PRE-FEASIBILITY REPORT

Project Name: - Kalisindh Major Multipurpose Irrigation Project District Jhalawar Rajasthan.

1.0 Executive Summary

1.0 Kalisindh Major Irrigation project was conceptualized in year 2004. A preliminary report was prepared & submitted to CWC for approval. CWC during 2006 conveyed in principle approval and thereafter work for preparation of DPR, survey & investigation etc were initiated.

Following clearances/approvals were taken for the project:

1. **Interstate Clearance:** The Interstate clearance for the project was issued by Madhya Pradesh vide vide letter no. 22A/MPS/31/812 Bhopal dt. 2.4.2007
2. **Hydrology**: Approved/vetted from CWC & intimated vide Director Project Appraisal (Central) Directorate CWC N Delhi vide their letter no Raj/29/95 PAC / 463 dated 31.8.10.
3. **Environmental Clearance:** As Phase I of the project is an integral part of Kalisindh Thermal Power Project Jhalawar, the environmental clearance of Phase I of project has been included in Environmental clearance for 2X600 MW Kalisindh Coal based Thermal Power Plant in Jhalawar District Rajasthan issued by Ministry of Environment & Forest (IA Division) during 26th meeting of Expert Appraisal Committee held at N Delhi on July 10-11, 2008 in SCOPE Complex N Delhi issued vide file no. J- 13011/80/2007-IA.II (T) dated 26 Feb, 2009..
4. **Forest Clearance:** Total 29.962 Ha forest land was coming under Phase I of the project. The final clearance for diversion of forest land was issued by APCCF MOEF Regional (Central) Lucknow vide their letter no. F 8 B/Raj/08/06/2009/FC/1731 dated 24.2.2012.

1.1 Project Phasing:

Looking towards anticipated time required for obtaining necessary sanctions of the project from CWC /other clearances and the emerging water demand of Kalisindh Thermal Power Plant, Government of Rajasthan during 2008 decided to implement the project in two phases so as to meet the timed water requirement of Thermal Power Project in Phase I & thereafter implement complete project after obtaining necessary sanctions from concern agencies.

Accordingly in first phase, dam is constructed so that 54.37 Mcum water can be stored upto EL 316.0 m. Water is impounded in dam during monsoon 2014 & is being provided to Kalisindh Thermal Power Plant Jhalawar for operating their Units I & II (2X600= 1200 MW). Commercial power generation has been started by Kalisindh Thermal power plant and the benefits intended from Phase I of project have been achieved.

Project II Phase: The entire construction of Dam including its foundation, embedded parts etc during 1st Phase have been executed is such way that during 2nd phase, skin plate of 3.25 m height are to be added over existing radial gates & thus water can be stored upto El 319.25 m & storage of 148.11 Mcum can be achieved.

1.2 Anticipated Benefits

Phase wise benefits anticipated from the project are :

S. No	Item	First Phase		Second Phase	
1	Gross storage capacity	54.37	Mcum	148.11	Mcum
2	Dead Storage capacity	0.42	Mcum	0.42	Mcum
3	Live Storage capacity	53.95		147.69	Mcum
4	75% dependable yield	139	Mcum	139	Mcum
5	Water Reservation/proposal				
a.	Kalisindh Thermal Project First Phase (2X600=1200 MW)	34	Mcum	34	Mcum
b.	Kalisindh Thermal Project Second Phase (2X660=1320 MW)	-		37.38	Mcum
c.	Provision for Drinking water	-		10	Mcum
d.	Provision for Irrigation	-		38.295	Mcum
e.	Center of Excellence (Horticulture & Forestry College)			0.255	Mcum
e.	Agro food park & Industrial Development	0.32		1.0	Mcum
e.	Water losses (evaporation & other losses 13%)	7.07	Mcum	18.07	Mcum
f.	Balance Water	12.56	Mcum	0	Mcum
6	Proposed CCA	-		14250	Ha
7	Irrigation facility in …. Nos villages	-		100	Nos

2.0 Introduction of the Project/Background information

(i) Identification of project and project proponent.:

This is major multipurpose water resources project aims for harnessing 148.11 Mcum water of river Kalisindh. The project lies in the South –West of Rajasthan in Jhalawar District. Project is located at Longitude/Latitude of $76^0$13'14.2E" / 24^0 29'32N" & covers under Survey of India Topographical Map no. 54D-1, D-2, D-3, D-5, D-6, D-7 at 1:50000 Scale.

Location map on 'kml' file & reference map of GT sheet is enclosed with the application.

Project Proponent :- Chief Engineer Water Resources Zone, Kota
E-mail:- cewrdkota@gmail.com Telephone No. 0744-2326915
Through: Executive Engineer, Water Resources Kalisindh Project Division Jhalawar, Email: eekalisindh.wr@gmail.com

Project Category :- As per MOEF Notification New Delhi 14th September, 2006 Schedule 1 (c) ii, Project lies in **'Category –A'** as CCA of project is 14250 Ha which is ≥ 10,000 Ha.

(ii) Brief description of nature of the project:

The project is water resources development project & will enable water availability for Thermal Power Generation, Irrigation, Drinking water & Industrial development of the area.

(iii) Need for the project & its importance to the country and or region

The project will enable:

- Generation of 2520 MW power generation from Kalisindh Thermal Power Plants
- Creation of irrigation potential in 14250 Ha area
- Drinking water availability for Jhalawar & Jhalarapatan towns & adjoining rural areas
- Availability of water for Horticulture & Forestry College Jhalawar
- Availability of water for Industrial & Agro-food Park development of Jhalawar

(iv) Demand- Supply Gap

- Water availability will convert rain fed agriculture into irrigated agriculture in 14250 Ha area.
- Water availability will ensure both qualitative & quantative drinking water availability to residents of Jhalawar, Jhalarapatan towns & adjoining villages
- Kalisindh Thermal Power Plants survival is totally dependent of water availability from this project.
- Water availability will enable development of Horticulture & Forestry College Jhalawar
- Water availability will enable Development of Agro Food Park & other Industries at RIICO Jhalawar

(v) Imports Vs Indigenous Production

Project does not involve any imports & promotes indigenous agriculture production.

(vi) Export Possibility

NIL

(vii) Domestic/export Markets

The project will aid development of domestic agricultural market.

(viii) Employment Generation (Direct and Indirect) due to the project

The project will generate agriculture employment.

3.0 Project Description

(i) Type of project including interlinked and interdependent projects, if any

Water Resources Development Project and is not linked with any other project.

(ii) Location (map showing general location, specific location, and project boundary & project site layout) with coordinates.

Project location on 'kml' file & of GT Sheet (1: 50,000 scale) is enclosed with application form.

The Longitude/Latitude of Main Head Works is $76^0$13'14.2E" / 24^0 29'32N" & covers under Survey of India Topographical Map no. 54D-1,D-2,D-3,D-5,D-6,D-7 at 1:50000 Scale.

(iii) Details of alternate sites considered and basis of selecting proposed site, particularly the environmental considerations gone into should be highlighted

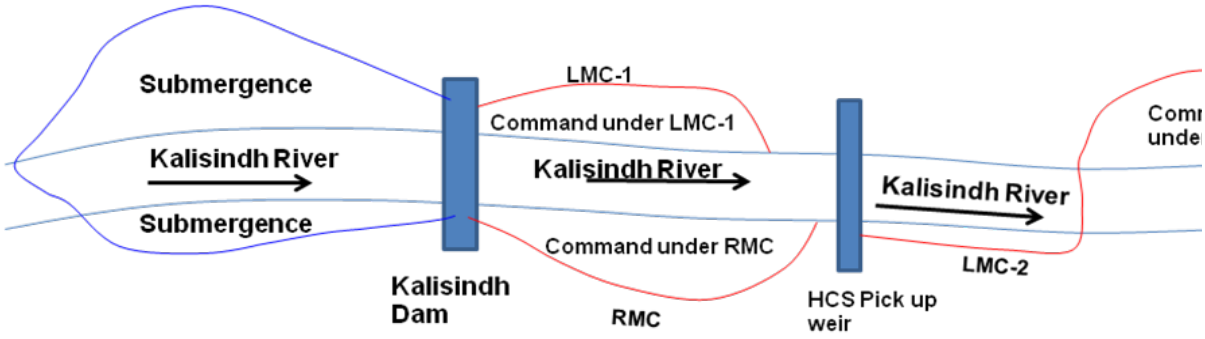
The project is site specific & depends upon Topographic conditions of area & suitability of site for construction od storage structure viz Dam.

(iv) Size or magnitude of operation

Project involves submergence area as well as command areas. The project involves:

Submergence area	4052 Ha
Population affected Villages	6 Nos
Diversion of Forest area under submergence	25.5 Ha
Command Area Generation	14250 Ha
Diversion of Forest Area in command area	47.5 Ha

(v) Project description with process details (a schematic diagram/flow chart showing the project layout, components of the project etc should be given)



Schematic Diagram- Kalisindh Irrigation Project

(vi) Raw Material required alongwith estimated quantity, likely source, marketing area of final product/s, mode of transport of raw material and finished product

Raw Material: Construction material like sand, stone, aggregates, cement, etc will be required to construct project. Approx. quantity of total materials are estimated as under:

Material	**Unit**	**Quantity**
Cement	MT	503851
Sand	MT	325845
Aggregates	MT	771231
Stone	MT	2289

Source: Local Market at Jhalawar town

Final product: Final product anticipated from project is in the form of agriculture production. It is estimated that agriculture production from targeted area will be:

Produce before irrigation	32597.14	QTL
Produce after irrigation	578550.00	QTL

Market: Krishi Upaj Mandi Samitis already existing in the area

(vii) Resource Optimization /recycling and reuse envisaged in the project , if any, should be briefly outlined.

No recycling./reuse is targeted under the project. Construction material will be optimally utilized.

(viii) Availability of water its source, Energy/power requirement and source should be given

Water requirement for construction will be met from the Kalisindh river itself. Construction energy/power requirement will be met from diesel generators which is readily available at market.

(ix) Quantity of wastes to be generated (liquid and solid) and scheme for their management/disposal

NIL

(x) Schematic representations of the feasibility drawing which give information of EIA purpose.

- Location of project on 'kml' & GT sheet
- Detailed layout plan of each component viz. canal network & head works, submergence areas are available
- Structural drawings of major components
- Details of Project affected persons

4.0SITE Analysis

i. Connectivity

(a) Airport	Jaipur (350 km)
(b) Rail head	Jhalawar
(c) Road head	Jhalrapatan. (9 km)
(d) River port	N.A.
(e) Sea port	N.A.

ii. Land Form, Land use and Land Ownership

Land proposed for utilization under this project is Kalisindh river course, agricultural land adjoining river course & some forest area. The details of land coming under submergence is as under:

ABSTRACT OF Land coming under submergence

Submergence level	Private Land		Government Land		Forest Land		TOTAL Land	
	Bigha	**Biswa**	**Bigha**	**Biswa**	**Bigha**	**Biswa**	**Bigha**	**Biswa**
Phase I (316.00 m)	4621	10	2504	1	117	0.7	7242	11.7
Phase II (Between 316 to 319.25 m)	6355	214	2283	273	99	34	8737	521
TOTAL in Bhiga-Biswa	**10976**	**224**	**4787**	**274**	**216**	**34.7**	**15979**	**532.7**
TOTAL IN HA	**2781.57**	**Ha**	**1215.37**	**Ha**	**55.12**	**Ha**	**4052.06**	**Ha**

iii. Topography (along with Map)

Project area in form of 'kml' file is enclosed with application.

iv. Existing land use pattern (agriculture, non agriculture, water bodies) including area under CRZ shortest distance from the periphery of the project to periphery of the forest area, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from HFL of the river), CRZ. Notified industrial area

CRZ Region:	Project area in NOT under CRZ region
Forest Area	The submergence area encroaches forest areas & diversion of forest land is required. Similarly, proposed canal network enters /adjoining to forest area & again diversion of forest area is required.
National Park	One Canal viz LMC -2 starts is near from the edge of Mukundra National Park & runs near border areas of Mukundra National Park (Buffer area).
Water Bodies	Project area is planned on the Kalisindh water body itself.

v. Existing Infrastructure

Kalisindh dam upto storage level of 316.0 m (Phase I) has already constructed. Environmental clearance for the Phase I of project was accorded by MOEF vide file no. J-13011/80/2007-IA.ii(T) dated 26th Feb 2009. The Phase I of the project was an integral part of Kalisindh Thermal Power Project Jhalawar & during environmental clearance of the Thermal Power Plant, environmental clearance of dam works was also accorded.

vi. Soil Classification

The project area lies in Humid South eastern plains of Rajasthan. The area is popularly known as Hadoti region. This region includes the districts of Kota, Baran, Bundi and Jhalawar and two tehsils of Sawai Madhopur namely Khandar and Sawai Madhopur. The black soil region of this plateau is fertile and is used for cultivation of sugarcane, cotton and opium. The region has low hills of the Gwalior series, interspersed with broad plateaus of Vindhyan rocks. A large number of rivers drain this area. The Chambal is the main river along with its main tributaries like Parvati, Kali sindh, Parwan and Banas.

As per agro-climatic zonal classification, project area lies in:

P Zone	Zonal Research Station	Districts	Suitable Crops	Crop Information
RJ-9 South-eastern Humid Plain Zone	Kota	It includes all tehsils of Bundi, Kota, Jhalawar districts and two tehsils viz. Sawai Madhopur and Khandar of Sawai Madhopur district.	Wheat, Gram, Sesame, Linseed, Sorghum, Rice, Coriander, Sugarcane, Chilli, Soybean, Sunflower,	SESAMUM , LINSEED , SOYBEAN , CRIANDER

5.0 Planning Brief

(i) Planning Concept:

Project is planned for:

- Create irrigation potential in 14250 Ha culturable command area (CCA)
- Ensuring drinking water availability to residents of Jhalawar, Jhalarapatn towns & adjoining villages
- Meeting water demand of Horticulture & Forestry College Jhalawar
- Meeting water demand of Kalisindh Thermal Power plants
- Ensuring Industrial development of Jhalawar District

(ii) Population projection

Project does not involve large influx of people. The project will not affect any population projection.

(iii) Land use planning

The project aims in converting rain fed agriculture into irrigated agriculture & to introduce rabi irrigation in the area. Project does not have any impact of existing land use planning. Presently, affected land is mainly used for agriculture & after project, land will again used for agriculture purposes.

(iv) Assessment of Infrastructure Demand

Project aims towards development of infrastructure required for irrigated agriculture like:

- Dam
- Canal network
- Structures encountered along proposed canal network like culverts, aquaducts, falls etc
- Canal side road construction etc
- Infrastructure like Community Halls, Drinking water facilities, School buildings, Colony development, water supply & drainages, street lighting, internal & approach roads, public toilets, Anganwaris, Temples, PHC's, Park's etc required for R&R of PAF's

(v) Amenities/Facilities

Project does not involve any additional amenity/facility except required for irrigated agriculture and R&R of PAF's.

6.0 Proposed Infrastructure

Project does not involve any additional infrastructure for Industrial area, residential area, Green belt, social infrastructure etc. Project involves only infrastructure which are required for irrigated agriculture and R&R of PAF's.

7.0 Rehabilitation & Resettlement (R&R) Plan

Project involves R&R of 6 nos of villages coming under submergence. The R&R plan will be developed during EIA studies and covering policy adopted by central/state. Besides compensation of property affected by project, Broadly R&R plan will cover various aspects:

1	Provision for Construction of infrastructures in Resettled area like Community Halls, Drinking water facilities, School buildings, Colony development, water supply & drainages, street lighting, internal & approach roads, public toilets, Anganwaris, Temples, PHC's, Park's etc.:-
2	Cost for new house @ 1.0 Lacs/family as per schedule II Serial No. 1 of LARR Act 2013
3	Subsistence Grant @ Rs 5.0 lacs /family as per schedule II Serial No. 4 of LARR Act 2013
4	Transit accommodation @ Rs. 3000/- per month for 12 month per family as rent charges for house to be used as transit accommodation as per schedule II Serial No. 5 of LARR Act 2013
5	Provision for free transportation of dismantled material & other house hold articles of oustees @ Rs. 50000/- per house as per schedule II Serial No. 6 of LARR Act 2013
6	Provision for Cattle shed @ 25000/- each for 150 nos. families as per schedule II Serial No. 7 of LARR Act 2013
7	Provision for artisan / small traders /self employed /non agriculturist @ 25000/- each as per schedule II Serial No. 8 of LARR Act 2013
8	One time resettlement allowance @ Rs 0.50 Lacs /family as per schedule II Serial No. 9 of LARR Act 2013

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8.0 Project Schedule & Cost Estimates

The estimated cost of the project at 2014 price level is 2148.65 crores. The project will commence only after its approval from various agencies like MOEF, CWC, Planning commission etc.

9.0 Analysis of Proposal (Final Recommendations)

- The local people will be benefitted by introduction of irrigated agriculture in the area which in turns uplift socio-economic status of the area.
- The project will ensure qualitative & quantitative drinking water availability throughout the year.
- Besides upliftment of local people, state/nation will be benefitted by production of 2520 MW electrical power generation through Rajasthan Vidyut Utpadan Nigam Limited controlled Kalisindh Thermal Power Plants Jhalawar.