

<b>JalVimana</b> ----- Shuttle Service -----	<b>Alternate to Roadways - its Shipra River water ways to Simhastha 2028</b>
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### Team Introduction – Topic and Names

Team Name	Theme	Registration Number
JalVimana	Smart Mobility & Access Management	TH11733

### Topic and Names

Project Title	Green, Efficient EV Shuttles & Smart Water ways with 30 no's Floating Bath Ghats for Devotees for their Holy Dip during Simhastha 2028	
Team Members	Sushil Chandra	Sarvagya Chandra
Qualifications & Experience	<ul style="list-style-type: none"> <li>• MTech, IIT, Delhi 1980</li> <li>• Over 45 years Industry experience in Project Execution in SAIL, NTPC &amp; Engineers India Limited</li> </ul>	<ul style="list-style-type: none"> <li>• BBA, LLB</li> <li>• Over 10 years Consultancy Experience</li> </ul>
Roles	Team Leader, Review & finalize	Team member, Develop Concept & detailing



*Proposing world's first electric commuter vessel providing fast, safe, sustainable mobility, efficient design, an eco-friendly alternative that reduces carbon emissions while ensuring comfort, reliability, and affordability from CANDELA Technology AB- SWEDEN under Make in India*

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**Problem Statement – The problem we are solving**

- i. **Alternate mode of Road Travel in view of Congested roads or longer road distances leading to delays and stress to General Public & Devotees**
- ii. **Reduction in Risk & Insurance during road travel thereby reduction in corresponding losses in GDP.**
- iii. **Devotees may Stuck in traffic jam for 10 to 12 hours (similar to recent Prayag Raj Kumbh)**
- iv. **Traffic jam may disrupt movement within Ujjain the city, trapping thousands of devotees in an endless stream of cars.**
- v. **Devotees had to struggle with the rush and traffic jams as one has to walk 15 to 20 km to reach the Bathing Ghats**
- vi. **Need for efficient, comfortable, a zero-emission, stylish and sustainable transportation solutions**
- vii. **Barricades in Multiple Locations also causes inconvenience and discomfort to Devotees.**
- viii. **VVIP culture & their visits without discomfort to General Public & Devotees**
- ix. **Never before high-speed water shuttles and more frequent departures with reduced waiting time for General Public & Devotees can be assured by deploying an all-electric hydro foiling ferry, produces zero operational emissions since it requires no fossil fuels.**
- x. **Travel time need reduction so that more Devotees can make a Holy Dip**
- xi. **Benefits of low or nil Carbon Emission may be availed which is not possible in case of engines with fossil fuel on road travel.**
- xii. **Less implementation Cost & time and additional burden on Roadways**

Viewing above, Alternate mode of Travel by fully EV Water Bus or Shuttle for the devotees through 150 km Water ways within Holy Shipra River to various Floating Bathing Ghats in middle of river during Simhastha 2028 is being proposed which shall be most innovative and promising solution with low cost, time and environment implications for above problems.






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	Shipra is source of all diversity – this time its Smart water Mobility
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### Proposed Solution – Concept and uniqueness

**Clean, Green, Efficient, Sustainable & Smart Water ways Mobility & Holy Dip at 30 Floating Bathing Ghat and 54,000 Devotees per day during Simhastha 2028**

		
Typical Jetty on either side of river Bank – 4 Nos	Typical Floating Bathing Ghats - 30 Nos	Typical 30 Passenger innovative Fully electric hydro-foiling water shuttle

Type	Agency	The Major Project Items	Distance from Jetty to Ghats	Time to reach Ghats	Total Nos
Infra related	State Govt	2 Number of Jetties on either side of river bank -up to 40km apart	Up to 40 KM Approx.	Up to 1 Hour Approx.	4
Infra related	State Govt	7-8 Number of Floating Bathing Ghats served by each Jetty			30
Green Fleet related	Operator / Tourism Dept.	Water Bus/Taxi / Shuttle - the electric ferries to ply from various Jetties to 30 no's of Floating Bathing Ghats			240 nos'

**We have Considered Revolutionary Water Taxi / Shuttle - the electric ferry with High Speed - as an ideal fit for the Smart Water Mobility and Modern Boating Experience along with various Floating Bathing Ghats in middle of river during Simhastha which will be integrated with following infrastructure**

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**Uniqueness: Technologically sound and also commercially most viable in view of following**

Green & clean project	HDPE floating jetties & Ghats
EV Shuttles / Ferries in MP with possibility of partnering with MP tourism	Opportunity for us develop our waterways
Additional space be created for Devotees by deploying Floating Bathing Ghats	Substantial Saving by eliminating Road Journey Earning in Carbon Foot Print
Saving in Accidental Loss as compared to Road & IWT	Saving of time & comfort to Devotees taking holy dip



### Commercially most viable

As Against total likely expenditure announced by state govt for augmenting infrastructure, **Per capita Budget allocation** work out be far too less i.e. 7.91% only. Therefore, project is considered very attractive and an innovative, clean, unique and green project. The details are as below


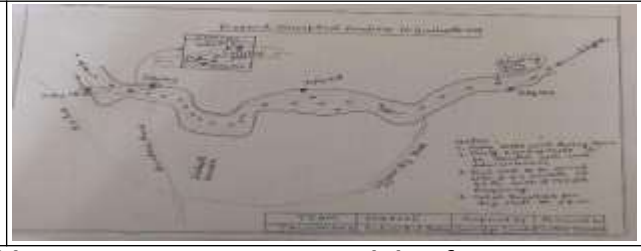
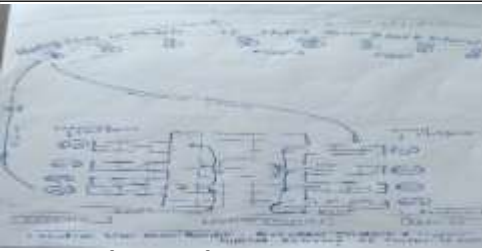












Projects proposed	Number of Devotees Expected (in ₹ Lakhs)	Total Budget (in ₹ Crores)	Per capita Budget allocation (in ₹)
Total Budget: for 102 projects across 11 departments (Announced by MP State)	1400	₹15,751 crore	₹1125.07
Budget For Our Project	32.94	₹29.35crore	₹89.10

Our Proposal is thus **UNIQUE** as it intends towards revolutionizing water Passenger transport by providing fast, safe, sustainable mobility solutions using cutting-edge green technology, efficient design, an eco-friendly, zero carbon emissions while ensuring comfort, reliability, affordability. State-of the- art, **World's first ever** 100% electric hydro foiling technology identified with CANDELA Technology AB- SWEDEN

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**Prototype Demo Screenshots – Key interfaces with labels.**

		
<p><b>Clean, Green, Efficient, Sustainable &amp; Smart Water ways Mobility for 54,000 Devotees &amp; their Holy Dip at 30 Floating Bathing Ghats per day during Sidharth 2028 for divine Experience</b></p>		
<p>Exit</p> 		
		
<p>Typical Jetty on either side of river Bank of Shipra outside Ujjain and may be upto 45 km apart – 4 Nos</p>  <p>Entry</p>	<p>Typical 30 Passenger innovative Fully electric hydro- foiling water shuttle/Taxi</p> 	<p>Typical Floating Bathing Ghats – In middles of river may be at least 500 m apart- 30 Nos</p> 
<p>World's First EV Water Bus/ Taxi / Shuttles</p>	<p>– A game changer Water Taxi</p>	<p>Floating Bathing Ghats with Kunds &amp; changing rooms</p>
		



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**Technology Stack – Tools, languages, frameworks used**

<b>For floating Jetty</b>	Its design is proven by the suppliers & Manufacturers based on number of Devotees per hour. It can be scaled too in case preferred and opted for.
<b>Typical 30 Passenger innovative Fully electric hydro-foiling water shuttle</b>	<p>Made stable by using software and computer power. Based on OEM's information these vessels use an advanced control system that adjusts the hydrofoils' angle of attack 100 times per second in order to provide a smooth ride in waves and in windy conditions.</p> <p>Sensors situated in the bow their vessels which measure wave height and feed this information to Flight Controller. Additionally, height, roll and pitch data are added. The result is a boat that provides perfect and much more comfortable experience than conventional crafts.</p>
<b>Floating Bathing Ghats</b>	A new concept. Proven by the suppliers & Manufacturers based on number of Devotees per hour. It can be scaled too to suit the other site conditions and design parameters.

**The Team Jalvimana has had series of discussions with agencies supplying above major items and best in class services are expected from these suppliers if hired in view of their sound and proven track record.**



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## Impact & Use Cases – Who benefits and how

**First ever a green initiative for Smart Water Mobility and Modern Boating Experience is being proposed during Simhashta 2028- world's largest spiritual gathering as alternate mode of transport**

**Best in Class “Shuttle” for Passenger ferry shall pass on “Tangible Benefits for Clean, Green, economical & Eco - friendly Tourism”**

S. No.	Details of Tangible Benefits	Conventional Boat	Typical 12 & 30 Passenger EV Shuttle	Who benefits and how?
1.	Daily number of Passengers in 15 to 16 hours operation & number of vessels required	To cater to 45,000 Passengers daily, more boats are required due to less speed	In view of high speed Over 27 Knots, world's first high-speed a lesser number of Fully electric Fleet is required	Less per capita cost for creating infrastructure. <b>State and nation both are benefitted.</b>
2.	Shuttle Trips: Up to <a href="#">40 km stretch Between 4</a> terminals as identified (to suit the water Metro stations) to proposed 30 Floating Bathing Ghats in middle of River	Not More than 3 round trip Per day per Conventional Boat possible	8 round trip Per day per Shuttle possible and planned	Lesser investment for operator for in view of a greater number of trips per shuttle per day
3.	Travel Time (One Way)	Approximately 3 hours for a distance of <a href="#">45 km</a>	Approximately up to 55 minutes for a distance of <a href="#">45 km</a>	<b>Devotees are benefitted by</b> significant reduction in their time. INR 65.88 Cr as detailed below
4.	Accidental Loss as compared to Road Rs Lakhs/KM: 7.6	IWT Rs Lakhs/KM: 0.15	IWT Rs Lakhs/KM: 0.15	<b>State and nation both are benefitted in addition to Devotees. . INR 98.40 Cr as detailed below</b>
5.	Eco- Friendly operations	Noisy engines, exhaust fumes, Hazardous in view of Diesel Requirements	silent and smooth over the waves	INR 8.14 Cr as detailed below
6.	Daily number of Passengers in 15 to 16 hours operation & number of vessels required	To cater to 45,000 Passengers daily, more boats are required due to less speed	In view of high speed Over 27 Knots, world's first high-speed a lesser number of Fully electric Fleet is required	Less per capita cost for creating infrastructure. <b>State and nation both are benefitted.</b>

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**Impact & Use Cases – Who benefits and how**

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श्रद्धालु करेंगे शिप्रा में स्नान - हम सभी का होगा उत्थान - सिंहस्थ महाकुंभ का सफल आयोजन

***Best in Class “Shuttle” for Passenger ferry to pass on “Tangible Benefits for Clean, Green, economical & Eco - friendly Tourism”***

S. No.	Details of Tangible Benefits	Conventional Boat	Typical 12 & 30 Passenger EV Shuttle	Who benefits and how?
7.	Environ Impact	Adverse	Pro-Environment	all connected
8.	Seating capacity	20-30 Pax	30	more devotees
9.	Speed	5-7 Knots	Over 27 Knots, world’s first high-speed and long-range electric shuttle ship.	Every one has respect for his time@ INR 200 per hr. to INR1000/ Hr.
10.	Smart Water Mobility And a modern boating experience	Traditional, Slow	Innovative, Fast	Devine experience
11.	Comfort	Little	Huge	all
12.	Saving in Fuel cost	High fuel bills	Being EV- substantially Less	INR 17.30 Cr as detailed below
13.	O&M on YOY basis	Constant maintenance and slamming	Less frequent as no engine is required	all- more reliable operations
14.	Central Grant / Incentive to Passengers		To be discussed to match local situations	As per Policy
15.	Efficiency	Low	High	all
16.	Make in India / Atma Nirbhar Bharat	Yes	Possible in future	As per Policy

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**Detailed working for Benefits with initial estimates**

Saving in Diesel through Road Journey	Saving in Carbon footprint @2.7 Kg/ Lit of diesel	Saving of time of Passengers @1hrs per trip	Saving in Accidental Loss as compared to Road & IWT
<ul style="list-style-type: none"> <li>Considering Bus Journey in group of 30 Devotees</li> <li>Total km per day: 1,53,600</li> <li>Diesel Consumption @5KM /lit: 30720 lit/day</li> <li>18,73,920 in 61 days</li> <li>Total saving: INR 17.30 Cr</li> <li>@ ₹ 92.34 per liter</li> </ul>	<ul style="list-style-type: none"> <li>Avoidance of CO<sub>2</sub>; 82,944 Kg per day</li> <li>Diesel Consumption @5KM /lit: 30720 lit/day</li> <li>5059.5 MT Tons of CO<sub>2</sub> in 61 days</li> </ul>	<ul style="list-style-type: none"> <li>54000 Man hours per day</li> <li>32,94,000 Man hours in 61 days</li> </ul>	<ul style="list-style-type: none"> <li>Rs Lakhs/KM: 7.6 -0.15 =7.45 Lakhs/KM</li> <li>Total km in water ways i.e., Jetties to Ghats: 1200KM</li> <li>We loose 3% of GDP on this count</li> </ul>
@ ₹ 92.34 per liter	@\$185 per MT / INR87/\$	@ INR 200 / Hour	@7.45 Lakhs/KM
INR 17.30 Cr	INR 8.14 Cr	INR 65.88 Cr	INR 98.4 Cr

Road Rs Lakhs/KM : 7.6  
 IWT Rs Lakhs/KM : 0.15  
 ( Reference Inland Waterways Authority of India,GOI Norms) for Accidental Loss

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### Future Scope – Planned improvements or scalability

Inland waterways are unutilized in India as compared to other countries in the world and by shifting even a small portion of congested Road Traffic to waterways will reduce substantial saving in GDP in view of Saving in Accidental Loss as compared to Road & IWT.

#### Scalability

- Growth in inland waterway operations & promoting cruise tourism shall lead to the creation of jobs in logistics, shipping, Ship & Vessel building and related industries employment prospects, contributing to economic growth and skill development in the sector. MP tourism Department may promote or tie- up such intercity travel through Narmada / Shipra water ways and associated required infrastructure like Floating Jetty, Floating Solar Power & Bathing Ghats soonest to match GOI mission and manufacturing of EV shuttle under make in India attracting FDI too and position waterways as a key pillar of sustainable transport and trade.

### Other potential uses for EV Shuttle shall be for MP State to in view of National Policy & Indian Vision for water tourism:

Ministry of Tourism has accorded high priority for following;

- to increase each year number of waterways
- to add to operational kilometers of waterway cruising,
- to facilitate increase of number of cruise tourism
- to add to the number of river cruise circuits,
- to add to increase in overnight rooming capacity on cruises on waterways,

Water ambulance	River crossings	Intercity River bulk transport 3ton capacity
Police patrolling	Various Cruise Operators	Water taxis (10,000) to ferry people from distant suburbs to the upcoming Navi Mumbai International Airport
Intercity River DHL/FedEx	IWAI	VIP river movement to reduce road traffic disturbance

*There is an opportunity for MP tourism Department to promote such intercity travel through Narmada / Shipra water ways so as to develop required infrastructure like Floating Jetty, Floating Solar Power & Bathing Ghats soonest.*

*For faster adoption of this initiative night navigation and EV Charging facility, floating River's jetties for embarkation and disembarkation are essentially required. This will enable familiarity and proven ness in state itself. Such Passenger ferry / cruise operations has been accorded high priority for Smart Water Mobility globally and by GOI too*

*Viewing above we consider Scalability is limitless not only for this project but for Country too for many projects in future*

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### **Conclusion – Why your prototype stands out**

- Our proposal is unique and is for revolutionizing water Passenger transport by providing fast, safe, and sustainable mobility solutions using cutting-edge green technology and efficient design, an eco-friendly alternative that reduces carbon emissions while ensuring comfort, reliability, and affordability.
- The completion schedule for installation of HDPE floating jetties & floating Ghats is minimal and can be executed in 3 months from date of order. The Project can be well completed within **remaining period of 900 days from now Including EV Passenger Shuttle – the most critical item.**
- The proposal intends for state-of-the-art, 100% electric hydro foiling vessel from globally qualified Shuttle manufacturers that stands out as a high-end, for water transfers in India to cater to its future needs at best life cycle prices
- We also propose 12-seater 100% electric hydro foiling vessel for Police patrolling, Water ambulance, VIP river movement to reduce road traffic disturbance,
- Traffic congestion is causing delays, pollution, and economic inefficiencies in such global spiritual gathering.
- The Proposed waterways remain largely untapped for fast transport due to wake creation, pollution, and the high running costs of conventional vessels and even higher Road Ways.
- With a speed of 25 knots mph, silent operation, no wake, and a far lower cost per passenger mile than traditional diesel ferries, we propose to unlock the full potential of our waterways.
- There is always first time to ply revolutionary Water Bus / Taxi / Shuttles services as above which will be game changer in future too in view of
- Huge future growth possibility to diversify in water ways resulting in capital deployment, FDI attraction for EV Vessels under Make in India & employment Generation
- Saving in Accidental Loss as compared to Road & IWT & Earning in Carbon Foot Print be a new avenue for water ways passenger travel – which is a green initiative

Lower Budget as Compared to Road ways

Faster Execution

A far lower cost per passenger mile than traditional diesel ferries

***Our idea is thus a compelling unique selling proposition (USP) paramount for driving success and sustainable growth***

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