

Steps to Sustainability

Part 7 of a Series: Lessons to be Learned from the Maya

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On January 18, 909 C.E. (Common Era, or A.D.) a master carver put the last known date on a stone monument in Central America, then a part of the large Mayan civilization (Wright 2004:99). Thus ended the famous “Long Count” calendar of the Maya, a calendar recently revived by some mystics (and some commercial interests?) who have extrapolated its calculations to predict massive disasters on earth in December of 2012.

To see what will happen in December of this year we shall have to wait a few months, but we do know that Maya civilization collapsed in the ninth or tenth century, well ahead of both 2012 and the Spanish colonial conquest. One expert has estimated that during a 75-year period around that time the total population of the Maya dropped from 3 million to 450 thousand (Tainter 1988:167).

For academics the Maya collapse has stoked interest almost as keen as that for Rome – the subject of our previous Steps to Sustainability article. Maya civilization encompassed large urban areas such as Tikal that may have had 40,000 residents around 600 C.E. (Harris 1977:87). Maya temples have fascinated observers. They influenced

the design of early modern skyscrapers as well as the architecture of Frank Lloyd Wright and played lead popular culture roles in the final scenes of the first episode of *Star Wars* (Wright 2004:95).

During the classical or high period of Maya culture – 250 C.E. to 900 C.E. – the Maya built massive pyramids and carved masterful stone sculptures. They developed a complex writing system, created and utilized an efficient mathematics based on the number twenty and including the zero concept. Maya calculations of the time of the earth’s orbits of earth, Venus, and the moon and some eclipses, are within one point of modern astronomical values (von Hagen 1960:178). Many Mayan computations were carved in stone on “stelae,” or ceremonial posts at the entrance to temples, neighborhoods or other sites.

Maya civilization was ultimately based on access to water and on maintaining the delicate soil of the region. Most of the area has a limestone base and lacks large rivers so the Maya accessed water by organizing their communities around “cenotes,” or large open wells. They also dug impressive canals – some up to a mile long, one hundred feet wide and ten

feet deep (Harris 1977:91). Water tended to seep down through the limestone base and water was always liable to slip away, especially as the region was vulnerable to droughts.

The demands of the spreading urban empires during the classical period, including the need to support rulers, soldiers, artists and perhaps a large priestly caste that carried out rituals, calculated solar orbits and managed the complex calendar system put pressure on the resource base. Occasional droughts interacted with the vulnerable soil and water limiting factors.

Archaeological research confirms significant inequality in height between Maya buried in tombs – thus higher classes – and those buried simply in the ground. Commoners had lower life expectancy and higher childhood nutritional deficiencies – differences striking enough to show up in the bones from the burials (eg Tainter 1988:174). The corn, squash, avocado, root crops and cotton produced could not continue to support the large the large unequal social structure. Eventually even the aristocrats began to suffer. Forests were turned to grasslands and mountain slopes were eroded when trees were chopped down. It is possible that the

deforestation intensified the tendency towards droughts. Whenever droughts did hit, various cities went to war with each other, desperate to control the little water left in a region (Diamond 2005:176).

The Maya built a remarkable civilization on one of earth's most vulnerable resource bases. Despite their great artistic and mathematical achievements they never solved the problem of managing their relationship to their life support system and they never abolished their highly hierarchical class system that contributed so much to their collapse.

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