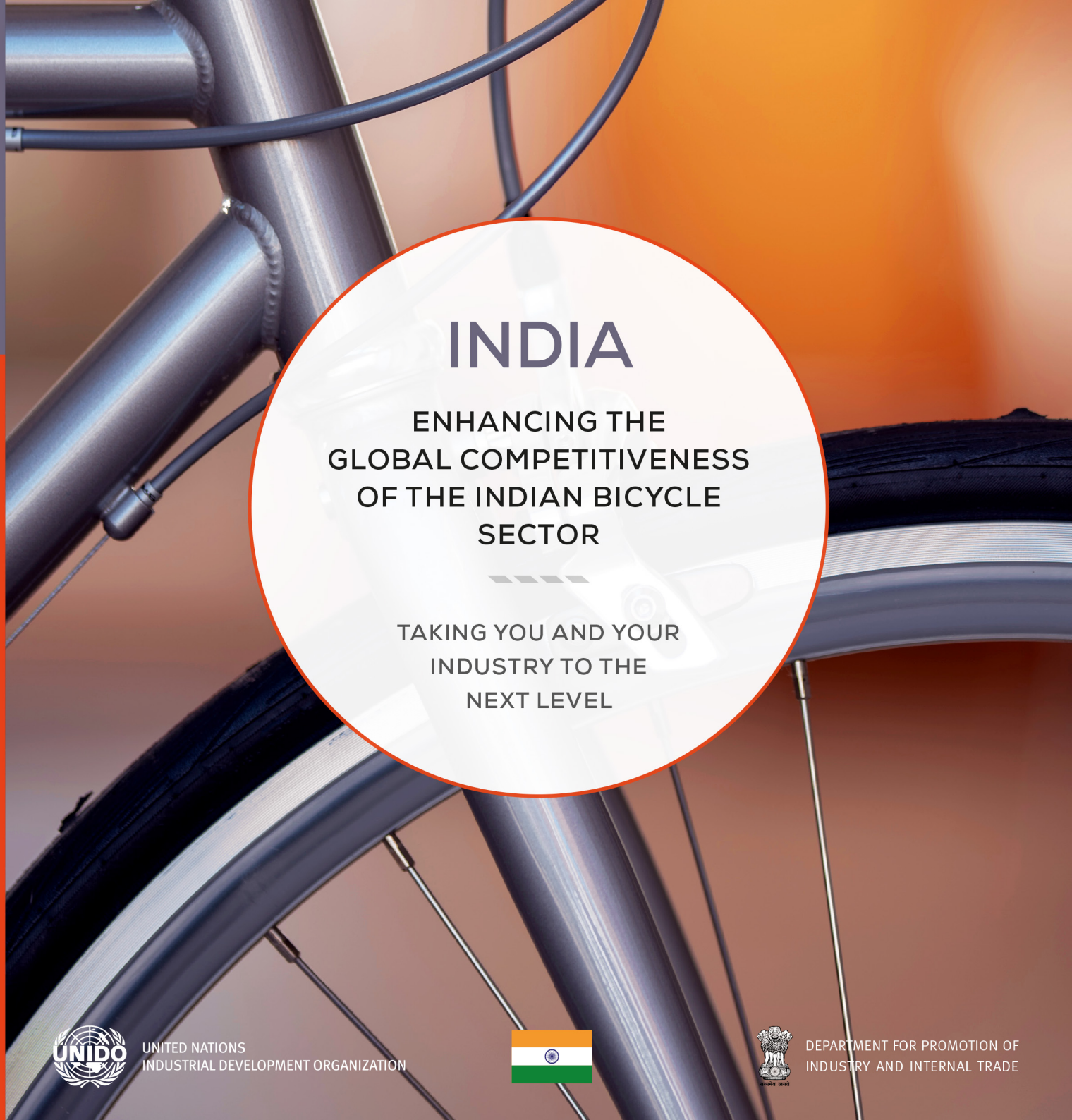


# INDIA

## ENHANCING THE GLOBAL COMPETITIVENESS OF THE INDIAN BICYCLE SECTOR

TAKING YOU AND YOUR INDUSTRY TO THE NEXT LEVEL

UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

DEPARTMENT FOR PROMOTION OF
INDUSTRY AND INTERNAL TRADE

# BICYCLES:
## A UNIVERSAL TECHNOLOGY

*... A continuous, complex, and worldwide phenomenon*

1

### A UNIVERSAL TECHNOLOGY

The bicycle is hailed as a 'universal technology', and has triggered the use of components and technologies, such as air-filled rubber tyres, ball bearings, wire spokes and wire spinning, cranks and chain systems, differential gears and metal tubing for frames, across various other machines and vehicles.

2

### FIRST "MASS-PRODUCED"

The safety bike was among the 'first mass-produced' items in history, and, combined with other inventions such as engines, bicycles have been adapted wholly or partially into motorcycles and automobiles. Bicycle mechanics have also been attributed with influencing the aviation industry.

3

### STRONG BUT LIGHTWEIGHT

The commonalities between bicycles and aviation include the central importance of balance and control, the need for strong but lightweight structures, the chain-and-sprocket transmission system for propulsion, wind resistance elements and the aerodynamic shape of the operator.

4

### NETWORKS DEVELOPMENT

Materials used in bicycles – such as aluminium – have also become a mainstay in automotives, aircrafts, and even spaceships, due to their light weight, high strength and flexibility.

The advent of cycling led to the development of road networks and their maintenance.

5

### MOBILITY & TRANSPORTATION

It is therefore evident that the bicycle industry has widely contributed to and prompted the adoption of advanced design, production, optimization principles and technologies that have become integral to mobility and transportation industries as we know them today.

6

### COST-EFFECTIVE MOBILITY

The bicycle is an important mode of transport. In countries like India, it enables the livelihoods of the urban poor by providing cost-effective mobility. Its use also reduces dependence on fossil fuels, vehicular emissions, air pollution and congestion, and simultaneously offers many health benefits for cyclists.

## BASELINE
### BICYCLE INDUSTRY IN INDIA

The bicycle industry in India faces several challenges such as increased competition from imports, poor manufacturing practices, the continued production of low-end "traditional" bicycles, and the usage of outdated technology. A majority of Indian bicycle manufacturers are currently unable to make and sell the type of bicycles demanded in global markets, which are aesthetically and technically superior, made from lighter materials, allow multiple-speed settings and require several special components. There is a need to build awareness and knowledge on latest technologies, institutional facilities for the product design, processes and testing, communication and networking with the international bicycle industry, global market intelligence for bicycle design and global best practices and manufacturing processes.

*"The second largest in the world"*

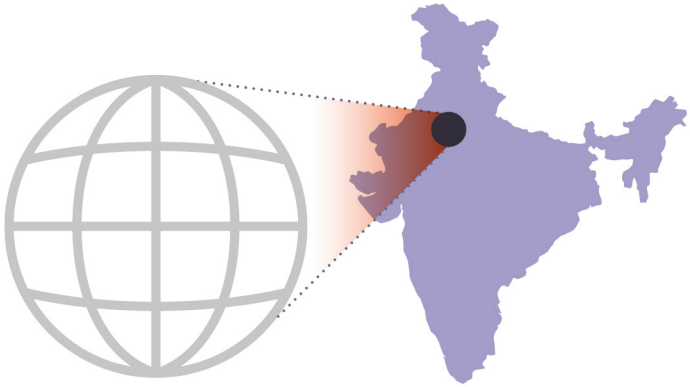
**10%** BICYCLE PRODUCTION WORLDWIDE

The Indian bicycle industry is the second largest in the world, representing 10% of the world's production.

## OBJECTIVE
### UNIDO PROJECT

The objective of the UNIDO project is to strengthen the global competitive position of the Indian bicycle industry. The project aims to achieve this by strengthening the capacity and capability of the nodal technical institution - the Research and Development Centre for Bicycle and Sewing Machine (RDCBSM), as well as two Indian bicycle industry associations: the All India Cycle Manufacturers' Association (AICMA) and the United Cycle Parts Manufacturers Association (UCPMA) - to provide management and technical support to the Indian bicycle industry.

- PROJECT DURATION: 01.2017 - 08.2019
- DONOR: Government of India
- BUDGET: USD 1,842,465



## TECHNICAL ASSISTANCE
### APPROACH AND INTERVENTIONS

The project began with a detailed analysis of the existing capacities and skills of RDCBSM, AICMA and UCPMA, as well as the needs of the industry. Accordingly, key recommendations and action plans were developed.

Based on the findings of the diagnostic assessment, the project facilitated comprehensive upgrading of the target beneficiary institutions' technical capacity and capability through a combination of interventions such as structured expert dialogue; technology transfer; international study tours; fellowship training programmes; partnerships with international organizations; technical workshops; hands-on training programmes; and procurement of equipment for upgrading the testing capabilities of RDCBSM.

## *Collaborations Established*

with leading international industry experts and international technical institutions, from various countries:

BELGIUM - CHINA - GERMANY
ITALY - JAPAN - PORTUGAL - UK - USA

## RESULTS
### COMPETITIVE BICYCLE INDUSTRY

The project interventions have resulted in:

- ENHANCED technical expertise of RDCBSM and the associations and their ability to address industry-wide challenges
- STRENGTHENING of RDCBSM's service portfolio and support to the industry, including the testing facilities at RDCBSM
- EXPANSION of RDCBSM's and the associations' institutional linkages with international technical partners and industry actors

## *Mid-Term Impact*

**ADOPTED**

modern manufacturing technologies

**IMPROVED**

productivity, performance, competitiveness

# KEY ACHIEVEMENTS

## INDUSTRIAL AND INSTITUTIONAL DIAGNOSTICS
analysis - assessment - action plans - recommendations

## 2x TESTING FACILITIES
Bicycle reflectors / Hazardous & chemical substances

## CAPACITY BUILDING MODALITIES:

**6 WORKSHOPS**
153 PARTICIPANTS

**4 STUDY TOURS**
14 PARTICIPANTS in 5 countries

**3 FELLOWSHIP TRAINING SESSIONS**
21 PARTICIPANTS in 3 countries

**3 HANDS-ON TRAINING SESSIONS**
38 PARTICIPANTS

## TECHNICAL TOPICS COVERED:


STANDARDS AND TESTING


PATENTS AND IPRs


ELECTRIC BICYLES


BICYCLE DESIGN


NEW MATERIALS


ANALYSIS OF COMPONENTS


FRAME BUILDING


BICYCLE ASSEMBLING

## 7x JOINT DECLARATIONS:

WITH: RDCBSM, AICMA, BOTH

1. **CEVT** National Centre of Supervision and Inspection on Light Electric Vehicles and Battery Products Quality, China
2. **EFBE** Pruftechnik GmbH, Germany
3. **LEVA** Light Electric Vehicle Association, USA
4. **KBTC** Kunshan Products Safety Institute, China
5. **UCPMA** United Cycle Parts Manufacturers Association, Asia + **CONEBI** Confederation of the European Bicycle Industries, Europe
6. **ECF** European Cyclists' Federation, Belgium
7. **ABIMOTA** Portugal bicycle industry association, Portugal

★ ★ ★ ★ ★ ***Certification*** of 'e-bike technicians' and 'instructors' in the area of electric bicycles



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