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Acknowledgement

It is hereby acknowledged with thanks that the following study was prepared in close consultation with the key stakeholders of the India EU Water Partnership and its related Governments. In this regard, we would like to extend a special thanks to the European Union Delegation as well as the Ministry of Water Resources and River Rejuvenation and their related bodies. Further, we are grateful for the support and contribution by several sectoral experts, select representatives of both EU and Indian water businesses, research institutions, financial institutions, and representatives of all European Union Member States based in India who shared their views and perspectives relating to the topic of the study.

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Executive Summary

The following scoping study by the European Business and Technology Centre (EBTC) was conducted on behalf of the India EU Water Partnership (IEWP) with the objective to

- provide insights on the current engagement of and support infrastructure for EU water businesses¹ in the Indian water sector
- provide strategic recommendations for increased involvement of EU water businesses through the IEWP².

The study is divided into 7 chapters which capture an overview of the Indian water sector, prevalent aspects impacting collaborations, current positioning of the EU Member States (MS) and the support infrastructure available for EU businesses in India, opportunities in the Indian water sector in alignment with the priority areas of the IEWP, and lastly strategic recommendations on how the IEWP can actively support and promote EU businesses in India.

By mapping the Indian water sector vis-à-vis the positioning and degree of activity as well as expertise of EU businesses and EU Member States in different segments of the sector, it is ensured that any suggestions towards strategic and operational support provided by the IEWP to the EU MS and their businesses is based upon concrete challenges and opportunities that have been identified and is complementary to the existing support infrastructure.

The study is based upon **secondary and primary research**. The primary research involved online survey and semi-structured interviews for sectoral experts and water businesses, representatives of the European Union Member States based in India, relevant representatives and bodies of the Government of India at central, state and municipal level as well as research institutes and other relevant bodies from both India and the EU.

The key findings of the study that impact EU India business cooperation are as follows:

Context:

- **Water Scarcity:** 600 million people facing high to extreme stress of water.³
- **Water Pollution:** Approximately 70 % of the wastewater flows in the freshwater resources untreated, thus being one of the major sources of water pollution.⁴
- **Climate Change:** Climate change has a heavy impact on the hydrologic cycle, including extreme floods and droughts.⁵
- **Water Governance:** In India, water is being governed at three levels – at central, state and municipal level and is approached and represented by different governmental structures in each state - depending on the degree of water challenges of the state.

¹ Herein, EU water businesses are being defined as business entities of any size or legal form which operate within the water sector and are headquartered in one Member State (MS) of the European Union.

² A joint declaration by The Republic of India and The European Union (EU) on the India-EU Water Partnership (IEWP) has been undersigned on 30 March 2016, and undersigned as a Memorandum of Understanding on 7 October 2016, with the objective to strengthen technological, scientific and management capabilities of India and the EU in the field of water management on the basis of equality, reciprocity and mutual benefit.

³ Source: http://social.niti.gov.in/uploads/sample/water_index_report.pdf

⁴ Source: https://www.researchgate.net/publication/283620825_Water_in_India_situation_and_prospects

⁵ Source: <https://ndma.gov.in/en/disaster-data-statistics.html>

All innovative technologies should be used



Opportunities directly linked to the Priority Areas of the IEWP:

The mutually defined priority areas of the India Europe Water Partnership are as follows:

- Priority Area 1 (PR 1) – Sustainable River Basin Management
- Priority Area 2 (PR 2) – E-Flows
- Priority Area 3 (PR 3) – Ganga Rejuvenation (incl. cGanga Cooperation)
- Priority Area 4 (PR 4) – Groundwater Use
- Priority Area 5 (PR 5) – Water Use in Irrigation
- Priority Area 6 (PR 6) – Solar Pumping for Irrigation in RBPMs
- Priority Area 7 (PR 7) – Capacity Building
- Priority Area 8 (PR 8) – Treated Water Reuse
- Priority Area 9 (PR 9) – Research, Innovation, Technology



Within these areas, concrete potential for consulting projects and / or technology collaborations can be derived. Moreover, these priority areas can be underpinned by focused capacity building and research and innovation. Further, there are opportunities in the areas which are indirectly linked to the priority areas of IEWP such as drinking water, sanitation, water scarcity, hydro power, inland water ways and sustainable urban development.

To leverage these opportunities, it is important to translate such areas for business intervention into concrete project structures and models for collaboration in close cooperation with Indian counterparts. This also includes novel ways of project and company financing that can be supported by the IEWP. Further, the following challenges need to be taken into account:

Challenges:

Business opportunities are coupled with various challenges faced by EU businesses such as regulations and policies, Intellectual Property Rights (IPR) issues, limited access to relevant information for the mitigation of strategic and financial risks, cultural barriers, procurement (lowest bidding method) and the complex Indian market with heterogenous governance and regulation at state as well as municipal level.

Further, engagement modes like PPP models have been seen as disadvantage as they transfer all risks to private partners, involve unrealistic projections of cash inflows and agreements are perceived to be complicated.

Moreover, it is observed that especially for EU SMEs, the prevalent support infrastructure by their respective countries is fragmented and diverse - dependent on the respective economy's set-up and representation in India. While there are joint 'water calls' (between the European Commission and the Government of India) and bilateral schemes and programmes, there is no concentrated effort at the EU level to facilitate access to (pilot) projects in the Indian water sector.

Strategic Recommendations

On the basis of the outlined findings, strategic recommendations are being put forward for further discussion. In this regard, it is of great importance to highlight that all of these propositions are to complement the existing support infrastructure and efforts by the EU MS in the water sector and create additional value and benefits.

Moreover, it is intended to perceive the same as an effective means to foster cooperation among EU MS and jointly leverage but also shape the support that can be provided by the IEWP which takes on the



position of a catalyst for business involvement by playing a key role in the ecosystem for proof of concepts and projects.

Further, there are strategic recommendations that address the Indian Partners of the IEWP to take required actions.

Concrete Benefits for EU MS, EU SMEs respectively through knowledge sharing activities:

- **Increased competency through** annual programme of knowledge sharing sessions and workshops on project models, financing, transfer of technology, state investment opportunities, concrete pilot projects and potential consortia / cluster that can be formed at EU level, and other subjects.

Concrete Benefits for EU MS and EU SMEs respectively through project related activities proposed to be taken place by IEWP

→ **Guidance on project structuring for select municipalities in India:**

- Identify relevant projects with a focus on clean technologies and in alignment with the SDGs; compatible with/eligible for European financing.

→ **Viable financing models in consultation with Development banks, funds, NBFCs, and similar stakeholders will be devised:**

- Design overview (matrix) of different financing models apt for EU-India collaboration.

→ **Identification and creation of relevant project opportunities in IEWP priority areas:**

- Project opportunities in alignment with the priority areas will be mapped
- Relevant technology and consulting firms will be identified.
- To appoint one common nodal point of contact for ToT and other project related queries.

Both knowledge sharing and project related categories of activities shall be underpinned and strengthened by the following:

- **Updates and Feedbacks:** Regular updates on relevant IEWP activities and project opportunities as well as (Indian) policy information and research, investment, and sectoral data by means of the IEWP website/newsletter will be provided. Permanent channel for feedback of EU MS that shall be addressed at bilateral level (EU-India) rather than by individual EU MS
- **Cooperation with the EU India Water Cooperation on Research and Innovation:** Regular meetings to jointly work towards a systematic approach for assuring the closer engagement of multilateral business-research consortia and workshops on technology adaptation and innovation management.

Proposed Action Points:

In light of these recommendations, the following Action Points are being proposed:

IEWP to:

- sign Joint Expression of Intent with EU MS
- launch integrative website
- assure value addition through complementary support to EU MS
- give a mandate to a European organization to enable project-based collaboration
- define workplans for knowledge sharing and project related activities for EU MS
- assure to become a long-term initiative for improved collaboration frameworks through its own financial sustainability

Assuring IEWP to become a permanent tool for improved collaboration frameworks through financial sustainability:

The financial sustainability (long-term) of the IEWP shall be focused on to ensure its functioning as a sustainable catalyst for EU business involvement. IEWP can be supported by a closer alignment and



integration of existing activities by EU MS in the water sector (indirect contribution), as well as by the allocation of nominal EU budgets for the following efforts and activities for the advantage of all:

- ➔ EU-India delegations and exploration trips (initiation of business cooperation)
- ➔ Knowledge partners to support any EU water business with regard to its IP management and transfer of technology
- ➔ Neutral multilateral coordinator that helps identify and structure project and financing models for the benefit of EU businesses in the water sector.

Strategic Recommendations for the Indian Partners of the IEWP:

On the basis of the outlined findings, the following strategic recommendations are being put forward for further discussion to achieve improved support for the EU SMEs in the Indian water sector under the IEWP:

Consider segments which are indirectly linked to the priority areas

- ➔ Innovation Management: Co-creating opportunities for research collaboration with the help of water calls and other initiatives. This can be supported by enhanced engagements and cooperation with universities.
- ➔ Enhancing existing project-related frameworks for business engagement through:
 - Sourcing and Procuring innovative technologies
 - Guidelines for project models and frameworks that can lead to:
 - Proof of concepts
 - Increased awareness of project financing, project structures compatible with criteria of development bank / other financial institutions
- ➔ Translate policy into practice:
 - Appoint a nodal agency from the Ministry of Water Resources, River Development and Ganga Rejuvenation within the existing partnership structure (IEWP) which can help in project structuring and financing.
- ➔ Build capacity on project structures based on sustainable technologies as well as frameworks including:
 - Feasible structures which can mitigate risk, e.g. PPP and Quality and Cost Based Selection (QCBS)
 - Pilot projects
 - Innovative tender models and tendering innovation
 - Capacity building/ support in guidelines and frameworks
 - Well-structured project opportunities
 - Focused technology selection, introducing innovations
- ➔ Integration of various communication platforms in order to increase the knowledge and awareness of relevant aspects and data pertaining to the Indian water sector.

In conclusion, it is highlighted that the IEWP can become a key element for enabling the transfer of best practices and pave the way for increased business collaboration between EU MS and India. The growing water sector holds a broad range of opportunities for which especially EU SMEs need targeted support. This can be achieved by acknowledging that the uncoordinated multilateralism needs to be streamlined and reinforced by a stronger bilateral channel of communication (IEWP) that complements the existing efforts of individual EU MS, co-creates areas for (business) collaboration jointly with its Indian counterparts, and shares insights on both EU capabilities as well as requirements and demands of the Indian water sector as a bilateral convener. All of this is underpinned by the overarching objective of this partnership to actively contribute to a greener, more efficient, and more sustainable water sector.



1. Situation Appraisal

The first chapter strives to set the context by touching upon aspects of the Indian water sector that are relevant for the assessment of the India EU Water Partnership (IEWP) and its role to support the involvement of EU SMEs in the Indian water sector. Therefore, relevant key statistics, the main administrative bodies and important aspects relating to the water sector in India are being presented, followed by an overview of the IEWP, the mapping of the segments of the Indian Water Sector vis á vis the IEWP priority areas and the existing support infrastructure of EU business in India.

1.1 Key Insights of the Indian water sector:

- **Water Scarcity:** Nearly 600 million people are facing high to extreme water stress⁶, with per capita availability to 1721 cum per annum; the largest amount of water is consumed by the Agricultural Sector (80 percent) versus 6 percent by the Industry.
- **Water-Agriculture nexus:** As indicated above the agriculture sector is the major consumer of water in India. Inefficient irrigation methods like flood irrigation are practiced due to lack of awareness in the sector. Water and electricity are freely available, there are no groundwater abstraction regulations. Required reforms that could bring about more efficient use of water are difficult to implement and to enforce due to the lack of a participatory approach by local farmers that are resistant to change.
- **Water Pollution:** Almost 70% of the wastewater generated flows into the freshwater resources untreated; severe groundwater contamination through waste management issues, especially in urban areas and high content of fluoride, arsenic and uranium. 19 states are severely affected by high fluoride content in drinking water, and at least 10 states are suffering from arsenic contamination. In addition, the issue of open defecation and public toilets whose sewage is not treated (appropriately) lead to massive pollution of water resources.⁷
- **Climate Change:** Impact on the hydrologic cycle, including extreme floods and droughts. In last two decades, 500 million people in India got affected by droughts, 6,186 people by floods and 12,314 by cyclones⁸.
- **Water Governance:** 'Water' is being governed at three levels in India – at central, state and municipal level and is approached and represented in different governmental structures in each state - depending on the enormity of water challenges. The **complexity of water governance**, especially due to water governance bound to state boundaries and not river basins creates hinderances in fruitful planning, predictions and action with regard to key areas of the water sector in India.

⁶ Source: http://social.niti.gov.in/uploads/sample/water_index_report.pdf

⁷ Source: https://www.researchgate.net/publication/283620825_Water_in_India_situation_and_prospects

⁸ Source: <https://ndma.gov.in/en/disaster-data-statistics.html>



1.2 Relevant Government Initiatives

- Given that water is a state subject in India, the Central government's role is limited to the regulatory and strategy framework and intervenes in case of interstate river waters⁹. However, there are **various national programmes that are influencing the water sector advancements at the state and city level.**
- For **businesses, various government missions and initiatives** by other stakeholders **can be vital. Some of the initiatives** are mentioned in the table 1 below.

Table 1 Government Initiatives relevant with regard to the Indian Water Sector

Initiative	Areas Covered Relevant to the IEWP ¹⁰
Clean India Mission	Urban Development
Namami Gange	River Rejuvenation
National Project on Aquifer Management	Ground Water Use and Recharge
Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)	Water Use in Irrigation
Artificial Recharge and Rain Water Harvesting	Ground Water Use and Recharge, Solar Pumping Irrigation
National Water Quality Monitoring Programme	Blue Water Monitoring, River Rejuvenation
National Plan for Conservation of Aquatic System	Urban Development
Smart Cities Mission	Sanitation and Urban Development
Pradhan Mantri Krishi Sinchayee Yojana	Water use in Irrigation
Atal Bhujal Yojana (ABHY)	Water Use in Irrigation
AMRUT	Urban Development
Sagarmala	Urban Development

The above-mentioned initiatives (for details refer to Annex 1) and the available funding suggest a broad scope of opportunities for various businesses to work in the Indian water sector.

In order to advance a better understanding for the current landscape of projects in the water sector, multiple sources and points of information have been identified and consulted, as there is no central point for such information.

The Government has launched an initiative Namami Gange to rejuvenate Ganga with a funding of Rs 20000 crore. The total number of projects initiated under this programme are 254 which includes various sectors such as the sewerage infrastructure, modular sewage treatment plant, Ghats and crematoria, river front development, pilots and upkeep projects, Ghat cleaning, river surface cleaning and bio-remediation.

⁹ Source: <http://cwc.gov.in/main/webpages/statistics.html>

¹⁰ Refer Section 1.3 for the Priority Areas of IEWP



According to the National Mission for Clean Ganga, the Government is actively working towards restructuring of waste water treatment contracts and apply city wide contracts managed by one operator. Moreover, the National Mission for Clean Ganga, is starting the 'Environmental Technology Verification Process' for easy procurement and proof of concepts.

In 2018, the National Investment Agency 'Invest India' has launched a portal called India Investment Grid that strives to provide a comprehensive and consolidated pan India overview of investment and project opportunities across sectors by also integrating relevant information at municipality and industry level.

- According to the **India Investment Grid**¹¹ (as of October 2018):
 - there are 563 water projects listed that have been formulated at municipal level pan India, wherein 99% of those projects listed on this portal are public projects and only 1% are private projects.
 - The projects listed are divided into 2 categories:
 - sewerage – 223 projects and
 - water infrastructure – 340 projects;
 - the major mode of implementation of these projects is PPP, EPC and other modes of implementation (share being 53%, 9% and 39% respectively).
 - Given the recent launch of this platform, it can be assumed that more projects are going to be added on both the public and private side. Considering the numbers of projects in other sectors, e.g. Agriculture (184), Transport (1135), Chemicals (56), Education (90) and Energy (379)¹², it can be assumed that the level of activity in the water sector is comparatively high.
- In complementation to such project and investment information, the Ministry of Water Resources and River Rejuvenation (MoWR & RR) will launch a separate platform "**National Water Information Centre**" (NWIC) which is going to provide relevant sectoral data and information.
- For getting a more holistic overview on public projects at municipal level, it can be of help to take into account the conduciveness of states measured by their ease of doing business ranking (a new state reform exercise introduced by the Department of Industrial Policy and Promotion):
 - the top ranking states are: Andhra Pradesh at rank 1 followed by Telangana, Haryana, Jharkhand, Gujarat, Chhattisgarh, Madhya Pradesh, Karnataka and Rajasthan¹³.

¹¹ [Indiainvestmentgrid.com](http://indiainvestmentgrid.com)

¹² As of 05/10/2018

¹³ Source: <http://eodb.dipp.gov.in/>

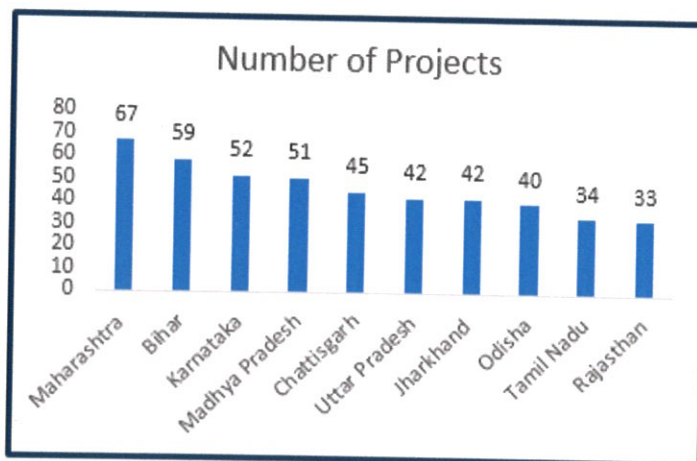


Figure 1 shows the statistics of the number of projects taking place in the waste and water sector in different states of India, Maharashtra being the location of most projects.

Figure 1 Number of water & waste projects in different states of India; Source: Invest India Investment Grid, 2018.

- Those states which have a great number of public projects (refer to figure 1) like Maharashtra, Bihar, Uttar Pradesh, Odisha and Tamil Nadu are not among the top-ranking states as per the state-level ease of doing business index.
 - The relevant conclusion here is that the level of on-site support and ease of doing business might vary from state to state.

1.3 Partnership (IEWP) as an Enabler for Business Cooperation

The IEWP has been designed in alignment with the characteristics of the water sector in India and the competency and capabilities of EU MS in relevant nine priority areas as part of the IEWP Action Plan. The nine priority areas are as follows:

- Priority Area 1 (PR 1) – Sustainable River Basin Management
- Priority Area 2 (PR 2) - E-Flows
- Priority Area 3 (PR 3) – Ganga Rejuvenation (incl. cGanga Cooperation),
- Priority Area 4 (PR 4) - Groundwater Use
- Priority Area 5 (PR 5) - Water Use in Irrigation
- Priority Area 6 (PR 6) - Solar Pumping for Irrigation in RBPMs
- Priority Area 7 (PR 7) - Capacity Building
- Priority Area 8 (PR 8) – Treated Water Reuse
- Priority Area 9 (PR 9) - Research, Innovation, Technology

The IEWP is an existing framework with a clear action plan and a good starting point to involve businesses from the EU. This framework has the technical and commercial know-how along with the knowledge on and access to the government-to-government dimension.

This partnership is taking place in phases wherein the first phase has already been completed (December 2015 and May 2017) and tackled preparatory actions that were aimed at providing a united EU interlocution on the Indian Government Clean Ganga flagship initiative. This is complemented by the National Mission for Clean Ganga Authority in India with its clear focus on Ganga. Further, this has paved the way for the present Action Plan (Phase 2). Some of the activities that have taken place so far include:

- A first workshop which was held in February 2018 (Pune) to identify the key water management issues of the Tapi River Basin to develop a river management plan, and thus set a more distinct focus on any further activities in this regard.
- Development of several activities to improve the data management on water quantity and quality in India including the development of a Blueprint background document and training focusing on the Cauvery river.

1.4 Overview of the Indian Water Sector Segments vis à vis the IEWP Priority Areas

Given the objective of the IEWP, it is important to understand various activities taking place in each of the priority areas.

- PR 1 is the key Priority for the Government of India and is an umbrella agenda that incorporates other PRs.
- PRs are interlinked and overlap in their sub categorisations.
- PR 7 and PR 9 are overarching and encompasses requirements for all PRs.

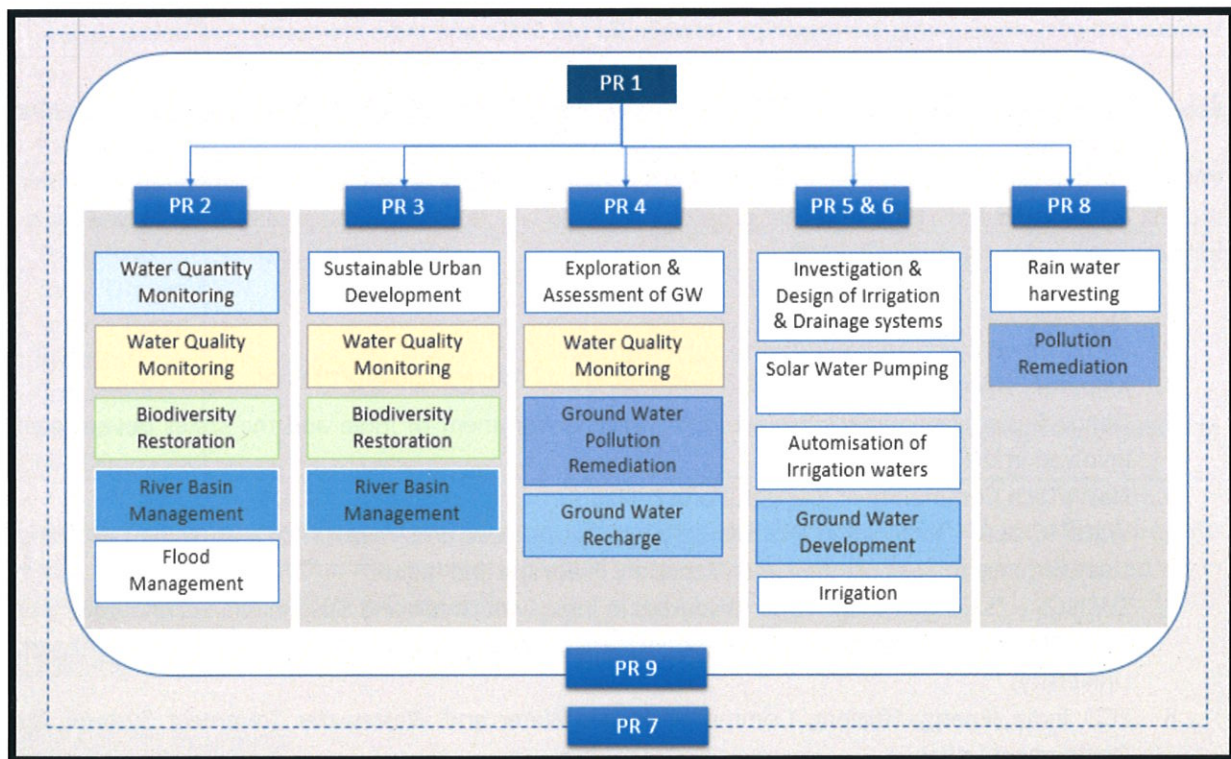


Figure 2. Overview of key segments of the priority areas under the IEWP



2. EU Member States and the Water Sector

The water sector in the European Union (EU) has undergone a radical reform since the mid-1970 following the evolution of the water legislation. Moreover, the **European Union has some of the world's highest environmental standards** and a **well-developed water sector** that includes approximate **9,000 active SMEs** and provides almost **500,000 full-time equivalent jobs in over 70,000 water services businesses**. The sector represents an **annual investment of over €33 billion** and a **turnover of €72 billion per year**. An increasing number of these businesses are interested in the global water market, and many businesses are able to provide solutions which not only fit European markets but also address Indian challenges¹⁴.

As far as the Indian market is concerned, it is observed that only a limited number of Member States have a sustained footprint in the sector through active engagements by businesses and other bodies. In terms of the present support infrastructure, for EU businesses larger EU economies have a more comprehensive set-up as compared to smaller Member States which in result affects the on-site support for businesses and their market entry and access to relevant information, partners, and focused support for SMEs.

It is also evident that especially smaller businesses profit from the support extended by their respective governments, while larger businesses operate in a more independent manner with a closer link and interdependency with private service providers and partners.

Various projects, agreements, partnerships between EU MS SMEs and India are mentioned below (2.1.):

2.1. List of water projects (recently completed/ on-going) in India with leading EU MS water businesses

With the active existing involvement of the EU MS businesses, some of the recently completed, i.e. within the last 4 years, and / or on-going water projects in India in which EU businesses were/ are involved are as follows:

1. EU- Rajasthan State Partnership
2. Hydrology Project, Andhra Pradesh
3. Kalpasar Project
4. Ganga Basin Management Project (with Union government of India and the states government involved in the Ganga basin).
5. NaWaTech Community of Practice, Pune & Nagpur
6. Water4Crops – "Integrating Bio treated Wastewater Reuse and Valorisation with Enhanced Water Use Efficiency to Support the Green Economy in Europe and India".
7. SWINGS – "Safe-guarding Water Resources in India with Green and Sustainable Technologies", or EU and Indian coordinator of the project are AIMEN Technology Centre and AMU (Aligarh University)
8. ECO India (Energy-Efficient, Community based Water and Wastewater Treatment Systems for Deployment India)
9. SARASWATI, Madhya Pradesh

¹⁴ Source: https://www.eip-water.eu/sites/default/files/EU_per_cent20BROCHURE_per_cent20_per_cent28WATER_per_cent29-REV2BR_per_cent2813-12-2016_per_cent29.pdf



2.2 Municipal & Industrial Private Water Projects in IEWP Areas

Besides of public projects, there are also a range of **private water projects** which are to some extent aligned with the IEWP priority areas and are executed by NGOs, trusts, large corporates, water bodies, financial institutes, and others. Some of the projects are as follows:

Table 2 Exemplifying, non-exhaustive list of recently completed/ on-going private water projects

Private Stakeholder	Projects	IEWP Priority area
Art of Living Foundation	- Vedavathi, Kumudavathi & Palar River Rejuvenation, Karnataka - Manjara River Rejuvenation, Maharashtra - Water body revival projects in various districts of Maharashtra, Karnataka, Uttar Pradesh, Tamil Nadu, Delhi	PR1-Sustainable River Basin Management
IndusInd Bank Ltd	- Jalyukt Shivar Abhiyan programme with projects aiming to make Maharashtra a drought-free state by 2019	PR1-Sustainable River Basin Management
Ankita Construction & Xylem	- SEHORE, Waste Water Treatment Plant	PR1 – Sustainable River Basin Management PR8- Treated Water Reuse
We Are Water Foundation	- Solar powered irrigation project, Andhra Pradesh	PR6 – Solar Pumping for Irrigation in RBPMs
Jain Irrigation	- Ramthal-Marol Integrated Micro Irrigation Project in Karnataka	PR4 – Groundwater Use
Tata Trusts	- Tata water mission	PR4 – Groundwater Use
The Dhundi Solar Pump Irrigators' Cooperative Enterprise (SPICE)	- Solar Irrigation Projects	PR6 – Solar Pumping for Irrigation in RBPMs

As an overall feedback emerging from interviews with relevant stakeholders in this field, including European MNCs, it became evident that the segments in which various private projects are being implemented are in close alignment with the IEWP priority areas.

2.3 Bilateral agreements and partnerships

Joint Call for Proposals

- EU-India Water Cooperation on Research and Innovation under which a joint call for proposals was launched in 2017- 2018 (hereinafter referred to as 'Water Call') addressed to business-research consortia at both national and international levels aiming to establish a multilateral approach towards excellent research resulting in innovative and affordable solutions on the following key areas within the subject of water in both rural and urban areas:



- (i) Drinking water purification with a focus on emerging pollutants;
 - (ii) Waste water treatment, with scope for resource/energy recovery, reuse, recycle and rainwater harvesting, including bioremediation technologies;
 - (iii) Real time monitoring and control systems in distribution and treatment systems.
- **Budget:** EUR 30 million, co-funded by the European Commission (Horizon2020) and the Indian Department of Science and Technology (DST) as well as the Indian Department of Biotechnology (DBT)

With the immense potential in the Indian water sector and the potential of the EU businesses to enter the Indian water sector, it is to be noted that, a major part of the support infrastructure for the EU business in the Indian water sector is formed by the bilateral agreements and partnerships between India and the EU countries. These are the frameworks through which business ties can be formed, leveraged, and enforced more easily. Keeping in mind the available platform to enter the Indian water sector, various EU businesses can enter the Indian water sector with the help of various financial engagements and modes described in Chapter 3. An indicative selection of the bilateral frameworks are listed in Table 3.

Table 3. Selection of Bilateral Frameworks

Frameworks	Countries
Indo French Water Network (IFWN)	India - France
Indo German Water Partnership	India - Germany
G-20 – strategic partnership	India - Germany
Dutch Indian Water Alliance for Leadership Initiative	India - Netherland
India Danish MOU on Water	India - Denmark
India British MOU on Water	India - UK
Horizon 2020	India - European Commission
C-Ganga	India - Austria Cooperation India - United Kingdom Cooperation India - Finland Cooperation India - the Netherlands Cooperation

Other bilateral cooperation:

- There are various strong and active bilateral cooperation at Government-to-Government level between India and foreign countries including Australia, the EU (India EU Water Partnership), Hungary, Israel, the Netherlands, Spain and US.
- Some of the projects are well aligned with the priority areas as identified under the IEWP. The below list comprises some of the existing partnerships and the initiatives taken by various member states in various water projects in India:



1. Tannery Project in India for Clean Ganga – the Netherlands
 2. Project Barapullah Drainage Canal – the Netherlands
 3. Aquanes – Germany
 4. Yamuna River Project clean up (ideation stage: not yet conceptioned) – Spain
 5. Indo-Dutch Water Corporation – the Netherlands
 6. Sustainable Urban Development Programme & Smart Cities – Germany
 7. Sustainable Management of water resources in Ganga basin - UK
 8. Water Future India – Germany
 9. National Mission for Clean Ganga – Germany
 10. TECO – Italy
 11. Italy-India Research and Development (R&D) Projects – Italy
 12. Danish Water Forum – Denmark
- The detailed overview of the projects with their alignment to the priority areas is mentioned in Annex 2.
Therefore, the given list of ongoing projects suggests various opportunities in the Indian water sector in alignment with the priority areas.

2.4. Supporting Platforms and Networks for EU Businesses in the Indian Water Sector

Besides of Member States and their respective support ecosystems for businesses, such as bilateral chambers, business member organisations, and related bodies, as well as private service providers, another important part of the support infrastructure for EU businesses is formed by platforms and networks.

- **Bilateral agreements and partnerships**, e.g. in the form of a **water-centric Memorandum of Understanding (MoU)** can be defined as a *tool* through which business ties can be formed, leveraged, and enforced more easily.

- Selection of relevant platforms for EU water businesses:

The details of the platforms below are mentioned in **Annex 4:**

1. Water Supply and Sanitation Technology Platform (WssTP) – Water Innovation Europe
2. Europe Innovation Platform (EIP) - Water
3. Water Efficiency in European Urban Areas -- WE@EU
4. Water Information System for Europe (WISE)
5. EURAE
6. European Water Partnership (EWP)
7. European Water Association (EWA)
8. European Enterprise Network (EEN)

3. EU MS and businesses in the Indian Water sector

The EU MS are involved in the Indian water sector following various project structures, financing and models. The details of the same are described in the following sections.

3.1. Applied Project Structures and Business Models

Given the scope and opportunities in the Indian water sector, there are different kinds of structures and business models that are followed by the EU MS businesses to enter the Indian water sector - all of them having their own advantages and disadvantages.

- According to the information gained through interviews with representatives of the EU MS and business surveys, the most common legal form of operation of EU water businesses in India are **private limited companies, mostly subsidiaries**, and their most popular structures and business set-ups as illustrated in Figure 3 below.
- The second option is through **Partnerships and Joint Ventures**.

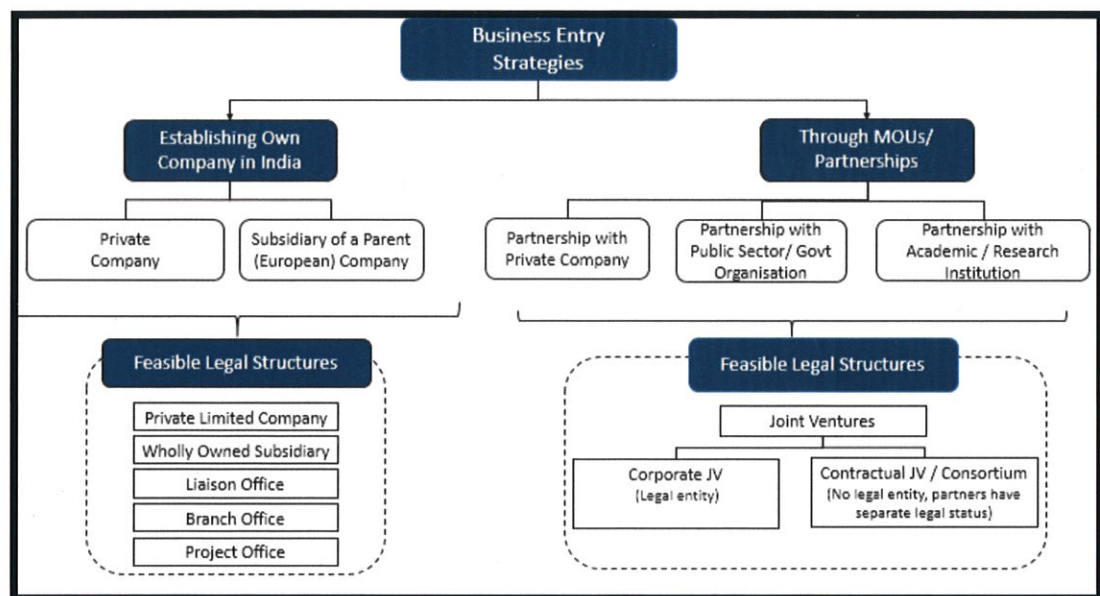


Figure 3 Business Entry Strategies

3.2. Modes of Engagement and Financial Models

The modes of engagements can be manifold, however, in India, **mostly they are through competitive bidding**, especially if dealing with government organisations or large businesses. The engagement modes are illustrated in Figure 4 and discussed thereafter.

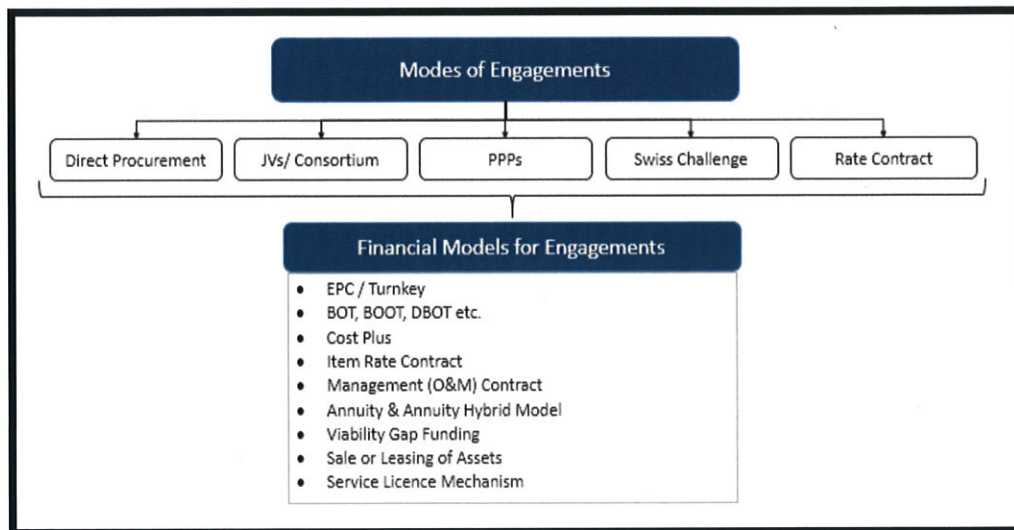


Figure 4 Modes of Engagement and their Financial Models

1. Direct procurement of the goods/ services from EU businesses without competitive bidding:

- This is a straight forward engagement.
 - Possible when there is monopoly of an EU company - there is no competition and have exclusive rights (IPR) to the product or services.
 - Also possible in cases where EU businesses are interacting with SMEs, where competitive bidding is not the norm.

2. Consortium or Joint Ventures (JV) with an Indian partner

- This is a popular engagement mode - effective framework and model for EU businesses in India due to creation of highly customised, localised, and cost-effective solutions by combining the know-how and local network of Indian partner(s) with EU niche expertise in terms of the respective technology and/ or expertise.
 - Joint Ventures are generally characterized by shared ownership, shared returns and risks, and shared governance,
 - While in consortia partners divide the scope, and work as separate legal entities bound by an agreement, the brunt of responsibilities and liabilities generally rests on the lead partner.



3. Public-Private Partnership

This is quite common in India – a mature framework is the most useful tool together with governments to facilitate private investment into infrastructure. India has systematically rolled out a PPP programme for the delivery of high-priority public utilities and infrastructure and, over the last decade or so, developed what is perhaps one of the largest PPP Programmes in the world.¹⁵

- PPPs are long term contracts between the Government (sponsoring authority) and a private company that may typically provide for financing, construction, operation, and maintenance under a single firm or a consortium.
- It is generally advised to adopt a suitable PPP framework in case of large and complex projects that can justify the associated transaction and monitoring costs and thus provide value for money considering the project's life-cycle cost to the Government.
- In the water sector, PPPs in India are generally seen in Industrial water and wastewater management, hydro power, sewerage systems, and solid waste management. However, these attempts have largely not achieved outcomes due to absence of adequate water governance and pricing regimes in most cases.
- Under the Namami Gange programme which is one of the key ongoing projects of the Government of India, the government has approved the hybrid annuity based public private partnership model. In this model, part of the capital investment (upto 40%) will be paid by the Government through construction-linked milestones and the balance through an annuity over the contract duration up to 20 years.

4. Swiss Challenge

- This is a unique engagement mode to award Government contracts to private players - approved by the Supreme Court of India in 2009 and has been used by many states of India for unique and innovative proposals from private sectors for infrastructure development.
 - Once the evaluation work is completed by government officials and if the proposal is considered suitable, then the government announces competitive bidding for counter proposals, the so called "Swiss Challenge".
 - If during the competitive bidding there is a superior proposal, the proposal initiator would be given an opportunity to match the competing counter proposal within a stipulated time-frame and be selected as the project concessionaire. If the Proposal Initiator declines to match the superior counter proposal, then the applicant that has made the superior proposal would be selected as the concessionaire and the proposal initiator is liable to get reimbursement as a part or the whole of the development costs.

¹⁵ www.pppinindia.gov.in has been developed by the Department of Economic Affairs (DEA) to provide key information related to PPP initiatives in India



5. Rate Contract

- It is a form of engagement where Government or large organisations enlist businesses for selling goods at a fixed rate.
 - It is an agreement between the purchaser and the supplier for supply of specified goods (and allied services, if any) at specified price and terms & conditions (as incorporated in the agreement) during the period covered by the Rate Contract
 - In view of the Government e-Marketplace (GeM) coming into operation, Rate Contract will be applicable for specialized and engineering items, sophisticated equipment and machinery, IT Products and OEM and ancillary spares.
 - It may also include alternatives such as hiring/ hire-purchase/leasing of heavy equipment or acquiring the functionality as a service, works and services like installation, commissioning, training, prolonged trials, warranty, after sales services like post-warranty maintenance and assured availability of spares.
 - These generally includes goods & services of which prices are likely to be stable over the contract period.
 - EU businesses through JVs (Indian Partners) can see this as an opportunity to establish their niche expertise/ market on specialised engineering products & services, to be available to many across India.

The **pros and cons** of the above discussed engagement modes are discussed in the **Annex 3.1**.

4. Sectoral insights – Potential opportunities

4.1. Directly Covered by IEWP

Table 4. Potential opportunities directly in alignment with IEWP priority areas

Trend	Area of business intervention	Potential opportunities
<ul style="list-style-type: none"> • High demand for water in irrigation in agriculture 	<p>Resource efficient Irrigation</p>	<ul style="list-style-type: none"> • Solar powered smart irrigation system; solar water pumps for efficient irrigation • Solarization of tube-wells and lift irrigation projects • Dam automation, flood control systems and micro irrigation

<ul style="list-style-type: none"> Rise in arsenic and other radioactive substances like uranium contamination in the aquifer 	<p>Ground water quality management</p>	<ul style="list-style-type: none"> Artificial recharge techniques, Technologies for removal of arsenic Standard setting for uranium
<ul style="list-style-type: none"> Increased water pollution by industries due to extending industrialization pan-India 	<p>Cleaning and rejuvenating of rivers and tributaries</p>	<ul style="list-style-type: none"> Waste water treatment segment including micro filtration, waste water treatment plants, and 3R models (reduce, recycle, reuse). Ganga and its tributaries .
<ul style="list-style-type: none"> Weakened river ecosystem through increased water pollution 	<p>Environmental-Flows (E-Flows)</p>	<ul style="list-style-type: none"> Geophysical Investigation techniques Remote sensing data technology Efficient method of irrigation, reuse and recycle of water including monitoring and regulation of groundwater withdrawals for reducing water withdrawal from Rivers like Ganga

4.2. Indirectly Covered by IEWP

Table 5. Potential opportunities indirectly in alignment with IEWP priority areas

Trend	Area of business intervention	Potential opportunities
<ul style="list-style-type: none"> Growing drinking water scarcity and contamination of water in distribution systems 	<p>Drinking Water</p>	<ul style="list-style-type: none"> Wastewater treatment solutions Water use and re-use technologies Pricing of water
<ul style="list-style-type: none"> Lack of sanitation facilities leading to open defecation problem Maintenance of existing infrastructure 	<p>Sanitation</p>	<ul style="list-style-type: none"> Relevant technologies: off-grid and / or mobile sanitation solutions / Sensor technologies for sanitation
<ul style="list-style-type: none"> Increased urbanization and industrialization 	<p>Sustainable Urban Development including coordinated urban growth</p>	<ul style="list-style-type: none"> Remote sensing, Geographic Information System (GIS) High-tech monitoring systems (for urban traffic, infrastructure, disaster mitigation, etc.) for a real time data, computerized land records Urban planning including waste and water management



<ul style="list-style-type: none"> Rising complexity in water management due to growing population and climate change 	<p>Scientific water resource assessment and planning - Water accounting</p>	<ul style="list-style-type: none"> Geophysical Investigation techniques Virtual water accounting
<ul style="list-style-type: none"> Increase in demand for decentralised, renewable energy sources to 225 GW by 2022. India is endowed with hydro-potential of about 2 50 000 MW. 	<p>Hydro Power</p>	<ul style="list-style-type: none"> Research and development of new ocean, wave, and hydrokinetic technologies Dam automation and retrofitting Pump storage, regulation of transmission network, and retrofitting of hydro plants
<ul style="list-style-type: none"> Increasing demand for multimodal logistics (India has about 14,500 km of navigable waterways comprising of rivers, backwaters, canals, creeks etc.) 	<p>Inland Waterways</p>	<ul style="list-style-type: none"> Consultation for increase in domestic cargo transportation as well as for cruise, tourism and passenger traffic. Night navigation facilities Port modernization in form of green ports Holistic planning of multimodal logistic plans

5. Insights on key aspects impacting collaborations

Apart from the crucial points mentioned in chapter 1 such as the water agriculture nexus, increasing water pollution and climate change, other critical areas for intervention include:

5.1. Governance and regulation

- Heterogenous governance and regulation at state as well as municipal level:

- While the Central Government is the driving force for putting in place holistic frameworks, national programmes including funding, action plans and schemes, the implementation of actual measures has to be done at state level. Eventually, concrete projects are majorly formalized and realized at the municipal level. Administrative (state) boundaries can limit holistic planning and execution and the resolution of water conflicts.

- Limited access to relevant information:

- Keeping in mind that the Indian water sector is strongly driven by the public sector, related 'market intelligence', i.e. information on the dynamics of the public sector, becomes essential for businesses. However, for an EU company, the information on relevant departments, boards and authorities as well as project owners might not be accessible easily.



- There are multiple different government functionaries dealing with water in different states, EU businesses and even EU MS face the challenge of identifying and being able to meet the right stakeholders.
- Link of water sector with different industries:
 - Another challenge constitutes the link of the water sector with the agriculture and waste sector and its interdependence with several industries, e.g. the textile, chemicals, tannery, and pharmaceutical industry whose waste and waste water are polluting the rivers. The **high complexity** stems from policies, administration, monitoring, controlling, enforcement plans across different states.
- Complex Indian Market:
 - While India as a market has become more conducive for foreign businesses due to various reforms and government initiatives from 2014 onwards, having also positively affected FDI policies, our survey among European businesses and stakeholders shows that India is yet perceived to be a relatively complex market due to the following perceptions:
 - Transparency in regulations
 - Long-term perspective leading to no or low Return of Investment (ROI) in the initial 5-10 years due to high level of adaptability (products/ services/ technologies), administrative challenges, and cultural barriers in combination with lack of information hindering market access / development
 - Slow legal enforcement in general and Intellectual Property Rights in particular
 - Procurement processes; wherein financial bids selected according to lowest price (lowest price models)

These outlined points apply to any sector and are hence to be factored into the strategic approach of the IEWP, too, especially with regard to smaller businesses.

5.2. Project-related challenges

- Challenges with procurements in India
 - One of the common challenges EU businesses face is procurement in India due to the price competitiveness and showcasing a proof of concept.
- Challenges with the project financing models such as tenders and other risks
 - One of the most common ways to finance projects includes tenders which are very competitive in price in India. Unlike in the EU, the Indian market will not pay a premium for environment related



projects and the same applies to innovative technologies. There is though untapped potential of funds through development banks and financial institutions. India is a volume market and the technology/solution providers must establish a base in India in order to capitalise on the opportunity. Therefore, financial risks, intellectual property right risks, other project related risks and technology transfer remains a crucial hurdle and demonstration projects are required before getting access to Government or other project sponsors. Therefore, a holistic planning from a project point of view is a challenge.

- **Challenges with regard to PPP models:**

- PPP models have the disadvantage of transferring all risks to private partners along with unrealistic projections of cash inflows, variation in profits depending on the risks, and agreements which are complicated and comparatively inflexible
 - On the Indian side, there is the challenge of structuring viable project models under PPP in new areas like water

5.3. Inclusion of SMEs

- **Heterogenous support for EU MS businesses:**

- The support for EU MS businesses, also in the water sector, is highly heterogenous dependent on a set of parameters, such as the support provided by individual MS respectively. Bilateral agreements and programmes in some cases can be the driving force for enabling more EU businesses in this space to enter the market.

- **Insights on existing relevant point of contacts:**

- A challenge for EU water businesses is to first of all gain an overview of existing points of contacts and related support in terms of programmes, projects, bilateral calls, advisory, delegations, and other initiatives.
- What is more, also the Indian side faces the challenge of interacting with different individual Member States and at the same time with EU stakeholders on the same topics, leading to a complexity that starts right at the initial phase of engagement.

- **Lack of cooperation between MNCs and SMEs, Indian businesses and SMEs and among SMEs:**

- There is lack of cooperation between the MNCs and SMEs which can allow for wider tender/ i.e. consortia structures covering a holistic value chain and increasing each other's competitiveness. Moreover, there is lack of cooperation between Indian businesses and SMEs and lack of cross border cooperation between SMEs.



6. Recommendations

The following recommendations are based upon the analysis of key findings resulting from primary research and framed in a manner which reflects the internal nature of this study.

6.1. Recommendations towards increased involvement of EU stakeholders under the IEWP

Here an overview of all ACTION POINTS proposed:

- sign Joint Expression of Intent with EU MS
- launch integrative website
- assure value addition through complementary support to EU MS
- give a mandate to a European organization to enable project-based collaboration
- define workplans for knowledge sharing and project related activities for EU MS
- assure to become a long-term initiative for improved collaboration frameworks through its own financial sustainability

Strategic positioning of the IEWP in the existing EU Member State ecosystem in India:

1. IEWP - A Catalyst for EU SMEs' Involvement

To ensure increased business involvement under the partnership, it is recommended that the IEWP should always be complementary to the EU MS in order to improve collaboration frameworks together with Indian counterparts. The IEWP can create joint action groups for MS interested in clubbing value propositions. Joint Expressions of Interest can help consolidate common interests of EU Member States (EU MS) at government level through the IEWP and can comprise of the following implications:

- **the IEWP is neutral platform where feedback** on bilateral frameworks (EU-India) can be shared and conveyed on behalf of all IEWP members
- **the IEWP can document and support** in defining strategic priority areas of Indian stakeholders from Government and private sector to manage expectations from European counterparts
- **The IEWP to be a tool to Increase visibility and outreach (IEWP website/ events/ delegations/ workshops)**
- **The IEWP to convey information on areas of intervention for businesses(PR)**
- **The IEWP to hold Webinars/ events** in cooperation with select partners, such as WssTP
- **Knowledge Sharing Activities via Workshops** for EU governments and businesses on various topics as mentioned in Figure 5.



Figure 5 Knowledge Sharing Activities

(see Annex 5 for details for knowledge sharing activities and its timeline)

2. IEWP - The Ecosystem for Proof of Concepts and Projects

Establish nodal **point of contact** by giving **mandate to a European body** which **shall enable project-centric collaboration** between EU businesses and Indian partners and **identify challenges at municipal level** on behalf of the IEWP and its members:

- **Identify viable project opportunities** within priorities areas
- **Help select relevant businesses and clusters** for initiatives under the IEWP
- **Build capacity** on project structuring
- **Customized model for syndicated financing and other co-funding models** as well as **CSR funds**
- **Map and analyse (successful) bilateral MoUs** on the topic of water and discern insights from those, resulting into a format / framework for future cooperation agreements that can be adopted by other EU MS
- **Involvement of academia** at project definition stage to address issues related to adaptability and sourcing innovation and further integrate the research and innovation related initiatives with business opportunities.
- **Focus on building SME and MNC engagement platform/ cluster** by consolidating and creating joint value propositions.
- **Build a multi-stakeholder platform** for tapping CSR funds, start with large European businesses in India and co create a pool for such fund together with Indian counterparts, NGOs, development organisations. This will enhance the value proposition for businesses and lead to on site projects.



Figure 6 Project Related Activities

(see Annex 6 for overview of project related activities and its timeline; see Annex 7 for restructure of priority areas)

3. The IEWP Platform – Nodal Point for Relevant Information and Contacts

- **Launch a website** where relevant information is gathered as well as links to important platforms on both the EU and Indian side are linked
- **Upload regular updates** by individual EU MS
- Active **participation at relevant meetings**, organising **regular feedback sessions** and sharing regular updates, e.g. **Newsletters**

4. Financial Sustainability of the IEWP for Continued Business Support

- **Indirect contributions:** Considering the clear benefits for EU MS and high degree of alignment, it is proposed to more actively integrate existing initiatives and programmes under the IEWP, on both the Indian and EU side, and add concrete value through IEWP's support without diluting any national interests, but by reinforcing them through an extra EU support layer in terms of knowledge and access.
- **Direct contributions:** Additional, it can be explored whether EU budgets can be allocated for the support of EU business in the water sector for the following:
 - EU-India delegations and exploration trips/study trips
 - Knowledge partners to support any EU water business with regard to its IP management and transfer of technology
 - Neutral multilateral coordinator that helps identify and structure project and financing models for the benefit of EU businesses in the water sector



6.2. Recommendations for Indian private and public sector stakeholders

1. Prioritisation and contextualisation of select opportunities:

Considering the focus areas of the Government of India and the demands of the sector respectively, the following shall be prioritized:

- **Priority Areas:** Considering the nine priority areas that were jointly defined by the Indian and EU Government, the following areas of business intervention can be tackled on a priority basis:
 1. **Hindon river, Tapi basin, Ganga and its Tributaries including the following:**
 - Waste Water Treatment
 - River Rejuvenation
 - River Basin Management
 - E-Flows (River Ecosystem)There are 150 Urban local bodies along the Ganga river and its tributaries. Moreover, with the increasing water pollution, pollution prevention at state level will become relevant.
 2. **Additional areas for collaboration:** Apart from the IEWP priority areas, the following segments within, related to the water sector, can also be considered for collaboration: drinking water, sanitation, sustainable urban development including coordinated urban growth, hydro power and inland waterways.

2. Co-creating opportunities:

Research Collaboration:

- **Innovation Management:** Joint Research and Development projects with strong emphasis on applied research and business projects (Bilateral 'Water Call' under Horizon 2020: existing initiative between the European Commission and India (Department of Science and Technology (DST)/ Department of Biotechnology (DBT) | Ministry of Science & Technology).
- This should be supported by enhanced engagements and cooperation with **Universities**. Pilot projects emerging from such initiatives could be scaled up under the IEWP

3. Enhancing Existing Project Related Frameworks for Business Engagement

- **Sourcing and Procuring innovation technologies: Supporting alternate models to the 'Least cost tender models'** to allow for the tendering for innovation including premium technology
- **Clearly defined guidelines for project models and frameworks** to be developed jointly with Indian and EU partners.
- **Proof of concept:** Supporting and creating mechanisms for proof of concepts, enabling Indian counterparts to adapt EU technologies.
- **Project financing: Structures or components not compatible with criteria of development bank / other financial institutions:** Increased awareness through regular interactions among project, financing, and technology stakeholders for enhancing the mutual accessibility to the prevalent scope for collaboration.



4. Translating policy into practice:

- In addition to the existing partnership structure (IEWP), a **nodal agency from the Ministry of Water Resources, River Development and Ganga Rejuvenation should be appointed** which can cooperate with a nodal European body that can support the partnership in terms of business involvement.
- To work towards an increased number of projects including EU-India collaborations the appointed bodies can:
 - **Build capacity on project structures** based on sustainable technologies as well as frameworks including:
 - Feasible structures which can mitigate risk e.g. PPP and Quality and Cost Based Selection (QCBS)
 - Pilot projects
 - Innovative tender models and tendering for innovation: Identification of possibilities for creating innovative tender models which are not in place yet and work towards adaptation of such models in close coordination with the IEWP and the EU countries
 - Defining and exploring multiples models and structures based on specific demand and scope for **syndicated financing and other co-funding models.**
 - Co-create frameworks for enhanced engagement of business and adaptation of technologies and innovations by translating policy into practice referring to **concrete case studies/best practices** that are gathered by the European body from the EU MS and businesses leading to:
 - Capacity building/ support in guidelines and frameworks
 - Well-structured project opportunities
 - Focused technology selection, introducing innovations
- **Integration of various communication platforms:** In order to increase the knowledge and awareness of relevant aspects and data pertaining to the Indian water sector, it is suggested to link the NWIC website with the IEWP website which will be a nodal interface for EU-India collaboration in water also comprising of case studies, project information, FAQ's on procurement, event updates, access to water-specific member networks and dedicated contact persons of the IEWP. This will make the engagement process conducive.

7. Conclusions

India has already surpassed the Chinese economy and is projected to continue to be the fastest growing economy globally until 2021¹⁶. By launching Make in India, the Smart Cities Mission, AMRUT, the Clean India Mission, Namami Gange and many other national level programmes, India has created new opportunities at global level. India's transformation is triggering growth and is leading to a massive need for basic services, infrastructure and more efficient and sustainable solutions for the agricultural and industrial sector where water and energy are prime requirements.

While the water sector has progressively developed and brought about various large-scale concepts and initiatives for concrete projects, the actual economic dimension of this sector is yet to be revealed when such initiatives by the Government of India and its related bodies become visible by means of an increasing

¹⁶ Department of Industrial Policy and Promotion, Ministry of Commerce and Industry, GOI



amount of both public and private projects that are now being initiated. New policies and focused measures not only reflect the complexity and interdependency of the water sector, but also indicate this enormous economic potential.

Empowered multilateralism through a stronger bilateral (EU-India) channel (IEWP)

Due to the EU's own history and technology development, the EU holds a rich portfolio of best practices and innovative technologies that particularly cater to the requirement of **implementing greener, more sustainable, and holistic solutions in the water sector**. However, at the same time, the EU, as a natural partner to India, presents itself fragmented as its Member States position themselves in different kinds of areas with different capabilities and scales. This uncoordinated multilateralism creates a challenge for Indian counterparts as certain objectives are additionally being pursued at an EU-India level.

Therefore, the IEWP can become an active and mitigating player that reinforces a more coordinated multilateralism by creating a stronger platform at EU-India level. The latter is crucial to create a higher degree of awareness and transparency for key areas and capabilities of individual EU MS in relation to the Indian water sector. Thereby, the IEWP becomes a convener that not only reinforces the interests of EU MS but also helps to consolidate and empower the G2G discussions and interactions at an EU-India level that is well informed about the Indian water sector and its strategic as well as operational development.

Catalyst for collaboration through coordinated G2G engagements

Moreover, by being a bilateral partnership body that streamlines such communication and at the same time co-creates activities jointly with the Indian government and its stakeholders, common challenges as well as (areas of business) opportunities can be addressed and tackled in a more synergetic manner and solutions or agreements made in silos from each other can be avoided.

In this way, the IEWP becomes a steering catalyst for EU business involvement and increased collaboration as its activities can be designed in accordance and alignment with the EU MS existing schemes and endeavours as well as India's priority areas and demands.

Catalyst for collaboration through focused SME support

In this regard, it shall be highlighted that EU based multinational corporates have been operating in India and collaborating with Indian partners for decades, and in some cases even centuries, however smaller businesses still find it difficult to enter the Indian market due to various reasons, such as price-sensitive tendering procedures, lack of viable financing models, competitive pricing, IPR issues, decentralised support for the EU businesses by the EU MS, distributed water governance accompanied by data unavailability, and many more. The IEWP can prove to be one of the key enablers to achieve a better, that is more comprehensive, support particularly for EU SMEs in the water sector in close cooperation with their Indian counterparts by following a project-centric approach, based on actual demands. The proposed activities in chapter 6, summarized in 6 concrete action points, can be referred to for concrete measures in this regard.

It is expected that the IEWP will create an encouraging business ecosystem enabling the Government and private sector in India as well as EU MS and EU businesses to work in tandem towards a common goal of effective water management leading to overall economic development and a 'greener' economy.

Annex
Annex 1

Various Government initiatives - directly and / or indirectly linked to Water

Initiative	Overview
Clean India Mission	Implement cutting-edge municipal solid waste management, eliminate open defecation and augment the capacity of Urban local Bodies.
Namami Gange	Rejuvenation of the Ganges river by improving its water quality, pollution level, biodiversity and environment
National Project on Aquifer Management	The aquifer mapping program launched in February 2016 by Central Ground Water Board is important for planning suitable adaptation strategies that of ground water management through community participation
Kisan Urja Suraksha evam Utthaan Mahabhiyan (KUSUM)	This scheme was announced in the Union Budget in 2018. The scheme provides for 17.5 lakh off grid solar pumps to begin with. The Indian farmer will effectively bear only 10 percent of cost for solarising his agricultural pump under a scheme unveiled in the Budget 2018-19.
Artificial Recharge and Rain Water Harvesting	The Central Ground Water Board (CGWB), a subordinate office under the Ministry of Water Resource, River Development and Gang Rejuvenation has undertaken the Demonstrative Rain Water Harvesting and Artificial Recharge Projects during XI Plan under the Scheme of "Ground Water Management & Regulation" in priority areas. During the XI Plan, CGWB has received 298 project proposals from 25 States, out of which, 133 demonstrative recharge projects costing Rs.99.87 crore were approved for construction of artificial recharge structures in 22 States. Water being a State subject, necessary measures are being undertaken by the State Governments for rainwater harvesting and artificial recharge to ground water.
National Water Quality Monitoring Programme	The Central Pollution Control Board (CPCB) has established a network of monitoring stations on aquatic resources across the country. The present network comprises of 2500 stations in 28 States and 6 Union Territories spread over the country. The monitoring network covers 445 Rivers, 154 Lakes, 12 Tanks, 78 Ponds, 41 Creeks/Seawater, 25 Canals, 45 Drains, 10 Water Treatment Plant (Raw Water) and 807 Wells. Among the 2500 stations, 1275 are on rivers, 190 on lakes, 45 on drains, 41 on canals, 12 on tanks, 41 on creeks/seawater, 79 on ponds, 10 Water Treatment Plant (Raw Water) and 807 are groundwater stations.
National Plan for Conservation of Aquatic System	It was launched by the UPA government in 2013 by merging 2 schemes: National Lake Conservation Plan (NLCP) and National Wetlands Conservation Programme (NWCP) to run a single integrated programme for 12th Plan. The principal objective of this scheme were holistic conservation and restoration of wetland and lakes for achieving desired water quality and enhancement besides improvement in biodiversity and ecosystem.
Smart Cities Mission	Various projects on urbanisation, transportation, technology management, water initiatives. Smart Cities Mission are aimed at realising the government's ambition of bringing the quality of India's water supply and sanitation to a level currently enjoyed by developed economies.
Pradhan Mantri Krishi Sinchayee Yojana	It has been formulated with the vision of extending the coverage of irrigation 'Har Khet ko pani' and improving water use efficiency 'More crop per drop' in a focused manner with end to end solution on source creation, distribution, management, field application and extension activities. An outlay of Rs 5300 crore has been allocated.
Atal Bhujal Yojana (ABHY)	The Government has proposed Atal Bhujal Yojana (ABHY) aimed at sustainable ground water management with community participation in select over-exploited and ground water stressed areas in seven States (Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh). ABHY is designed as a Central Sector Scheme



	with a total outlay of Rs. 6,000 Crore and is proposed to be implemented with World Bank assistance.
AMRUT	Recast urban landscape and make urban centres more liveable and inclusive. Capacity outlay USD 7.69 billion.
Sagarmala	Mordenisation of ports, setting up of coastal economic zones, new major ports and fish harbours. Capita; outlay USD 10 million.

Annex 2

Existing and recently completely projects under partnerships and initiatives between EU MS / the EU and India

Initiatives	EU MS Participant / Partner	Objective/Link	IEWP Priority Area	Links
Tannery Project in India for Clean Ganga	Netherlands	Under the bilateral MoU signed in 2017, the project works towards reducing the volumes and pollution levels of the effluent water from the tanning sector. Immediate beneficiaries would be smallholder farmers who depend on the re-use of the wastewater for their agricultural production (crops and dairy).	PR1 – Sustainable river basin Management; PR5 –Water use in irrigation	https://www.solidaridadnetwork.org/news/solidaridad-stahl-and-pum-launch-five-year-tannery-project-for-clean-ganga
Project Barapullah Drainage Canal	Netherlands	The Indian-Dutch cooperation on the waste water treatment project was one of the items of the Memorandum of Understanding that was signed between the government of the regional state Uttar Pradesh and the Dutch government on 14 July. This MoU included Dutch assistance in management of waste water, solid waste, urban development, agriculture and transport.	PR1 – Sustainable river basin Management	https://www.dutchwatersector.com/news-events/news/21198-indian-dutch-consortium-rolls-out-cleaning-project-barapulla-drainage-canal-new-delhi-india.html
Aquanex	Germany	AquaNES catalyses innovations in water and wastewater treatment processes and management through improved combinations of natural and engineered components.	PR9 – Research, Innovation and Technology	http://aquanex-h2020.eu/Default.aspx?t=1593

<p>Yamuna River Project clean up (ideation stage: not yet conceived)</p>	<p>Spain</p>	<p>The Yamuna River Project is envisioned to be initiated in the next two years. The Spanish Embassy to India is working closely with relevant European and Indian stakeholders to leverage the insights of the multi-disciplinary 5-year research project by the University of Virginia. The study was conducted to identify potential solutions and measures for cleaning up the massively polluted Yamuna river with the aim to reconnect Delhi back to the water. The focus area of this research includes encroached floodplains, environmental flows, rejuvenation of wetlands and urban development including waste management.</p>	<p>PR1 Sustainable river basin Management; PR 2- E-Flows</p>	<p>https://www.thethirdpole.net/en/2018/05/17/will-the-new-yamuna-river-project-clean-up-the-river/</p>
<p>Indo-Dutch Water Corporation</p>	<p>Netherlands</p>	<p>This G2G project aims to select and implement a number of Dutch water innovations, in order to provide safe and sustainable solutions for specific water problems in a specific region in India. By knowledge exchange and identifying concrete projects with Indian public and private parties, both countries will scientifically and economically benefit from this G2G project.</p>	<p>PR1 Sustainable river basin Management; PR 9- Research, Innovation and Technology</p>	<p>https://www.rvo.nl/subsidies-regelingen/projecten/indo-dutch-cooperation-water</p>
<p>Sustainable Urban Development Programme & Smart Cities</p>	<p>Germany (GIZ)</p>	<p>The objective of the programme is to develop and apply concepts for sustainable urban development related to provision of urban basic services (including water & related infra) in smart cities program, India.</p>	<p>Indirect link to IEWP: Sustainable urban development</p>	<p>http://pib.nic.in/newsite/PrintRelease.aspx?relid=176740</p>
<p>Sustainable Management of water resources in Ganga basin</p>	<p>UK</p>	<p>On rejuvenation of River Ganga, a MoU has been signed between National Mission for Clean Ganga (NMCG) and Natural Environmental Research Council (NERC), UK. The MoU will enable the United Kingdom to support Government of India in sustainable management of water resources in the Ganga Basin through collaborative programmes of research and innovation and exchange of</p>	<p>PR 3 - Ganga Rejuvenation (incl. Ganga cooperation); PR 1- PR1 – Sustainable river basin Management; PR 9- Research, Innovation and Technology</p>	<p>https://mea.gov.in/bilateral-documents.htm?dtl/29831/IndiaUK List of MOUs Agreements Initiatives during the visit of Prime Minister to UK London April 18 2018</p>

		policy experts with the support of UK Water Partnership		
Water Future India	Germany	The aim of the project is to develop a concept for intelligent water management for Coimbatore in southern India, a city with more than one million inhabitants.	PR 9- Research, Innovation and Technology	https://www.iso.e.de/en/projects/current-projects/wasserressourcen-und-landnutzung/smart-water-future-india/
National Mission for Clean Ganga	Germany	India (NMCG) has joined hands with Germany to attain "pristine" status of Ganga by adopting river basin management strategies used for cleansing rivers like Rhine and Danube of pollutants.	PR 3 - Ganga Rejuvenation (incl. Ganga cooperation); PR 1- Sustainable River basin Management	http://www.downtoearth.org.in/blog/india-and-germany-sign-agreement-for-cleaning-ganga-53714
TECO	Italy	The project aims for the implementation of EU-India exchange of experts and innovators in the field of technological eco-innovation applied to the pollution of soils and waters and to the improvement of their quality.	PR 9- Research, Innovation and Technology	http://www.indoitalia.nresearch.eu/
Italy-India Research and Development (R&D) Projects	Italy	The project has created a funding mechanism through which businesses may seek support for joint Italy-India research and development (R&D) projects. The focus sector for the same is water technologies.	PR 9- Research, Innovation and Technology	https://www2.fundsf.org/os.org/business-development/department-of-science-technology-funding-support-for-joint-italy-india-research-and-development-rd-projects/
Danish Water Forum	Danish	The Danish Embassy in India and the Danish Min. Environment decided to form a partnership with the aim of identifying one wastewater treatment plant and then rehabilitate parts or all of it with Danish technology and know-how in February 2009.	PR 9- Research, Innovation and Technology	http://www.danishwaterforum.dk/activities/danish-indian-demonstration-partnership.html

Annex 3

Pros and Cons of Modes of Engagements

Engagement modes	Pros	Cons
Direct procurement without competitive bidding	<ul style="list-style-type: none"> • Less paperwork • No waste of time and efforts 	<ul style="list-style-type: none"> • Direct risk transfer
Consortium	<ul style="list-style-type: none"> • Scope specific involvement in the project • Partners maintain separate legal identities • Easy to form and easy to execute 	<ul style="list-style-type: none"> • No control over the management of the activities • Not secure to get project financing • Risk of delayed payments from Lead partners • Lead is responsible if the other parties in the consortium fail to perform
Joint Venture	<ul style="list-style-type: none"> • Partners have equal control over the management of the enterprise/ or on the project • Better chances for procuring project financing • Shared resources and profits • Reduced cost of operations • Access to markets in India • Gain scale efficiencies by combining assets and operations • Access to skill and capabilities • Sharing of risks for major investments and projects • Use of Pre-Qualifications (PQ) of Indian partners for bid qualifications 	<ul style="list-style-type: none"> • Shared losses and liabilities • IPR issues, the tech-know how is shared with the Indian Partner Potential risk of transfer of knowledge capital • Enforcement of contractual understanding with joint venture partners • Share of profit with Indian partners (reduced profit margins)
PPP	<ul style="list-style-type: none"> • Provide better infrastructure solutions; result in faster project completions and reduced delays on infrastructure projects • Global experience of high quality standards brought to India • Lesser competition as limited number of private entities that have the capability to complete a project • Long term contractual arrangements 	<ul style="list-style-type: none"> • Transfers all risks for the private partner, especially involving environmental clearances and land acquisitions • Unrealistic projections of cash inflows from the facilities created leads to financial losses to private players • Profits of the projects can vary depending on the assumed risk, and the complexity and scope of the project • Agreements are complicated and comparatively inflexible because of impossibility to envisage and evaluate all particular events that could influence the future activity
Swiss Challenge	<ul style="list-style-type: none"> • Bring Innovative and new ideas and technical know-how • Short timeliness for private players • Advantage in Competitive bidding process to the initiator 	<ul style="list-style-type: none"> • Initial project development cost is borne by the initiator. • Delayed payments on project development, if the initiator losses the bid

Engagement modes	Pros	Cons
	<ul style="list-style-type: none"> Govt often sets time limits on the approval and bidding phases, many potential challengers are unwilling to compete without sufficient time to prepare. 	<ul style="list-style-type: none"> IPR issues, if the initiator does not win the project Bring information asymmetries in the procurement process and result in lack of transparency and in the fair and equal treatment of potential bidders
Rate Contract	<ul style="list-style-type: none"> Eliminates repetitive tendering process and hence saves time and effort of both buyer and supplier Provides single point contact for specialised goods and services Aggregation of demands leads to economic production. Lends credibility to supplier Availability of quality goods and services with full quality assurance back-up 	<ul style="list-style-type: none"> Initial competition, procedural complexity and prolonged timeframe before entering into agreement High penalties for delay in response of services Quantity of work uncertain - Neither quantity is mentioned nor is any minimum commitment guaranteed Goods of high demand has parallel rate contracts, where a supplier sometimes losses on competitive pricing.

Annex 4

Platforms for EU Water Businesses in India

Platform	Objective	Reference link
Water Efficiency in European Urban Areas -- WE@EU	WE@EU is based on the ambition to create an open European platform for EU excellence in water efficiency in urban water management. It was conceived to coordinate European Research, Development and Innovation (RD&I) in the urban water efficiency sector through high-level trans-national cooperation. Five European regions strongly involved in and committed to improving water efficiency in 2007 met and discovered they face similar challenges that affect water availability, which may be exacerbated by climate change and other pressures. They recognised that they could improve their performance in key aspects of urban water management by establishing mutually beneficial partnerships and collaborating across sectors. The key agents identified to support collaboration across these five regions were research-driven water clusters. In four regions in the WE@EU, a research-driven water cluster already existed, based on solid "triple helix collaborations", they were Aragón (Spain), Provence-Alpes-Côte d'Azur (France), East of England (UK) and Eastern Galilee (Israel). An additional region with a developing research-driven cluster in Malta joined the consortium. This will enable to generate an innovation friendly ecosystem where academia and business will work together, in coordination with regional authorities and other stakeholders, transforming knowledge into innovative products, services and skills in the water efficiency sector	http://www.weateu.eu/
WssTP – Water Innovation Europe	With over 200 participants from all around Europe in every edition, WssTP annual conference 'Water Innovation Europe' has grown to become the landmark event of the European water sector every summer. The event brings together all the aspects of the sector: scientists and technology developers, utility representatives, large water users, European and national/regional policy makers and finance experts. Water Innovation Europe offers	https://waterinnovationeurope.eu/



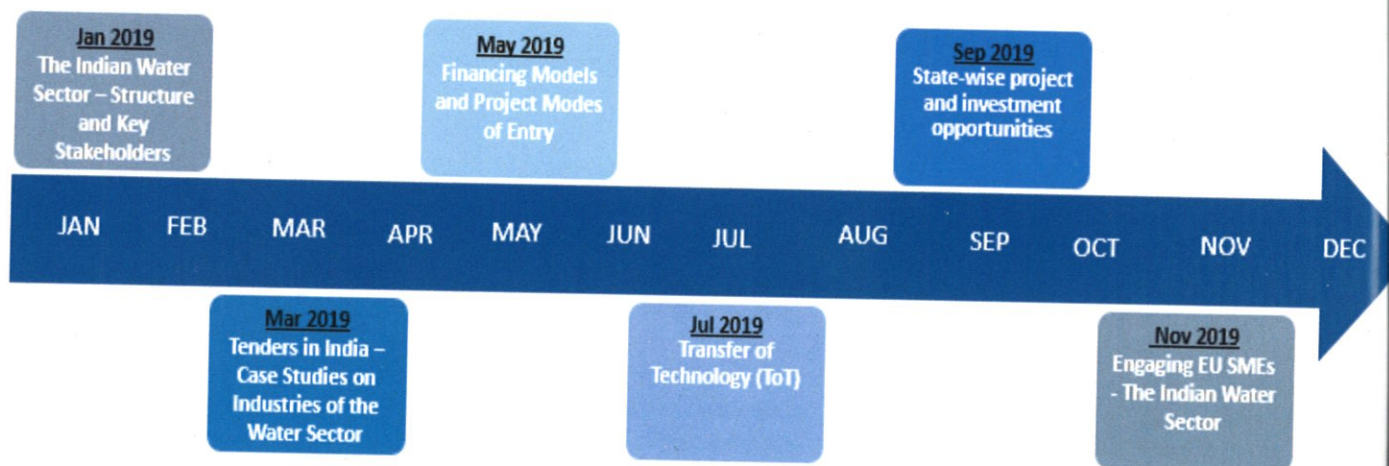
	an open platform for information gathering and networking among the most influential stakeholders from within and beyond the water sector.	
Water Information System for Europe (WISE)	WISE is an interactive Internet tool that informs Europe's citizens about water quality and EU water policy — was jointly released by the European Commission and the European Environment Agency (EEA) today at the European Water Conference 2007 in Brussels	https://water.europa.eu/links
EURAE	EurEau is the European federation of national water services. They represent national drinking and waste water service providers from 29 countries, from both the private and the public sectors. They bring together water professionals to agree on European water industry positions regarding the management of water quality, resource efficiency and access to water for citizens and businesses.	http://www.eureau.org/about
European Water Partnership (EWP)	The European Water Partnership, a Brussels based non-for profit organisation, unites and mobilizes people and stakeholders around a common water vision for Europe since 2006, developing policies, standards and sharing best practice to effectively address Europe's water challenges by 2030.	https://www.ewp.eu/
European Water Association (EWA)	The European Water Association (EWA) is an independent non-governmental and non-profit making organisation dealing with the management and improvement of the water environment.	http://www.ewa-online.eu/
European Enterprise Network (EEN)	The Enterprise Europe Network established in 2008 provides support for Small and Medium-sized Enterprises with international ambitions. Co-funded by the European Union's COSME and Horizon 2020 programmes, the Network's aim is to help businesses innovate and grow internationally. The Network is active in more than 60 countries worldwide. This helps small businesses make the most out of business opportunities in the EU. It is a one-stop-shop for all business needs. It provides support on access to market information, overcoming legal obstacles, and identifying potential business partners across Europe. This helps in finding various business working in different sectors including water.	https://een.ec.europa.eu/

Annex 5 Details of knowledge sharing activities

Activity No.	Title	Mode	Key Contents	Key Partners	Intended Outcome	Proposed Date
1	The Indian Water Sector – Structure and Key Stakeholders	One-day Workshop	<ul style="list-style-type: none"> Indian Water Sector – key aspects to consider as an SME IEWP and IEWP priority areas Potential areas for EU business intervention Required support for SMEs Modes for cooperation - clusters Interactive Discussion 	Select knowledge partners	<ul style="list-style-type: none"> Insights on the current scenario Detailed understanding of business implication for SMEs Information on available business and cooperation opportunities 	15 January 2019
2	Tenders in India – Case Studies on Industries of the Water Sector	Half-day Workshop	<ul style="list-style-type: none"> Difference between Tenders in the EU and India The 'Tender Ecosystem' in India Major Challenges Case Study by EBTC – procedural overview and documentation Interactive Discussion 	Select knowledge partner	<ul style="list-style-type: none"> Sharing of insights on the tendering process in India Better understanding of difficulties and hindering criteria for SMEs Overview of relevant sources 	15 June 2019; 15 August 2019
3	Financing Models and Project Modes of Entry	One-day Workshop	<ul style="list-style-type: none"> Overview of different project models in India – pros & contras (SME perspective) Overview of different financing models Overview of key stakeholders and relevant banks / NBFCS/ funds, etc. Interactive Discussion 	EBTC	<ul style="list-style-type: none"> Enhanced awareness for different kinds of project modes and improved understanding for potential options for project financing 	15 October 2019 15 December 2019
4	Transfer of Technology (ToT)	Half-day workshop	<ul style="list-style-type: none"> Technology evaluation and assessment Implications for collaboration Practical case studies 	National Research and Development Corporation	<ul style="list-style-type: none"> Basic understanding for the importance and 	1 st November 2019

					particularities of ToT	
4	State-wise project and investment opportunities	Roundtable (2.5 h)	<ul style="list-style-type: none"> • Overview of Indian states active in the water sector • Insights on global investments and project engagements • Insights on potential project / investment opportunities for EU businesses 	Invest India	<ul style="list-style-type: none"> • Insights on states and their respective relevance for EU MS SMEs • Insights on project structures at municipal level 	15 May 2019
5	Engaging EU SMEs - The Indian Water Sector	Webinar	<ul style="list-style-type: none"> • Doing Business in India • The Indian Water Sector • Opportunities for EEN Member Businesses 	Members of Enterprise Europe Network (organized by EEN India, EBTC)	<ul style="list-style-type: none"> • Holistic overview on the Indian market and its particularities with regard to the water sector 	1 March 2019; 1 July 2019

Knowledge sharing activities: Timeline (indicative)



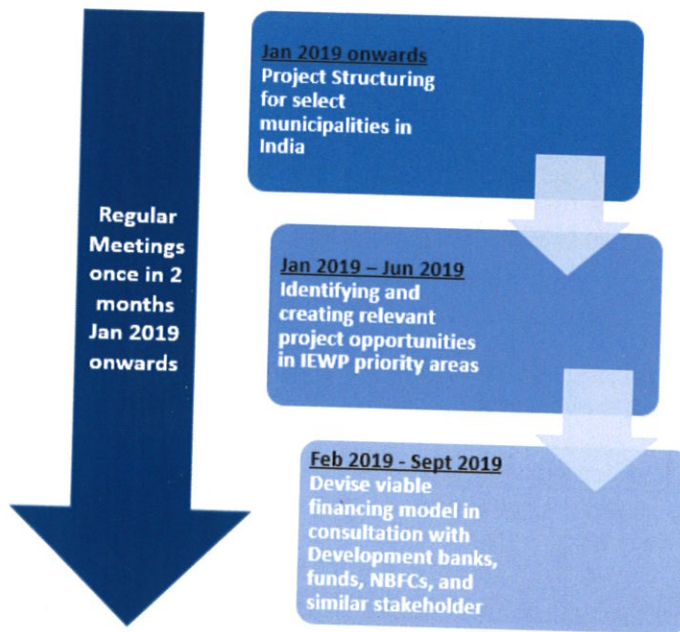


Annex 6

Overview of Project Related activities

Activity No.	Title	Mode	Intended Outcome	Proposed Date
1	Project Structuring for select municipalities in India	Focused consultations / capacity building sessions	<ul style="list-style-type: none"> Projects in alignment with criteria relevant for the fulfillment of SDGs Projects compatible to/ eligible for European financing 	January 2019 onwards
2	Devise viable financing models in consultation with Development banks, funds, NBFCs, and similar stakeholders	Consultations and one-on-one meetings	<ul style="list-style-type: none"> Overview (matrix) of different financing models apt for EU-India collaboration 	February - September 2019
3	Identifying and creating relevant project opportunities in IEWP priority areas	On-going activity (regular meetings with key stakeholders)	<ul style="list-style-type: none"> Mapping of (pilot) project opportunities in each priority area of the IEWP in close alignment with the capacity building initiatives of the IEWP and coordination with Indian project owners Identify relevant technology and consulting businesses (EU and India) Nodal point of contact for ToT and other project-related queries 	January 2019- June 2020
4	Research and Innovation - Cooperation with the EU India Water Cooperation on Research and Innovation	<ul style="list-style-type: none"> Joint Events with EU India Water Cooperation on Research and Innovation Consultations on 54 Water Call consortia and how to inform them/ involve them on/under the IEWP Workshops 	<ul style="list-style-type: none"> Proposed: kick-off event of first projects of the Water Call to be merged with / aligned with the India EU Water Forum Regular meetings to jointly work towards a systematic approach for assuring the closer engagement of multilateral business-research consortia Workshops on technology adaptation and innovation management 	<ul style="list-style-type: none"> Joint Event: March/ April 2019 Regular Meetings (once in 2 month) from January 2019 onwards Workshop(s) could be included in 'Knowledge Sharing Activities'

Project Related Activities: Timeline



Annex 7. Restructure of Priority Areas

Group	Proposed Priority Area	Original IEWP PRs covered hereunder	Comment
Business Involvement	River Basin Management	PR1-4; PR 8	NA
	Industrial Management Water	PR 4, PR 8	NA
	Agricultural Management Water	PR4-6	Can include 'Water for Energy'
Collaboration Support	Capacity Building	PR 7	Especially relevant for public and government stakeholders on both sides – a prerequisite for effective project engagement in each priority area
	C-Ganga	NA	Integration of existing bilateral collaboration mechanism into IEWP for increased alignment
Innovation Management	Research and Innovation	PR 9	Closely cooperate with the European Delegation to India, Research and Innovation, Horizon 2020 Calls



TEAM - Authors and Main Contributors:

- Ms. Sonal Kaushik, Senior Advisor Sustainability, EBTC
- Mr. Varun Sehgal, Principal Advisor, EBTC
- Ms. Judith Weinberger-Singh, Head Projects, EBTC
- Ms. Vernika Garg, Executive Research and Projects, EBTC

Supported by:

- Ms. Martina Burkhard, Head of Programme, SGR/India EU Water Partnership
- Ms. Birgit Vogel, Project Manager, India EU Water Partnership
- Mr. Vikrant Tyagi, Project Coordinator, India EU Water Partnership

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