

MANUAL FOR THE INCORPORATION OF PLASTIC WASTE INTO ASPHALT DEVELOPED BY THE CIRCULAR CARIBBEAN PROJECT IN GUATEMALA

May 2026

The rapid growth of plastic production has led to a global environmental crisis. Millions of tons of plastic end up in the oceans and on beaches every year, threatening marine life and harming ecosystems. Plastic pollution is an urgent problem that requires immediate and effective action.

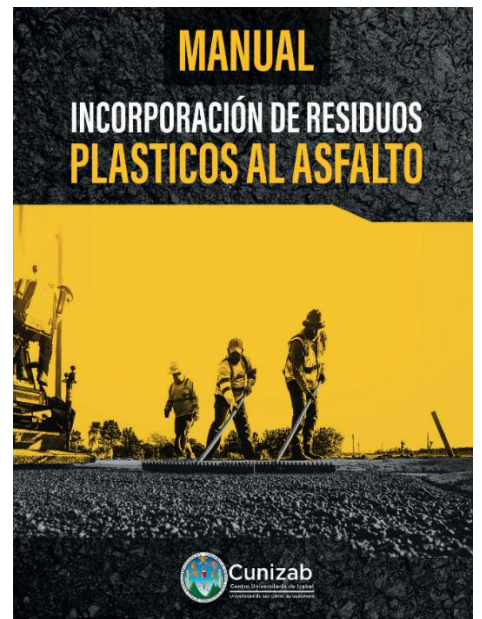
In this context, [the production and promotion of the *Eco-Asphalt Manual*, developed by the Circular Caribbean Project in Guatemala](#) in 2023, stands out as an ingenious alternative guide for applying asphalt to roads, parking lots, and other surfaces. This manual's main objective is to provide detailed information on how to transform plastic waste into a valuable resource by producing sustainable asphalt for the construction industry. The need to address this problem cannot be underestimated, and plastic-modified asphalt represents an alternative that can mitigate pollution and offer a path toward a cleaner, more sustainable future.

[Eco-asphalt could help solve the problem of plastics and microplastics accumulation in the sea and on the beaches of the Guatemalan Caribbean, while also offering other significant benefits: it is more resistant and allows for a reduction in greenhouse gases.](#)

This material is not only more environmentally friendly, but it also improves the quality and durability of roads, while simultaneously reducing construction costs. Plastic-modified asphalt is a more economical and sustainable material compared to traditional options such as concrete or conventional asphalt. Furthermore, the addition of plastic provides an extra layer of protection and strength, extending the lifespan of roads and reducing maintenance costs. Eco-asphalt, as an economical and sustainable option compared to traditional alternatives, promotes more responsible practices in the construction industry.

The implementation of Eco-asphalt not only contributes to the preservation of the planet, but also offers significant technical, economic and environmental benefits for professionals and communities around the world.

This Manual is part of the Circular Caribbean project (Prevention of plastic waste in the seas of Central America and the Caribbean), implemented by GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit) in coordination with the Central American Commission for Environment and Development of the Central American Integration System (SICA) and the Secretariat of Ecology and Environment (SEMA)



of the State of Quintana Roo, Mexico. The project is funded by the European Union and the German Federal Ministry for Economic Cooperation and Development.

The Manual systematizes the processes implemented in the CUNIZAB project for incorporating plastic waste into asphalt. Within the context of the study, hot mix asphalt, widely used in flexible pavements, was analyzed. This mix consists of three fundamental elements: aggregates, such as sand, gravel, and plastic; bitumen; and additives. In this study, aggregates from the Cayuga quarry and plastic from the El Quetzalito Community Collection Center were used. These materials were crushed at the Perenco Piedras Negras plant, located in Puerto Barrios, Izabal. The bitumen was supplied by Perenco Guatemala Limited, and the additives were selected to avoid contaminating the asphalt mix.

The Manual was published in 2023 in Puerto Barrios by GIZ and CUNIZAB, the Izabal University Center of the University of San Carlos of Guatemala.

To know more

[Presentación Manual de incorporación de residuos plásticos al asfalto en GIZ Sitio web](#)

[Manual de incorporación de residuos plásticos al asfalto.PDF](#)

[Caribe Circular brochure](#)

[Caribe Circular website](#)

