

## LAST MILE DISTRIBUTION MODEL OF HEALTH PRODUCTS IN INACCESSIBLE AREAS

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In northern Benin, the rainy season extends from June to October each year. During this period, some localities are cut off from the rest of the world due to flooding and poor road conditions. This is the case of the commune of Karimama, which covers an area of 6,041 km<sup>2</sup>, 5/6 of which is occupied by the National Park W and the remaining 6th by the indigenous population. This commune is crossed by the Niger River (a natural border with Niger) and the Alibori River (a border with the commune of Malanville). Eight health facilities serve the populations of the area, each covering a health area of approximately 125 km<sup>2</sup> for a total population of 66,353 inhabitants, i.e., approximately 8,500 inhabitants per health facility. The only direct means of transport to reach the neighboring commune (Malanville) is by boat across the Alibori River. Thus, for the health facilities in these localities, returning to the distribution depot located in Malanville each month during the rainy season to obtain supplies of health products in accordance with the Min-Max inventory control system defined in the country, is an obstacle course due to the overflowing waters of the Alibori. This leads to high stockouts rate, with an increase of population's morbidity and mortality. This situation is even more worse during rainy season given the very high incidence of malaria leading to a higher child mortality rate. In 2018, the average stockout rate for all Artemether Lumefantrine, the main ACTs used to treat simple malaria cases, was 10 days with a case fatality rate of 13,09‰ . Faced with this situation and to address the challenge of the supply chain in Benin, the government, with support from technical and financial partner, put in place the Young Logistician Professional (YLP) program in 30 communes including Karimama. The main objective of this program is to increase the supply chain assessment indicators and at the same time to reduce malaria-related mortality. Thanks to the dynamism and professionalism of the logisticians recruited on this program, discussions were held to anticipate orders and to provide health facilities with a sufficient stock of health products for the entire rainy season, i.e., a 5-month supply. Thus, a hybrid model for estimating and distributing health products for inaccessible areas was set up. It consists of determining the need for health products to cover the entire rainy season based on consumption history, the number of days of shortages and morbidity data. Once this need determined and the periodic inventories have been carried out, the quantities needed to cover the rainy season are deducted. This is followed by the development of a distribution schedule and the delivery of health facilities, which takes place before the rainy season (a month earlier) and extends over 10 days. Finally, a remote logistical monitoring system through cell phone is set up to monitor the stock status monthly. This approach, which began in 2018 and has continued since then in the area with a refinement of the strategy each year with modernized supply chain tools such as the electronic-Logistic Management Information System and the Logistic Data Visualization System) has improved stockout rates which has reached less than one day per month. These results obtained over the past few years have confirmed the effectiveness of the strategy in strengthening the monitoring of stock management and ensuring the continued availability of health commodities even in the most difficult to access areas.