CONVEYOR AND ROPEWAY SERVICES PVT. LTD.

CONTENTS

CRSPL

CRSPL is the pioneering Engineering company at the forefront of the Ropeway Industry in India in the field of Aerial Ropeways. Founded in the year 1975, CRSPL has over 5 decades of experience. At CRSPL we conceptualize, manufacture, and execute turnkey projects in Ropeways which provides an end-to-end service all under one roof.

CRSPL has successfully executed the largest number of Ropeways in India for both Private & Public Sectors, having the largest market share in India.

CRSPL has installed and developed various ropeways projects through DBFOT/PPP and has technical expertise in undertaking O&M of ropeways since mid 90's.

CRSPL has international exposure having executed many overseas contracts in the subcontinent including Indonesia, Taiwan, Bhutan, Nepal, Bangladesh & Pakistan. We have also exported our designs to the United States and the United Kingdom.

CRSPL has its corporate office at Kolkata, West Bengal, with a full-fledged design Team, a well-equipped manufacturing Unit, and an extensive R&D wing. We also have 8 branch offices across India and 3 Overseas Contact offices.

CRSPL has also successfully taken up the development of the World's first Non-Linear for a 2nd Tier Alternative Urban Commutation, named CURVO.

MISSION

Our mission is to evolve new technology for safe alternative means of aerial transportation, enhancement in its quality of service, value addition in various other fields of engineering production and conditioned by local standards and culture.

VISION

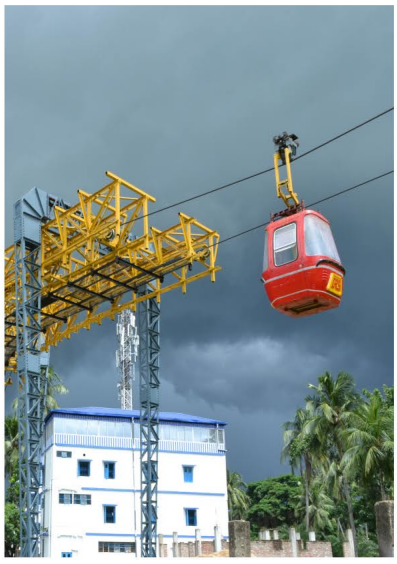
Our goal is to uphold our company's heritage by becoming the leading ropeway manufacturer in the nation, prioritizing customer preference, involving employees in decision-making, and maintaining our reputation for excellence.

OUR SERVICES

We have the best in the business of ropeway and conveyor services,

1. Passenger Ropeway
2. Material Handling Ropeway
3. Curvo - Urban Transportation
4. Coal Washing






OUR CLIENTS

Our clientele encompasses a diverse spectrum – from government initiatives enhancing public transportation to private ventures elevating tourism experiences. These partnerships have not only shaped the skyline but have also woven a tapestry of success stories that stand as a testament to our commitment to quality and innovation.

130+
Projects

50+
Years

70+
Clients

Butwal,
Nepal

OUR MILESTONES

1973 Indian Ropeway Engineering Company the predecessor of CRSPL had built the first indigenous Bi-cable ropeway in India.

1975 CRSPL was promoted in the year by a visionary, Mr. Shekhar Chakravarty.

1978 Passenger Ropeway at Alaska Trams, Juneau, a prestigious project involving a Revolving Restaurant, a Hotel and a Passenger Ropeway on top of a Mountain in Alaska, USA

1991 Backed by British process technology under Science & Technology Grant the first Coal Washing Plant was implemented in Lodna Colliery, BCCL, Dhanbad through CMPDIL Ranchi.

1994 CRSPL was involved in building the first passenger ropeway in India at Dongargarh.

1998 Darjeeling Ropeway - The longest indigenous Ropeway and the first DBFOT project at Darjeeling, West Bengal by CRSPL.

1999 Conveyor & Ropeway Services Pvt Ltd was promoted by Mr. Shekhar Chakraverty and Mrs. Rachana Mukherjee in November.

2001 Crushing & Screening plant at Dongri-Buzurg Mines, Bhandara, Maharashtra for MOIL Limited.

2004 Conveyor & Ropeway Services Pvt. Ltd. Installed the Kailashgiri passenger Ropeway with a Hydraulic tensioning system Asia's First Coastal Ropeway.

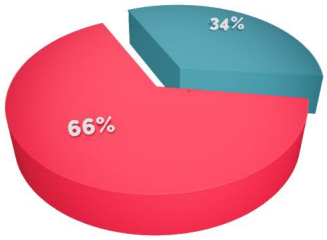
2007 Conveyor & Ropeway Services Pvt. Ltd. Built the passenger ropeway across the river Narmada, over Asia's Largest Marble Rock Cluster at Bheraghat, Jabalpur, India.

2014 CURVO-World's first Non-Linear Ropeway for Urban Commutation was invented by Conveyor & Ropeway Services Pvt. Ltd.

2017 Conveyor & Ropeway Services Pvt. Ltd. Built the passenger ropeway at 14000 Ft MSL, in Sikkim, India

OUR ACHIEVEMENTS

- We have developed **the world's first non-linear ropeway** for urban transportation and we have the international patent on it.
- We have a **patent on a unique detachable grip** which combines spring-cum-gravity application.
- We claim **the largest market share** in the industry having built the highest number of Passenger Ropeways in India.



CRS occupies majority of the market share with over 66%.

INFRATRACK

Curvo Ropeways can be installed in all congested cities of the world

Conveyor & Ropeways Services Pvt Ltd (CRSPL) was born in the year 1975 with a vision to provide a safe alternative transport. The company started its activity as a consultancy and has today emerged as a forerunner in the field of aerial ropeways. CRSPL has installed ropeways all over India and in neighbouring countries. **SHEKHAR CHAKRAVARTY, FOUNDER & MANAGING DIRECTOR, CONVEYOR & ROPEWAY SERVICES PVT LTD** responded to **SHRIKANT RAO**'s queries.

Give us an understanding of this pioneering technology which could bolster Indian transport infrastructure?

Over time cities have experienced gravitation of population towards them for economic reasons. Consequently they have grown at a very rapid pace as a result of which we are now witnessing serious problems of urban commuting. While vehicular transport, metro rail and monorail services have brought down the misery to a great extent in the large cities they have also contributed to pollution leading to human ailments, congestion leading to loss of time and productivity, accidents claiming human lives, not to mention excessive investments in implementation of projects and increasing rate of road damage and repair. Curvo Ropeways, which provide relief from all that, can be installed in all the congested cities of the world.

Curvo is pioneering technology because it assumes an improvisation whereby the overhead ropeway for once can be made to follow a non-linear route along the urban roads. It is adaptable and amenable to bends, being able to follow existing road routes, travelling overhead without consuming or interfering with the road space below and the vehicular traffic that plies under it. It is safe, pollution free, both in terms of emission and noise. It runs on electricity and does not use organic fuel, thereby permitting the government to cut down on fuel import and subsidy expenditure. Further, having an automated drive system instead of multiple human controls, it is accident proof.

Tell us more of the need for installing such a system in our cities?

Commuters travelling in Indian cities have to face many hurdles. They inhale toxic gases from vehicular emissions, drive 2 or 4 wheelers in chaotic traffic conditions, hang out of buses, get sandwiched in metro compartments. Family members, in fact, dread for their dear ones' safe return home. A comfortable, gentle and safe ride every day to office and other destinations and back over crowded city roads is a dream of every commuter. Presently, auto vehicles constitute the main transportation force and it requires considerable growth in infrastructure like roads and flyovers to accommodate the growing traffic volumes. In Kolkata itself, there is a 32 per cent growth since the last decade with less than 7 per cent of effective road space leading to high automobile density, congestion, accidents and effect on air quality. The proposed installation will generate a 2nd tier alternative aerial transportation system along the existing road route negotiated mainly by pedestrian and vehicular traffic. Being electrically driven, and thus being fully pollution free it will eliminate any possibility of additional generation of toxic emission from diesel driven vehicles. Ropeways can prevent thousands of casualties taking place on the road from accidents every year. Roads saturated with vehicles, with hardly any scope to widen, in most urban cities, develop congestions, and commuters lose a lot of time and energy in getting to their destinations. The objective of overhead Curvo is to avoid them totally.

Can you talk of the other spinoffs from the introduction of Curvo ropeways?

This completely new system for urban transportation has the huge potential of opening up an industry and can spread throughout the length and breadth of the country. Being a new system Curvo Ropeway will result in creating an additional infrastructure project for effective transportation. It will generate employment opportunities for commercial operation of the system. Ropeways will require skilled manpower for its installation and operation and being a new technology, the practical training opportunities for engineers coming out of technical schools and colleges would be enormous once the system under consideration is implemented widely. Being an infrastructural project, it will cater for comfortable transportation of commuters. The new technology having originated from the city, traffic feature associated with it will definitely lead to the administrators of major cities getting interested in it. From an environment perspective there is no pollution – whether atmospheric or in terms of noise; it also

CONSTRUCTION WORLD | SEPTEMBER 2014

Ropeway transport may soon be a reality in Kolkata

INDO-ASIAN NEWS SERVICE

Kolkata, September 7

Commuters in Kolkata may soon travel on a non-linear ropeway – that has the potential to swing its way through the city's skyline dotted with high-rises – the makers, who tout it is the world's first of its kind, said after launching a prototype.

The private firm which has developed and patented this new pollution-free aerial transit – christened Curvo ropeway – is in talks with the West Bengal government to launch the service in two regions of the capital.

Test run of the prototype, with two cabins, was conducted within a stretch of 500 metres at a spot in Kolkata's Joka area on Saturday. "It is the world's first non-linear ropeway for alternative urban transportation. There are two proposals which we are discussing with the State Government, regarding launching the service in Sealdah-BBD Bag area and the other from Nabanna, the state secretariat," said Rachana Mukherjee, Director, Conveyor and Ropeway Services Pvt Ltd.

"In addition, we are applying for certification to open the prototype for the public," she said Saturday.

The ropeway service, to be run on electricity, will breeze over existing arterial and other roads on steel portal frames spaced at 90-100 metres supporting the ropes, avoiding the congestion on the streets below.

On any designated route, there will be elevated stops for de-boarding and boarding of the passengers every 750 m.

BUSINESS STANDARD SATURDAY 30 JULY 1983

MATERIAL H

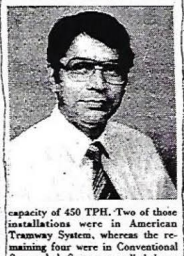
The aerial al

S. CHAKRAVARTY
Conveyor & Ropeway

AERIAL transportation, since along, has played an important ole in the field of Material Handing. With the worldwide energy roblem since the hike in the price f crude after '67 Middle-East War, its potential for close circuit movement of material in the Industries at a much cheaper rate has been a recognised factor. Still, it's yet to find its place and the popularity in meeting the demand for the movement of materials in the Industries. The main reasons attributable are: (i) More initial investment for User; (ii) Lack of information on part of User; (iii) An element of fear relating to maintenance of equipments which are not complicated or sophisticated, but rather uncommon.

With the advent of aerial transport concept towards the end of the last and beginning of this century, it became quite popular for some years, but in the last 30 years, its popularity for transport on the world scale went down considerably, and its application got reduced to cases where nothing else is feasible, and there are over-whelming reasons in their favour.

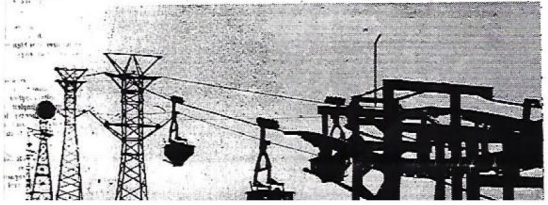
It is a moot question to day that inspite of the fact that aerial transportation presents such attractive features, sufficient appreciation in the prospective Users is not seen, especially now that the world is Units, both in the Jharia and Raniganj Coalfields; each field having a transportation capacity of total 1350 tonnes/hour, with provisions for dumping in various places in the proximity of collieries requiring sand for stowing in their mines. This sand raising, distribution and dumping in the two Coalfields involved a total of 115 KM of ropeways in six installations, each having a capacity of 450 TPH. Two of those installations were in American Tramway System, whereas the remaining four were in Conventional Suspended System supplied by a British Company. These installations are under Coal India now.



Almost at the sometime, i.e. in the paucity of sand in some areas in the river), have been long overdue, particularly because these ropeways transport vital raw materials for the core sectors-one for Steel, and the Sand Ropeways transporting an essential ingredient for underground coal mining operations.

It is a real pity that in spite of the costly installation being there, other means of transport of sand from river beds at both Jharia and Raniganj Coalfields are being resorted to at a much greater transport cost to make up for the poor performance of these installations in the coalfields.

One very important contribution that these installations made was the right exposure of aerial transportation system to prospective Users in Indian Industry, which made good use of the system, with road transport cost going by leaps and bounds in early seventies. The subsequent years saw a greater number of aerial transporation system installed for bringing in coal to KTPS from the nearby coalmines of Western Coalfields. Thereafter, within a few years, India scored a record in building the then highest capacity ropeway in the world. This was a 550 TPH (earlier record was 450 TPH) 10.5 KM long ropeway built at Supa for the Kalinadi Project in Karnataka, for transportation and discharge of 7 grades of materials needed for the Dam Construction. Then came the ropeway for Satna Cement Plant with an installed capacity of 600 TPH, and at West Bokaro TISCO built a Tramway System for transportation of washed coal and middlings from their newly built Coal Washery to the Railway Siding at the rate of 550 TPH over a distance of 3.5 KM. Further development in the field of aerial transportation continued in India, and for the first time in the world, a Detachable Grip type Monocable Ropeway for material transportation, especially designed to negotiate hilly terrain with gradient upto 1 in 2, was built in Malabar Hills to transport Limestone for Malabar Cement Ltd., in Kerala. Its success surely will open up a new chapter for Monocable Ropeways which earlier was only considered to be suitable for flat terrain and low capacity. This type of Monocable Ropeway coupled with higher speed and greater payload, has a great potential for providing more suitable and cheaper solution to aerial transportation over hostile terrain for bigger capacity, which earlier, could only be handled by more costly Bicable Ropeways. Recently, in a prestigious ropeway project in Nepal, awarded to an Indian Company,



Ropeway answer to transport ills in Kolkata?

Jayanta.Gupta@timesgroup.com

Kolkata: An engineer, who claims to have developed and patented a non-linear ropeway system for urban transportation, plans to highlight its effectiveness in a congested city like Kolkata on Friday. Conveyor and Ropeway Services Pvt Ltd, of which Shekhar Chakravarty is the managing director, has already built a prototype that runs along two angular deviations for about 250 metres beyond Bhasa in Joka. Chakravarty says that a 250-km network in the city is possible.

"Ropeways have a monopoly in cities in Europe and elsewhere that have winter sports. But there is no reason why they cannot be adopted in a city like Kolkata. We have named this 'Curvo', the world's first non-linear ropeway for a second-tier alternative urban transport system. The first-tier is vehicular transport on the road, which is plagued by several ills such as pollution, accidents and the subsidies that the government has to pay. The best part of Curvo is that there are no hassles involved in construction. No major construction is involved and the towers can be erected during the night without any disruption to normal traffic. A 4-5 km stretch can be constructed in 12-15 months," Chakravarty said.

Curvo has the potential to carry 2,000-2,500 passengers per hour in a single line system and 4,000-4,500 passengers per hour in a double line. The average travel speed is 12.6 km per hour, which is much higher than that of the average vehicular speed of 7 km per hour in Kolkata, Chakravarty has estimated that if a 250-km network is created over Kolkata, the maximum power consumption is 8-9 MW. In comparison, city vehicles require an equivalent of over 500 MW to cover the same distance with the same load of commuters.

Curvo can travel at a speed of 12.6 km per hour by consuming 8-9 MW power

"I have been developing the system for seven years now after spending nearly 50 years in the ropeway field. I have given presentations in Thailand and been invited to Jamshedpur. The speciality of this system is that it can move in a non-linear direction. This means that it can tackle curves. If it is constructed at Park Street, it can turn into Loudon Street and AJC Bose Road. The cars will be a distance of 50-metres from each other and arrive at the boarding stations at 22-25 second intervals. Every car will have a capacity of 8-10 people. The elevated stations will be situated every 750 metre," Chakravarty added.

He is first eyeing the 2-km long stretch between Sealdah and Lalbazar. The cost of construction will be about Rs 15 crore per km. The stretch can be completed at a cost of Rs 45 crore, which will be much cheaper than a Metro or a flyover. Most importantly, the system will be less polluting. There will be parking bays where the cars can move out when the load is less. The cars will be controlled centrally and this will eliminate the possibility of accidents, Chakravarty said.

OUR FOUNDER

Mr. Shekhar Chakravarty
Chairman

Mr. Shekhar Chakravarty is the Managing Directors of Conveyor & Ropeway Services Pvt Ltd (CRSPL) and Curvo Ropeways India Pvt Ltd (CRIPL), as also Chairman of Breco Ropeways Ltd, UK., a pioneering engineering company of yesteryears in the field of Aerial Ropeway for transportation of men and material.

After nationalization of Coal Industry in 1969, he was offered by Coal Secretary, Govt of India, the position of Chief Engineer of Coal Board, and take charge of the Plants.

In 1980's, he introduced the first Modular Coal Washing Plant in India, under Science & Technology Grant, Department of Coal. Also embarked in plastic Dehumidification and built Dehumidifiers for various Users.

Shekhar as a member of International Organization For Transportation By Rope (OITAF), Rome, made several Presentations during their global conferences all over the world.

Over the last decades, Shekhar worked mainly for development of urban commutation and innovated Non-Linear feature in Ropeway, and his innovation received Grant of Patents from all 36 European countries, China and India, for implementation of Clean & Green Transport for safety, and benefits of common urban commuters.

He is an FIE (India) and FIMechE (UK). He volunteered for years, for IMechE, and reigned in the Chair of Southern Asia Region (SAR), one of the 7 Regions of world of IMechE, for 3 years.

THE FOUR PILLARS

At CRSPL, our team stands as the cornerstone of our success – a collective force of expertise honed over five decades. Anchored by seasoned professionals, each possessing a wealth of knowledge in ropeway engineering, project management, and innovation, we bring unparalleled proficiency to every endeavour.

From visionary engineers to meticulous project managers, our team is not just experienced; they are pioneers, having contributed to over 130 projects across diverse terrains. With a comprehensive skill set that spans design, construction, and maintenance, CRSPL professionals are the architects of seamless ropeway solutions.

In an industry where precision is paramount, our team's dedication to excellence shines through. Every member, driven by a passion for ropeway innovation, collaborates seamlessly to elevate landscapes, connect communities, and deliver ropeway solutions that transcend expectations.

OUR CORPORATE OFFICE

Located in Kolkata, India our corporate office serves as the central hub of our operations.

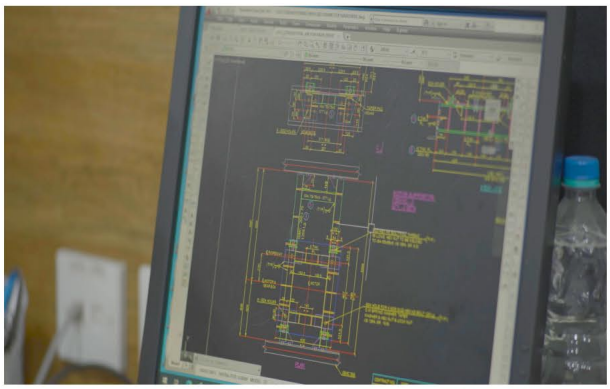
Designed with both functionality and aesthetics in mind, our office space offers a modern and inviting environment for our employees and visitors alike.

Our office features state-of-the-art technical facilities and amenities to ensure a productive and comfortable work environment. We have 7 offices all over India, 3 overseas contact offices, 2 well equipped manufacturing units and an extensive R&D wing.

In addition to providing a top-notch working environment, our corporate office reflects our company's culture and values.

OUR EXPERTISE

At the heart of our ropeway firm lie four pillars, each meticulously crafted to uphold a legacy of excellence.



1. **Design Brilliance:** From conceptualization to intricate blueprints, our design team envisions ropeway solutions that seamlessly blend functionality with aesthetic finesse.

2. **Precision Manufacturing: :** In the manufacturing realm, our commitment to precision is unwavering. The manufacturing pillar transforms designs into reality, crafting every component with meticulous attention to detail and the highest quality standards.

3. **Stringent Quality Control:** Quality is our commitment to excellence. Rigorous inspections and stringent checks ensure that every ropeway system that bears our name adheres to the highest standards, guaranteeing safety and reliability.

4. **Seamless Construction:** Whether navigating urban landscapes or conquering challenging terrains, our experienced construction team ensures that every ropeway project is executed with precision, on time, and with a focus on durability.

TECHNICAL - EXPERTISE

In the intricate realm of ropeway design, our technical team stands as the bedrock of precision and ingenuity. Comprising seasoned engineers, architects, and meticulous draftsmen, they bring a wealth of expertise to craft the most detailed drawings and ensure impeccable project outcomes.

Why Our Technical Team Excels:

A. Attention to Detail: Every project begins with a microscopic focus on detail. Our technical maestros delve into the intricacies, leaving no stone unturned in creating exhaustive drawings that lay the groundwork for flawless execution.

B. Engineering Prowess: Armed with a profound understanding of ropeway dynamics and cutting-edge engineering principles, our team transforms concepts into comprehensive plans. Their prowess lies not just in design but in the seamless integration of functionality and safety.

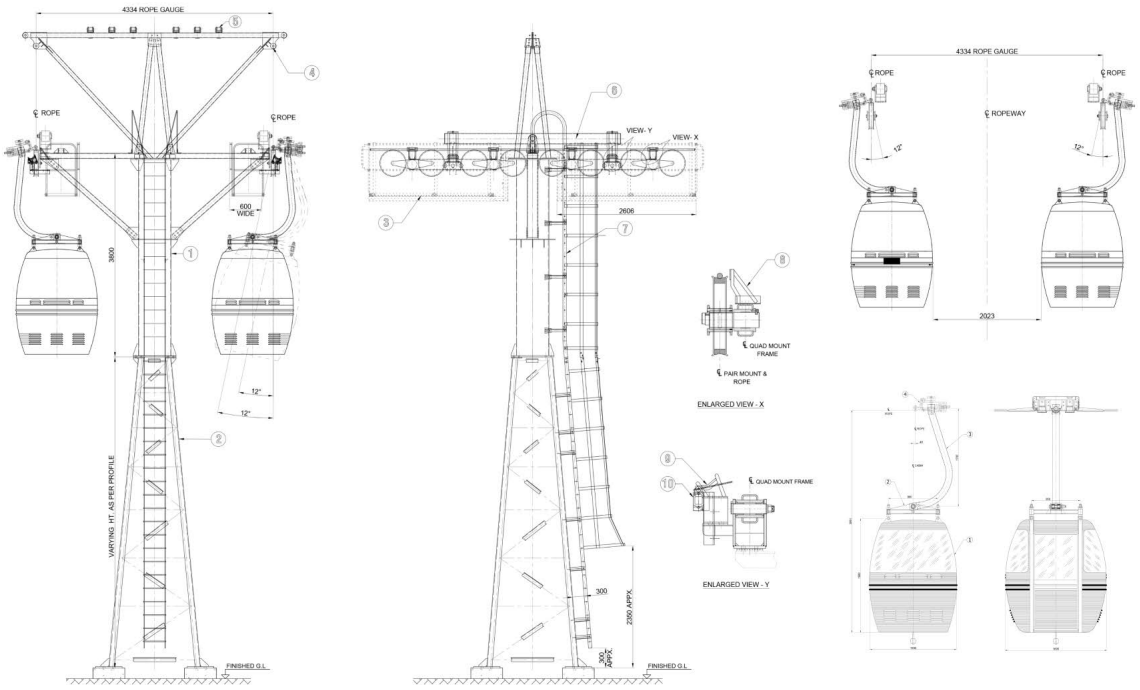
C. Precision in Drafting: Our draftsmen are virtuosos of precision. With an unwavering commitment to accuracy, they translate visions into meticulous drawings, ensuring that every nut, bolt, and cable finds its rightful place in the architectural blueprint.

D. Project Outcomes with Finesse: Beyond the drawing board, our technical team oversees project execution with finesse. Their keen oversight ensures that the actualization aligns seamlessly with the envisioned design, delivering outcomes that exceed expectations.

E. Innovation in Problem-Solving: Challenges are met with innovation. Our technical team thrives on solving complex puzzles, navigating unforeseen obstacles with ingenuity, and ensuring that projects progress seamlessly toward successful completion.

F. ONM----

In the hands of our technical virtuosos, precision isn't just a requirement; it's an art form. They are the architects of excellence, crafting detailed blueprints that set the stage for ropeway projects that transcend expectations.



PASSENGER ROPEWAYS

ABOUT PASSENGER ROPEWAYS

Transport systems to be user-friendly, should be easily accessible, well connected, cost effective and sustainable.

A. Urban Connectivity: In bustling cities, ropeways alleviate traffic congestion, providing swift and efficient transport over challenging terrains.

B. Tourism Upliftment: In scenic landscapes, ropeways unveil vistas that ground transportation cannot reach.

C. Remote Area Connectivity: Ropeways extend accessibility to remote areas, connecting communities to vital services, making education, healthcare, and employment opportunities within reach for previously isolated regions.

D. Religious Transport: Ropeways provide a safe and convenient mode of transportation for high altitude religious places.

H. Hilly Area Connectivity: Extremely adaptable to rugged terrain, ropeways represent an optimal transport solution for challenging topographical landscapes.

D. Eco-Friendly Solutions: Ropeways minimize environmental impact, with low carbon footprints and minimal land use.

TYPES OF PASSENGER ROPEWAYS

Passenger Ropeways are of the following types.

1. Monocable Detachable Gondola System
2. Bicable Detachable Gondola System
3. Tricable Detachable Gondola System
4. Aerial Tramway System
5. Jigback Monocable System
6. Funitel / Double Rope Monocable System
7. Pulsed Gondola System
8. Chair Lift System
9. Monocable Non-Linear System - CURVO

A. MONOCABLE DETACHABLE GONDOLA (MDG) SYSTEM

MDG is a type of aerial ropeway in which the cabin is suspended from a moving cable that is strung between two terminals, over intermediate supporting towers. The rope is driven by a bull-wheel in the terminal, which is connected to an electric motor. Gondolas have small cabins, set at regularly-spaced close intervals.

Cabin capacity of MDG systems varies from 4 to 15 persons per cabin and system capacity can be as much as 3,600 pphpd (persons per hour per direction). Table below provides a summary of the service and technology characteristics of MDG systems

B. BICABLE DETACHABLE GONDOLA (BDG) SYSTEM

MDG is a type of aerial ropeway in which the cabin is suspended from a moving cable that is strung between two terminals, over intermediate supporting towers. The rope is driven by a bull-wheel in the terminal, which is connected to an electric motor. Gondolas have small cabins, set at regularly-spaced close intervals.

The difference between a BDG and an MDG system is that, unlike MDG systems, which are both propelled and suspended by the same cable, BDG systems have two separate cables for two functions, one for supporting and the other for hauling.

C. TRICABLE DETACHABLE GONDOLA (TDG) SYSTEM

TDG systems combine features of both Gondola and Reversible Ropeway systems (i.e. separate ropes serve the two functions: stationary support ropes or "track cables" and a moving "haul rope"), and detachable gondolas. TDG systems have two stationary cables that support the cabins instead of one as in BDG systems.

Although TDG systems are more expensive than both MDG and BDG systems, this added cost is more than offset by their advantages, as these detachable circulating ropeways can carry more passengers with higher speeds. Other advantages of TDG systems include their outstanding wind stability, low power consumption and the use of very long spans of up to 1,000 m.

D. AERIAL TRAMWAY (AT) SYSTEM

An Aerial Tramway (also called Reversible Ropeway or Jig-back Ropeway) is a type of aerial lift in which two passenger cabins (vehicles) are suspended from one or more fixed cables (called "track cables") and are pulled by another cable (called a "haulage rope").

The fixed cables provide the support for the cabins, while the haulage rope, through a grip, is solidly connected to the truck (the wheelset that rolls on the track cables).

E. JIGBACK MONOCABLE SYSTEM

System is similar to Bicable Jigback but the difference is one endless haulage rope serves the dual purpose of carrying as well as hauling the cabin.

Two Cabins are firmly attached to the rope, one at each terminal station but in opposite direction. On driving, while the No. 1 shall proceed to the other station, No. 2 at the opposite end shall progress to the former station. Upon arrival at respective station, drive is reversed and the cabins change places.

F. FUNITEL / DOUBLE ROPE MONOCABLE (DMC) SYSTEM

Funitel is a detachable grip system that utilizes dual grips with a single, dual loop cable providing both support and propulsion. Given this system configuration, it is sometimes referred to as a dual loop mono-cable.

The funitel system are characterized as continuously circulating system withcabins that circulate around two end terminals. It offers line speedandwind stability similar to 3S systems but with shorter tower spans and smaller cabin capacities

G. PULSED GONDOLA (PG) SYSTEM

Pulsed gondolas are fixed-grip ART systems with cabins grouped together in “pulses” rather than being spaced evenly along the cable. The entire line slows down or stops completely in stations to allow passengers to embark and disembark.

While popular in the mid to end of the last century, their limited capacity and operational inflexibility makes them rare in the urban transport.

H. CHAIR LIFT (CL) SYSTEM

This system is widely used in hilly areas. In the winter resorts, all over the world, one can find a number of them. Their capacity range between 50 to 1200 passengers per hour. It is a monocable continuously circulating system.

The rope loop strung between two end terminals and usually over intermediate towers, carrying a series of chairs clamped to the moving rope and spaced at a pre-set interval.

2 seater Chairs are most common in the Ski Industry, but 4, 6 or 8 passengers chair have also come in use, the later mostly have detachable grip.

I. MONOCABLE NON-LINEAR SYSTEM (CURVO)

This is the latest system developed on non-linear, unique and first time in the world.

Running over existing arterial roads, on steel portal frames spaced at 90-100 mtrs for rope supports. None of mighty concrete structures as for Metro and Flyovers. Free city air space, Eco- friendly and installation cost effective.

Advantages

- Easy & quick installation
- Pollution, Accident, Noise free
- Comfortable Ride
- Can negotiate angular deviation
- Flexible public transport capacities
- Can transport up to 2500 PPH per line.

Disadvantages

- High capital investment.
- High operation and maintenance cost.
- Sophisticated system – requires very skilled personnel for Operation and Maintenance.

Darjeeling,
West Bengal

Ropeway at
Ratnagiri Hill, Bihar

RAJGIR, BIHAR

The Rajgir ropeway line is a wonderful excursion in the cradle of nature. It is the only ropeway in existence in the state of Bihar. The Gondola Ropeway is a thrilling adventure that leads you all the way to the top of the scenic Ratnagiri Hill which houses the famous Vishwa Shanti Stupa, also known as the Peace Pagoda.

The ropeway gives access to the Buddhist memorabilia and constructions of a bygone era on the hilltop, coupled with picturesque views.

- Client - **Bihar State Tourism Development Corp.**
- Commissioned on : March, 2020
- System : Monocable Continuously Circulating Gondola
- Capacity : 800 PPH
- Length : 525 mt
- Level Difference : 180.5 mt
- Number of Cabins : 20
- Cabin Capacity : 8 Passengers

Jigback Ropeway built in 1994

Continuous Rotating Gondola built in 2020

DONGARGARH, CHHATTISGARH

The ropeway is established to help devotees reach Maa Bamleshwari Temple. The temple is situated on a hilltop at Dongargarh in Rajnandgaon district of Chhattisgarh. It is the only ropeway travel system set up in Chhattisgarh state.

The magnificent view from the top is yet another attraction for the devotees who come to seek the blessings of Bamleshwari Devi. While devotees and pilgrims can also walk their way to the temple, the ropeway cable car is an added attraction that brings in tourists thronging to the temple site.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Nagar Palika Parishad, Dongargarh**
- Commissioned on : October, 1994
- System : Monocable Continuous Rotating Gondola
- Capacity : 100 PPH
- Length : 675 mt
- Level Difference : 183 mt
- Number of Cabins : 2
- Cabin Capacity : 8 Passengers

CHITTAGONG, BANGLADESH

A Passenger Ropeway was built for tourists visiting Sheikh Rasel Eco Park and Aviary at Rangunia Chittagong under the Department of Forest, Govt. of Bangladesh.

The aesthetic artificial lake in which birds roam can be witnessed from a bird's eye without hampering the natural biodiversity.

- Client : **Department of Forest, People's Republic of Bangladesh**
- Commissioned on : December, 2014
- System : Monocable Continuous Rotating Gondola
- Capacity : 400 PPH
- Length : 1190 mt
- Level Difference : 60 mt
- Number of Cabins : 12
- Cabin Capacity : 6 Passengers

SAMOD, RAJASTHAN

CRSPL signed an agreement with the Mandir Shree Sitaramji Veer Hanumanji Trust for installation of a ropeway on BOOT basis at the ancient temple built over 400 years ago.

The temple is located about 45 Kms from the Jaipur City. The Ropeway will be installed to facilitate the pilgrims with an easy access to the temple, which was otherwise accessible with a 800 step staircase.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Shri Sita Ramji Veer Hanumanji Trust**
- Commissioned on : May, 2019
- System : Monocable Jig Back
- Capacity : 500 PPH
- Length : 365 mt
- Level Difference : 115 mt
- Number of Cabins : 6
- Cabin Capacity : 9 Passengers

Picturesque views of Tsomogo Lake

TSOMOGO LAKE, SIKKIM

The Ropeway overlooks the holy Tsomogo Lake in Sikkim. It is the highest altitude Ropeway in India at 14000 feet providing a 360-degree panoramic view of Kanchenjungha and the Nathula Pass.

Tsomogo is about 40 kilometres from Gangtok and 15 kilometres short of Nathula, the border pass between India and China, which has become a must-visit for tourists in Sikkim.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Department of Tourism, Govt. of Sikkim**
- Commissioned on : July, 2017
- System : Monocable Continuous Rotating Gondola
- Capacity : 1000 PPH (operating at 800 PPH)
- Length : 664 mt
- Level Difference : 250 mt
- Number of Cabins : 12
- Cabin Capacity : 6 Passengers

KHOPOLI, MAHARASHTRA

The Ropeway provides a transport system to passengers visiting the lavish Jain Temple at Manuabhan Tekri.

The ride on the Ropeway provides a scenic view of the lake city and the gorgeous Jain temple where one can truly feel the spirituality of the place when the sunset covers the city sky in a blanket of warm orange.

- Client : **ADLABS Limited**
- Commissioned on : January, 2015
- System : Monocable Jig Back
- Capacity : 500 PPH
- Length : 218 mt
- Level Difference : 30 mt
- Number of Cabins : 2
- Cabin Capacity : 10 Passengers

MANSAPURA, RAJASTHAN

The ropeway runs from Deendayal Upadhyay Park to Mansapurna Karni Mata Temple located atop the Machhala Magar hilltop.

It was commenced to make it easier for the public to reach the holy shrine providing a grand view of the Pichola Lake. It was the first ropeway transportation in Rajasthan.

- Client : **Omkaleshwar Tradelink Pvt.Ltd**
- Commissioned on : August, 2008
- System : Monocable Multi-Cabin Jig Back
- Capacity : 200 PPH
- Length : 362 mt
- Level Difference : 84 mt
- Number of Cabins : 4
- Cabin Capacity : 6 Passengers

SALKANPUR, MADHYA PRADESH

Salkanpur Ropeway plies passengers to the Vijayasan Devi Temple. The temple is perched on a hillock in Sehore district in Madhya Pradesh and the cable car is the easiest way to reach this important shrine.

The ropeway glides over a pond, through the forest area to the hill top giving a panoramic view of the surroundings.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Deviji Mandir Samity**
- Commissioned on : December, 2009
- System : Monocable Multi-Cabin Jig Back
- Capacity : 200 PPH
- Length : 790 mt
- Level Difference : 236 mt
- Number of Cabins : 4
- Cabin Capacity : 6 Passengers

LONAVLA, MAHARASHTRA

The ropeway is located in the western part of India, constructed in the beautiful Aamby Valley Sahara Lake City to provide the residents with an enjoyable ride to a hilltop restaurant.

Aamby Valley City is a township developed by the Sahara India Pariwar in Pune district in the Indian state of Maharashtra. It is about 23 km from Lonavala and 120 km from the city Mumbai. The township is connected by road from Lonavala.

- Client : **Sahara India**
- Commissioned on : October, 1995
- System : Monocable Jig Back
- Capacity : 100 PPH
- Length : 140 mt
- Level Difference : 45 mt
- Number of Cabins : 2
- Cabin Capacity : 6 Passengers

View of the Ropeway

BHERAGHAT, MADHYA PRADESH

The Ropeway crosses the holy Narmada River providing a panoramic view of the Dhuandhar Falls which is one of the major attractions in Jabalpur.

The view of the waterfall in the marble rocks cascades from a height of 98 feet gives mesmerizing views to the tourists that can be witnessed while taking the ride.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **PWD Jabalpur.**
- Commissioned on : June, 2007
- System : Monocable Continuously Rotating Gondola
- Capacity : 800 PPH
- Length : 535 mt
- Level Difference : 3 mt
- Number of Cabins : 10
- Cabin Capacity : 6 Passengers

Overlooks the city of Vizag

VIZAG, ANDHRA PRADESH

The Ropeway travels to Kailasagiri Park, overlooking the beautiful city and ocean view of the Bay of Bengal. The major attraction of Kailasagiri is the 40-foot-tall statue of Shiva and Parvathi.

This hilltop can be reached by ropeway which offers a panoramic view of the surroundings, especially the sprawling beaches that every nature lover craves. It is the first and only Coastal Ropeway in India.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Vishakhapatnam Urban Development Authority**
- Commissioned on : May, 2004
- System : Monocable Continuously Rotating Gondola
- Capacity : 800 PPH
- Length : 304 mt
- Level Difference : 124 mt
- Number of Cabins : 11
- Cabin Capacity : 6 Passengers

BHOPAL, MADHYA PRADESH

The Ropeway provides a transport system to passengers visiting the lavish Jain Temple at Manuabhan Tekri.

The ride on the Ropeway provides a scenic view of the lake city and the gorgeous Jain temple where one can truly feel the spirituality of the place when the sunset covers the city sky in a blanket of warm orange. Atop the hill, there is a scenic park with restaurants which is frequented by tourists and locals alike.

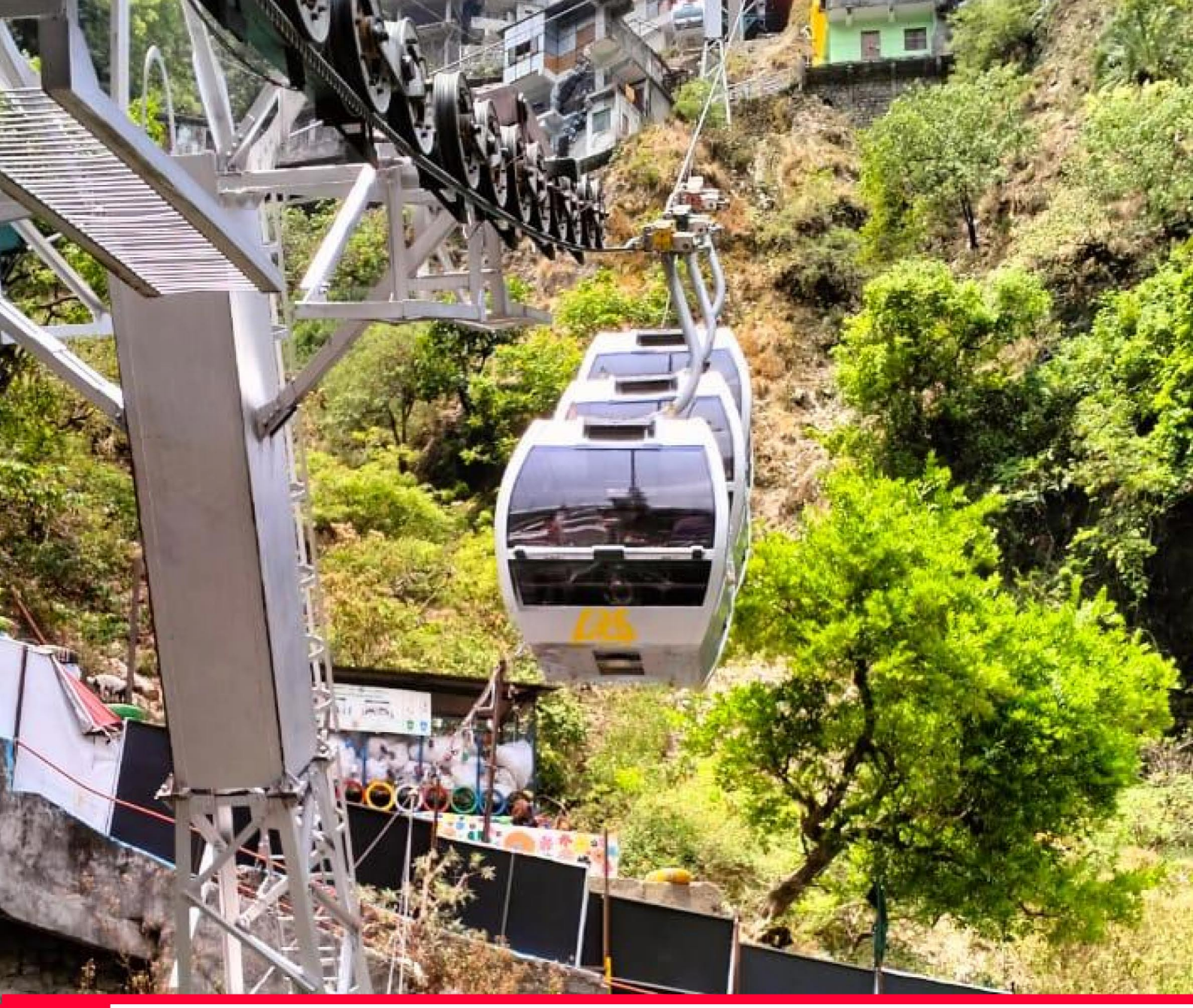
- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Bhopal Municipal Corporation**
- Commissioned on : June, 2001
- System : Monocable Jig Back
- Capacity : 200 PPH
- Length : 360 mt
- Level Difference : 96 mt
- Number of Cabins : 2
- Cabin Capacity : 9 Passengers

TALA, BHUTAN

The ropeway plays an indispensable role in the operations of the power station. It efficiently transports personnel and essential equipment to and from the remote power plant, overcoming the challenging terrain and steep inclines of the region.

The Tala Ropeway stands as a testament to the ingenuity of engineering and its ability to overcome geographical obstacles. It serves as a crucial infrastructure component, facilitating the smooth operation of the Tala Hydroelectric Power Station and contributing to Bhutan's sustainable energy goals.

- Client : **Tala Hydro Power Authority**
- Commissioned on : 2001
- System : Monocable Jig Back
- Capacity : 240 PPH
- Length : 1606 mt
- Level Difference : 1100 mt
- Number of Cabins : 2
- Cabin Capacity : 6 Passengers



MUSSOORIE, UTTARAKHAND

Kempty Falls ropeway is the best way to explore the waterfall and get a bird's-eye view of the surroundings.

To the delight of nature lovers, the ropeway provides breathtaking views of the verdant green mountains and other water bodies.

- Client : **Neena Contractors & Builders PVT. LTD**
- Commissioned on : 2005
- System : Monocable Multi Cabin Jig Back
- Capacity : 400 PPH
- Length : 125 mt
- Level Difference : 74 mt
- Number of Cabins : 6
- Cabin Capacity : 8 Passengers

ASHOKNAGAR, WEST BENGAL

The Ropeway provides a joyride at an Entertainment Park at Ashoknagar Sanhati Park West Bengal.

This Ropeway is the first Suburban Ropeway in India. The Ropeway is constructed across a pond giving a panoramic view of the surroundings along with an enjoyable ride to the people visiting the park.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **Ashoknagar Kalyangarh Municipality**
- Commissioned on : December, 1999
- System : Monocable Jig Back
- Capacity : 150 PPH
- Length : 135 mt
- Level Difference : NIL (across a pond)
- Number of Cabins : 2
- Cabin Capacity : 6 Passengers

View of the Ropeway

DARJEELING, WEST BENGAL

The Ropeway is popularly known as Rangeet Valley Ropeway, the longest indigenous ropeway in India, a 2.5 km long ride on colourful Gondolas, providing a view of the lush green tea garden and the magnificent Kanchenjungha range.

This ropeway was built in the 1960's as a 6 km long Monocable Jig Back System for transportation of logs. It was later revamped to a high capacity Monocable Continuous Rotating Gondola System to serve the high tourist flow visiting the Queen of the Hills.

- Design, Built, Finance, Operate and Transfer by CRSPL in collaboration with **West Bengal Forest Development Corporation**
- Commissioned on : March, 1998
- System : Monocable Continuous Rotating Gondola
- Capacity : 400 PPH
- Length : 2300 mt
- Level Difference : 530 mt
- Number of Cabins : 15
- Cabin Capacity : 6 Passengers

BANDIPUR, NEPAL

The Bandipur cable car installed in Nepal will cater to tourists along with a special provision for a cabin restaurant built along a five-star hotel as a joyride. The ropeway starts from Bandipur Rural Municipality-4 Thuldhunga and reaches Baralthok in the same district covering a distance of 1,6 kilometres.

The cable car, which starts from Thuldhungaswara, reaches the height of Bandipur via the Siddhagufa side from where the passengers can see the Siddhagufa Cave in Bimalnagar, considered the largest in Asia.

- Client : **Bandipur Cable Car Limited**
- Commissioned on : June, 2024
- System : Monocable Gondola
- Capacity : 500 PPH
- Length : 1615 mt
- Level Difference : 625 mt
- Number of Cabins : 21
- Cabin Capacity : 8 Passengers

BUTWAL, NEPAL

Siddhartha cable car a detachable grip type Monocable continuously circulating gondola has been installed from Durali Danda, Butwal to Nuwakot, Palpa Nepal to restore the historical and archeological significance value of Nuwakot for its glorious history where the Nepalese army under the Palpali king Manimukunda Sen defeated East India Company when it invaded Nepal.

The Ropeway will aid tourists to visit the ruins of the Nuwakot fort, ammunition warehouse, and temple in the mountainous terrain of Nuwakot with an aerial view from the fascinating cable car ride.

- Client: **Siddhartha Cable Car Limited**
- Commissioned on : August, 2024
- System : Monocable Gondola
- Capacity : 500 PPH
- Length : 1938 mt
- Level Difference : 518 mt
- Number of Cabins : 18
- Cabin Capacity : 8 Passengers

Tsomogo, Sikkim

LIST OF PROJECTS

Name	Location	Capacity (PPH)
1. DRV Ropeway	Darjeeling, West Bengal	400
2. Bhopal Ropeway	Bhopal, Madhya Pradesh	200
3. Kailashgiri Ropeway	Vishakhapatnam, Andhra Pradesh	800
4. Sanhati Park Ropeway	Ashoknagar, West Bengal	400
5. Narmada Ropeway	Bheraghat, Madhya Pradesh	800
6. Maa Vijyasan Deviji Ropeway	Salkanpur, Madhya Pradesh	200
7. Tsomgo Ropeway	Gantok, Sikkim	1000
8. Veer Hanumanji Ropeway	Samod, Jaipur, Rajasthan	500
9. Rajgir Ropeway	Rajgir, Bihar	800
10. ADLABS Imagica	Khopoli, Maharashtra	500
11. Chittagong Ropeway	Chittagong, Bangladesh	400
12. Mansapura Ropeway	Udaipur, Rajasthan	200
13. Kempty Falls Ropeway	Mussoorie, Uttarakhand	400
14. THPA Ropeway	Tala, Bhutan	240
15. Aamby Valley Ropeway	Lonavla, Maharashtra	100
16. Maa Bamleswari Ropeway	Dongargarh, Chattisgarh	100
17. Bandipur Ropeway	Bandipur, Nepal	500
18. Siddhartha Cable Car	Butwal, Nepal	500
19. Brahmyoni Hill Ropeway	Gaya, Bihar	100 / 150 / 200
20. Manyam Konda Ropeway	Telengana	350
21. Biswanath Ropeway	Assam	300

CURVO - URBAN TRANSPORTATION

A NOVEL METHOD OF URBAN TRANSPORTATION

The Curvo Ropeway System is a path breaking invention where overhead ropeway can be made to follow a non-linear route along urban roads which will revolutionise the traditional aerial ropeway. This increases opportunities and can be a great Urban Transportation system acting as an alternative mode of transport.

CURVO is a non-linear and unique innovation in urban communication which is here to address the need for a solution that saves commuters from living the daily nightmare of commutation.

CRSPL, being in the field of aerial transportation for decades and it's founder, Mr. Shekhar Chakraverty, through his vast experience of over 55 years in the field of aerial ropeways in India and abroad felt the need to introduce the ropeway for transportation in urban areas with compatibility to the existing infrastructure.

CURVO is adaptable and amenable to bends being able to follow existing road networks, travelling overhead without consuming or interfering with road space below and the vehicular traffic.

The CURVO ropeway can be operated over congested serpentine metro roads. It has enormous potential for congested cities as a safe, convenient, environment-friendly, comfortable, accident-free, and economic mode of transport.

Overhead Transport

Safe & Convenient

Follow Existing Road Network

Suitable to Carry Heavy Loads

We hold the worldwide patent for this technology.

URBAN ROPEWAY

Ropeways, also known as cable cars or gondolas, can indeed serve as an urban mode of transportation. They offer several advantages:

1. **Efficient and speedy transportation:** Ropeways can provide a fast way to travel between two points in an urban area, as they are not affected by road congestion. This makes them ideal for short to medium distance travel.

2. **Environmentally friendly:** Ropeways are typically powered by electricity, making them a greener alternative to traditional modes of transportation that rely on fossil fuels. They produce lower carbon emissions and have a minimal impact on air quality.

3. **Cost-effective:** Compared to constructing and maintaining roads or building underground metro systems, ropeways can be a more cost-effective option. They require less space and infrastructure, making them a viable solution for cities with limited resources.

4. **Scenic and tourist attraction:** Ropeways often provide panoramic views of the cityscape, landmarks, or natural surroundings. This makes them not only a means of transportation but also a tourist attraction, enhancing the overall urban experience.

5. **Low noise pollution:** Ropeways operate quietly compared to road traffic or rail systems, minimizing noise pollution in densely populated urban areas.

6. **Efficient use of space:** Ropeways can be installed above existing infrastructure, saving valuable land and reducing the need for extensive construction.

www.crspl.com

FEATURES

- It **runs on electricity** and does not use organic fuel.
- It is an **automated Drive System**, instead of multiple human controls behind the wheels as is the case with vehicular transportation system in vogue.
- The operation of the system would be centrally **controlled from the Drive Station Control room with CCTV facility**, which will monitor cabin movements.
- The non linear feature of Detachable Grip Ropeway has been **Patented worldwide by Mr Shekhar Chakravarty**, Managing Director of CRS, the inventor of the technology.
- It will run on existing arterial roads on steel portal frames spaced at **90-100 meters** supporting the ropes
- It will need **nominal ground space** for stations and rope supporting portal frames.
- The CURVO will, on any designated route, provide boarding deboarding facility at **every 750 metres.**

CHARACTERISTICS

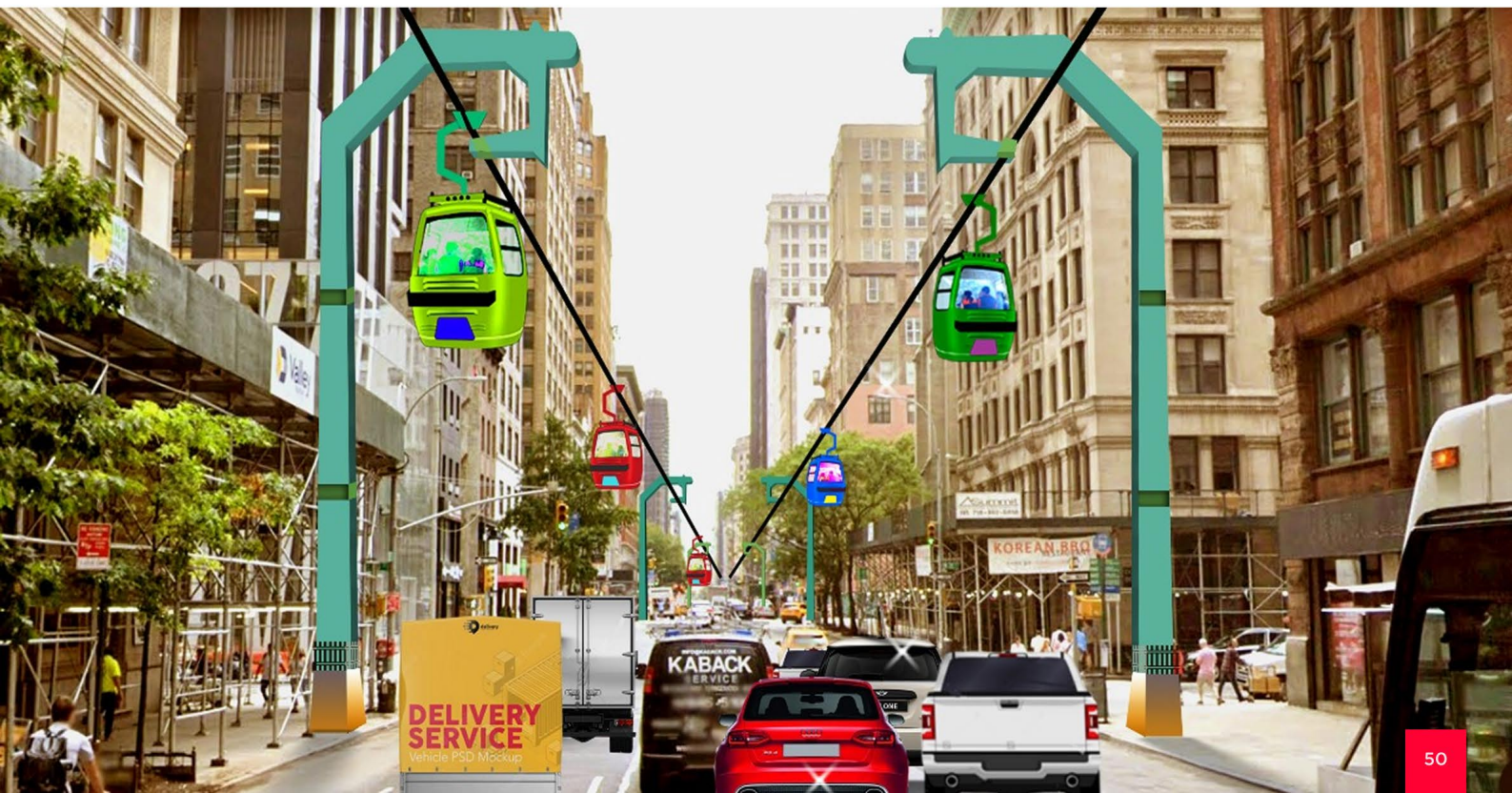
System :
Monocable Gondola System with Vertical Detachable Grips

Carriers :
Cabins of 10 seater capacity with automatic door opening and closing, will travel at 20 second intervals.

Speed :
Top Speed of 16 km/hr
Average Speed of 12 km/hr

Transport Potential :
Capacity 2000/2500 passengers per hour (PPH) each direction and 4000/4500 (PPH) both direction

Power :
For 5 km, estimated power needed is 250 KW. For a 200 km city network, it will amount to 10MW.



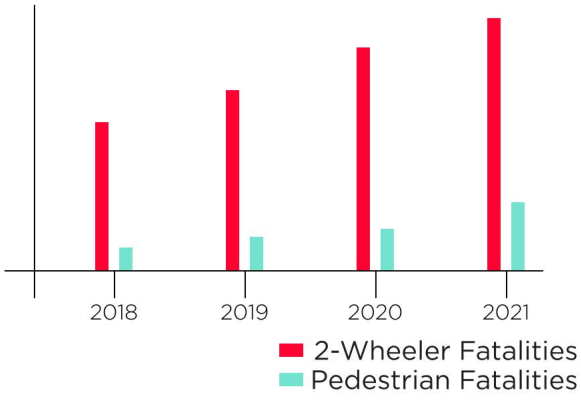
WHY DO WE NEED CURVO

- Generate a 2nd tier **alternative aerial transportation** system along the existing road routes.
- Provide to thousands of pedestrians **a new transportation facility**
- **Minimize the occurrence of road accidents**, it having a fully automated drive system instead of multiple human control behind wheels.
- **Minimize congestion** in urban roadways
- **No other alternative mode of transportation** like Monorail, Metro, Flyover are technically not feasible for installation in **hilly areas.**
- Curvo provides a great alternative for public transport at a time when **clogged road spaces** in cities are at an all time high.
- Modernization and use of **latest green technology** in transport system is the need of the hour.
- This ensures seamless **First Mile & Last Mile Connectivity.** It can be implemented as feeders to existing mobile networks.

"Every 24 seconds a life is cut short because of a road traffic collision.90 percent of the World's Road fatalities occur are from low and middle income group."

Antonio Guterres
UN Secretary General

Road safety has been in a steady decline with gradual increase of fatalities from road accidents over the years.



MATERIAL ROPEWAYS

ABOUT MATERIAL ROPEWAYS

Material Handling Ropeways redefine industrial logistics, introducing a seamless, efficient, and innovative approach to the movement of goods. These aerial conveyors transcend traditional methods, offering a myriad of advantages.

A. Swift and Uninterrupted Flow: From mines to construction sites, material handling ropeways ensure a continuous flow of goods, eliminating bottlenecks and optimizing supply chain processes.

B. Precision in Heavy Loads: Where ground transportation faces limitations, ropeways excel. Handling heavy and bulky loads with ease, they streamline the movement of raw materials, reducing manual labour and enhancing safety.

C. Remote Accessibility: Material handling ropeways effortlessly traverse challenging terrains, connecting remote locations that would otherwise be inaccessible.

D. Sustainability in Action: With low energy consumption and minimal environmental impact, material handling ropeways represent an eco-friendly alternative.

E. Cost-Effective Solutions: Material handling ropeways offer cost-effective solutions for industries seeking efficiency without compromising on safety. They optimize resources, reduce operational costs, and ensure a rapid return on investment.

F. Reduced Pollution: A material ropeway minimizes dust pollution at construction sites by operating above the surface, enclosing transported materials, avoiding unpaved roads, reducing vehicular traffic, and providing efficient, controlled, and environmentally friendly point-to-point transportation.

TYPES OF SYSTEMS

CONVENTIONAL GRIP MONOCABLE ROPEWAY SYSTEM

The term "monocable" means that one single rope carries (first function) and hauls (second function) the carrier that is hung to it.

This type of rope is called a "carrying-hauling rope". The carriage is fixed to the hauling/carrying rope. It does not disengage during boarding/de-boarding operations.

Features:

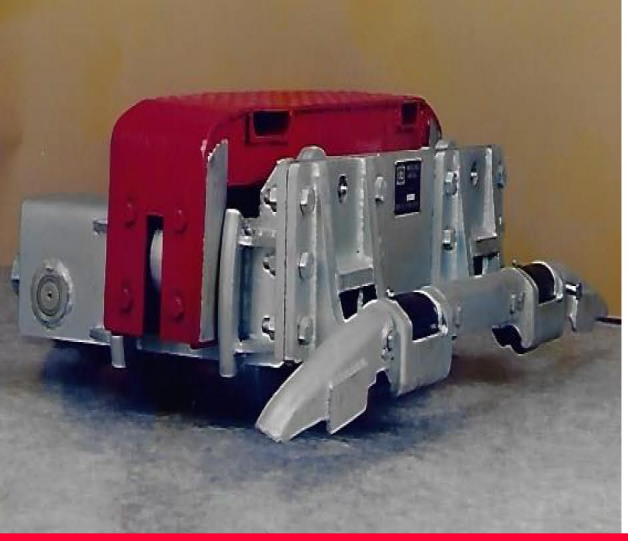
- Simple Construction and Operation
- Less Expensive

Advantages:

- Simple System
- Low Operation and Maintenance Cost
- Low Investment
- Capacity can be easily augmented to the design limit with the increase in demand.

Capacity:

- Maximum 300 TPH for short distance



DETACHABLE GRIP TYPE MONOCABLE ROPEWAY SYSTEM

This is the most popular System for Material Ropeway can adapt length and terrain condition.

In this system a single endless continuous moving rope supported on intermediate tower rollers carry the bucket spaced at equal intervals The in coming bucket to the terminal stations and disengages from the rope and moves on the shut rail.

Advantages:

- High Transport Capacity
- Adjusting speed and number of buckets as per demand
- Can negotiate rugged terrain. Ropeway profile follows the ground.
- Moderately high speed possible.
- Low tower height.

Capacity:

- Upto 350 TPH for short distance

DETACHABLE GRIP BICABLE ROPEWAY SYSTEM

This is the most popular System for Material Ropeway can adapt all most all length and terrain condition.

In this system a single endless continuous moving haulage rope are attached to the gondola cabins, spaced at equal intervals and the cabins are supported on a track rope The in coming cabin to the terminal stations and disengages from the rope and moves on the shut rail.

Advantages:

- Can negotiate long span, particularly while passing rivers or gorges.
- Less number of moving parts, vis-à-vis low cost

Capacity:

- Upto 750 TPH for short distance

RENUSAGAR, UTTAR PRADESH

CRSPL first built a 8km long detachable grip type monocable ropeway of 300 THP capacity over a rugged terrain. It was India's first detachable grip industrial ropeway. Later, when its purpose was finally met the ropeway was converted to a bicable system, truncating its length.

- Client : **Hindalco Industries Limited, Renupower Division**
- System : Bicable Ropeway
- Length : 2500 mt
- Level Difference : 3 mt
- Capacity : 350 TPH

LOHARDAGA, JHARKHAND

CRS has designed, built, supplied and successfully converted a material ropeway of length 10km from 90 TPH to 180 TPH for transportation of Bauxite.

- Client : **Hindalco Industries Limited, Mines Division**
- System : Bicable Ropeway
- Length : 9.8 Km
- Level Difference : 0.37 Km
- Capacity : 150 TPH

NARSINGARH, DAMOH

CRS has done the design, supply of critical items, supervision and commissioning of a ropeway associated with a Material Handling Plant.

- Client : **Diamond Cements**
- System : Monocable Ropeway
- Length : 3.2 Km
- Capacity : 300 TPH

GHARIBWAL, PAKISTAN

CRS was involved in the capacity upgradation of a material ropeway from 230 TPH to 650 TPH along with the supply of 6 nos. 650 TPH capacity Belt Conveyors of total length of 2400 mtr at Gharibwal Cement Plant.

- Client : **Gharibwal Cement Plant**
- System : Monocable Ropeway
- Length : 2400 mtr
- Capacity : 650 TPH

LOADING AND UNLOADING SYSTEM

LIST OF PROJECTS

YEAR	CLIENT	CAPACITY	TYPE
1971	Indian Ropeway Engineering Company, Dhanbad	75 TPH	5 Km long Monocable Ropeway
1973	Indian Ropeway Engineering Company, Dhanbad	200 TPH	1.2 Km long Bicable Ropeway
1977	Damodar Ropeways & Construction Co.	550 TPH	10 Km long Bicable Ropeway
1981	Thermal Power Station for MSEB	450 TPH	13.5 Km long Bicable Ropeway
1982	Macherla Cement Factory of KCP Ltd.	150 TPH	5.5 Km long Monocable Ropeway
1984	Cement Plant site for Malabar Cements. Ltd.	200 TPH	6.3 Km long Monocable Ropeway
1984	Pipla Colliery for MSEB, Nagpur	100 TPH	4.0 Km long Monocable Ropeway
1988	Renusagar Power Co. Ltd (RPCL)	300 TPH	Monocable Detachable Grip Ropeway
1989	Bharat Coking Coal Ltd.	200 TPH	Refurbishing of existing Tramcar Ropeway
1996	Diamond Cements, Damoh	300 TPH	3.2 Km Long Monocable Ropeway
1996	Indian Aluminium Co. (INDALCO)	60 TPH	Automation of existing ropeway
1997	Eastern Coalfields Ltd. (ECL)	-	Revamping of an Angle station at J.K. Ropeways
1998	Eastern Coalfields Ltd. (ECL)	-	Revamping of a Monocable Ropeway
1999	INDALCO	-	Mechanization of Ropeway Unloading Station
2008	Gharibwal Cement Plant, Pakistan	650 TPH	750 mt long Ropeway
2011	Hindalco, Renusagar	350 TPH	2400 mts long detachable grip type monocable ropeway
2012	Hindalco, Lohardaga, Jharkhand	150 TPH	Capacity augmentation of Ropeway from 41.64 TPH to 150 TPH

COAL WASHERY

ABOUT COAL WASHERY

CRSPL specializes in coal washery services, which involve the process of removing impurities and contaminants from raw coal to enhance its quality and purity.

Coal washery facilities use a combination of techniques such as screening, washing, crushing, and gravity separation to separate coal from its impurities like rocks, soil, and other foreign materials.

CRSPL uses a wet technology operating with self-generated slurry as media. In collaboration with a British firm, the technology was first incorporated at a mine at Dhanbad, under the S&T Grant from the Govt. of India and it proved to be successful.

CRSPL has shown the way of a Pithead Washery capable of washing coal at the mine end and leave the dirt behind and save transportation of ashes laden in coal.

We at CRSPL deal in the following :

- Coal Washing Plant
- Manganese Ore Washing Plant
- Limestone Washing Plant

COAL WASHING PLANT WITH NATURAL MEDIUM

Natural plant medium consisting of coal fines generated in washing unit has been found to be the most cost effective in processing and separating ash in ROM coal. The coal fines are generated from the ROM feed coal. These natural medium washing units are most cost effective method, processing ROM coal for industrial use.

The technology is backed by a British process design. The first plant of this technology was implemented under Science & Technology (S&T) Grant, in Lodna Colliery, BCCL, Dhanbad, through CMPDIL, Ranchi, in 1991, on subjection of stringent performance test of difficult coal of Jharia coalfield. Performance through test was found satisfactory. Subsequently, a number of plants on this technology were built and found fully successful for both coking and non-coking coal.

The plant uses 4 separating functions in the equipment :

1. Barrel
2. Cyclone
3. Dewatering Screen
4. Sieve Bend

Advantages :

Coal is improved by washing and separating, which generates the following advantages :

1. Better calorific value
2. Lower ash content
3. Lower sulphur content, if applicable

The plant provides the following benefits.

- Low capital expenditure
- Low gestation period
- Low water and power consumption
- Low running cost
- High efficiency
- Robust modular design
- Quick assembly, easy to move
- Extensive product range
- Low power use
- Minimal manpower
- Less pollution

CRS has developed a Combined Natural Media & Dense Media Washing Plant to accept a wide variety of input coal as also to achieve an organic efficiency to the level 95-96%. Each circuit is in modular form, effectively dovetailed and integrated in a limited place.

TYPES OF PLANTS OFFERED

A. Barrel-cum-Cyclone Plant

Capacity Range : 25-300 TPH

This type of plant is ideally suited for reducing ash in low grade coal for the following :

1. Power Sector
2. Sponge Iron Units
3. Cement Plants

B. Barrel only Washing Plant

Capacity Range : 25-300 TPH

This type of plant is capable of handling high extraneous ash, reduction of which can be in the region of 10-12%.

C. Cyclone only Plant

Capacity Range : 15-30 TPH
The design is simple and involves low investment, which is the USP. This is particularly suited for small consumers like :

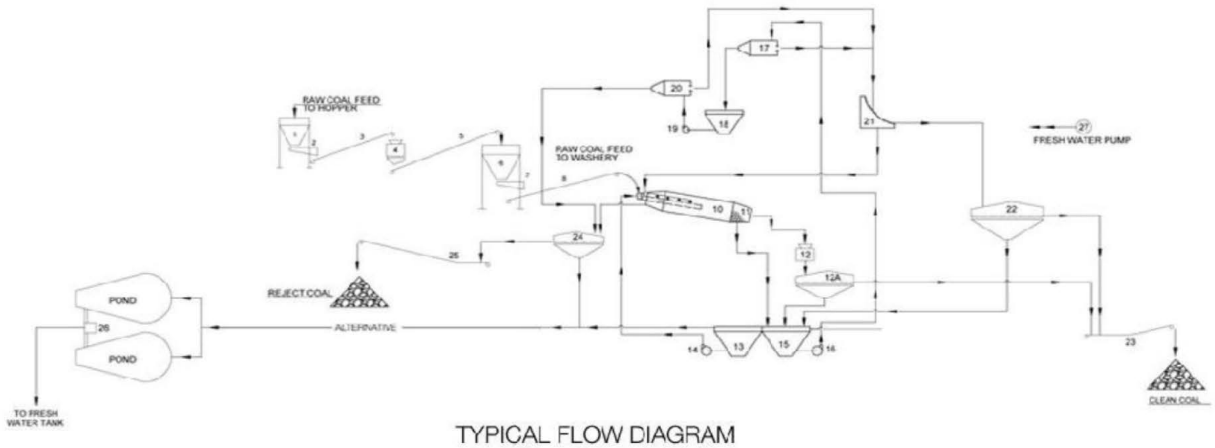
1. Cookeries
2. Small size Sponge Iron Plant

D. Slurry Treatment Plant

Capacity Range : 10-15 TPH

This type of plant is ideally suited for reducing ash in low grade coal for the following :

1. Power Sector
2. Sponge Iron Units
3. Cement Plans



TYPICAL FLOW DIAGRAM

BARREL AND CYCLONE WASHING

LIST OF PROJECTS

YEAR	LOCATION	CLIENT	CAPACITY	TYPE
1991	Modular Coal Washing Plant, Lodna Colliery	CMPDIL	120 TPH	Barrel-cum-Cyclone Modular Plant
1993	Modular Coal Washing Plant, Damoh	Diamond Cements	120 TPH	Barrel-cum-Cyclone Washing Unit
1994	Modular Coal Washing Plant, Dhanbad	Chain Impex	25 TPH	Barrel-Cum-Cyclone Washing Unit
1995	Modular Coal Washing Plant	Shree Shyam Coal Co. Ltd.	15 TPH	Mini Modular Cyclone Washing Unit
1995	Modular Limestone Cleaning Plant	Diamond Cements	100 TPH	Washing Plant for removal of clay from Limestones
1997	Mini Modular Coal Washing Plant & Material Handling System, Dhanbad	Maa Parvati Coke Industries	15 TPH	Mini Modular Coal Washing Plant
1998	Mini Modular Coal Washing Plant, S.K. Coal & Coke Ltd. Jaunpur	S.K. Coal & Coke	15 TPH	Mini Modular Coal Washing Plant
2001	Mini Modular Coal Washing Plant & Material Handling System, Dhanbad	Barhmdeo Sinha & Co.	25 TPH	Mini Modular Coal Washing Plant
2001	Mini Modular Coal Washing Plant & Material Handling System, Mumbai	BLA Industries Ltd.	15 TPH	Mini Modular Coal Washing Plant
2002	Modular Coal Washing Plant, Dhanbad	Akash Coke Industries Pvt. Ltd.	25 TPH	Modular Coal Washing Plant
2003	Modular Cyclone Coal Washing Plant, Sundargarh	Surya Coke Pvt. Ltd.	20 TPH	Modular Coal Washing Plant
2004	Modular Cyclone Coal Washing Plant, Jharsuguda, Orissa	Sadguru Ispat Pvt. Ltd.	25 TPH	Modular Coal Washing Plant
2008	Modular Coal Washing Plant, West Bengal	Jai Balaji Jyoti Steels Ltd.	50 TPH	Barrel-cum-Cyclone Modular Plant
2005	Modular Coal Washing Plant, Chattisgarh	Shiv Shakti Steel Ltd.	50 TPH	Barrel only Coal washing plant
2005	Coal Fines Beneficiation Plant, Dhanbad	Akash Coke Industries	10 TPH	Coal FInes Beneficiation Plant
2005	Modular Cyclone Coal Washing Plant, , Kumardhubi	Shree Dwarka Bee-Hive Plant	25 TPH	Barrel-cum-Cyclone Coal Washing Plant
2005	Modular Coal Washing Plant , Narsingpur	BLA Industries Ltd.	50 TPH	Barrel-cum-Cyclone Plant
2005	Sponge Iron Unit, Jharsuguda, Orissa	SMC Power	125 TPH	Barrel-cum-Cyclone Plant

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C. Beliadanga, Usthi road, Usthi,
South 24 Parganas, adjacent to
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