

Country Name	<b>The Project for the Reinforcement of Vaccine Storage in Kenya</b>
The Republic of Kenya	

**I. Project Outline**

Background	In Kenya, provision of medical service focusing more on prevention was a key issue to improve the situation under which many people have suffered from preventable diseases and more expenses for their treatments were required. In particular, according to the WHO mortality country fact sheet 2006, the main causes of death for children under 5 years were pneumonia (20%), diarrhea (16%) and measles (3%) which were diseases preventable by immunization. Therefore, the government of Kenya had been implementing vaccination under “the Kenya Expanded Programme on Immunization” (KEPI) since 1980. However, there was insufficient storage capacity for vaccines and transportation of vaccines from the National Vaccine Depot to the Regional Vaccine Depots was not smoothly carried out, which hampered efficient immunization services.			
Objectives of the Project	To enable more efficient stock management and delivery of vaccines by construction of the Central and Regional Vaccine Depots and procurement of equipment for adequate storage of vaccines, thereby contributing to improvement for the full immunization coverage in Kenya			
Contents of the Project	<div>1. Project Site: Nairobi (later moved to Kitengela), Kakamega (Western Province), Meru (Eastern Province), Garissa (North Eastern Province), Nyeri (Central Province), Nakuru, Eldoret (Rift Valley Province), Kisumu (Nyanza Province), Mombasa (Coast Province)<sup>1</sup>.</div> <div>2. Japanese side<ul style="list-style-type: none"><li>• Consultant services: Design of facilities, equipment, and supervision of construction</li><li>• Construction: Nairobi Central Vaccine Depot, Kakamega Regional Vaccine Depot, Meru Regional Vaccine Depot, and Garissa Regional Vaccine Depot</li><li>• Equipment: Cold rooms, freezer rooms, freezer, pallet lifts, tool boxes etc.</li></ul></div> <div>3. Kenyan side:<ul style="list-style-type: none"><li>• Removal of any obstacles on construction sites</li><li>• Installation of fence around the construction site</li><li>• Provision of electricity, water supply and other necessary utilities for the Project</li><li>• Disposal of construction and demolition waste according to legal requirements</li></ul></div>			
Project Period	E/N Date	August 8, 2011	Completion Date	June 17, 2013
	G/A Date	August 8, 2011		
Project Cost	E/N Grant Limit / G/A Grant Limit: 899 million yen, Actual Grant Amount: 826 million yen			
Executing Agency	Ministry of Health (the former Ministry of Public Health and Sanitation)			
Contracted Agencies	Main Contractor: Kitano Construction Corp. Main Consultant: Yokogawa Architects& Engineers, Inc. Agent: Mitsubishi Corporation			

**II. Result of the Evaluation**

## &lt;Constraints on Evaluation&gt;

- According to the security advisory by the Ministry of Foreign Affairs of Japan, travel to Garissa by personnel of Japanese agencies has been restricted due to the deteriorated security situation. Therefore, the ex-post evaluation team was not able to conduct site visit to Garissa which had been selected for the ex-post evaluation, and the investigation on the Regional Vaccine Depot in Garissa was therefore limited.

## &lt; Special Perspectives Considered in the Ex-Post Evaluation &gt;

- According to the ex-ante evaluation, an indicator of “percentage of children under 12-months old fully immunized” was considered as one of the “expected quantitative effects” of the project. While increased storage capacity is a factor contributing to increased immunization coverage, it cannot be solely and directly attributed to the latter. Therefore, this indicator will not be used to verify Effectiveness but to verify Impact (the goal of this project is to have “more children immunized”), in order to logically assess this project’s contribution to the immunization coverage.

**1 Relevance**

## &lt;Consistency with the Development Policy of Kenya at the Time of Ex-Ante and Ex-Post Evaluation&gt;

The project was consistent with Kenya’s development policies such as “Vision 2030”, “the Medium-term Plan 2008-2012”, “Ministry of Public Health and Sanitation Strategic Plan 2008-2012” and “the National Policy Guidelines on Immunization 2013”, prioritizing improvement of public health service delivery including vaccination and immunization, thereby aiming at the full immunization coverage of children under 12-months old by 2012. The development priorities were confirmed at the time of ex-ante evaluation and at the time of ex-post evaluation.

## &lt;Consistency with the Development Needs of Kenya at the Time of Ex-Ante and Ex-Post Evaluation &gt;

The project was consistent with Kenya’s development needs of streamlining primary healthcare service delivery including vaccination and immunization services through expansion of storage capacity of the National and Regional Vaccine Depots. The development needs were confirmed at the time of ex-ante evaluation and at the time of ex-post evaluation.

## &lt;Consistency with Japan’s ODA Policy at the Time of Ex-Ante Evaluation&gt;

The project was consistent with Japan’s ODA policy towards Kenya, the “Country Assistance Program for Kenya (2000)”, prioritizing to support the health sector as one of the five priority areas, including strengthening healthcare systems for enhancement of primary healthcare services.

<sup>1</sup> In line with the Constitution of Kenya, 2010, the devolved system of governance was introduced in the year 2013, and the former provincial administrative regions were restructured into smaller units called Counties.

**<Evaluation Result>**

In light of the above, the relevance of the project is high.

**2 Effectiveness/Impact****<Effectiveness>**

The project has achieved its objectives to improve the stock management and delivery of vaccines by construction of the Central and Regional Vaccine Depots and the procurement of equipment for adequate storage of vaccines by the time of ex-post evaluation. According to data on indicators as collected from the field survey, the frequency of vaccine distribution in Kakamega (Indicator 1) reduced from 12 times a year in 2010 (every month) to 4 times in 2014 (quarterly) as planned and is still maintained in 2016. The vaccine distribution from the Central Vaccine Depot (CVD) in Kitengela to the Regional Vaccine Depot (RVD) in each target site (Indicator 2) has been continuously and stably undertaken 4 times a year since 2010. The Central and Regional Vaccine Depots constructed by the project expanded storage space by a total floor area of 3,854 m<sup>2</sup> (Indicator 3). In terms of the storage capacity of the CVD (Indicator 4), this was expanded by the project from 59m<sup>3</sup> (cold room of 54m<sup>3</sup> and freezer room of 5m<sup>3</sup>) to 131 m<sup>3</sup> (cold room of 115m<sup>3</sup> and freezer room of 16m<sup>3</sup>). The cold room storage capacity of the Regional Vaccine Depots in Nakuru, Eldoret, and Mombasa (Indicator 5) were each increased from 5m<sup>3</sup> to 10 m<sup>3</sup>. All the indicators have been maintained at these levels since the project completion.

Although before the project vaccines had been stored and managed at not only the National Vaccine Depot but also some hospital stores in Nairobi, the staff at the CVD reported that they were able to procure, store and issue large quantities of vaccines from a central location as well as appropriately distribute them to the target regions based on the storage capacity of the Depots expanded by the project. As a result, the efficiency of vaccine management in the Depots has been improved. The field survey for the ex-post evaluation also revealed that the expansion of the Depots has enabled the government of Kenya to introduce a variety of new vaccines into the immunization schedule. In fact, the government introduced Rotavirus and Inactivated Polio vaccine (IPV) in 2014 and 2015, respectively, and is planning further introduction of human papillomavirus (HPV), meningitis, and malaria vaccines. However, due to unavailability of data on vaccine management costs at the Central and Regional Vaccine Depots targeted by the project, the extent of cost reduction or savings associated with improved efficiency and reduction in vaccine wastage through the improvements in vaccine management at the Depots could not be verified by this ex-post evaluation.

**<Impact>**

As regards the positive impact of the project, the field survey results show that improvement of “percentage of children under 12-months old fully immunized” has been almost achieved. The full immunization coverage in 2016 was 75.6% against the target value of 80%. On the other hand, the annual rates of full immunization coverage fluctuated during the period from 2010 to 2014 (from 73% to 68%) and the period from between 2015 to 2016 (from 78.4% to 75.6%) largely due to the following events as reported by the Unit of Vaccines and Immunization Services (UVIS); (1) reorganization of the health sector after devolution in July 2013 that affected the previous vaccine management system and immunization service delivery across the newly devolved units; (2) in 2015, there was a marked increase in coverage of immunization as health system restructuring had settled to improve service capacity, allowing better service delivery at various levels; (3) however, health services were negatively affected by industrial actions (strikes) by health workers that occurred in 2016/17, resulting in decline in health indicators with full immunization coverage dropping in 2016.

Some other positive and negative impacts were observed at the time of ex-post evaluation. Along with increases in the volume of vaccines and other supplies to the CVD (positive), the volume of general waste pertaining to the packaging of vaccines and other supplies also increased, which led to emission of smoke from open burning of the waste and air pollution near the CVD (negative). As such, UVIS reported that it has taken measures such as off-site incineration by certified providers and minimization of general waste by recycling packaged materials in order to address the problem. On the other hand, the Regional Vaccine Depots constructed by the project also have been positively utilized for other purposes related to health services. For example, the Depot Managers in Meru and Kakamega reported that the facilities are used to store materials and commodities used by their county health programs including medical equipment, drugs, IEC (Information, Education and Communication) materials and reporting tools.

**<Evaluation Result>**

In light of the above, the effect of the project has been observed as planned. Therefore, the effectiveness/impact of the project is high.

**Quantitative Effects**

Indicators	Baseline 2010 Baseline Year	Target 2016 3 Year(s) after Completion	Actual 2013 Completion Year	Actual 2014 1 Year after Completion	Actual 2015 2 Year after Completion	Actual 2016 3 Years after Completion Ex-post Evaluation
Indicator 1: Frequency of vaccine distribution in Kakamega (per a year) *	12	4	4	4	4	4
Indicator 2: Frequency of vaccine distribution in all the project sites (per a year)**	4	4	4	4	4	4
Indicator 3: Total Floor Area of the depots in Nairobi, Nakuru, Eldoret and Mombasa (m <sup>2</sup> )	0	3,854	3,854	3,854	3,854	3,854
Indicator 4: Storage Capacity of the National Vaccine Depot in Nairobi (m <sup>3</sup> )	59	131	131	131	131	131

Indicator 5: Storage Capacity of the Regional Vaccine Depots in Nakuru, Eldoret, and Mombasa (m <sup>3</sup> )	5	10	10	10	10	10
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Source : Ex-ante evaluation summary, Questionnaire response by UVIS for ex-post evaluation.

Note : \* At the time of ex-ante evaluation, Kakamega, Meru and Garissa did not have any facilities dedicated to the hold vaccines so that stocks needed to be often distributed from Nairobi to the regions. Therefore, a reduction in the frequency of the distribution from Nairobi to the target regions was expected through the construction of new depots by the project to stock adequate volume of vaccines required for immunization services.

\* \*Regarding “the frequency of vaccine distribution in all the project sites”, even if the amount of vaccine increases due to the introduction of new vaccines, the project would contribute to the expansion of storage capacities at the Regional Vaccine Depots and thus the frequency was set as same as the baseline.

### 3 Efficiency

The outputs of the project were produced as planned. Although the project cost was within the plan (ratio against the plan: 92%), the project period exceeded the plan (ratio against the plan: 110%).

Therefore, the efficiency of the project is fair.

### 4 Sustainability

#### <Institutional Aspect>

There was devolution of healthcare services from the national government to the County governments in July 2013 in a way that the administrative jurisdiction of the Regional Vaccine Depots falls under the County governments. However, since management of vaccines and immunization services are shared functions, there remain some challenges in management, operation and maintenance (O&M) of the Regional Vaccine Depots. For example, the responsibilities for staff deployment, training, procurement of spare parts and supplies (syringes), vaccine storage and distribution by the Regional Vaccine Depots have been shared by the national and County governments.

[UVIS, Ministry of Health (MOH)]

Along with the devolution, there were organizational changes in structure and mandate of MOH. The division formerly responsible for vaccines and immunization (DVI) was reorganized into UVIS responsible for the formulation of policy, setting standards, guidelines and technical support to Counties. MOH is also responsible for management of national referral facilities. The CVD in Kitengela has been operated and managed by UVIS, and the total number of staffs deployed to the Depot is 5 (3 cold chain engineers and technicians for O&M, 1 pharmacist for quality management and 1 procurement officer for logistics management). However, according to staffs in the Depot interviewed by the ex-post evaluation team, the number of staffs deployed to the Depot has not been sufficient to accomplish their tasks.

[Kakamega county]

Following the devolution, Kakamega County Department of Health reported that it has taken charge of O&M of the Regional Vaccine Depot built by the project in Kakamega. Although one medical engineering technician and one nurse have been posted to the Depot for O&M and quality management, according to the staffs in the Depot interviewed for the ex-post evaluation, the number of staffs available for quality and logistics management remains inadequate and their operational capacity is hampered by competing tasks required of them.

[Meru county]

As is with Kakamega county, Meru county has taken responsibilities for O&M of the Regional Vaccine Depot constructed by the project in Meru. Due to the challenges of devolution, there are no specific staffs assigned for O&M and logistics as well as management of vaccines. Even though one nurse has been assigned for quality management, the number of staff is insufficient and the available staff's expertise is not consistent with the tasks undertaken.

#### <Technical Aspect>

[UVIS, Ministry of Health (MOH)]

The staffs available at CVD for O&M and logistics management of vaccines have sufficient knowledge and skills to perform their duties. Besides their basic qualifications and professional experiences, the staff interviewed at CVD reported that their competencies are periodically enhanced through training conducted by UVIS during placement of new equipment and introduction of new vaccines. On the other hand, the staff assigned to CVD for quality management has not had an upgrade of the necessary knowledge and skills to undertake the relevant tasks that fall outside the core area of technical expertise. However, since MOH plans to introduce new vaccines and carry out national immunization campaigns, the accompanying opportunities available for capacity development will be expanded to benefit staff in charge of quality management of vaccines. . .

[Kakamega county]

The staff assigned for O&M has the sufficient knowledge and skills, but limited expertise for quality management. There is no clear training system established targeting staffs for quality management at county levels.

[Meru county]

Just as in the case of Kakamega county, the staff available for quality management has not had the necessary knowledge and skills to perform the tasks and there is no clear system of training on quality management for staff at county levels.

#### <Financial Aspect>

From the data available on budgets allocated to the Central and Regional Vaccine Depots, funding for O&M is grossly insufficient. According to head of UVIS and staffs of the central and Regional Vaccine Depots interviewed for the ex-post evaluation, the budget for O&M, especially for Regional Vaccine Depots, is insufficient and largely underfunded. From the printed budget supplementary estimates I of 2017/18, Immunization Program has allocation of KES 1,909,620 for recurrent expenditure under vote head 1081009001. Comparing this with estimates in the Program – based Budget, this amount is far less than KES 23,050,000 estimated for 2016/17 and therefore grossly insufficient for O&M.

In July 2015, the World Bank reported in its estimates of the gross national income per capita (GNI) that Kenya, Bangladesh, Myanmar and Tajikistan joined the league of “**lower-middle income countries**”<sup>2</sup>. In line with this development, GAVI, a global vaccine alliance, reduced

<sup>2</sup> For the current 2018 fiscal year, lower middle-income economies are those with a GNI per capita between \$1,006 and \$3,955 calculated using the World Bank Atlas method.

their fund to support vaccination in Kenya. Therefore, the government of Kenya is required to increase its share of counterpart funding from domestic resources. Also, the county governments are required to increase their budget allocations to health sector beyond 20% of total County budget in order to qualify for resources from the on-going World Bank grant project for Transforming Health Systems for Universal Care (THS-UC). It can be expected that increased allocations and subsequent inflows from THS-UC will benefit immunization services as part of the targeted Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH) interventions.

<Current Status of Operation and Maintenance>

18 out of the 23 freezers installed in the National and the Regional Vaccine Depots by the project have still been functioning at the time of ex-post evaluation, and breakdown of parts are the reason of 5 freezers installed in Eldoret and Kisumu that has not been functioning. Furthermore, due to budget constraints, any activities for preventive maintenance, monitoring, and inspection of the facilities and equipment have not been regularly conducted. According to staffs of the CVD and Regional Vaccine Depots, these activities are largely dependent on periodic national immunization campaigns or donors’ funding. It is 4 years after the Project was completed so equipment is still in good shape.

<Evaluation Result>

In light of the above, slight problems have been observed in terms of the institutional and technical aspects of the executing agency and serious concerns have been observed in terms of the financial aspect of the executing agency. However, there are prospects that O&M may still be supported from national immunization campaigns and contributions from County budgets and KEMSA. Therefore, the sustainability of the project effect is low.

### 5 Summary of the Evaluation

The project has achieved its objectives to enable more efficient stock management and delivery of vaccines by the construction of CVD and Regional Vaccine Depots and procurement of equipment for adequate storage of vaccines and partially contributed to the improvement of the full immunization coverage in Kenya. As for sustainability, although the insufficient number of staffs and the limited budgets allocated has constrained regular preventive maintenance of the equipment procured by the project at the CVD and Regional Vaccine Depots, most of equipment installed by the project have been functioning thanks to support from national immunization campaigns. As for efficiency, the project period slightly exceeded the plan.

Considering all of the above points, this project is evaluated to be partially satisfactory.

## III. Recommendations & Lessons Learned

Recommendations to Executing Agency:

[For MOH/UVIS]

- Deploy additional technical and operational staff for better management and operation of facilities and equipment, in close collaboration with County governments that host regional depots
- Undertake capacity building of staff through regular training, Continuous Medical Education (CME), Professional Development (PD), Support Supervision and Mentorship
- Strengthen institutional capacity and system for planning and budgeting and increase resources allocation to O&M of facilities and equipment, in collaboration with County governments

Lessons Learned for JICA:

- Important data necessary to measure effectiveness and impact of the Project (such as vaccine wastage rate; vaccine management cost) was not readily available to the ex-post evaluation team. Since collection of data, analysis and use in decision making by management is essential to improve effectiveness and impact of a project, it is necessary to select and utilize verifiable indicators where data can be collected from routine systems for regular monitoring and evaluation
- In case of decentralization in the target country at any stage of the project cycle, even at the post-project stage, it is essential to carefully analyze institutional/organizational changes in the decentralization process and institutional/organizational capacity of new entities which should be responsible for O&M of facilities and equipment installed by a grant aid project. Based on those analyses, it is desirable to incorporate a soft component to support capacity development of the responsible entities when the decentralization process starts at the time of project planning and formulation. Or when the decentralization process is initiated after starting implementation of the project or completion of the project, it is better to consider follow-up supports in order to ensure sustainability of project effects.



Dry Store at CVD, Kitengela

REPUBLIC OF KENYA

7748563

COUNTER REQUISITION AND ISSUE VOUCHER

Ministry Of Health

Depot Branch Kitengela

Unit

To (issue point)

WASILE

25401-2450100

Please issue the goods

Issued before to (unit)

Kitengela

Unit

Code No	Item Description	Unit of Issue	Quantity Required	Quantity Issued	Value	Remarks
1	BCE	Box	10,000	10,000	10,000	10,000
2	BCE DILUENT	Box	500	500	500	500
3	PENTAVAXENT	Box	500	500	500	500
4	DPD (Diphtheria)	Box	500	500	500	500
5	BTA VIALS	Box	1,000	1,000	1,000	1,000
6	MILKTES BOTTLES	Box	1,000	1,000	1,000	1,000
7	TI	Box	1,000	1,000	1,000	1,000

Account No.

Requesting Officer

Issued by

Received by

Designation

Signature

Date

Stocks Issue Voucher at the Regional Vaccine Depot