (CCA) who distribute vaccines and syringes as well as collect used syringes have been deployed to all the five DVS surveyed by the ex-post evaluation.

Technical Aspect

In terms of maintenance of cold chain equipment, the engineers of the Workshop of NMS have the higher diploma in engineering therefore have the ability to repair the cold chain equipment. However, since no regular training is conducted to ensure technical skills, staffs of DVS have only basic technical skills to conduct minor repair of the cold chain equipment. As for the immunization service providers, out of the 19,636 health staff engaged in the immunization service, only 25% of them in total have received the Operational Level (OPL) trainings for health workers, according to the Final Cold Chain Inventory Report (October, 2014).

Financial Aspect

Although the actual expenditure on EPI has steadily expanded from 51.6 billion Uganda shillings in 2009/10 to 79.3 billion Uganda shillings in 2012/13, no data is available for procurement of spare parts for the cold chain equipment. However, since the expiry of 5 year lifespan for the solar batteries will come in 2016, there is a concern that NMS may have difficulty to cover expenses for the replacement of solar batteries that amount around 21 million yen for all the 287 units installed by the project. According to the GAVI resource tracking study conducted in 2014, 65% of the government budget in 2012/13 for immunization amounting 44 billion Ugandan shillings was

[2] Types of major vaccines in Uganda are as follows: BCG (Tuberculosis), DTP 1 & 3 (Diphtheria, Pertussis, Tetanus), Pol 3 (Polio), MCV 1 (Meningococcal Conjugate Vaccine), Hep B (Hepatitis B), and Hib B (Haemophilus Influenza type b)

[3] HMIS improved data collection, timeliness, completeness, and accuracy of reported data.

allocated to the personnel cost and 38% of the budget covered the cost for immunization excluding personnel cost. On the other hand, the donors supporting EPI including GAVI, an international organization of global vaccine alliance, contributed to covering immunization cost including procuring vaccines. The donors' support has steadily increased since 2009/10.

Current Status of O&M

Most of the cold chain equipment installed by the project has been regularly monitored by the health staffs and the conditions have been recorded. Out of 17 cold chain equipment surveyed by the ex-post evaluation, 2 of them have not been functioning to store vaccine in proper manner without proper temperature control because of the poor installation and lack of proper earthing of solar panels under the project. Also, the limited knowledge and skills about solar electric refrigerators of the health staff is another reason for the malfunctioning fridges. Moreover, UNEPI and NMS reported that over 20% of the solar electric fridges procured by the project that the government manages are not functioning due to internal leakages, malfunctioning of the cooling system and so on, which cannot be repaired by the engineers of the Central Workshop of NMS. Also, solar batteries ,highly costly, have not been procured by the local governments due to the lack of budget while gas for the refrigerators has been timely procured. The 2 trucks procured by the project were utilized for transport of vaccines and gas cylinders as planned. The truck with fridge has been used only in city where the road conditions are good since the tires specific for the truck are not available in the local market of Uganda.

Evaluation Result

In the light above, there are some problems in the institutional, technical and financial aspects as well as current status of operation and maintenance, therefore, the sustainability of this project effect is low.

5 Summary of the Evaluation

The project has achieved its objectives, "to increase the number of health institutions providing regular immunization service by installation of cold chain equipment" and contributed to improvement of immunization rates of major vaccines in Uganda. As for sustainability, since the transfer of the responsibility for maintenance of cold chain equipment from UNEPI to NMS resulted in the limited number of engineers for maintenance. Also the limited procurement of spare parts constrained the proper maintenance of cold chain equipment. As for efficiency, the project period exceeded the plan because of the delay of installation of the procured cold chain equipment through insufficient coordination of donors' support.

In light of the above, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

[For NMS]

- It is necessary to train the existing technical staff at the national store and CCAs at the district store in specific skills, for instance, cold chain maintenance. NMS should carry out a capacity building needs assessment and develop a costed capacity building plan indicating who should undertake the training in order to enhance technical capacity of technical staffs for proper maintenance of the cold chain equipment.
- NMS should develop and implement a maintenance plan and ensure budget line for cold chain equipment and deployment of at least one technician per region (6 regions) in order to conduct proper maintenance of cold chain equipment.
- There is a need to scale up gas powered fridges since they have proved to be effective in areas where there is no electricity. What is needed is to have at least two cylinders (one for use and the otherfor standby). It is recommended to consider installation of gas powered fridges.

Lessons learned for JICA:

- Solar electric refrigerators with solar power system require maintenance skills which the human resources in the recipient country do not necessarily have and high cost of replacement of expired batteries. On the other hand, gas powered refrigerators can be more suitable for local conditions with limited technical skills and limited availability of spare parts in the case such as this project. In addition, in terms of equipment such as vehicles, in some countries, spare parts for equipment and vehicles, including tires, are not available in the local markets. Therefore, JICA should carefully consider types of equipment to be procured by project as well as necessity to provide spare parts at the time of project planning.
- The Ugandan government changed locations of 79 sites out of 278 sites after arrivals of the cold chain equipment in Uganda because it turned out those sites had been already equipped with support by other development partners as a result of lack of donor coordination. For efficient implementation of project, JICA needs to carefully consult with the recipient government and to coordinate with other donors before selecting the project sites for installation of equipment.
- In order to ensure sustainable use of equipment provided by project, JICA should request for a maintenance plan and budget line for maintenance before giving a grant of equipment to any recipient country at the time of project planning. Also, it is necessary to consider necessity of technical assistance for maintenance capacity.

Freezer at the Mburabuturo Health Center in Kisoro District

Solar Panel for the Freezer