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For the Andohalo Pharmaceutical Research and Production Center (right), MSAADA designed the structure to fit in with the local brick buildings of Antananarivo (above) in the highlands.



Madagascar connection

Two recent projects illustrate how the Minnesota firm MSAADA designs within the architectural tradition of this African nation

By Scott Williams

Like many recently independent countries in Africa, Madagascar has built its architectural tradition by combining indigenous African building forms with European styles appropriated from the days of colonialism. But unlike many other African countries, where the indigenous forms have survived only recognizably in the villages, Malagasy village buildings have translated well to the cities that grew under colonial rule.

Madagascar, with a population of 8.7 million, is an island republic in the Indian Ocean off the southeast coast of Africa. The island was a French colony from the late 19th century to 1956. A strong French influence remains, and the national languages are Malagasy and French. The Malagasy people are various mixes of Malayo-Indonesian and African ethnic groups. Rice is the staple of the Malagasy diet, and the cultivation of rice has made its imprint on the landscape and architecture of the island. About 20 percent of the population is city dwellers, with the rest living as subsistence farmers.

Indigenous Malagasy architecture developed into at least two distinct forms identified as a coastal style and a highlands style.

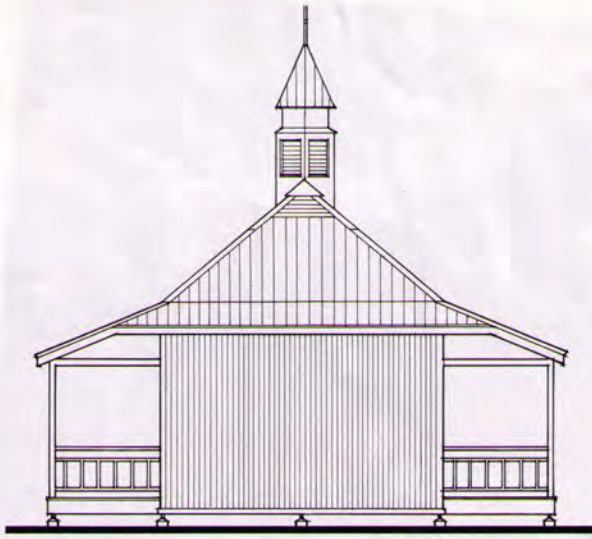
The coastal style adapts to the tropical climate of the coastal rain forests, where slash-and-burn, dryland rice cultivation is typical. The highlands style is found in the temperate regions at elevations from 3,500 to 9,800 feet above sea level. Rice cultivation in the hilly highlands is in flooded and terraced rice paddies.

Traditional building materials in the coastal style are

common forest trees, such as the travelers palm. Leaves of this tree are favored for roofing, while trunks are stacked or pounded flat as siding for wood-framed buildings. The floors of these single-story structures are raised above ground on wood stilts so that air circulates underneath and lets water from torrential seasonal rains flow under.

Building materials of the highlands are fired bricks made of mud from rice paddies. Brick walls are left fair faced or plastered with mud from local soils. Soil color varies from place to place, with pale yellow, ochre, red and even lavender hues coloring the village buildings. The villages develop visual cohesion from the soil hues particular to their region. All village houses are double-story structures with steeply pitched roofs of thatch, clay tiles or metal roofing sheets. The basic house is embellished with double-level verandas, additional pitched volumes, dormers and towers. Even small highlands villages have a strikingly urban feel because the buildings are clustered on less cultivatable areas in the midst of the rice paddies.

When the French conquered the island in 1896, most of Madagascar was ruled by the Queen of the Imerina tribe from the highlands hill town of Antananarivo, which is the country's capital and largest city. The queen's palace is still the distinctive building of the cityscape, sited atop a cliff on the highest hill. Though now a city of nearly one million people, Antananarivo retains the characteristic image of the highlands towns with



The Sambava Bible School (left) picks up on the wood construction found in the coastal regions (above).

large areas of rice cultivation surrounding the city and spots with terraced paddies among the buildings.

MSAADA, which has its main office in Wayzata, Minn., came to Madagascar in 1981 at the request of the Malagasy Lutheran Church. Since opening a permanent office in Madagascar in 1983, we have worked primarily for the Lutheran Church, but also have taken on commissions for such organizations as World Vision, the Foundation Raoul Follereau, and the U.S. Agency for International Development. Charles Whelan is in charge of the Madagascar office.

For a typical project, a sketch design and estimate are prepared in Antananarivo for submission to potential donors. If funded, design development is done in Madagascar and then sent to Wayzata for the preparation of working drawings. Upon completed drawings, the Antananarivo office finalizes documents for bid and supervises construction. MSAADA's role during construction is much greater than is typical for many American firms. Projects are often built by hired laborers rather than by a contractor. Even where a contractor is used, it takes a lot of energy on MSAADA's part to obtain a good standard. We also assist clients in the direct importation of materials that are either expensive or hard to find locally.

Two of MSAADA's recent projects in this country typify how the firm works within the established architectural vocabulary to create buildings that blend in with the natural and built landscape.

The Andohalo Pharmaceutical Research and Production Center and Administrative Headquarters for the Medical Services Department of the Malagasy Lutheran Church is built on the hill below the queen's palace in Antananarivo. The site is steeply sloping and bounded by retaining walls (a typical site in Antananarivo) in a neighborhood called Andohalo. The neighborhood is a mix of residential and institutional buildings.

For the pharmaceutical building, fair-faced paddy bricks serve as infill between a structural frame of reinforced concrete columns and beams. Paddy bricks them-

selves can't support the loads designed for the Andohalo Center. However, traditional brick is characteristic of nearby buildings, including the Anglican Cathedral on the other side of the alley. The Andohalo Center has steeply pitched roofs with dormers and a tower at the entry and stairway, elements typical of the highlands style. A terraced courtyard outside the main entry captures expansive views of the city. The garden of plantings and benches is similar to private outdoor yards throughout Antananarivo.

The flip side of this project is MSAADA's work for the Lutheran Bible School on the coast. Here, too, MSAADA's design stamp is derived from indigenous architectural forms, not from a particular MSAADA look. The single-story buildings of the Bible School at Sambava are built primarily of wood, the traditional material of the coastal style. Sambava is a tropical coastal community that is the center for the growing and drying of vanilla for export. The placement of the buildings is more formal than is generally found in forest villages, but the basic style, marked by cupolas on some buildings, is appropriate to the region's institutional buildings.

Wide wrap-around verandas shade the buildings' walls, while large shutters encourage maximum cross ventilation within. Taking advantage of natural cooling is a necessity where electricity is relatively expensive and service unreliable. Fans far outnumber air conditioners, which are expensive. Wood is still the most economical material. In a departure from tradition, however, MSAADA added more durable roofing materials instead of leaves.

This is in keeping with MSAADA's primary values in building for the developing world: durability and ease of maintenance.

Scott Williams, AIA, is a senior architect in MSAADA's Wayzata office and previously was resident architect in MSAADA's Kenya and Madagascar offices. Charles Whelan, in charge of the Madagascar office, contributed background material to this article.