

PADYAK INSIGHT

CLIMATE TRACKS

ACTIVE MOBILITY AND CAMPUS BIKE-SHARING

Active mobility is an important system in urban development, bridging human-powered modes of transportation for connectivity to their destinations such as walking and cycling. The essence of this transportation promotes the dignity and prioritize value of sustainable transport and health concerns. At its core, active mobility is building efficiency and sustainability in urban areas, ensuring the safety, accessibility, comfort and satisfaction of the public.

Active mobility provides a range of benefits that extend beyond environmental sustainability. One of the most significant impacts is the improvement of public health, achieved through the promotion of physical activity and the reduction of both air and noise pollution. In an economic perspective, active transport presents cost-effective alternatives to private car ownership. This is particularly relevant in urban areas, where issues such as limited parking space, road safety, and traffic congestion pose ongoing challenges.

In the Philippines, efforts are taken by various local government units to develop efficient mode of transportation, especially in highly urbanized areas. Active transportation or mobility systems have reduced the reliance on motorized vehicles which helps minimizes the environmental impact of carbon emissions produced by vehicles, and traffic congestion.

This document aims to provide a clear understanding of how active mobility initiatives contribute to sustainability and climate action.

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Inspired by
Intersect Quick Facts

CAMPUS BIKES USERS SAVE OVER 70 LITERS OF FUEL AND PREVENT 0.17 MT OF CO₂ EMISSION IN TWO PERIODS



Total number of
campus rides
recorded

1,854

ENVIRONMENTAL IMPACT OF CAMPUS BIKING

Every ride taken on campus bicycles means fewer vehicles on the road. By choosing to cycle, students and staff helped lower air pollution and promote sustainable, low-carbon mobility. These collective efforts have prevented carbon emissions that would have been produced by motorized transport, contributing to cleaner air and a healthier campus environment.

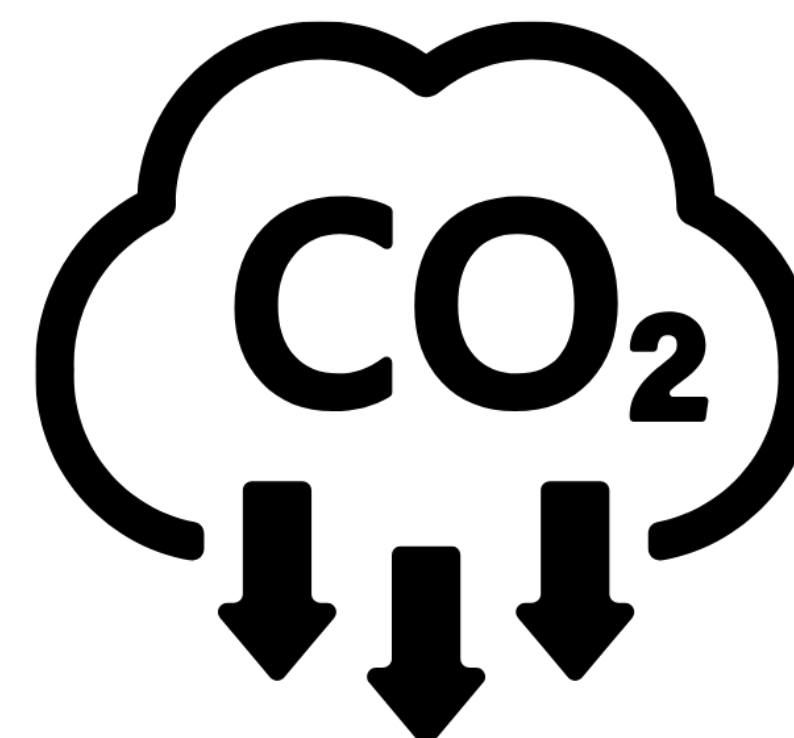
It has promoted a cycling culture in Caraga State University and Butuan City, encouraged healthier and more active lifestyles, and reduced the community's environmental footprint. See page 3 for more details about the campus mobility program.



CARBON EMISSIONS AVOIDED

From February to April, the bike-sharing program from Caraga State University successfully avoided 0.0845 metric tons of CO₂ emissions and saved 36 liters of gasoline through active bicycle use. During the period from August to September, the program achieved even greater results, with 0.0883 metric tons of CO₂ emissions avoided and 37.6 liters of gasoline saved.

In two periods of 2025



0.1728
metric tons of CO₂
emissions avoided

73.6
total liters of ga-
soline saved from
burning

ACTIVE MOBILITY

Active mobility refers to modes of transportation that rely primarily on human power, such as walking, cycling, and the use of non-motorized or low-emission vehicles like e-bikes and scooters. It promotes movement through physical activity rather than depending on motorized transport. It is a key component of sustainable urban development, supporting the creation of safer, more inclusive, and environmentally friendly cities where people can easily access destinations by foot or bike.



Each person who chooses to bike instead of using a car prevents approximately

248.55 grams of CO₂ per kilometer

from being released into the atmosphere.

Data from Bilang Siklista 2024

Transport Emissions Breakdown

Transport emissions totaled 24.152 metric tons of carbon dioxide equivalent (MTCO₂e) in 2010, making it the third-largest emitting sector. MTCO₂e is used to measure and compare the global warming potential of different greenhouse gases like carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

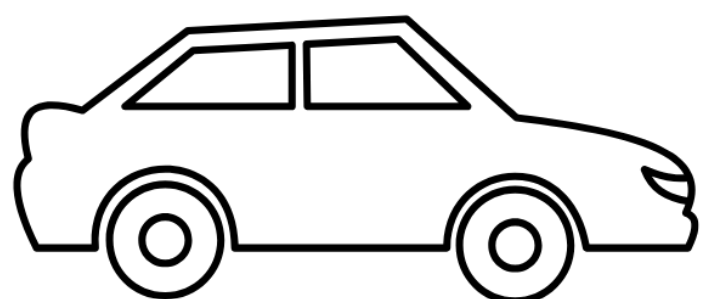
2.95% from domestic aviation

9.18% from water-borne navigation

87.88% from road transport

Without intervention, transport emissions are projected to grow by 7.1% annually, potentially tripling to 72.6 MtCO₂e by 2030, compared to 23.6 MTCO₂e in 2010.

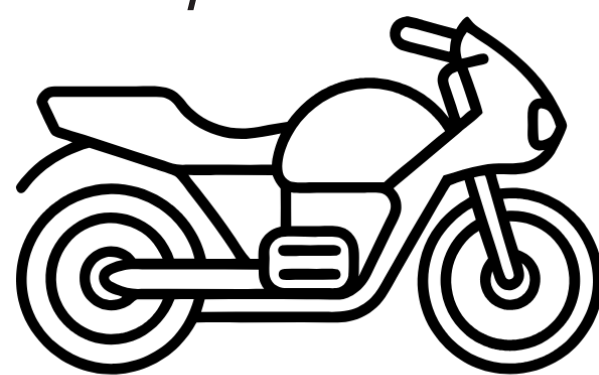
A Toyota Vios, with an average fuel consumption of 0.065 L/km emits



0.15015 kg

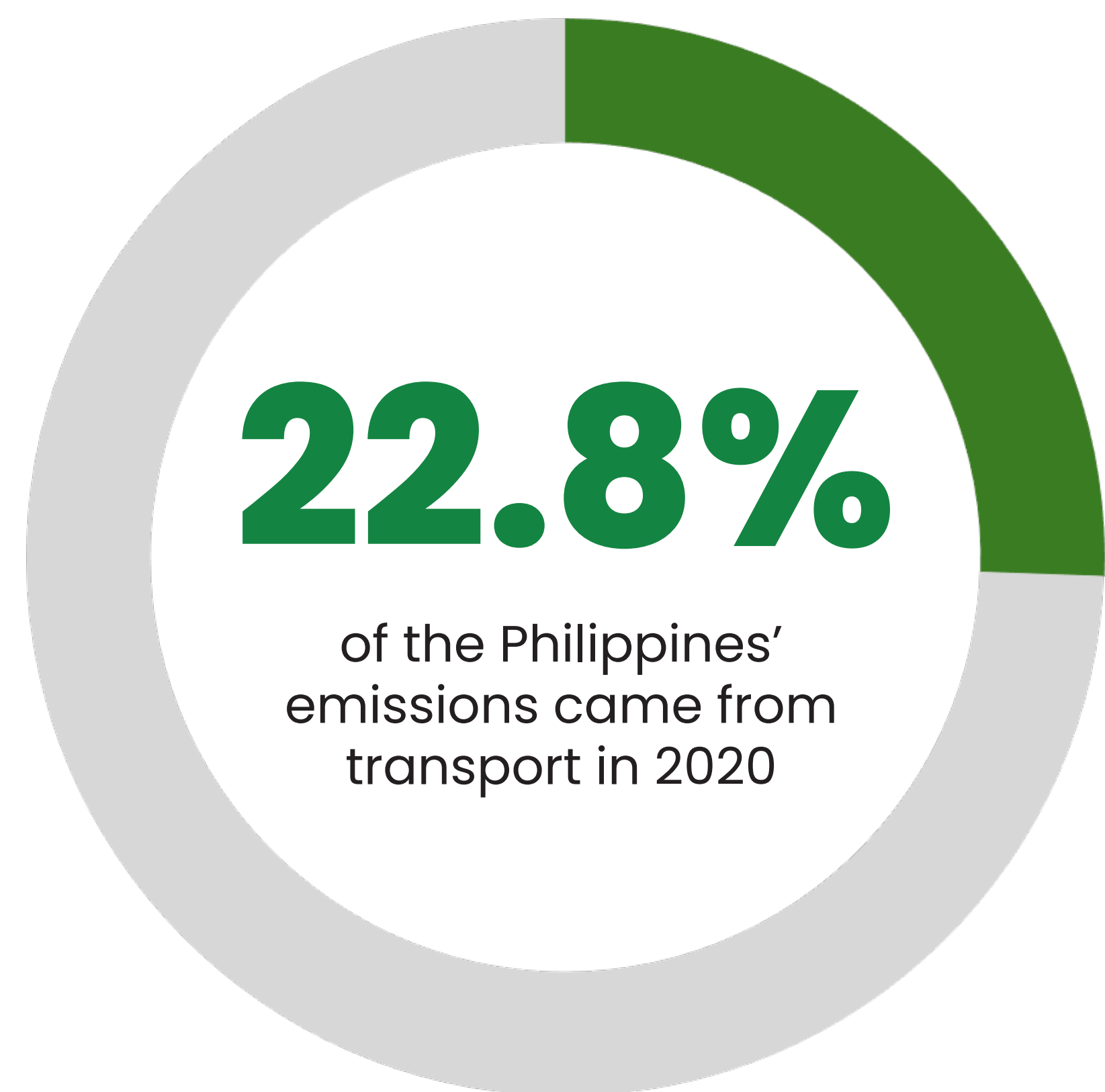
of carbon dioxide (CO₂)
per kilometer traveled

A Yamaha NMAX motorcycle, consuming around 0.022 L/km emits



0.05082 kg

Source from Climate Tracker Asia, Bilang Siklista and World



29.6% projected increase in emission from motorcycles and tricycles in 2050 from 21.2% in 2020

20.9% GHG emissions by 2050 from light vehicles such as cars, vans, and taxis

The World Bank emphasized the need to adopt low-carbon strategies and practices in response to the transport sector's high energy consumption and its projected rise in emissions.

Hierarchy of road users

The hierarchy of road users prioritizes the safety and accessibility of those who are most vulnerable on the road, ensuring that transportation systems are designed with equity, sustainability, and safety in mind.

- Pedestrians and commuters
- NMVs and PMDs
- Motorcycle Riders
- Private vehicles and light goods vehicle users
- Large goods and vehicle users

Everyone deserves the freedom to walk and cycle safely and comfortably—whether heading to school, work, transport hubs, or public spaces. With safe streets, proper facilities, and people-centered design, active travel can be a joyful, everyday experience for all.

Promotion of healthy lifestyle

Regular biking plays a vital role in promoting both health and sustainability.

- The risk of heart disease **52%**
- The risk of cancer **40%**
- Premature deaths **40%**
- The risk of type 2 diabetes and many more

Cycling reduces stress and anxiety, the chance of suffering from depression, deterioration of cognitive health. Commuting by bicycle for just five days can already meet the World Health Organization's minimum recommended level of physical activity for adults.

Source: Dutch Cycling Embassy (2018) and World Health Organization (2020)

UNIVERSITY SUSTAINABLE MOBILITY PROGRAM

The University Sustainable Mobility Program (USMP) of Caraga State University (CSU) is an institutional initiative that promotes a shift toward sustainable transportation options within the university. The program aligns with global and national sustainability goals by encouraging environmentally friendly mobility practices such as cycling, walking, and shared transport. Its objectives include reducing the campus’s carbon footprint, improving air quality, mitigating traffic congestion, and enhancing the overall well-being of students, faculty, and staff. By integrating sustainability into daily campus life, the USMP aims to create a model of a green and climate-resilient university in the region.

PadyaKalikasan Project

PadyaKalikasan of iKilos Bayugan is a campaign that advocates for a bicycle-friendly community and eco-friendly mobility as part of a broader climate change mitigation strategy. The project focuses on equipping communities with bicycle repair stations and bike parks, integrating environmental awareness through educational campaigns, and building partnerships with local governments and schools to promote policies supporting active mobility, such as dedicated bike lanes and bike-sharing systems. PadyaKalikasan was inspired by the pandemic-induced shift toward cycling in the Philippines, which revealed its potential to reduce pollution, enhance public health, and promote sustainable lifestyles.

Synergy Efforts for Active Mobility

Through a shared commitment to sustainability, Caraga State University and PadyaKalikasan have joined forces to implement a university-based bike-sharing system, symbolizing the convergence of academic leadership and youth-driven environmental action. The collaboration includes the installation of bike racks and the turnover of bicycles to support the mobility needs of students and staff. This partnership reflects how the USMP’s institutional framework and PadyaKalikasan’s grassroots advocacy complement one another.

Why we need active mobility at CSU?

As the country transition toward greener and more sustainable society, integrating active mobility systems such as bicycles has become a key strategy for reducing environmental impact and improving campus life. Caraga State University (CSU), with its wide grounds and commitment to sustainability, provides an ideal environment for promoting cycling as an alternative mode of transportation. Importantly:

- Active mobility **reduces the reliance** or use of fossil fuel-powered vehicles on campus.
- Active mobility **enhances the accessibility** and convenience of sustainable transport modes for all members of the university
- Active mobility **encourages behavioral changes** towards more sustainable transport choices



CSU launches bike-sharing system for sustainability program with iKilos Bayugan



Bike-sharing units stationed at Caraga State University support the USMP and PadyaKalikasan initiatives toward sustainable and eco-friendly transportation

BICYCLE		CAR	
0	CO ₂ Emission (g/km)	200 g	
0	Fuel Use (L/km)	0.09 L	
0	Cost/km	6.75 Php	

Sources: US Environmental Protection Agency, Mobility Awards, and Global Petrol Prices

Bike-sharing system

A bike-sharing system is a sustainable urban mobility solution that allows people to borrow bicycles for a short periods, often for a small fee, and can be returned to different designated locations, helping reduce traffic congestion, low carbon emissions and promote healthier lifestyles.

Smart bike-sharing systems often operate as part of the city’s public transport system. They are seen as providing the missing link between existing points of public transportation and desired destinations, offering a new form of mobility that complements existing public transport systems (Midgley, 2009).

Bike-sharing provides affordable transport option to communities.

GLOBAL INSIGHTS AND LOCAL INSPIRATION

Active mobility initiatives across the world demonstrate how cities can transform their transport systems to be more sustainable, inclusive, and health-promoting. From Asia’s bustling urban centers to smaller metropolitan areas, countries are reimagining mobility through policies, infrastructure, and community-driven programs that prioritize cyclists and pedestrians over cars.

271,555
people on bicycles at 138 locations in the Philippines over a period of 16 days according to the latest Bike Count Report of the Mobility Awards. The data highlights the continued preference of Filipinos for cycling as a sustainable mode of transportation, reflecting the growing recognition of active mobility in urban and community settings. Notably, there was a 7.2% increase in the number of cyclists compared to 2023, showing that more Filipinos are choosing bicycles for their daily commute and recreation.

Policies on Active Transport

- **Philippine Development Plan 2023 – 2028**
 - The plan outlines the development of active transport infrastructure networks, ensuring that cyclists and pedestrians are prioritized above all other road users in the transportation hierarchy.
- **National Transport Policy**
 - It directs relevant government agencies to implement measures that incorporate active transportation into the country’s overall transportation framework.
- **RA 11494**
 - National Government Agencies (NGAs) were required to develop bike lane infrastructure, with funding allocations provided under the law.
- **DOTr DO 2020–014**
 - It sets out guidelines and protocols for active transportation and offers a comprehensive step-by-step guide for users of active transport and light mobility vehicles (LMVs).

1 Seoul Public Bicycle, Seoul, South Korea
In 2013, the Seoul Metropolitan Government introduced the Seoul Transport Vision 2030, a mobility paradigm shift designed to establish a people-centered transportation system that prioritizes public transport, pedestrians, and cyclists. The Seoul Public Bike system, known as Ttareungyi, is a citywide bike-sharing program launched to make urban mobility more convenient, eco-friendly, and accessible. It allows residents and visitors to rent and return bikes from unmanned stations spread across Seoul, promoting sustainable and healthy transportation. Ttareungyi operates as a smart, unmanned bike-rental service accessible through digital technology. Over 2,700 rental stations are strategically distributed across Seoul.



Photo by: Seoul Metropolitan Government

2 Public Bike-Sharing Project in District 1, Vietnam
Implementing a public bike-sharing project in District 1, Ho Chi Minh City, is highly feasible due to its abundance of public spaces, flat terrain, and well-developed, bicycle-friendly infrastructure that aligns with Vietnam’s sustainable transport policies. The district’s parks, offices, and commercial centers attract heavy daily traffic, making it an ideal location for bike-sharing stations. To ensure success, the initiative should focus on promoting bicycle use through awareness campaigns, supportive incentives, and education; integrating modern technology such as GPS tracking, smart cards, and secure automated bike stations; and establishing public-private partnerships (PPPs) to share costs, enhance efficiency, and ensure sustainability.



Photo by: VnExpress/Gia Minh

3 Moovr PH Bike Sharing Program, Makati, Philippines
Moovr PH, the Philippines’ first app-enabled bike and e-scooter sharing service, promotes accessible, affordable, and eco-friendly short-distance travel in urban areas to help reduce congestion and emissions while encouraging active mobility and healthier lifestyles. Launched in Bonifacio Global City (BGC) in 2020 and expanded to Makati in 2021, Moovr operates 24/7 through a mobile app that allows users to rent and return bicycles or e-scooters using cashless payments. The fleet, equipped with GPS tracking and geo-locking features, ensures safety and efficient operation within designated service zones. Moovr aligns with the “15-minute city” concept and post-pandemic goals of reducing car dependency, improving air quality, and fostering a culture of sustainable, technology-driven urban transport.



Photo by: Bonifacio Global City



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