

# Steps to Sustainability: Unique Empires

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*This is the latest installment in our Signs of Sustainability series, organized by Sustainable Tompkins. Visit them online at [www.sustainabletompkins.org](http://www.sustainabletompkins.org).*

*This is part of a series on the history of sustainability.*

The modern concept of sustainability was launched in 1987 with the publication of "Our Common Future," the report of the World Commission on Environment and Development, sponsored by the United Nations.

Sustainable practices, however, existed from ancient times in many traditional societies. We saw in the previous two installments that both Native American and African peo-

ples developed many effective traditional sustainable practices. Some sustainable practices can also be found in the developed empires of these two areas. Among the most successful of these were the Inca empire of the Andes and the Fulani Dina of 19th century West Africa.

The Inca empire, during 1438 to 1532, was the culmination of up to 5,000 years of indigenous development in the Andes Mountains of modern-day South America. In 1531, it was probably the largest organized state society in the world. It stretched 2,500 miles from modern Ecuador to northern Chile and included 10 million people.

The Inca empire is unusual in that it developed not in a river valley but in the difficult terrain of steep mountains and high alti-

tudes. The Inca built the world's longest road system, which extended for more than 14,000 miles over steep slopes and through low valleys. They built an amazing array of bridges. Inca gold, religion, architecture, astronomy and irrigation practices have long fascinated observers, but recent research suggests that the Inca may have been the first centralized state society to engage in formal conservation practices.

Inca society maintained a level of social justice by setting aside special land parcels for widows, orphans, people with disabilities and soldiers. They built extensive terracing, implemented by engineers who created canals up to 70 miles long that controlled water flow. In the Lake Maracocha region,

they reforested areas that had become barren. The Inca protected by law certain species of animals, such as seabirds, and regulated the hunting of many animals. Only certain predators, such as foxes and wildcats, could be hunted without restriction.

Across the Atlantic, the Fulani Dina, or empire of Macina, arose in 1818 and lasted until 1862. The Dina arose inside the great inland delta of the Niger River, which has some of the richest farmland and best pastures in all of West Africa. Macina was governed by a grand council of 40 marabouts (Islamic clergy) who supervised district governors in each of five provinces of the empire.

Authority flowed downward to

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subdistrict heads who supervised designated heads of herder groups. Each herding group had a controlled number of animals, thus preventing the overtrampling of pastures and destruction of pasture grasses. Markets were regulated by the administration for both environmental maintenance and social justice.

The Dina increased the capacity of the traditional systems to feed large populations. The Dina rulers marked off and protected fishing areas and animal trek routes. Officials fixed payment levels and set fines for damage to crops. Standard weights and measures were introduced. Administrators organized conferences and made an inventory of farming areas, herding pastures and camps. Animals were placed in three categories, with limits for each: animals primarily for reproduction,

those for milking and a small number allowed in farming villages year-round. Returns to farming and herding were carefully monitored to identify sudden declines. One-third of certain milk-herd returns was set aside for needy people in the farming villages.

In both the Inca and Macina empires, we thus see examples of highly centralized state societies that were able to monitor and regulate their relations with their resource base. Other empires, however, often collapsed from within through abuse and overuse of resources. In the next two installments of this series, we shall see some examples.

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