

# 高濃度酸素水供給装置による湖沼浄化普及・実証事業 松江土建株式会社(島根県)

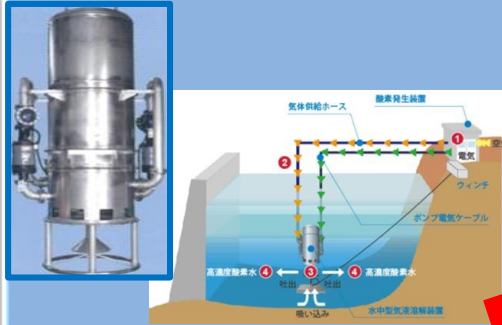
## インド国の開発ニーズ

- インドの湖沼は、都市活動の活発化、下水道施設整備の遅れ等により、富栄養化など水質悪化の問題を抱えている
- 全国には約5,000箇所ものダム湖も存在しており、富栄養化の要因である貧酸素状態の低コストな改善方策が求められている

## 普及・実証事業の内容

- 事業対象湖に高濃度酸素水供給装置を設置し、早期の水質改善効果を数値データで示す
- 湖内対策と併せて、湖周辺の排水対策や植生活動などの流入対策を住民参加型で実施する
- インド側関係機関への、装置の運転・維持管理方法、流入対策に関する知識・技術の醸成、州内外への広報活動を行う
- インド全国への装置普及のビジネス展開計画を策定する

## 提案企業の技術・製品



### WEPシステム

- ー 陸上の酸素供給装置から水中の気液溶解装置へ酸素ガスを供給し、水中で高濃度酸素水を吐出するシステム。
- ー 酸素溶解水が高濃度(40~60 mg/L) ※類似製品の5~8倍
- ー 効果が広範囲(半径500m以上) ※無気泡のため高濃度酸素水が水平拡散する
- ー 陸上酸素発生装置からの運転管理が容易で自動制御も可能

### 事業概要

相手国実施機関: Uttarakhand州灌漑局  
事業期間: 2021年2月~2025年1月  
事業サイト: Bhimtal湖  
(Uttarakhand州Nainital県)

## インド国側に見込まれる成果

- 従来型装置と比べて高効率かつ低コストな水質改善装置により、インドにとって新たな水質改善対策の選択肢が増える
- 湖沼の水質が早期に改善し、水質基準を満たす湖沼が増加する
- 水資源の有効活用が促進される

## 日本企業側の成果

### 現状

- WEPシステムは先進性が高い故に実績が少なく、確実性が重視される国内ダム湖への導入が促進されにくい
- 気候の影響で海外には貧酸素や富栄養化の湖が多く、対策ニーズが大きい

### 今後

- インドでの実績獲得による国内外の普及促進を図る
- 山陰インド協会を通じたインドとの友好関係が強化され、地域経済・文化交流が促進される

# SDGs Business Verification Survey with the Private Sector for Water Quality Improvement of Lakes by a Hypolimnetic Oxygenator (Water Environmental Preservation [WEP] System) in Bhimtal Lake of District Nainital

Matsue Doken Co., Ltd.

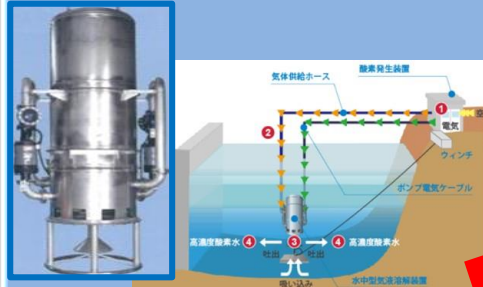
## Concerned Development Issues in India

- India's lakes are suffering from eutrophication and other water quality degradation problems due to increased urban activity and delays in the construction of sewage facilities
- There are about 5,000 dam lakes in the country, and there is a need for low-cost measures to improve their anoxic conditions

## Implemented Activities in the Survey

- Install a oxygenated water supply system in the project lake, and show the effects of early water quality improvement numerically
- Inflow measures such as drainage clearance and vegetation activities around the lake will be implemented through community participation
- Foster knowledge and technology for O&M and preventive measures to related organizations in India, and promote public relations activities
- Formulate a business development and deployment plan

## Proposed Products/Technologies



### WEP System

WEP system is an underwater liquid-gas dissolving apparatus

- discharge 40 to 60 mg/l DO (5 to 8 times more effective compared with similar products)
- Widespread diffusion of high-concentrated DO water, ranging more than 500 meter horizontal access without air bubbles
- Structurally simple and easy operation and maintenance, possible to control automatically

### Survey Overview

Name of Counterpart: Uttarakhand Irrigation Dept.  
 Survey duration: From Feb.2021 To Jan. 2025  
 Survey Area: Bhimtal Lake, Nainital, Uttarakhand

## Impact on the Concerned Development Issues in India

- India will have another option for water quality improvement measures, which is more efficient and less expensive than conventional devices.
- Water quality in lakes will improve faster and more lakes will meet water quality standards.
- Effective use of water resources will be promoted.

## Outputs and Outcomes of the Survey

### Current

- The WEP system is highly advanced but has a limited track record, making it difficult to promote its introduction to domestic dams where certainty is important.
- There are many lakes in other countries with poor oxygen and eutrophication due to climatic factors, and the need for countermeasures is great.

### Future

- To promote the deployment of WEP system both domestically and internationally by acquiring achievements in India
- Strengthen friendly relations with India through The Sanin-India Association and promote regional economic and cultural exchange