

BIKE-MACHINES MADE BY MAYA PEDAL RECYCLING OLD BICYCLES IN GUATEMALA

The [Maya Pedal Workshop](#) operates in Guatemala, in the village of San Andrés Itzapa (Chimaltenango Department), recovering parts of old unused bicycles to design and build more than 3.000 machines with different productive and environmental uses for micro-enterprises and for communities.

This extraordinary production workshop was initially implemented in 1997 at the initiative of Carlos Enrique Marroquin Machan, an inventor committed to rural development, with the support of the [Pedal Power Organization](#) from Canada. In 2001 the Maya Pedal NGO was established, involving other local actors and since then the Maya Pedal Workshop continues to produce bike-machines by recycling unused bicycle parts. Through alliances with organizations operating in Canada and the United States, the Workshop receives donations of discarded bicycles that it recovers to sell locally or using components to build the bike-machines.

The bike-machines produced by *Maya Pedal* are driven with a pedal power, obtaining a higher capacity than the manual-powered machines. They are constructed recycling parts of unused bicycles and other locally available materials, as concrete, wood and metal. Pedal power can be harnessed for countless applications which would otherwise require electricity (which may not be available) or hand power (which requires more effort). Bike-machines are easy to use and can be adapted to suit the needs of local people. They allow users to save on rising energy costs, produce no pollution, can be used anywhere and are easy to maintain.

Since 2001 the *Maya Pedal* Workshop has worked for designing, constructing and commercializing [different typologies of bike-machines](#) that respond to different productive needs of small local businesses. Over the years they managed to develop more than 3.000 machines and the website presents some of the most demanded ones such as the mill/corn thresher, the coffee de-pulper, the nut sheller, the soil plow machine, tricycles and trailers, the food processing bike-blender, the mobile water pump. Other successful bike machines respond to household, social and environmental needs.

For each of these bike-machines the Workshop has developed an original design that has proven to be both functional and cost-efficient. The designs of *Maya Pedal* are open-source, and everyone can use them. For the bike-machines that have turned out to be of greater interest, the Workshop has prepared descriptive sheets and practical instructions for



THE USE OF BIKE-MACHINES

With the technology of bike-machines it is possible to construct mobile water pumps, mills, harvesting machines, threshing machines, tricycles and other means of alternative transport, liquidizers for making soaps, shampoos and food products.

This pedal-powered technology can be applied for constructing much more instruments for basic agro-industrial activities and for environmental resources management.



construction. The objective of the Workshop is to share their designs with other organizations that work with appropriate technology and to allow any expert mechanic to build these bike-machines, ensuring their maintenance and repair. On the Maya Pedal website [the list of bike-machines and the descriptive sheets are available](#).

The bike-machines are sold at low prices by *Maya Pedal* to small enterprises, agricultural cooperatives and organic producers, associations of the territory and of the whole country. The Workshop also generates funds for its activities by repairing and selling the bicycles received as donations, making them usable again by local workers, peasants, housewives and students.

Maya Pedal promotes the pedal-powered technology in Guatemala with all interested actors, supporting community projects [in collaboration with local partners](#), national and international organizations. It offers training activities to NGOs interested in implementing the technology in their communities, including the repair and maintenance of the bike-machines. Each group contributes with its creativity to successfully meet the needs of various communities while enriching the experience of *Maya Pedal* and expanding its offer with new instruments.

The Workshop has been recognized by different international organizations. The founder of *Maya Pedal* has been invited to present his bike-machines in 2007 and 2008 in conferences organized by the prestigious [Massachusetts Institute of Technology M.I.T. in United States](#) who has since become a permanent sponsor. In 2010 *Maya Pedal* won, with its bike-machines, the prestigious [Curry Stone Design Award](#) rewarding groups and persons who have created innovations for development.

Over the years, the Workshop has received visits from various groups and technicians from Guatemala and from different world countries, to learn about the work carried out and establish collaborations. In January 2021, for example, the [Low-tech Lab Nomades de Mer](#) group from France visited the *Maya Pedal* Workshop, disseminating internationally an article about its activities and results.

Maya Pedal has managed to progressively characterize the San Andrés Itzapa Workshop as a technological reference center for the research, design and construction of pedal-powered machines. In the Workshop, coordinated by its founding partners, a team of technicians works, including women, local youth and volunteers from different world countries.

[On its website Maya Pedal invites skilled and motivated volunteers](#) to participate in the Workshop activities, for as long as they can invest, and offers them its logistical support. In particular, it asks volunteers to collaborate by contributing their skills in activities such as: repairing bicycles, building bike-machines, assisting in the production of manuals for each bike-machine, marketing of bike-machines, taking bike-machines to communities and conducting training, providing assistance in community projects that use the bike-machines.



To know more

[Maya Pedal website](#)

[Maya Pedal in Twitter](#)

[Maya Pedal in Facebook](#)

[Maya Pedal in Curry Stone Design website](#)

[Maya Pedal in Massachusetts Institute of Technology MIT website](#)

[Article in bbc.com](#)

[Article in montanaseniornews.com](#)

[Article in real-leaders.com](#)

[Article in bbc.com](#)

[Article in nationalgeographic.com](#)

[Article in stateofdesign.org](#)

[Article in matthiaserdmann.net](#)

[Article in paisajessociales.wordpress.com](#)

[Maya Pedal in lowtechlab.org website](#)

[Pedal Power Canada website](#)

