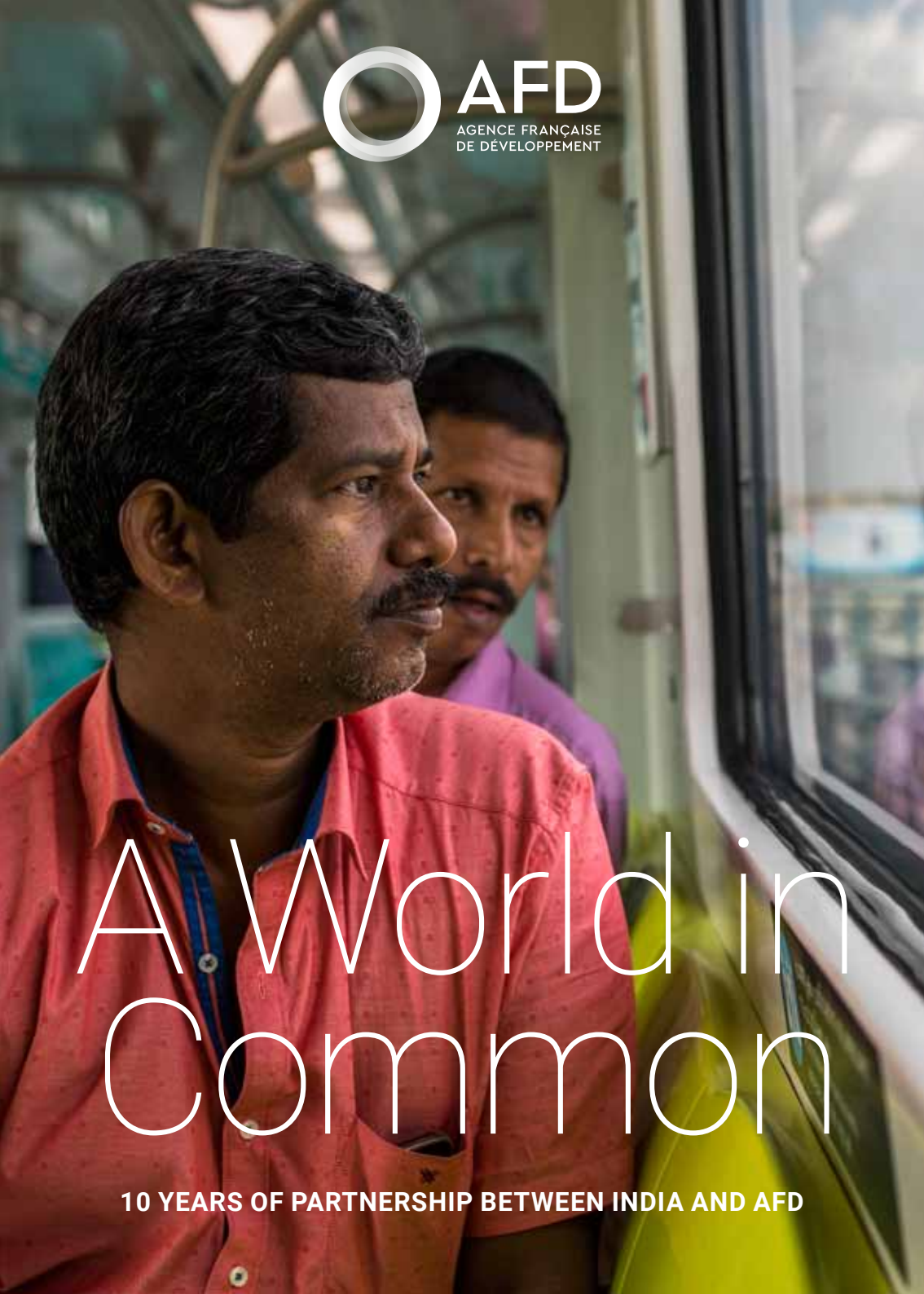

A World in Common

10 YEARS OF PARTNERSHIP BETWEEN INDIA AND AFD

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Foreword

NICOLAS FORNAGE
AFD Director for India

Today's world is increasingly interconnected. Building a safer, more equitable and sustainable world implies intensifying collective action and partnerships to shape solutions that benefit all.

India and France share a special relationship. It's a bond that has been strengthened in recent years through their common resolve to protect the environment and combat climate change.

The French Development Agency (AFD) has played a pivotal role in furthering the collaboration between the two nations. Its mandate focuses on supporting green and inclusive growth, giving utmost priority to climate issues.

Celebrating 10 years of partnership between India and AFD, the exhibition highlights their collaboration on projects that promote sustainability in all its dimensions – social, economic and environmental.

From boosting urban dynamism in Kochi to protecting the incredible biodiversity of Assam, through illuminating Jodhpur's streets and harnessing the power of the sun and the wind, the stories presented in the exhibition showcase positive solutions that benefit the people as well as their environment.

By 2030, nearly 60% of the world's population will live in urban areas

Building Sustainable Cities

Since the dawn of time, cities have been central to the expansion of commerce, ideas, social development and much more.

Due to rapid expansion, however, cities across the world, face common problems — dense congestion, lack of funds to provide basic services, shortage of housing, and declining infrastructure, among others.

Developing cities in ways that allow them to continue to thrive and grow, while improving resource use and reducing pollution and poverty is one of the greatest challenges of the 21st century. It is also the 11th Sustainable Development Goal adopted by the United Nations in 2015.

In India these challenges are very real. The urban population has increased six-fold since 1951, putting considerable pressure on existing infrastructure.

In a bid to boost economic growth and improve the quality of life in cities, Indian authorities have set themselves on an exciting course of urban advancement. Efforts are underway to increase access to basic services like transportation, energy, housing, water and waste management.

AFD is lending a helping hand to the change-makers, mainly through financing, and by providing technical assistance for the development of sustainable urban projects.

India's urban population is expected to double by 2050

Sustainable mobility: Kochi leads the way

In the vibrant city of Kochi, rapid urban and economic growth has led to an exponential increase in the number of personal vehicles. This has resulted in serpentine traffic jams and air pollution.

To enhance the quality of life of Kochi's residents, and to further increase the city's economic appeal, the Kochi Metro Rail Limited was set up to build an elevated railway corridor connecting the major parts of the city.

The eighth metro system in India, Kochi's network is unique in many ways, from the pace with which it was implemented to the gains made in the areas of women empowerment, cost savings, green initiatives, and digital solutions. But, what makes the project truly special is the manner in which it integrates the network with other modes of transport in the city, thereby completely transforming mobility in the city.

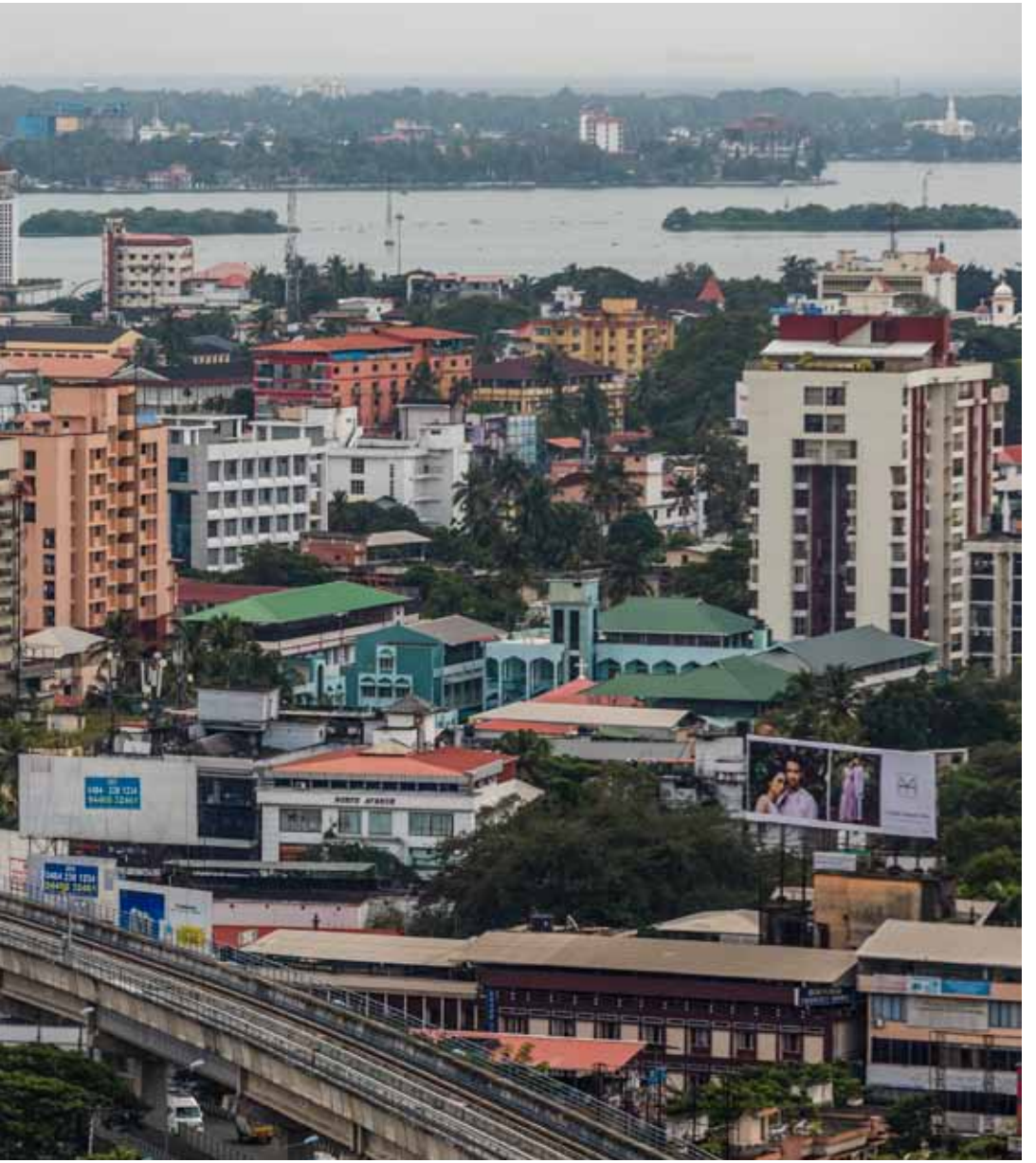
By 2022, nearly 500,000 people are expected to use the Kochi metro network every day

AFD has supported the project since its inception mainly through financing. It has also facilitated a technical cooperation between Kochi Metro Rail Limited, the NGO CODATU and the French city of Lyon's transport authority on issues related to sustainable mobility.

PHOTOGRAPHS BY **PRASHANTH VISHWANATHAN**

BUILDING SUSTAINABLE CITIES

Kochi's new lifeline



The first stretch of Kochi metro was inaugurated on 17th June 2017. The network was built remarkably fast, in 45 months. It's a testament to India's vision of bringing about sustainable development at competitive costs. Today, 18 kilometres are already operational. By the end of 2019, the network will cover 26 kilometres, with 22 stations. By reducing traffic, the network will lead to better air quality and create a friendlier and hassle-free atmosphere for Kochi's citizens.

PHOTOGRAPH BY **NICOLAS CHORIER**

BUILDING SUSTAINABLE CITIES

Connecting the dots

The Kochi Metro Rail Limited has worked continuously to link the system to other modes of transport in the city, including easy access for pedestrians and cyclists. It is the first network in India attempting to seamlessly connect the metro to bus corridors, water ferries, feeder routes, rickshaws, shared bicycles and walkways. This has made the network the real backbone of a restructured mass transit system, enabling the residents of Kochi to travel through their city with speed and efficiency.

BUILDING SUSTAINABLE CITIES

One medium, many opportunities

By connecting major economic hubs with residential and university areas, the metro is improving the lives of Kochi's citizens and getting them to their destinations faster.

In the next phase, residents of Kochi will be able to use a single-ticket for their entire trip in the city, from the metro to the buses to the ferries, making their travelling experience a very smooth one indeed.

BUILDING SUSTAINABLE CITIES

Connecting places, connecting people

Sri Lakshmi, 23, and **Athira Mohan**, 22, use the metro for the first time to drop their resumes at an office. "Travelling has become faster due to the metro," says Sri Lakshmi. "If we get the job, we will use the metro every day. It has been an excellent experience today," says Athira.

Anand KG, 27, a civil engineer, charges his mobile as he travels to the airport. "Kochi metro accelerates the process of development and is instrumental in shaping the future face of Kochi," he says. "Kochi always had the best food in Kerala and now the first and only metro too," he adds proudly.

Fatima, **Reshma**, **Aleena**, **Barsa** and **Tisha** commute to Edappally station for their university project every afternoon. "Metro is a safe and fast way of travelling," says Fatima.

Akhil Mohan, 24, travels to his office. "Because of the metro many feeder roads and services have been upgraded and intra-city travel has improved tremendously," he says. It typically took him an hour to get to his office, now he's there every day in about 25 minutes or so.

BUILDING SUSTAINABLE CITIES

Women at the forefront

From hiring women as train operators to inducting them as ground staff, the Kochi metro is accelerating women empowerment. Its crew of 774 women is the largest of its kind in India. Of these, 600 women come from poor families of Kerala, selected through a women's self-help group. It also includes nearly 20 transgenders, again a first-of-its-kind initiative towards inclusion.

Selected from amongst ninety thousand applicants, 23-year-old **Gopika Santosh** is one of seven women metro drivers in Kochi. "My father is very proud of me. He is an auto rickshaw driver and I am a metro pilot," she says. "I had this urge to drive the first metro in Kerala. Recently I overheard a father pointing me out and telling his daughter: 'See that Didi (elder sister) is driving a train!' I am very fond of my job."

BUILDING SUSTAINABLE CITIES

Kochi metro goes green

The Kochi metro has invested a lot of time and effort in making the project environment- friendly. Besides developing open spaces, walkways and cycle-tracks, the network is also planning to have vertical garden on every sixth pillar of the metro using biodegradable waste from the city. With solar panels installed on the stations' rooftops, and a new solar plant in the works, as much as 30 per cent of the stations' power needs will eventually be met through solar power.

BUILDING SUSTAINABLE CITIES

A cultural link

From the very beginning, the Kochi metro was determined to provide a unique travel experience for Kochi's citizens. The metro stations are designed to appeal to tourists and locals alike. Six major stations were designed with a unique theme, and a more general Kerala theme runs through the remaining stations. With this project, Tata Elxi — the design consultant for the stations along with the Kochi Metro Rail Limited — won the prestigious 'iF Design Award 2017', a global award for design excellence.

Water management: A fresh start in Jodhpur

Water is a prime natural resource, a basic human need and a precious national asset.

India accounts for 15% of the world's population, and about 4% of the world's water resources. The availability of water is highly uneven in both space and time. Climate change is likely to put more strain on already scare water resources.

As the gateway to the Thar Desert, Jodhpur has very little surface water of its own. Rapid population growth, combined with a lack of adequate water infrastructure had an adverse impact on the city's water services and on the quality of life of its inhabitants. There were also significant water and energy loss.

In this context, the government of the state of Rajasthan decided to completely redevelop Jodhpur's drinking water supply system.

300,000 more people in Jodhpur will benefit from clean, drinking water by the end of 2018

The project, implemented by the Public Health Engineering Department (PHED) of Rajasthan, with assistance from AFD, aims to optimize Jodhpur's drinking water network with an approach that focuses on energy and water savings and on improving the living conditions of the people.

PHOTOGRAPHS BY **YASHAS CHANDRA**

BUILDING SUSTAINABLE CITIES

Saving two precious resources

The redevelopment of Jodhpur's drinking water system has been designed to reduce energy consumption up to a great extent. For instance, water supply from the new treatment plant at Surpura is now done using the force of gravity. Water no longer needs to be pumped, resulting in considerable energy savings for the city.

The project also aims to reduce water loss in the entire system. In order to do so, old pipelines spanning over 45 kilometres have been replaced. Along another 66-kilometre stretch, new pipelines are being laid to serve Jodhpur's semi-urban zones.

BUILDING SUSTAINABLE CITIES

Quality checks ensure water purity

Water quality is measured continuously at the plant through SCADA, a digital monitoring system. Water quality is also checked by 23 engineers on a daily basis in the connected neighbourhoods to ensure that residents get the best quality water.

Ranveer Choudhary, a Junior Engineer for PHED, performs a residual chlorine test on tap water in the Bheel Basti area. Ranveer shares a very close relationship with the inhabitants who can reach him directly if they encounter any problem in the water supply.

BUILDING SUSTAINABLE CITIES

With water comes a new ray of hope

The project has brought significant benefits to the poor and semi-urban populations. In areas like Mahadev Nagar and Digari, households have already received a steady and reliable supply of water over the last twelve months

Jamku Devi (left), a construction worker living in Mahadev Nagar, is very grateful for this. "Ever since we got a water supply directly to our homes, things are much easier for us. We used to wake up very early to collect water from a tank. Now we get water at home to drink, to cook and to bathe. Water is no longer a worry."

Energy accounts for nearly 60% of total global greenhouse gas emissions

Finding a Sustainable Energy Path

Energy is key to meeting every challenge and opportunity the world faces today. However, one out of every five people in the world continues to live without electricity. Moreover, energy still remains the primary contributor to climate change.

Access to affordable, reliable, sustainable and renewable energy is therefore the 7th sustainable development goal of the United Nations.

For India, currently the world's third largest energy consumer, providing energy to all its citizens is an important priority. Accounting for strong economic and demographic growth, the country's energy needs are expected to double by 2035. In addition, the high proportion of fossil fuels in the national energy balance is increasingly contributing to climate change.

In order to achieve energy security, and to establish a low carbon economy, India has adopted a very ambitious strategy to develop alternative energy sources and to enhance energy efficiency. These are amongst the primary commitments that India made at the Paris Climate Conference in December 2015.

AFD is supporting the Indian government in its resolve to combat climate change, with a focus on developing renewable energies and improving energy efficiency.

By 2030, India aims to reach 40% of its power generation capacity through non-fossil resources

Renewables: Towards a greener future

India has set an ambitious target of increasing its installed capacity to 100 GW of solar power and 60 GW of wind power by 2022. That is three times the amount generated through those two renewable resources today.

IREDA (Indian Renewable Energy Development Agency) is a public financial institution set up by the government of India to promote renewable energy and energy efficiency projects.

In order to assist the institution in achieving its goals, AFD has provided IREDA with financial and technical support. This funding has gone a long way in promoting a range of renewable energy projects led by independent energy producers.

19 renewable projects have been developed so far ranging from biomass to small-scale hydro-electricity, wind turbine, and solar photovoltaic projects.

Not only are renewables an affordable and eco-friendly source of energy, they also have a positive knock-on effect on economic development and jobs. Access to permanent, reliable, cheap and climate-friendly energy is changing the lives of the people for the better.

PHOTOGRAPHS BY YASHAS CHANDRA

These projects have prevented 375,000 tons of CO_2 from being added to the atmosphere annually

FINDING A SUSTAINABLE ENERGY PATH

Harnessing the power of the sun and the wind

Wind farm in Rajasthan

With its large tracts of flat, undeveloped land, Rajasthan has great potential to develop renewable energy projects. It is already one of the five Indian states that stand out for its dynamism in the renewable energy sector. Today, wind energy represents India's main source of renewable energy, amounting to nearly 10% of the country's total electricity capacity.

New Era solar plant in Rayachoti, Andhra Pradesh

Rayachoti is a dry area, and while its rocky landscape is not well-suited to growing crops, it receives solar exposure all year round. Three years ago, a solar plant was installed here and has completely transformed the area. Spread over 49 acres, the plant has a capacity of 10 MW—enough to supply electricity to 4,300 households.

FINDING A SUSTAINABLE ENERGY PATH

Winds of hope

A villager strolls through a wind farm in Rajasthan — one of many such projects supported by IREDA.

FINDING A SUSTAINABLE ENERGY PATH

Steering change with solar power

The partnership between AFD and IREDA is part of the wider Indo-French co-operation in the field of renewable energies, with a determined focus on solar power. India ratified its commitment to renewable energy development by launching the International Solar Alliance along with France. The Alliance aims to mobilize the efforts of sun-rich countries to attract investments and technologies for a massive deployment of solar energy.

New Era solar plant in Rayachoti, Andhra Pradesh

FINDING A SUSTAINABLE ENERGY PATH

Renewable energy revives rural economy

The transition towards sustainable energy has also created new employment opportunities in fields such as construction, installation, operations and maintenance, bringing new prospects for rural populations who were heavily dependent on agriculture.

Om Sudhakar (left) has worked as a technician at the New Era Solar Plant in Rayachoti for the last 18 months. "Coming from the nearby village of Kumarapalli, I'm very happy to be working at a facility like this that provides cheap electricity to surrounding areas."

Lakshmi Devi (right), from Midikadapalli village worked on site during the construction of the solar plant. "Thanks to this plant, I was able to earn a good income for almost a year." Her son Ramesh is now employed as a technician at the same plant.

Lighting up cities in a sustainable way

Energy savings are an essential part of the Indian government's plan to limit the environmental and financial costs of the country's development.

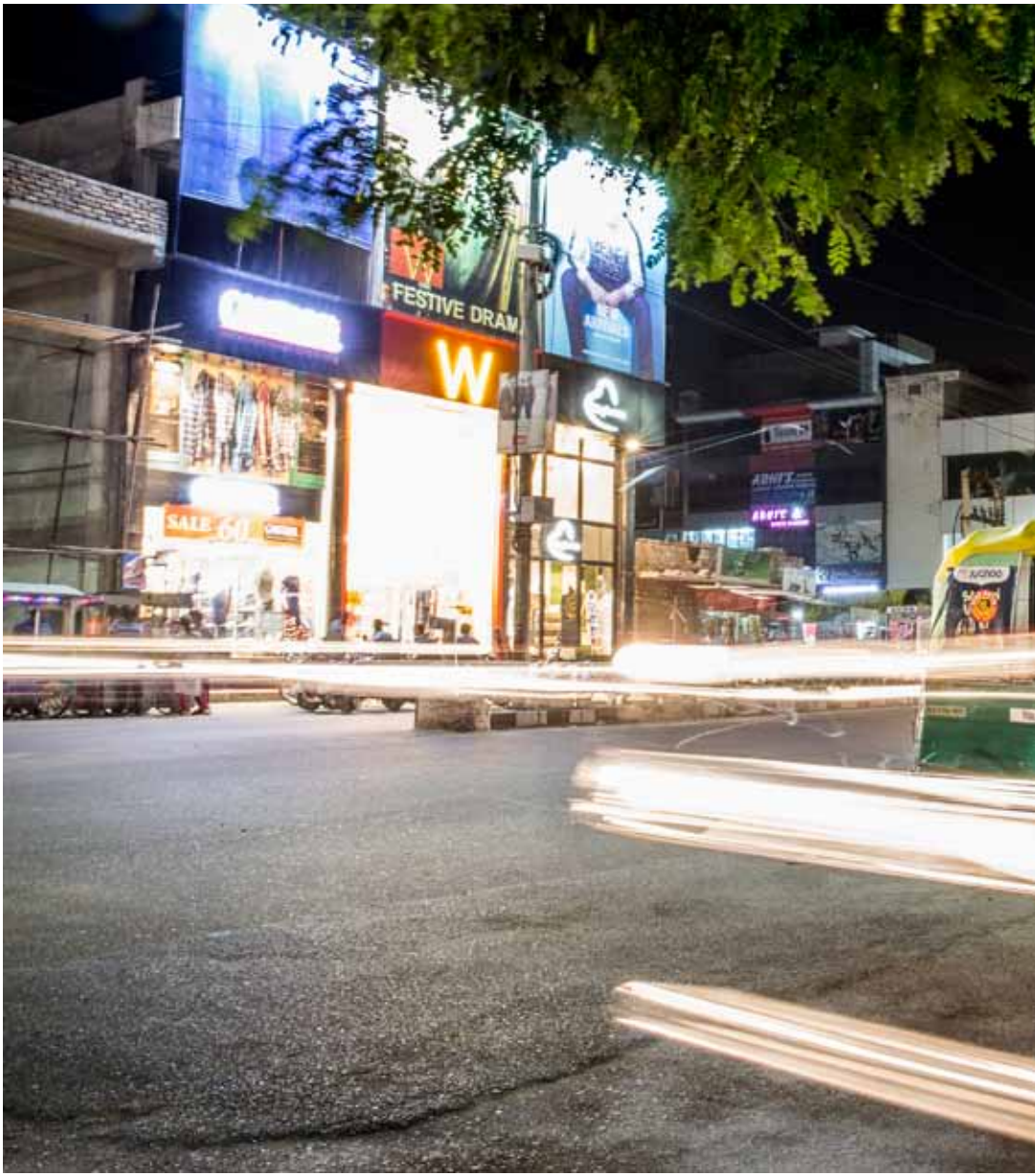
In 2010, the Indian government set up the Energy Efficiency Services Limited (EESL) in order to facilitate large-scale implementation of energy efficiency projects for public entities. EESL has launched a significant programme for rolling out energy efficiency measures in street lighting systems, aiming to replace conventional street lights with LEDs across India by March 2022.

AFD provides support to EESL through funding of projects. For instance, the municipality of Jodhpur benefitted from AFD funding to optimize its street lighting and replace conventional bulbs with 45,000 energy-efficient LED bulbs.

The installation of the LED bulbs has slashed the energy consumption for street lighting in Jodhpur by 55%

The environmental benefits of this new lighting are numerous, thanks to a sharp reduction in the city's overall energy consumption. The living condition of Jodhpur's inhabitants has also improved as the streets are now considered safer, particularly for women. It has also created new opportunities for street vendors.

PHOTOGRAPHS BY **YASHAS CHANDRA**



FINDING A SUSTAINABLE ENERGY PATH

Making nights greener through energy-efficient streetlights

As a city grows and expands, the energy needed to meet its growth increases rapidly. With new energy-efficient lighting technologies like LEDs, streetlights represent one of the most cost-effective opportunities for energy savings and for reducing municipalities' energy costs and carbon emissions.

FINDING A SUSTAINABLE ENERGY PATH

Lighting away the fears

Better lighting promotes a sense of safety, particularly for women and children.

Basanti (left) has lived in Adarsh Colony for many years, and says life here was transformed after the streetlights were changed. "Now we can sit outside every evening, chat and have chai. The children love playing outside, and now we don't feel unsafe letting them to do so."

Mr Arora and family (right) stand under a streetlight on Ghantaghar Road. "The streetlight installation on our lane has come as a great relief," he says. "We run a coaching centre in our house and so people are constantly coming in and going out. The light has made our road much safer, especially for young girls."

FINDING A SUSTAINABLE ENERGY PATH

More visibility, more business — the energy-efficient way!

Mohammed (left) has been a peanut seller in Kheme ka Kua for the last four years. "I have become more visible because of the streetlight! Passers-by can now easily spot me. I even have young children and women coming to my cart in the night which was not the case earlier."

Jai Singh (right) is the owner of the Nagori Tea Stall on Pal Balaji Road. "We have always been popular with customers, but after the streetlights were installed next to our shop, it has given us more visibility and therefore helped ours as well as other businesses in the area."

More than 25% of the world's population relies on forest resources for their livelihood

Preserving and Restoring Ecosystems

30 per cent of the earth's surface area is covered by forests. Not only do they provide food security and shelter, but are also vital to combating climate change and protecting biodiversity.

However, each year thirteen million hectares of forests are lost due to human activities and climate change. This has prompted the United Nations to declare the sustainable management of forest and preservation of biodiversity as the 15th Sustainable Development Goal.

India is one of the world's 17 "megadiverse" countries. Due to its sheer size and range of topography, the country is home to a rich variety of flora and fauna.

But, a growing economy and fast-rising population have increased demands for the country's resources, placing immense pressure on crucial ecosystems. To mitigate this issue, India has adopted the Green India Mission which aims to protect and restore the country's forest cover.

In order to reduce the decline of natural habitat and diversity of species, AFD provides support to its partners around the world in the fight against deforestation and desertification.

India is home to 45,000 types of plants and 90,000 species of animals

Forests: Assam reclaims its green glory

With 35 per cent of its landmass covered with forests, five national parks, and 18 wildlife sanctuaries, Assam, in North East India, is a haven for a unique variety of flora and fauna. From ancient times, many tribes and communities have been a seamless part of the forest ecosystems.

Over the years, however, forest lands began to shrink under demographic pressure, development projects, and overexploitation. Gradually, it started to adversely affect the overall ecology of the region.

As a mitigation measure, the Assam government, with the support of AFD, launched the Assam Forest and Biodiversity Conservation Project in 2012 to restore forest ecosystems, protect wildlife and enhance the livelihood of the forest-dependent communities.

As part of the project, massive reforestation efforts have been undertaken with the help of local village committees. New nurseries have been developed and depleted wetlands and grasslands have been restored.

It has also helped revive the local economy. Nearly 4,500 people have been trained in 15 different trades, throwing open the option of a different livelihood.

Over 21,000 hectares of land have been reforested with help of village committees

PHOTOGRAPHS BY **YASHAS CHANDRA**

PRESERVING AND RESTORING NATURAL ECOSYSTEMS

Forests are getting greener — patch by patch

In close collaboration with the village committees, the Assam Forest Department is developing cooperative management plans for forests and protected areas.

"The forest department helped us identify a 25-hectare piece of land. We planted saplings of trees that can be used for firewood in seven-eight years' time," **Potuli Mazumdar** (top right) from the Hatikuli village explained. "We no longer sell firewood, nor do we encourage others to cut trees," she says.

The newly developed nurseries have been designed to include a large variety of indigenous and fruit-yielding trees. This will go a long way towards restoring biodiversity of the forests.

PRESERVING AND RESTORING NATURAL ECOSYSTEMS

Helping forest dwellers adopt a new way of life

Manoj is a member of Compello, an NGO that is entrusted with training local communities and marketing their products.

Through regular consultations with the NGO, the village communities decide which trade would best suit their needs. A micro-plan is then drawn up, based on which trainers are hired and raw material is sourced.

"Gaining the community's trust was the most crucial step in our journey," Manoj said. "Most communities now want to learn more. This change in attitude is a testimony of the project's success."

PRESERVING AND RESTORING NATURAL ECOSYSTEMS

Weaving a different, better tomorrow

Skill-development of forest-dependent communities is an important aspect of ecosystem conservation under the project.

In **Monju**'s village (right), the local committee decided that skill training in weaving would benefit the community to a great extent. Monju and 23 other women of the Panbari Adarsh Mising village have learnt how to weave clothes with traditional designs, mostly motifs of animals that live in the forests close to them.

"This training has empowered me to earn my livelihood and live with dignity. No more firewood collection in the rain," Monju smiles.

PRESERVING AND RESTORING NATURAL ECOSYSTEMS

Protecting the wild

The project has helped in capacity building of forest guards in Assam's Kaziranga National Park in multiple ways. An overhaul of the existing infrastructure and procurement of new equipment and vehicles, combined with an introduction of new methods and training have helped the forest guards to better protect wildlife. Exchange programs with the French National Forest Office (ONF) have also been organized. These efforts have contributed towards increasing the park's one-horned rhino population, usually targeted by poachers, to an impressive 2,400.

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