

Evaluation of the Project to Support PAV (Expanded Program on Immunization) In Northern Mozambique, 2001-2008:

An Independent Review for VillageReach
With Program and Policy Recommendations

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Abbreviations

DDS	Direcção Distrital de Saúde
DPS	Direcção Provincial de Saúde
DTP	Diphtheria-tetanus-pertussis
FDC	Fundação para o Desenvolvimento da Comunidade
HepB	Hepatitis B
MISAU	Ministerio da Saúde
OMS	Organização Mundial de Saúde
Polio	Vacina oral contra a poliomielite
PAV	Programa Alargado de Vacinação
US	Unidade Sanitária
VAS	Vacina Anti-Sarampo (Measles)
VAT	Vacina Anti-Tétano (Tetanus)
VR	VillageReach

Executive Summary

VillageReach Evaluation of the Project to Support PAV

Introduction and Background

In March 2002, the Foundation for Community Development (FDC), a national non-governmental organization (NGO) and VillageReach (VR), an international NGO, launched a 5-year pilot project designed to ensure prompt and universal access to vaccines in the northern Mozambican province of Cabo Delgado. The project was conducted in partnership with the Mozambican Ministry of Health (MISAU)¹, and worked to support the Expanded Program on Immunization (PAV²).

Cabo Delgado is a very poor rural province in northern Mozambique with a dispersed population of 1.5 million people, very limited electricity, and poor roads which are often impassable during heavy rains. Most health centers have few trained staff and no vehicles. Supervision and training of the health staff is often inadequate or absent, health budgets are insufficient and shortages of funds to pay health workers and buy supplies are common. The partners implemented the Project to Support PAV in Cabo Delgado, where these challenges were greater than in other areas of the country and the need for support to PAV was the greatest. The project specifically addressed these challenges and improved the logistics system that enables quality healthcare.

The Project to Support PAV strengthened the logistics system by creating a simple delivery system, improving the flow of information and providing a reliable source of energy. In coordination with MISAU, PAV and the Provincial Directorate of Health (DPS) of Cabo Delgado, VR and the FDC distributed vaccines, propane, medicines and other essential medical supplies each month to all health facilities providing immunization. At the same time, field coordinators collected information from each health center for use in vaccine forecasting, planning and logistics management and provided supportive supervision to health workers.

An especially innovative aspect of the Project to Support PAV was the establishment of a social business, VidaGas, to import and distribute propane to health centers and hospitals, as well as to private customers, throughout northern Mozambique. By providing a reliable source of energy, the project was able to improve the cold chain and establish a consistent and reliable supply of vaccines to health centers.

The project was expanded to Nampula Province in August 2006 with the FDC in charge of on-going Project administration. In March 2007, the pilot project ended in Cabo Delgado and project activities were transitioned to DPS. In January 2008, VillageReach undertook an evaluation to assess the impact, sustainability and replicability of the Project to Support PAV in Cabo Delgado. This report incorporates the findings from the evaluation fieldwork conducted in July 2008 and

¹ MISAU or Ministério da Saúde is the Ministry of Health in Mozambique.

² In Portuguese-speaking Mozambique, the Expanded Program on Immunization is called the Programa Alargado de Vacinação, or PAV.

briefly documents the project history, objectives, performance, and impact. The primary purpose of this report is to inform the planning of future immunization activities in Mozambique, including the scale up of the Project from two provinces to the entire country, and how VR and its partners can support and contribute to this work.

Evaluation Methodology

The evaluation fieldwork consisted of a representative household survey of the entire Cabo Delgado province, including a 30x7 WHO Immunization Coverage Cluster Survey, a household survey developed by VR, and qualitative interviews with health workers, community leaders, and Project staff and provincial officials in both Cabo Delgado and Nampula. A total of 474 children age 12-23 months and 24-35 months were included in the survey, conducted in July 2008.

The 1997 and 2003 Demographic and Health Surveys (DHS) were used as baseline information. Comparison data was obtained from a 2007 immunization coverage cluster survey conducted by DPS in the neighboring province of Niassa, in which the Project did not operate, as well as from administrative data obtained by the WHO and UNICEF.

An independent team of investigators completed the data collection and field work. Ms. Katie Leach-Kemon, Ms. Mariana Dionisio and Ms. Nelia Taimo conducted the statistical analysis of the data. Dr. Mark Kane³, an international leader in immunization, completed the evaluation by conducting an independent review of both the survey data and a five-year project report.

Key Findings

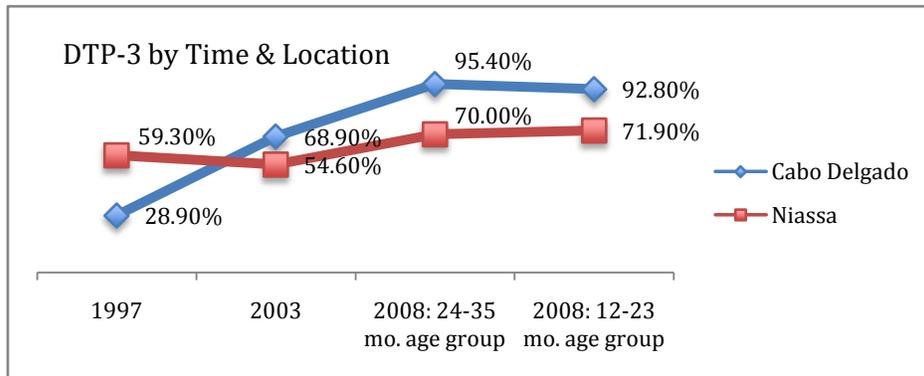
The “MISAU/FDC/VR Project to Support PAV” in Cabo Delgado was highly successful. Specifically, the evaluation found the following:

1. *The Project to Support PAV dramatically increased vaccination coverage.*

- ✓ In 2003, the DHS reported a DTP3 coverage rate in Cabo Delgado of 68.9%. In the 2008 evaluation, DTP3 coverage had increased to 95.4% for children age 24-35 months.
- ✓ All other vaccines had similar increases resulting in a 92.8% coverage rate for all vaccinations given to children age 24-35 months.
- ✓ The change in DTP3 coverage from the 2003 DHS baseline in Cabo Delgado was much greater than the change in coverage where the project was not implemented. In Cabo Delgado, DTP3 coverage increased from 68.9% to 95.4% (i.e. 26.5% difference) for children age 24-35 months. In Niassa province, where the project was not implemented, DTP3 coverage increased from 54.6% to 70% (i.e. 15.4% difference) for children in the same age group. Elsewhere in the country, administrative data and

³ Dr. Kane graduated from Brandeis University in 1969 and served in the Peace Corps. Following this, he went to Medical School at Penn State University at Hershey. He received pediatric training at Dartmouth and public health training at the Harvard School of Public Health. He then received EIS training at the US Centers for Disease Control and worked for the CDC for 20 years in the Divisions of Viral Hepatitis and Viral Diseases. For the last ten years of his CDC career Dr. Kane was seconded to the World Health Organization in Geneva where he worked in the Expanded Programme on Immunization (EPI) in charge of Hepatitis B Control and other New Vaccines. In 1999 Dr. Kane moved to Seattle to become the Director of the Children’s Vaccine Program at PATH. In that capacity he served on the Founding Board of GAVI, the GAVI working group, and was the Founding President of the Global Fund for Children’s Vaccines (later the Vaccine Fund and now the GAVI Fund). Dr. Kane retired at the end of 2005 and is now a private consultant in Seattle.

surveys by the WHO and UNICEF report national coverage rates for a similar time period as 72%.



2. *The Project improved the quality of health services and access to vaccines.*

- ✓ The Project to Support PAV dramatically reduced stock-outs.
 - Regularly less than 1% of health centers reported a stock-out in 2006 compared to almost 80% in 2004.
 - Field coordinators reliably visited over 90% of the health centers every month to deliver vaccines, gas and other supplies, provide supportive supervision to health center staff and to collect health center data for use in vaccine management, supply and logistics planning.

- ✓ The Project to Support PAV directly improved the cold chain.
 - 92.6% of the health centers visited had reliable and easy to maintain gas or gas/electric refrigerators provided by the project.
 - 26 of the 27 health centers visited had a working refrigerator over one year after the pilot project ended.
 - 96% of health workers interviewed reported that the refrigerators had never been broken and 74% reported that they had been appropriately trained to maintain the refrigerator temperature and other elements of the cold chain without any problems.

3. *Among communities served by health facilities benefiting from the project, knowledge of, trust in, and use of health services increased.*

- ✓ Drop-out rates between DTP 1 and DTP 3 decreased from 12% in 2001 to as low as 3.8% in 2008.
- ✓ 94% of respondents had heard of vaccines but only 42% knew that the purpose of a vaccine was to prevent illness; 76% had received the last vaccination at a health center.

- ✓ 91% of the families interviewed had visited the health center in the last month despite 47% of families living over two hours away, 85% of them having to walk to get there and the most common reason for vaccination failure being “place of immunization too far.”

4. *The positive impacts of the project are sustainable, if essential project components are maintained.*

- ✓ Coverage rates for children vaccinated during and after the end of the project (i.e. 12-23 month age group) remained close to 90% or above, even though they dropped slightly compared to the coverage rates for children vaccinated at the peak of the Project.
- ✓ Project staff and DPS officials emphasized that provincial-level delivery and early integration with DPS are essential to sustainability and a successful transition.
- ✓ The supportive supervision and data management provided by the Project improved the ability of health workers and DPS to accurately forecast vaccine usage and supply needs over time.

5. *The project is replicable.*

- ✓ The Project has already been replicated in Nampula, where it is currently being implemented by the FDC. Incorporating some of the “lessons learned” from Cabo Delgado, Project Staff and DPS officials in Nampula reported that the Project has already:
 - Dramatically improved the cold chain by providing gas refrigerators that were reliable and easy to use and by training health workers in refrigerator maintenance, vaccine and waste management and social mobilization;
 - Improved access to vaccines by basing delivery at the provincial level when previously the inability of districts to pick up and deliver vaccines had led to frequent stock outs;
 - Improved the frequency and quality of supervisory visits by Project Staff which allowed for essential on-the-job training and supportive supervision; and,
 - Improved the ability of health workers and DPS to manage vaccine services, including ordering vaccines in a timely manner, planning so as to avoid stock outs and organizing vaccines for multiple brigades.
- ✓ Project Staff and DPS officials interviewed supported the expansion of the project to other provinces and areas, including expansion into water/sanitation, malaria and the provision of mosquito nets and support for vaccination mobile brigades.

Conclusions and Recommendations

This evaluation shows that the Project to Support PAV played a significant role in the marked improvement seen in immunization coverage in Cabo Delgado. The Project directly improved the cold chain, reduced vaccine stock outs from 80% to regularly about 1% per month, greatly improved vaccine forecasting, helped to reduce dropout rates between DTP1 and DTP3 from 12% to as low as 3.8%, and greatly improved the supervision and training of health center staff.

Attributing these impacts to the Project is supported by the comparisons to DHS data from 1997 and 2003, other administrative data and the fact that vaccination coverage rates in the neighboring province of Niassa, where the Project did not undertake any activities, were significantly lower than those found in Cabo Delgado for a similar time period. In addition, no other organizations were working to improve vaccination coverage in all districts of Cabo Delgado during the project period.

The evaluation also highlighted the components of the Project model that are essential to sustaining the high vaccination coverage rates found in Cabo Delgado. The data suggests that following the discontinuation of field coordinator teams delivering supplies and performing supervision (as occurred in Cabo Delgado following the pilot project), the districts and health centers are having difficulty reliably picking up supplies, stock-outs of vaccines are beginning to occur again, there is some (not statistically significant) evidence that immunization coverage is beginning to fall and district level budgets are not being maintained for these activities.

This experience has critical implications for the sustainability of the project and for planning the national rollout. The clear lesson is that the benefits of the Project can be sustained if field teams, vehicles and budgets are maintained and supervised at the Provincial level. The definition and roles of MISAU central, provincial and district level offices in vaccine logistics need to be fully explored and articulated prior to national implementation of the Project. In addition, full and early integration into each DPS program is critical to the Project's sustainability.

The evaluator highly supports efforts to scale-up the project to the National Level in Mozambique. This national roll-out, however, must be actively supported at the highest political levels and by the highest officials in MISAU. Also, while decentralization is the national policy, the author believes that the Project can only be successful and sustainable if logistics and the supply of vaccines are decentralized to the *appropriate* level, which in the case of the Project to Support PAV, appears to be at the provincial level.

MISAU, PAV and DPS in Cabo Delgado have put invaluable resources and time into improving PAV services and ensuring that children throughout Mozambique receive full and effective vaccinations. The Project to Support PAV has developed effective procedures to improve the performance and impact of these services in two provinces. Efforts should now be made to scale-up the project to the national level throughout Mozambique.