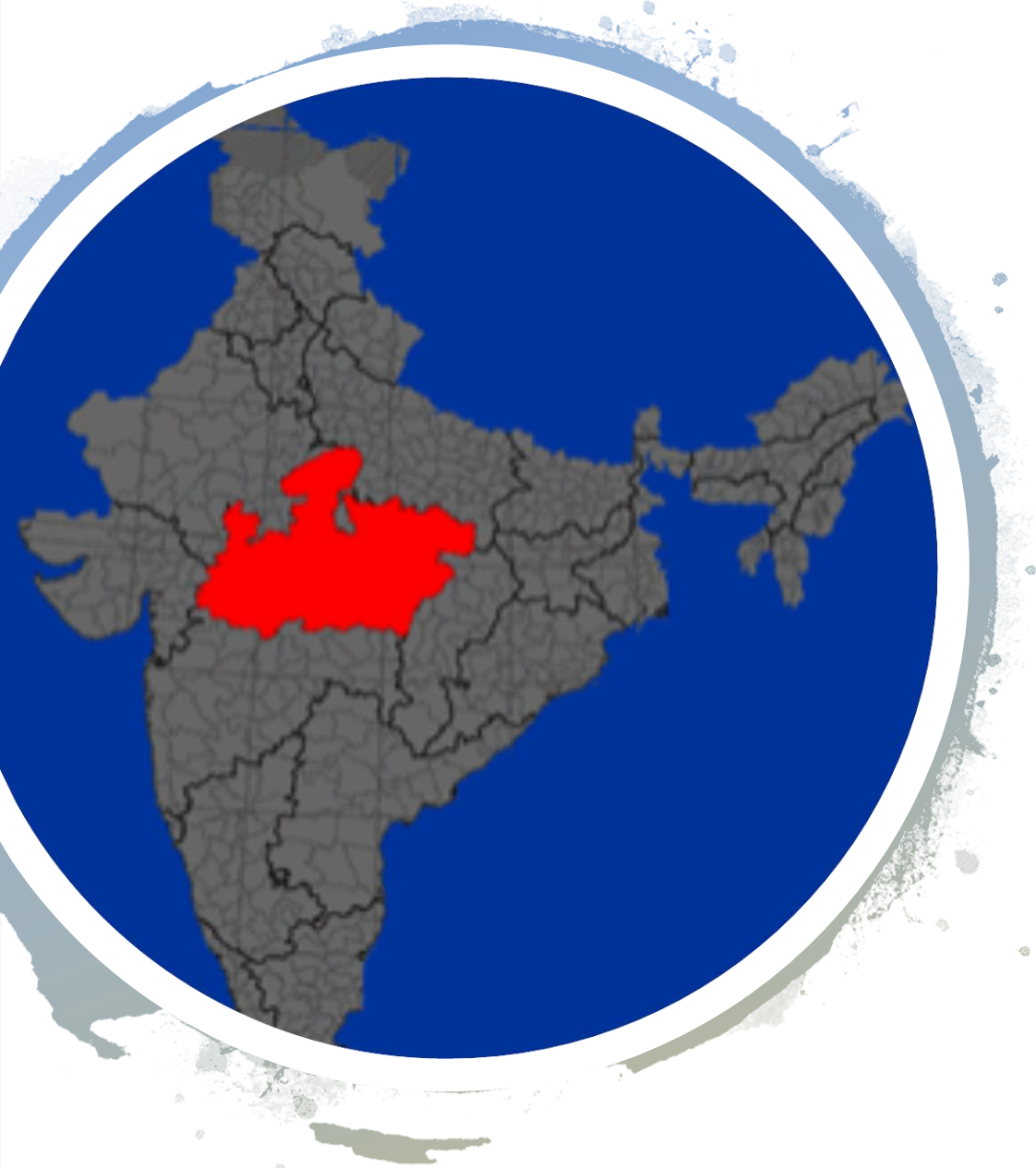
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Implementation of DBOs for Large-scale Development of Micro Irrigation – Madhya Pradesh Irrigation Efficiency Improvement Project, INDIA

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SAER

11 December 2018

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Madhya Pradesh Water Resources Department Objectives

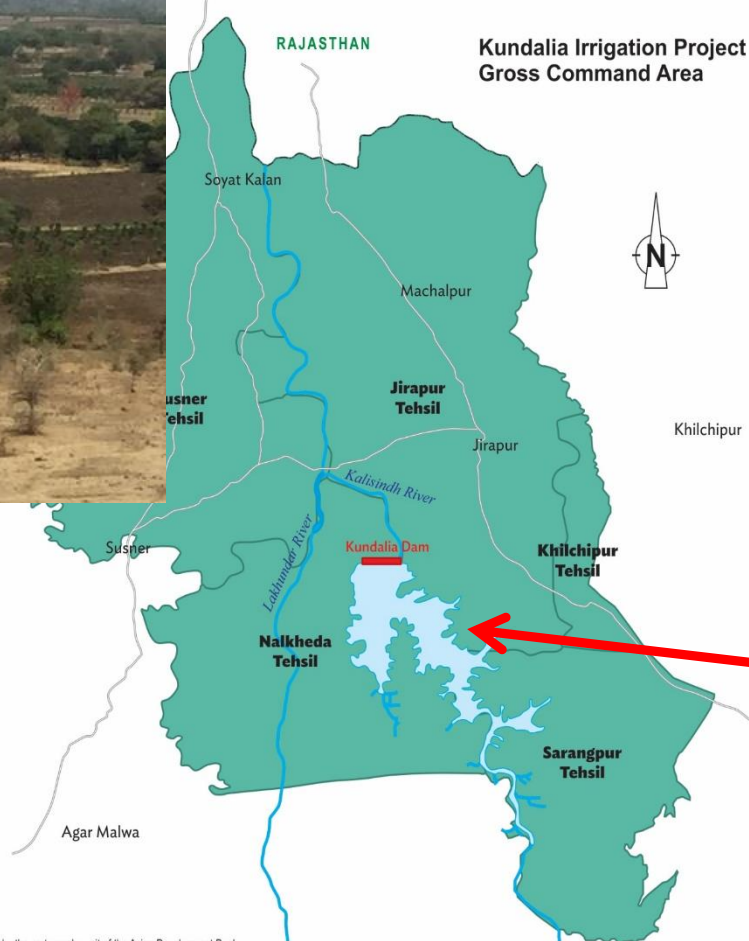
- “*per drop more crop*”
- Emphasis on improving management of existing water resources
- Transition to more efficient irrigation delivery:
 - Pumped supply
 - Piped delivery
 - Residual head more than 20m for micro-irrigation
 - Performance based management

INDIA
MADHYA PRADESH IRRIGATION
EFFICIENCY IMPROVEMENT PROJECT



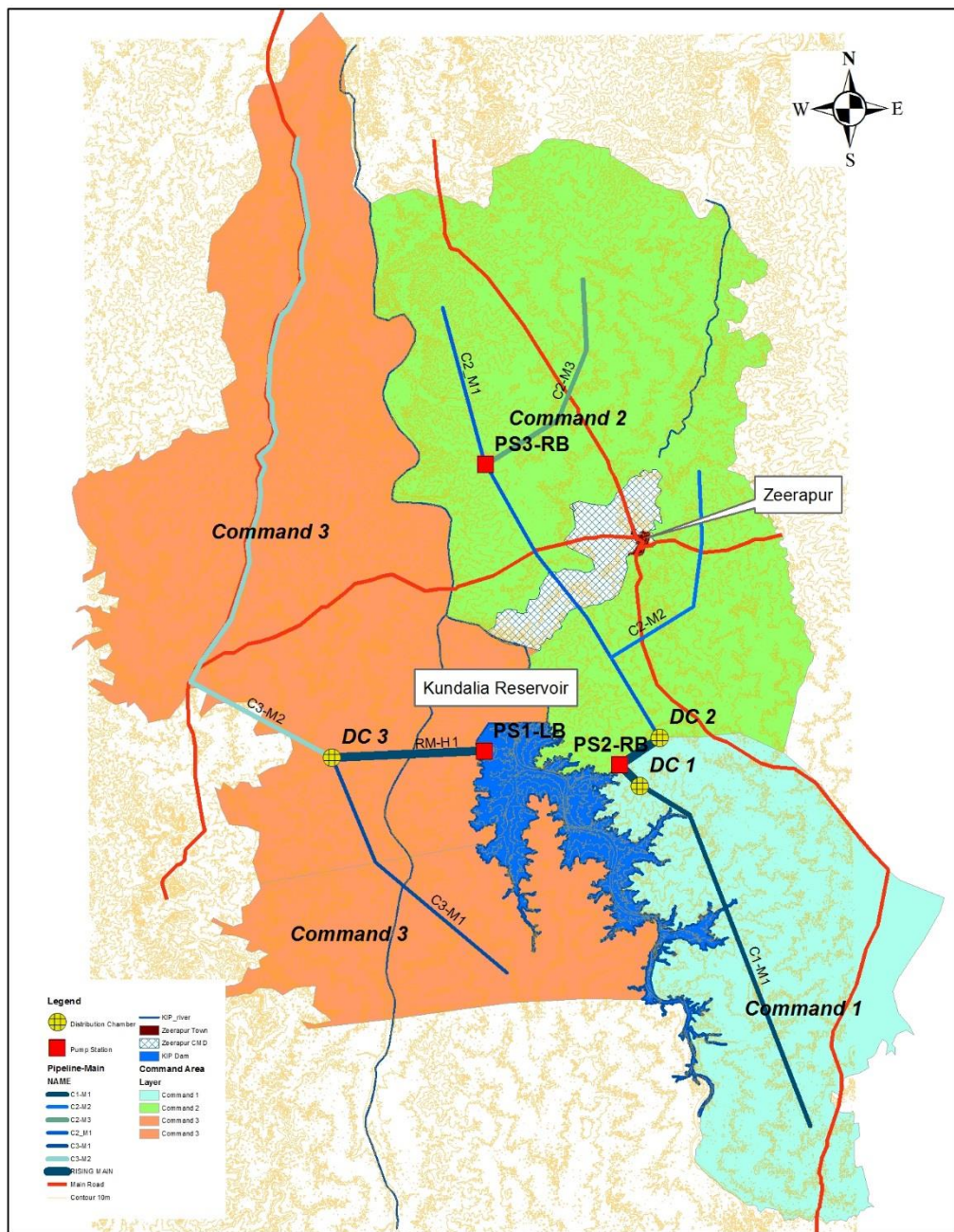
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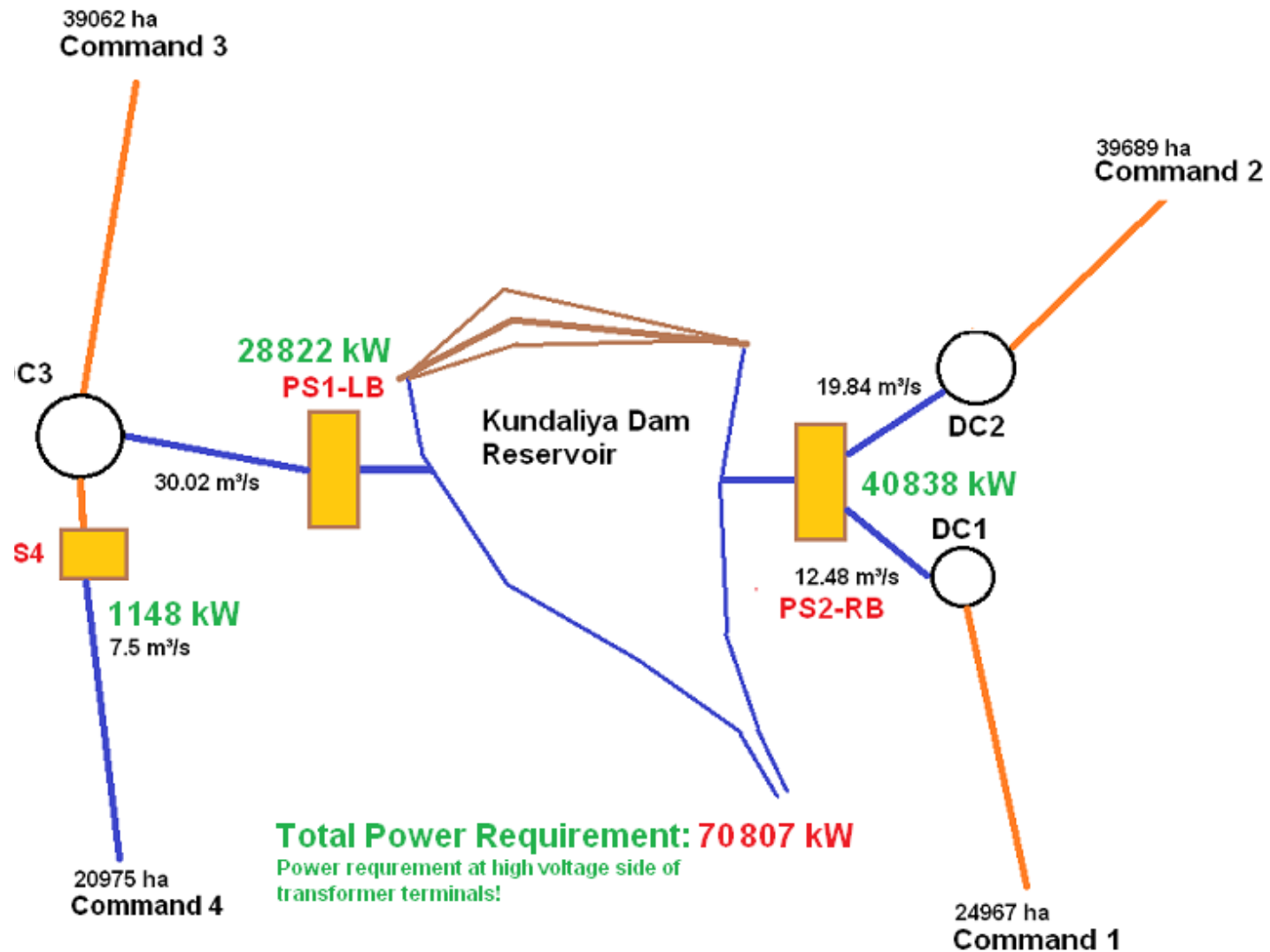


**Kundalia
Reservoir**

This map was produced by the cartography unit of the Asian Development Bank. The boundaries, colors, denominations, and any other information shown on this map do not imply, on the part of the Asian Development Bank, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries, colors, denominations, or information.



KUNDALIYA COMMAND



- Greenfield project : 125,000 ha
- Micro irrigation (micro sprinkler drip)
- 80% system-level irrigation efficiency
- 0.45 lps/ha and 2 kg/cm² at hydrant

Why a DBO? Management Challenges & opportunities



Long-term sustainability and performance



Rapid uptake of micro irrigation



Economics is based on high productivity



The system is very large and disbursed



Needs specialized skill sets for operators and water users




MPWRD credible interlocutor for large firms



DBO contracts scope

- 2 contracts Right Bank – \$ 200 million and Left Bank \$ 220 million: to reduce risks in case of non performing contractor
- 8 Years, 3 years DB+5years O&M : Government reluctant to go beyond 5 years.
- Temporary land acquisition : for pipe laying
- Agricultural Support Component: (about 10% of total budget)
 - Farmer Field Schools and Demonstrations
 - Awareness Raising Campaign and Community Organizers
 - Water User Association / Capacity Building
 - Detailed water planning



DBO tender design principles

- FIDIC Gold Book : Pilot ADB DBO SDB
- 1S2E, no PQ : Time saving, simple
- No asset replacement fund : O&M period too short
- Employers requirements restrictive: no space for major alternative designs.
- Performance security 5%: EA reluctance to go higher
- Retention 5%: EA reluctance to go higher.

Performance Guarantees

- Maximum Power Requirement (30 MW)
- Maximum electricity consumption (0.25 kW-hr per m³)
- Hydraulic pump efficiency (88%)
- Minimum Pressure and Continuous Discharge at 1 hectare outlet
- Guaranteed availability of Plant (98%) no more than 30 min a day
- Area covered by Micro Irrigation (95% by end of 8th year)

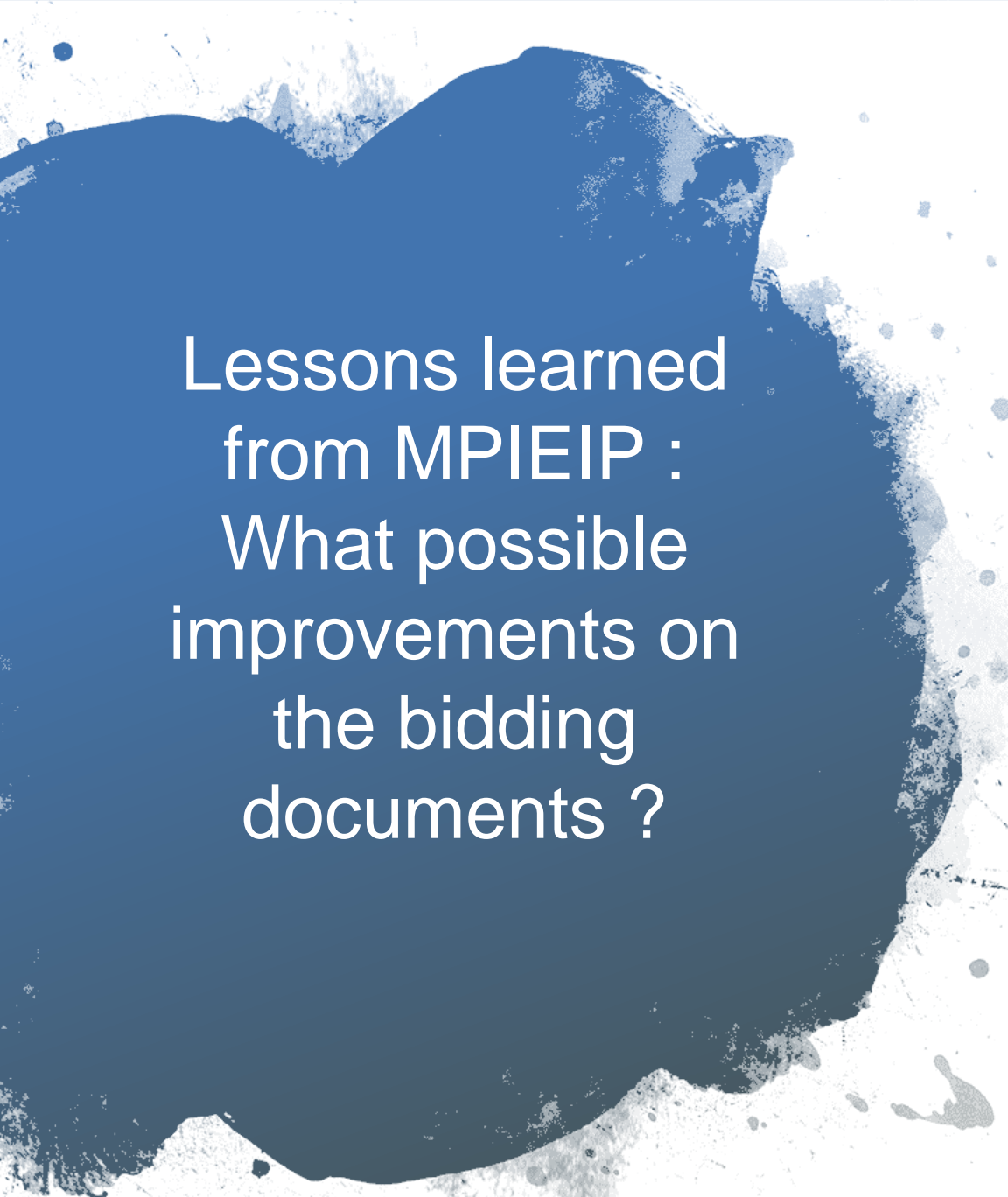


Tender process – results

- Bids received: LB 4 bids, RB 1 bid
- Technical evaluation : all bidders technically responsive except 1 LB bidder for failing to meet financial qualification requirements.
- Financial evaluation: LB lowest bid 6% below engineer's estimate and RB 3% below estimate. Highest bid 38% above estimate
- Larsen and Toubro contractor winner for both tenders : highly reputed contractor.
- Time from tender invitation to award : LB 10 months, RB: 6 months


Tender process – key issues

- 45 WD for bid submission too short
- Several deadline extensions were required : 64 WD.
- Technical proposals not easy to assess. It required many clarifications from the bidders.
- Evaluation of tender price not straightforward (life cycle, electricity costs, front-loading DB portion, asset replacement fund)
- In both tenders O&M tender prices underestimated/ unbalanced bid: use of ITB 39.5 with increase of performance security LB.



Lessons learned from MPIEIP : What possible improvements on the bidding documents ?

- Technical proposal template to be customized to ensure bidder provide required information and facilitate evaluation
- Give enough time for tender preparation: 3 months minimum
- Need stronger mechanism to reduce risk of unbalanced bids DB versus O&M:
 - % retention money to be retained until the end of O&M period
 - Performance securing declaration
 - ITB 39.5 Performance Security versus retention money
 - What else?



Lessons learned from MPIEIP : What worked well and what to improve?

- DBO (performance-based contract) has significant benefits; but requires special expertise to put together the tender and evaluate the bids.
- Raise contractors awareness about upcoming bid and collect their feed back: consider road show before tendering.
- Even most capable contractors struggle with DBO tender preparation : consider training during tendering.



What about implementation?

- Still very early as first contract was signed 7 months ago only
- LB contractor tried to introduce a major change in design : needed strong technical expertise to support BWRD with design review.
- LB detailed designs approval 7 December 2018.
- RB contractor detailed designs proceeding well – contractors follows based design.



THANK YOU

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