



Electric bikes in China

Li Shanshan ITDP

ICS 43.340
V 34



中华人民共和国国家标准

GB 17761—2018
代替 GB 17761—1999

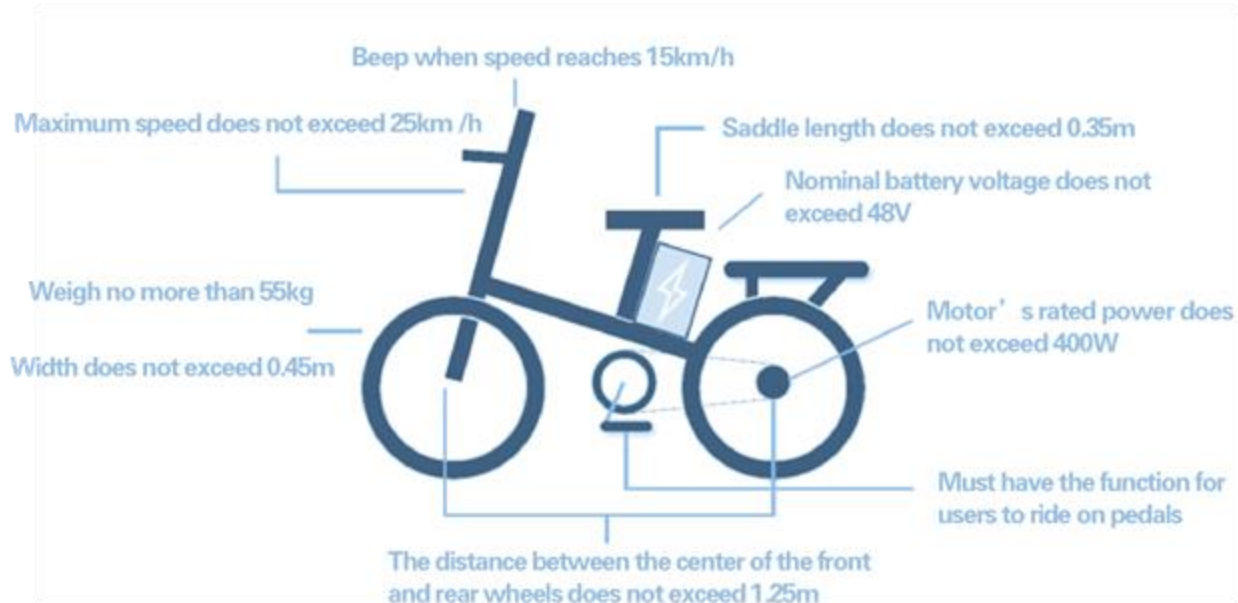
电动自行车安全技术规范

Safety technical specification for electric bicycle

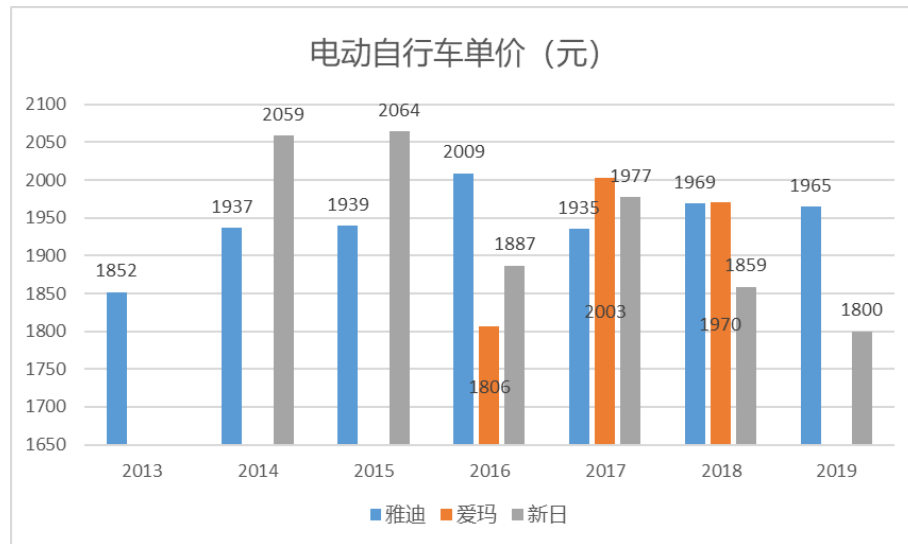
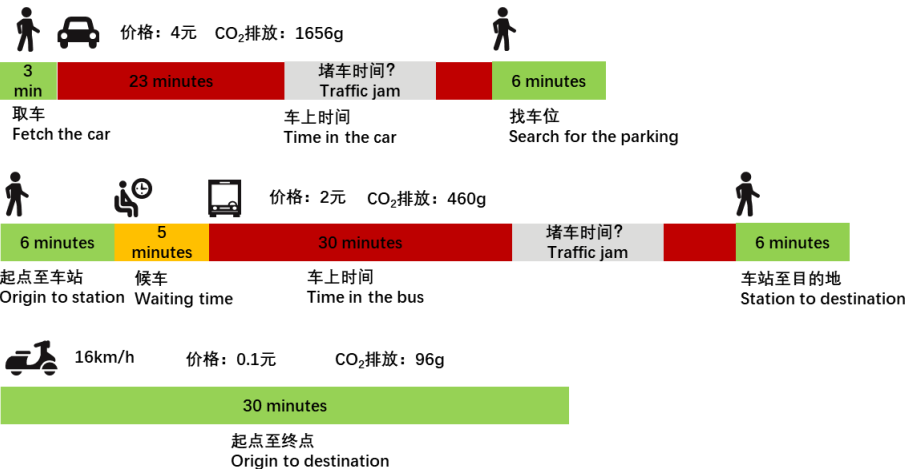
2018-05-15 发布

2019-04-15 实施

国家市场监督管理总局
中国国家标准化管理委员会 发布

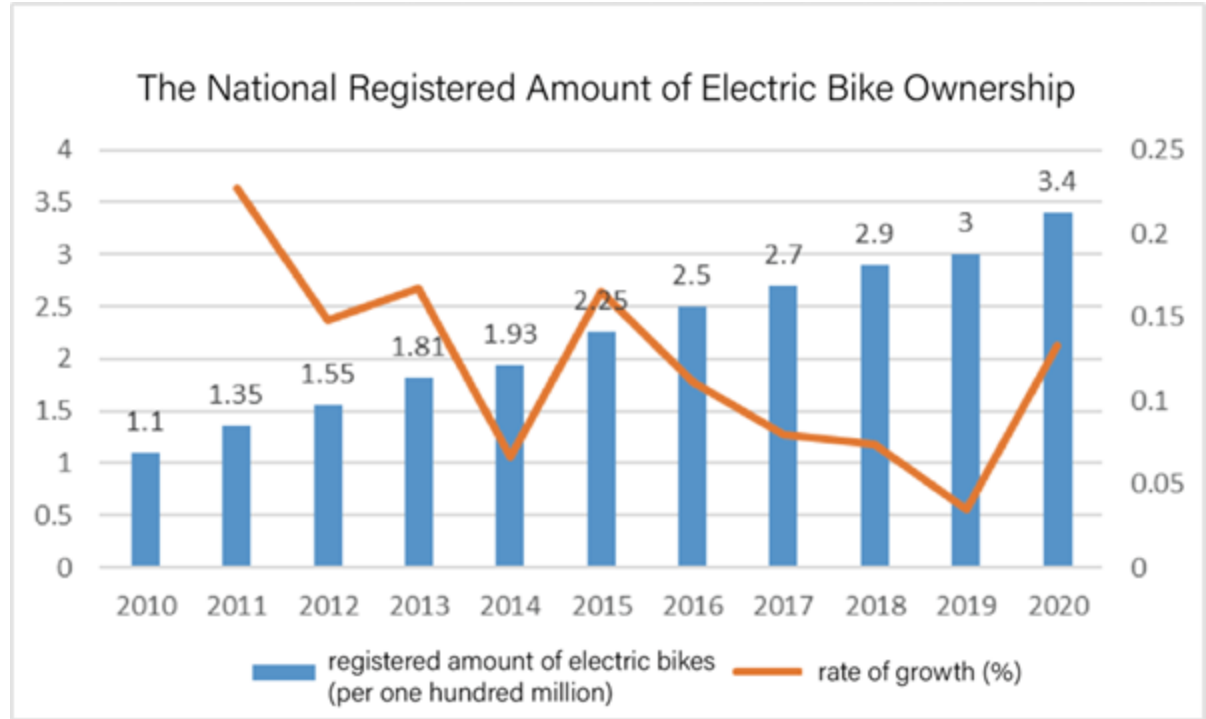


Why e-bikes?



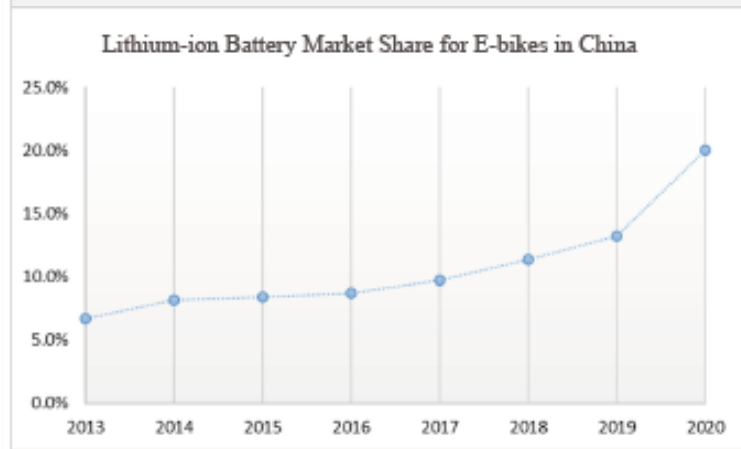
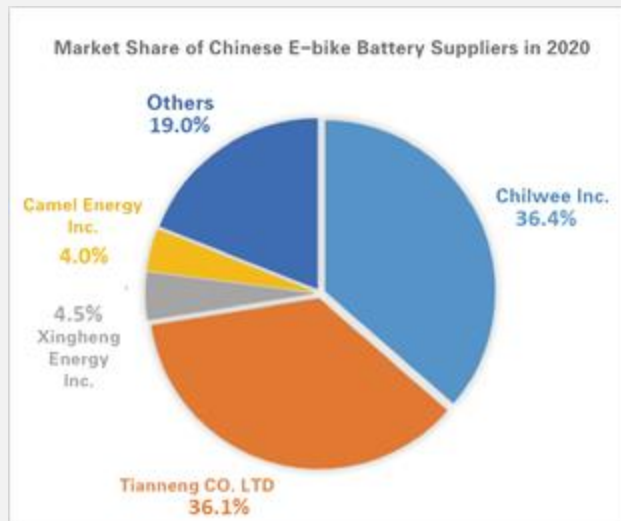
Cheap, fast, low carbon and low pollution

E-bike ownerships



In 2020, E-bike ownerships in China is around **340 million**, with an annual production of **30 million**.

E-bike batteries



The market share of e-bike battery suppliers is relatively concentrated, with Tianneng and Chilwee accounting for **more than 70%** of the market share.

The penetration rate of lithium-ion batteries is **increasing year by year**, but the lead-acid batteries still **dominate the market**.

Shared e-bikes



Small-scale Operators

Incl. Bee-Fly
With each company operates the number of e-bikes range from **hundreds to tens of thousands**

Mid-scale Operators

Incl. Maigoo, Liubike
With each company operates the number of e-bikes range from **tens to hundreds of thousands**

Major E-bike Operators

Meituan, Hellobike, Qingju bike
With each company operates e-bikes **over 1 million**

More than **200** operators nationwide are operating over **10 million** shared e-bikes in more than **1,000** cities and towns.

Shared e-bikes policies



Megacities

Beijing: Banned

Shanghai: Banned

Guangzhou: Shared bikes Operators shall not install power-driven devices or interfaces

Shenzhen: Banned

Banned

Supercities

Tianjin: Banned in the outer ring road, allowed in areas outside the outer ring road based on actual situation

Hangzhou: Temporarily prohibited

Wuhan: Temporarily not allowed in central urban areas; new urban areas can make their own decisions

Nanjing: Temporarily prohibited

.....

Temporarily prohibited

Large and Medium-sized cities

Nanning: Register after approval from competent authorities

Kunming: Unified management

Changsha: Standardized and orderly development

Nanchang: Registration and licensing required

.....

Raise the entering criteria

Other cities

Xiangyang: Licensed and registered in accordance with the law

Xianning: Assessment on shared e-bike enterprises

Tangshan: Encourage and support, standardize orderly

.....

Open attitude

36.2% of shared e-bike users in China are in Tier-3 cities and **34.6%** are in Tier-4 cities and rural areas.

Shared E-bikes

Security of Funds

- Lack of supervision over users' deposits
- Lack of stability of business model

Vicious Competition

- Excessive e-bike deployment
- Lack of industry regulation

Over access of user information

- The use of shared bicycles requires facial recognition to confirm the identity of users.

Safety and quality control

- Lack of timely maintenance
- Inadequate fire safety measures for centralized charging



Instant delivery e-bikes



The trade scale of instant delivery exceeds **720 billion yuan**, the average daily active riders on Meituan(China's leading life service e-commerce platform) exceeds **1 million**.

Number of instant delivery orders in China from 2014 to 2021

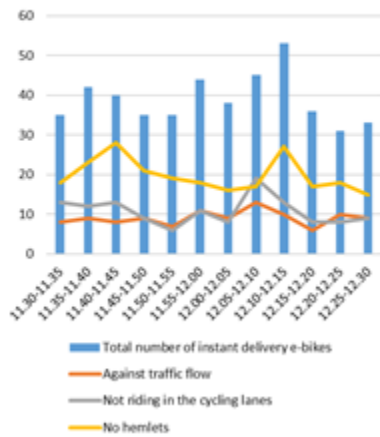


Instant delivery E-bikes

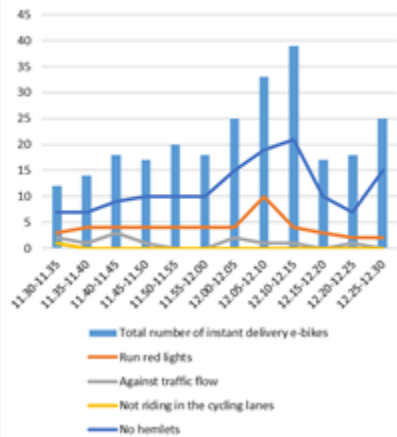
- High proportion of modification and retrofitting in E-bikes
- Frequent traffic violations
- Public space occupied by parking
- Lack of regulation in the industry



The instant delivery of e-bike traffic violations at Chaowai Galaxy SOHO Auxiliary Road (north to south direction; 11:30-12:30 pm on weekdays)

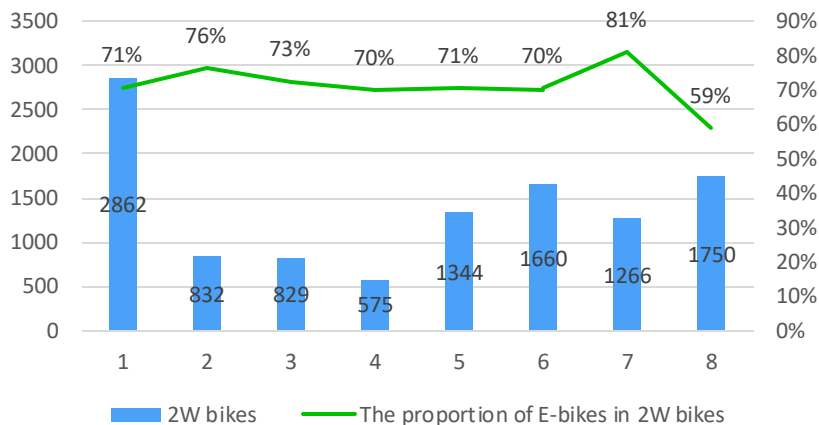


Instant delivery of e-bike traffic violations at the intersection of Ritan Road and Guanghua Road (north to south direction; weekdays 11:30-12:30)

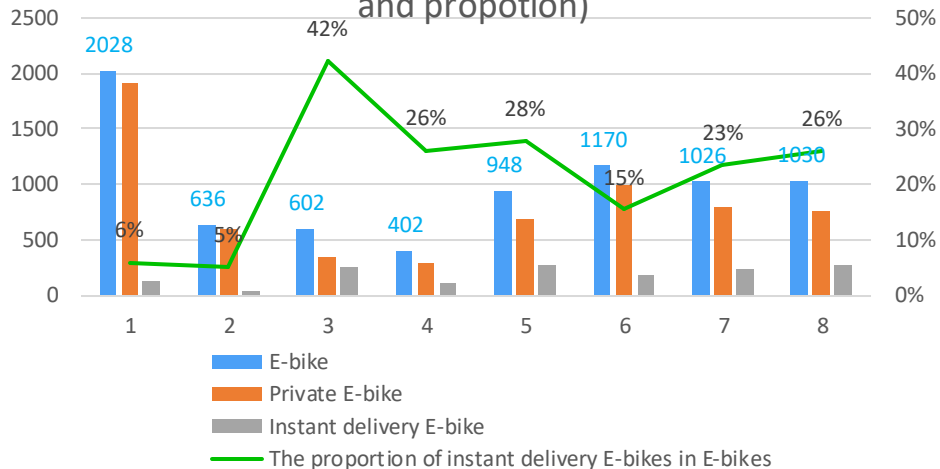


E-bikes usage characteristics

The volume of 2W bikes and the proportion of E-bikes in 2W bikes



E-bikes(Private, Instant delivery E-bike volume and proportion)



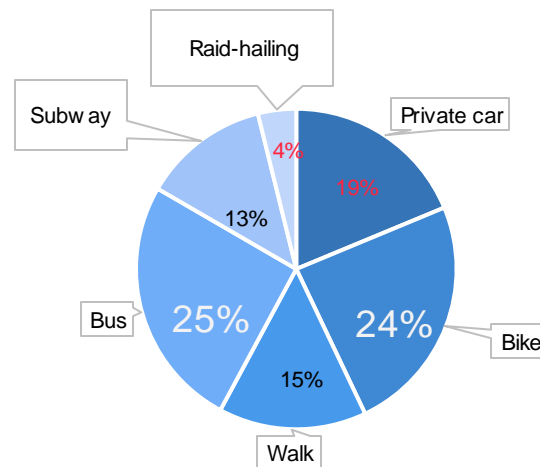
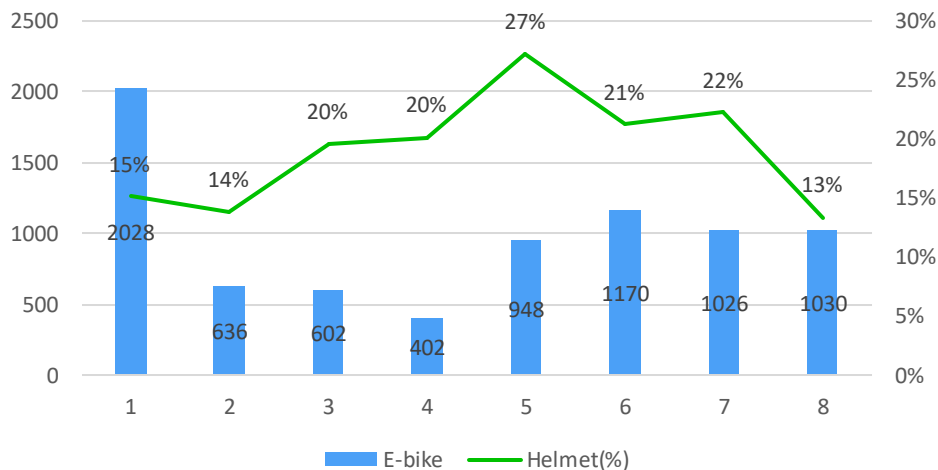
Results above are from the investigation in Beijing

Survey data from other cities:

- In 2016, the mode share of e-bike in Nanning was 33.98%, while in 2021, this number rose to 37%, according to statistics from the Office of the CPC Nanning Municipal Committee.
- According to the " Survey on Urban Residents' Travel and Transportation in Xiamen City 2021", the mode share of e-bike increased from 6.5% in 2015 to 18.95% in 2021.

E-bikes usage characteristics

E-bike volume and % of wearing helmet



Mode shift (if no e-bike, 23% users will shift to cars)

E-bikes usage characteristics



Age range

84% of the respondents are 16-35 years old

Income level

A wider group of e-bike users: expanding from low-income to middle and low-income groups. 43% of the users have an average monthly income of 5,000~10,000 RMB

Purpose

Commuting to and from work (44%), daily riding (25%) and picking up and dropping off children (21%)

Frequency

60% use e-bikes more than 6 times per week

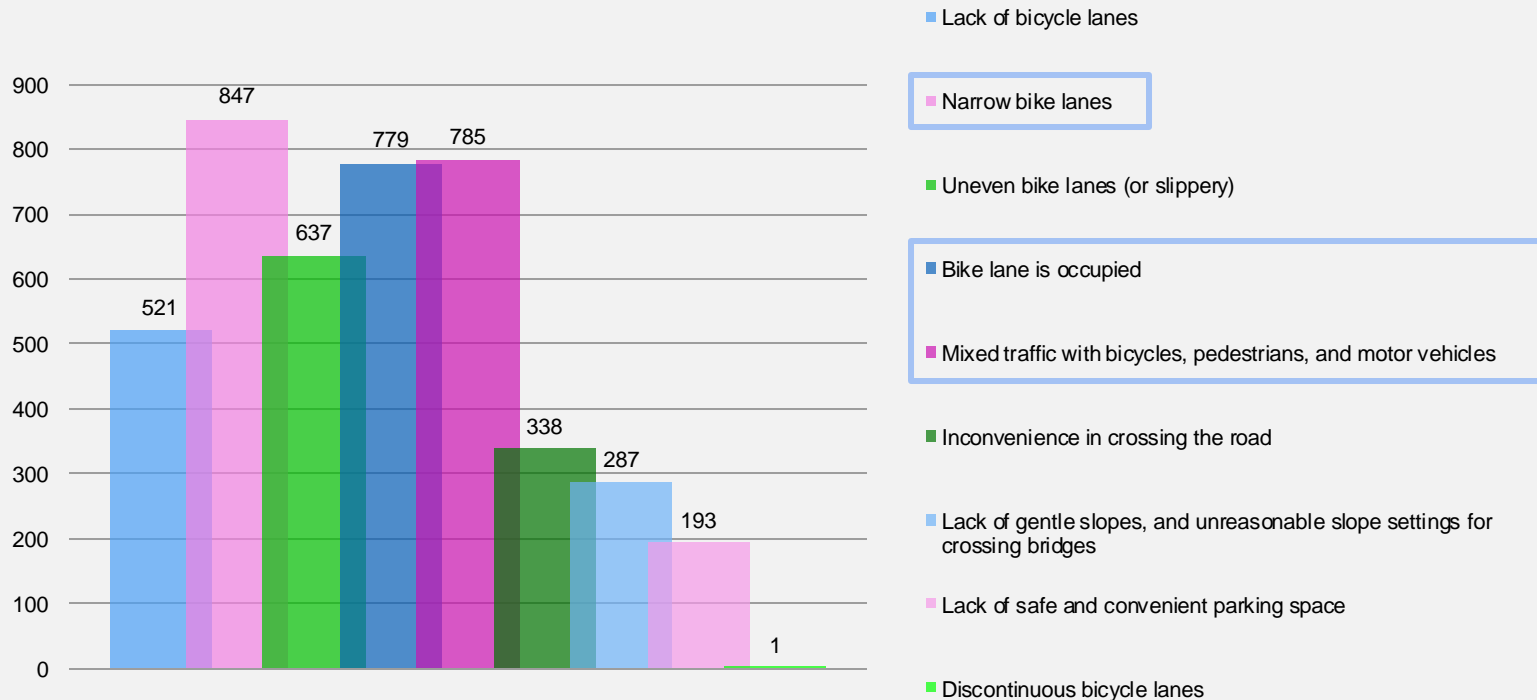
Distance

88% of the users travel an average distance of 10km or less per trip

Duration

78% of users have an average travel time of less than 30 minutes

E-bikes usage characteristics



Difficulties of riding E-bikes

Issues still existing

High modification rate of e-bikes, such as

- Retrofitting or modification of power devices such as electrical motors and batteries that do not meet national standards
- Retrofitting or modification of E-bike canopy, carriage, seat and other devices
- Removal or modification of speed limiting devices

Infrastructure still need to be improved

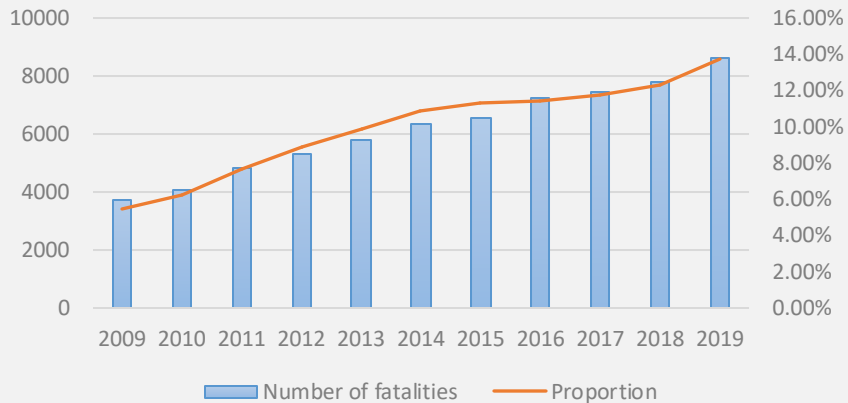
- E-bike users are facing poor accessibility and difficulty of crossing the street
- Not enough charging infrastructure and lack of quality control

High accident rate and **low helmet wearing rate**

Disposed e-bikes and their batteries are **difficult to track** and there is a **lack of relevant information**

The number of **deaths and injuries** in road traffic accidents among e-bike riders remains high

Trend in the Number of Road Traffic Fatalities Among E-bike Riders and the Proportion of Total Road Traffic Fatalities 2009-2019



Trends in the Number of Road Traffic Injuries Among E-bike Riders and the Proportion of Total Road Traffic Injuries 2009-2019

