



# **ISWD ACT AND TRANS-BOUNDARY WATER ISSUES**

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7<sup>th</sup> January 2015

# INTER-STATE RIVERS

All the major river basins (Drainage area more than 20000 sq.km.) and some among the medium river basins (Drainage area more than 2000 sq.km. and less than 20000 sq.km) and a few minor river basins are inter-State, having their drainage area lying in more than one State / Union Territory.

# INTER-STATE RIVERS

- As the development of projects by one state on an inter-State river may affect the interests of other basin States,
- inter-State differences arise with regard to use, distribution and control of waters of inter-State river basins.

# CONSTITUTIONAL PROVISIONS

## Article 246

Article 246 of the Constitution deals with the subject matter of laws to be made by Parliament and by the Legislatures of the States.

- List – I (Union List)
- List – II (State List)
- List – III (Concurrent List)



## **Provisions related to Water**

The subject of ‘water’ is a matter at Entry 17 of List –II, i.e. State List. This Entry is subject to the provisions of Entry 56 of List –I, the Union List.



## **List -I Entry 56: Union List**

Regulation and development of inter-State rivers and river valleys to the extent to which such regulation and development under the control of the Union is declared by Parliament by law to be expedient in the public interest.

## **List –II Entry 17: State List**

Water that is to say, water supplies, irrigation and canals, drainage and embankments, water storage and water power subject to the provisions of Entry 56 of List – I.

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# **Article 262: Adjudication of water Disputes**

## **a) Article 262(1)**

Parliament may, by law, provide for the adjudication of any dispute or complaint with respect to the use, distribution or control of the waters of, or in, any inter-state river and river valley.

## **b) Article 262(2)**

Notwithstanding anything in this Constitution, Parliament may, by law, provide that neither the Supreme Court nor any other court shall exercise jurisdiction in respect of any such dispute or complaint as is referred to in clause (1).



## Other Provisions

- Articles 131 and 136 of the Constitution have been used by the States frequently for bringing the matters related to inter-State rivers before the Hon'ble Supreme Court.
- Further, Article 143(1) of the Constitution has been used by the Central Government for seeking opinion of the Hon'ble Supreme Court on the matters related to inter-State rivers.

# Inter-State Water Disputes Act, 1956

- Enacted under Article 262 and provides for setting up of adhoc water disputes Tribunals for adjudication of disputes relating to inter-State rivers when negotiations do not lead to fruitful results .
  - i)The State Government may request the Central Government to refer a water dispute to a Tribunal for adjudication.
  - ii)Constitution of a Tribunal for adjudication of the water dispute by the Central Government

# **Inter-State Water Disputes (ISWD) Act, 1956**

- iii) Tribunal to consist of one chairman and two members to be nominated by CJI from among the sitting judges of Supreme Court or of a High Court.
- iv) Tribunal to be assisted by two or more assessors who are experts in Engg. and agriculture to be appointed by Tribunal
- v) The Tribunal to give report to Central Govt.
- vi) Tribunal to give Further report on explanation or guidance sought by the Central or State Governments .

- vii) Decision of the Tribunal (a) shall be published in the Official Gazette  
(b) is binding on the parties to the disputes and shall be given effect to by them.
- viii) Section 11 precludes all the courts including the Supreme Court from having jurisdiction in respect of any water dispute which may be referred to a Tribunal under the Act.
- ix) The Central Government shall dissolve the Tribunal after it has forwarded its report and is satisfied that no further reference is necessary .

- Godavari and Krishna water disputes Tribunal were constituted on 10<sup>th</sup> April, 1969
- Though Godavari and Krishna Water Disputes Tribunal were constituted through separate notifications, Chairman and Members of both Tribunals were same.
- The tribunal submitted a report on 24<sup>th</sup> December, 1973 and Further report 27<sup>th</sup> May, 1976 on Krishna Water Disputes
- The allocation of water of Krishna basin to basin States by the tribunal was mainly on the basis of protected use, contemplated use and use of water

- through project considered worth consideration by the Tribunal.
- There was agreement among party States for protection to be given for utilisations and evaporation losses from a majority of projects.
- The Tribunal submitted its report on Godavari water disputes on 27<sup>th</sup> November, 1979 and Further Report on 7<sup>th</sup> July, 1980.
- The Tribunal in its decision appended the bilateral and multilateral agreements reached between party states from 1975 to 1980 for use and distribution of Godavari water.

- Central Government constituted the Tribunal on 6<sup>th</sup> October, 1969 on Narmada Water Disputes.
- States of Rajasthan, MP, Maharashtra and Gujarat signed an agreement on 12<sup>th</sup> July, 1974 through which State of Rajasthan was made party to the disputes.
- Through this agreement, the yield of Narmada river was determined as 28 MAF at 75% dependability and share of Maharashtra and Rajasthan determined as 0.25 and 0.5 MAF



- Tribunal submitted its report 16<sup>th</sup> August, 1978 and Further report on 7<sup>th</sup> December, 1979.
- Tribunal, in its decision, allocated balance water between MP and Gujarat,
- And also included directions with regard to setting up of machinery for implementation of its decision and directions.



# Important amendment in ISWD Act 1956

- The Act was amended in 1980 and Section 6A was inserted to accommodate directions of NWDT.
- This Section provides for framing a scheme for giving effect to a Tribunal's award.
- The Act was amended in April, 1986 to set up a Tribunal known as “Ravi Beas Waters Tribunal”, suo- motu, or on the request of concerned State Government and Section 14 was inserted.

# **Further References under Provisions of ISWD Act, 1956**

- Ravi and Beas Water Tribunal was constituted on April, 02, 1986 for verification and adjudication of the matters referred in Paragraphs 9.1 and 9.2 respectively of the Punjab settlement in 1985 under Section 14 of ISWD Act, 1956.
- The Tribunal had submitted its report in January, 1987 to the Government.


- The Central Government as well as the party States of Rajasthan, Haryana & Punjab sought explanation and guidance from Tribunal
- The Tribunal could not submit its Further report to the Government so far due to various reasons.
- Also a Presidential Reference under Article 143(1) of the Constitution is pending before the Hon'ble Supreme Court.

- The Cauvery Water Disputes Tribunal (CWDT) was constituted on 2<sup>nd</sup> June 1990.
- The Tribunal passed an Interim Order in June, 1991
- the Interim Order was published in the Official Gazette on 10<sup>th</sup> November, 1991.
- The Tribunal submitted its reports and decision to Government on 5<sup>th</sup> February, 2007
- The Central Government as well as the party States sought explanation and guidance from Tribunal.

- Further, the party States have also filed SLPs under Article 136 (1) of the Constitution in the Hon'ble Supreme Court
- Hon'ble Supreme Court has granted leave and its orders are awaited.
- On the direction of Hon'ble Supreme Court the decision of 5/2/2007 was published on 19<sup>th</sup> February, 2013 in the Official Gazette and is in force now.
- The CWDT has to devote a long time in conducting the proceedings related to oral evidence of a number of expert witnesses.

# Further Amendments in ISWD Act, 1956

- The Act was further amended in August, 2002 as a follow up to the Recommendations of Sarkaria Commission on Centre State relations.

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- i) The tribunal has to be now constituted within a period of one year from the date receipt of request.
  - ii) The Tribunal has to submit report within a period of three years which could be extended for a further period not exceeding two years.
  - iii) The Tribunal has to submit Further report within a period of one year which can be extended for a further period as it considers necessary.

- iv) As per Section 6 (2), the decision of the Tribunal, after its publication in the Official Gazette, shall have the same force as an order or decree of the Supreme Court.
- v) Central Government is also required to maintain a data bank and information system.
- vi) The Act was renamed as Inter-State River Water Disputes (ISRWD) Act, 1956.
- vii) Central Government is to appoint Assessors of the Tribunal.



# Additional Reference before KWDT-2

- Central Government constituted new Tribunal for Krishna basin in April, 2004.
- The KWDT submitted its report and decision on 30.12.2010.
- Party States and Central Government sought guidance/ clarification from KWDT-2.
- KWDT-II submitted of further report on 29.11.2013
- Additional Reference to address the terms of reference specified in clauses (a) and (b) of section 89 of the AP Re-organisation Act, 2014

# **PENDING WATER DISPUTES UNDER ISRWD ACT, 1956**

- In July, 2002, the State of Goa made a request for dispute relating to Madei River.
- The issues included
  - (i) the assessment of available utilisable water resources and
  - (ii) allocation of this water to the 3 basin States keeping in view priority of the use of water within basin

- Government of Goa on January 10, 2007 has modified its request of July 2002 so that same conform to provision of Act.
- Subsequently Central Government constituted the water disputes Tribunal in November 2010 and referred the disputes to the tribunal for adjudication.
- Proceedings before the Tribunal are continuing

- The State of Orissa in February 2006 sent a complaint regarding water disputes of Vansadhara river.
- The main grievances are
  - (i) adverse effect of the executive action of Govt. of Andhra Pradesh in undertaking the construction of a canal taking off from the river Vamasadhara called as flood flow canal at Katragada and
  - (ii) failure of Govt. of Andhra Pradesh to implement the terms of inter-State agreement/ understanding etc. relating to use, distribution and control of waters of inter-State river Vansadhara and its valley.

- Later the State of Orrisa filed a Writ Petition before the Hon'ble Supreme Court for issuing direction to the Central government for early constitution of Tribunal.
- Accordingly Central Government constituted Vamsadhara Water Disputes Tribunal on February 24th, 2010 and referred the said disputes to the Tribunal on 19th March, 2010.
- The Tribunal passed an interim order in December, 2013 allowing AP to construct flood flow canal at Katragada with certain conditions and restrictions.

- Govt. of Bihar on 27.11.2013 requested to settle the Sone River water dispute.
- The basin States are Bihar, Uttar Pradesh , Madhya Pradesh , Chhattisgarh and Jharkhand.
- MoWR on 16.01.2014 has requested GFCC, Patna to make efforts to find a negotiated settlement of the Dispute.
- GFCC convened two meetings on the issue and submitted a report to MoWR, RD and GR .
- Later Chairman, CWC has been directed to find a negotiated settlement of the disputes.
- Further interaction /discussion with party States is continuing.





# MOU WITH NEIGHBOUR COUNTRIES ON INDUS AND ITS TRIBUTARIES

## **Indus Water Treaty-1960**

- Indus basin rivers are trans-boundary rivers flowing to Pakistan through India in North Western direction
- India is the upper riparian country where as Pakistan is the lower riparian for Indus basin
- A network of existing canals fell within the territory of Pakistan but the installations which supplied waters to these canals were situated in India.
- These developments led to the need for agreed arrangements for the use of the waters of the six rivers of the Indus basin.
- With the good offices of the World Bank in 1951 and after extensive negotiations, 'The Indus Waters Treaty 1960' was signed between India and Pakistan on 19.9.1960.



# Indus Waters Treaty - Allocation of Water

As per the Treaty (which has twelve Articles and eight Annexure),

- the waters of the rivers Sutlej, Beas and Ravi (three Eastern Rivers) allocated to India, and
- The waters of Indus, Jhelum and Chenab (Western Rivers) to Pakistan.
- In addition to this, India is also entitled for the following uses on the Western Rivers:

Domestic Use; Non-Consumptive Use; Agricultural Use, as set out in Annexure C; and Generation of hydro-electric power, as set out in Annexure D.

- India's unrestricted right to use waters of the Western Rivers further elaborated under Annexure D.
- The provisions relating to design and operation of the new run of river plants are laid down in Part 3 of Annexure D.

# Operation of Indus Waters Treaty

- As per IWT, Permanent Indus Commission had been constituted for operation and maintenance of IWT
- Permanent Indus commission comprises of two Commissioners
- Indus Commissioner(Pak) with headquarters at Lahore
- Indus Commissioner(India) with headquarters at New Delhi
- Annual meetings are held once in India and once in Pakistan to sort out the various issues
- Visits by two commissioners are also made to see the development in other country to see if there is any violation of Treaty

# Dispute resolution mechanism

- As per Article IX of the Treaty titled as “Settlement of differences and Disputes”
- If Any question which arises between the Parties concerning the interpretation or application of this Treaty or the existence of any fact which, if established, might constitute a breach of this Treaty shall first be examined by the Commission, which will endeavour to resolve the question by agreement.
- If the Commission does not reach agreement on any of the questions mentioned above, then a difference will be deemed to have arisen, which shall be dealt with as follows:
  - Either by a Neutral Expert ;
  - Or A court of Arbitration shall be established to resolve the dispute

# Baglihar Hydroelectric Project (J&K)



Baglihar Hydroelectric Power Project (450 MW) is a Run of the River power project located in Ramban district of Jammu & Kashmir on Chenab river. Its construction was started in 1999 and was completed in 2008.

# Points of Difference

## **Point of Difference - A**

Design of the Baglihar Plant on Chenab Main does not conform to criteria (e) and (a) specified in Paragraph 8 of Annexure D to The Indus Waters Treaty 1960 and that the Plant design is not based on correct, rational and realistic estimates of maximum flood discharge at the site. (Pakistan estimated a maximum flood discharge of 14,900 cumec as against 16,500 cumec provided by India)

## **Point of Difference - B**

The Pondage of 37.722 MCM exceeds twice the Pondage required for Firm Power in contravention of Paragraph 8 (c) of Annexure D to the Treaty

## **Point of Difference – C**

The intake for the turbines for the Plant is not located at the highest level consistent with satisfactory and economical construction and operation of the Plant as a Run-of-River Plant and is in contravention of Paragraph 8 (f) of Annexure D to the Treaty.



# The Final Determination of the Neutral Expert

## The Determination D-1

relating to the maximum design flood [point (a) of the difference referred by Pakistan]

- “In view of all the uncertainties of flood analysis, the NE has decided to retain the value of 16,500 cumec for the peak discharge of the design flood. Climate change, with the possible associated increase in floods, also encourages a prudent approach”

## The Determination D-2

relating to the issue of gated or ungated spillway [point (a) of difference referred by Pakistan]

- The NE considers, in conformity with the state of the art, that the conditions at the site of the Baglihar plant require a gated spillway.
- This decision is consistent with the provisions of the Treaty, requiring a sound and economical design, and satisfactory construction and operation of the works.

## The Determination D-3

relating to the level of the spillway gates [point (a) of the difference referred by Pakistan]

- The NE considers that the sluice spillway, planned in India's design and composed of five outlets, has two functions: sediment control of the reservoir and evacuation of a large part of the design flood.
- In conformity with international practice and the state of the art, he considers also that the proposed outlets should be of the minimum size and located at the highest level (808 m asl), consistent with a sound and economical design and satisfactory construction and operation of the works. But to ensure protection against flooding of Pul Doda, the outlets should preferably be located 8 m lower, at about el. 800 m asl
- Sound operation of the outlets will necessitate carrying out maintenance of the reservoir with drawdown sluicing each year during the monsoon season.

# The Determination D-4

relating to the artificial raising of the water level [point (a) of difference referred by Pakistan]

- The dam crest elevation of the Baglihar dam, fixed in the design submitted by India at el. 844.5 m asl, resulting from a freeboard above the Full Pondage Level of 4.50 m, is not at the lowest elevation.
- The Determination of the NE is that the freeboard should be 3.0 m above the Full Pondage Level leading to a dam crest elevation at 843.0 m asl. This is possible if the design of the chute spillway is optimised by minor shape adjustments in order to increase its capacity.



# The Determination D-5

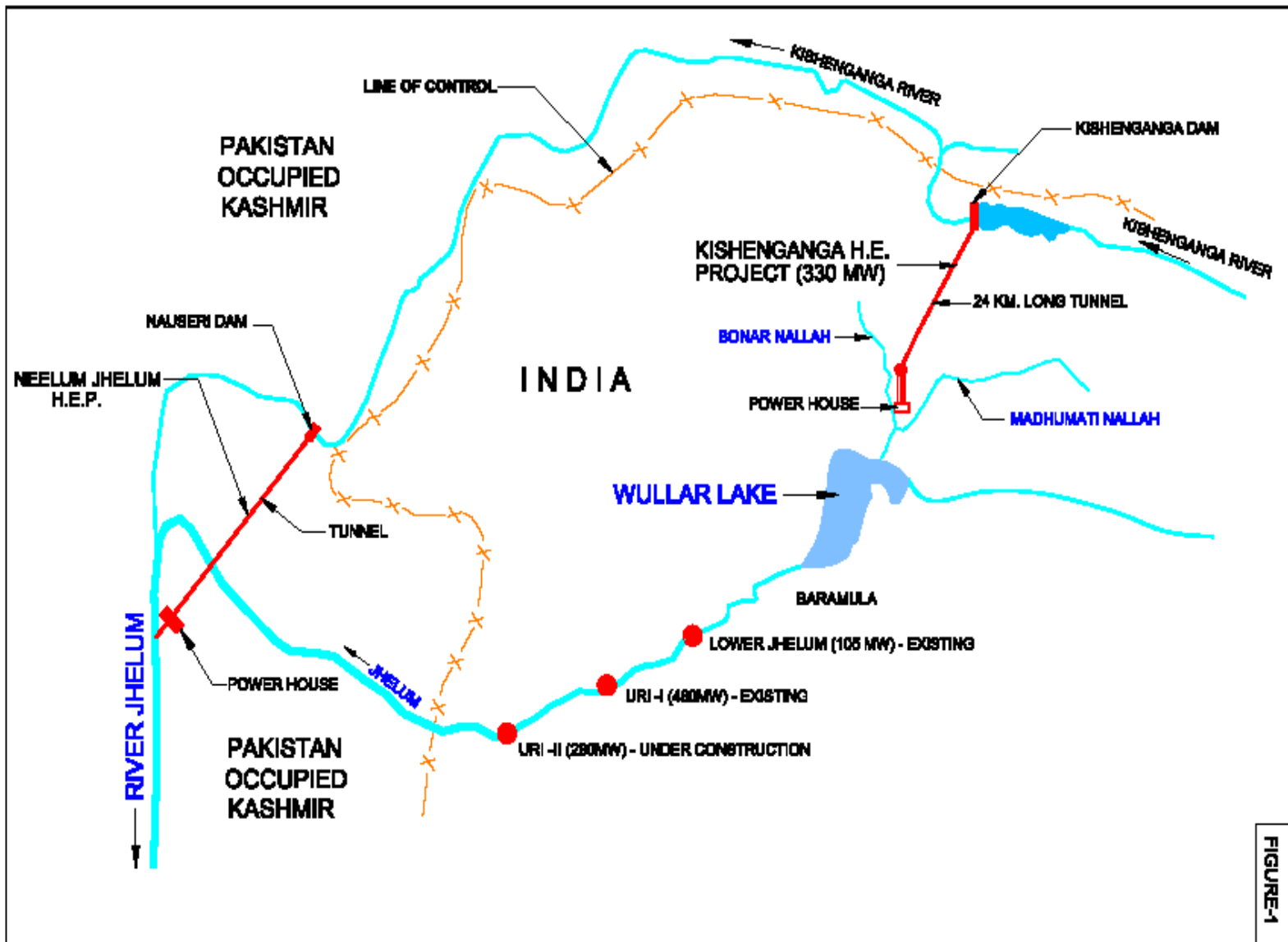
relating to the volume of the pondage [point (b) of the difference referred by Pakistan]

- Applying the provisions of the Treaty and based on the state of the art, the NE considers that the first objective of pondage is to regulate the flow of the river to meet consumer demand. He considers also that the values for maximum pondage stipulated by India as well as by Pakistan are not in conformity with the criteria laid down in the Treaty.
- The Determination of the NE is that the maximum Pondage should be fixed at 32.56 M.m<sup>3</sup>, and the corresponding Dead Storage Level at el. 836 m asl, one meter higher than the level of the Indian design.

# The Determination D-6

relating to the level of the power intake [point (c) of the difference referred by Pakistan].

- The NE considers that the elevation of the intake stipulated by India is not at the highest level, as required by the criteria laid down in the Treaty.
- The determination of the NE is that the intake level should be raised by 3 m and fixed at el. 821.0 m asl.



# Initiation of Arbitration ON KHEP

- Through a Request for Arbitration dated 17 May 2010, Pakistan initiated proceedings against India pursuant to Article IX and Annexure G of the Treaty.
- In the Request for Arbitration, Pakistan stated that the Parties had failed to resolve the “Disputes” concerning the Kishenganga Hydroelectric Project (the “KHEP”) by agreement pursuant to Article IX(4) of the Treaty.
- Pakistan identified “two questions that are at the centre” of the dispute in the following manner:

# Disputes before the court

## ❖ First Dispute

- India's proposed diversion of the river Kishenganga (Neelum in Pak) into another Tributary, i.e the Bonar-Madmati Nallah, breaches India's legal obligations owed to Pakistan under the Treaty, namely
- Article III(2) (to let flow all the waters of the western rivers and not permit any interference with those waters) and
- Article IV(6) (maintenance of natural channels)!

## ❖ Second Dispute

- Under the Treaty, India may not deplete or bring the reservoir level of a run-of-river Plant below Dead Storage Level(DSL) in any circumstances except in the case of an unforeseen emergency!

# Awards of the Court of Arbitration

## Interim Order of 23<sup>rd</sup> September, 2011

- For the duration of these proceedings up until the rendering of the Award,
  - (a) It is open to India to continue with all works relating to the Kishenganga Hydro- Project, except for the works specified below;
  - (b) India shall not proceed with the construction of any permanent works on or above the Kishenganga/Neelum River riverbed at the Gurez site that may inhibit the restoration of the full flow of that river to its natural channel; and
- Pakistan and India shall arrange for periodic joint inspections of the dam site at Gurez in order to monitor the implementation of above interim measures.

# Partial Awards of the Court of Arbitration

- After hearings held in August, 2013, Court delivered its Partial Award during February, 2013.
- **A. the first Dispute,**
  - (1) The Kishenganga Hydro-Electric Project, as described to the Court by India, constitute a Run-of-River Plant for the purpose of Paragraph 15 of Annexure D to the Indus Waters Treaty, and in particular sub-paragraph (iii) thereof.
  - (2) India may accordingly divert water from the Kishenganga/Neelum River for power generation by the Kishenganga Hydro-Electric Plant and may deliver the water released below the power station into the Bonar Nallah
  - (3) India is however under an obligation to construct and operate the Kishenganga Hydro-Electric Plant in such away as to maintain a minimum flow of water in the Kishenganga/Neelum River, at a rate to be determined by the Court in a Final Award.



## **B. the Second Dispute,**

- (1) Except in case of an unforeseen emergency, the treaty does not permit reduction below dead storage Level of the water level in the reservoirs of Run-of-River Plants on the Western Rivers.
- (2) The accumulation of sediment in the reservoir of a Run-of-River Plant on the Western Rivers does not constitute an unforeseen emergency that would permit the depletion of the reservoir below Dead Storage Level for drawdown flushing purposes.
- (3) Accordingly, India may not employ drawdown flushing at the reservoir of the Kishenganga Hydro-Electric Plant to an extent that would entail depletion of the reservoir below Dead Storage Level.



(4) Above restriction do not apply to Run-of –River Plants that are in operation on the date of issuance of this Partial Award. Likewise, do not apply to Run-of River Plants already under construction on the date of issuance of this Partial Award, the design of which, having been duly communicated by India under the provision of Annexure D, had not been objected to by Pakistan as provided for in Annexure D.

C. This Partial Award imposes no further restrictions on the construction and operation of the Kishenganga Hydro-Electric Plant, which remain subject to the provisions of the Treaty as interpreted in this Partial Award.

D. To enable the Court to determine the minimum flow of water in the Kishenganga/Neelum River referred above, parties to submit to the Court the information regarding range of minimum flows.

E. The interim measures indicated by the Court in its 23 September 2011 *Order on the Interim Measures Application of Pakistan dated June 6, 2011* are hereby lifted.

F. The costs of the proceedings to be awarded by the Court pursuant to Paragraph 26 of Annexure G to the Treaty shall be determined in the Court's Final Award.

- After Partial Award, both Pakistan and India submitted the studies related to range of minimum flows to be released from KHEP.
- India stick to its originally planned environment flows as 4.25 cumec during lean season.

# Final Award

- Having considered the Parties' submissions, during December, 2013, the Court of Arbitration unanimously decides:
- In the operation of the KHEP:
  - Subject to paragraph below, India shall release a minimum flow of 9 cumecs into the Kishenganga/Neelum River below the KHEP at all times at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP meets or exceeds 9 cumecs.
  - At any time at which the daily average flow in the Kishenganga/Neelum River immediately upstream of the KHEP is less than 9 cumecs, India shall release 100 percent of the daily average flow immediately upstream of the KHEP into the Kishenganga/Neelum River below the KHEP.

# Final Award- contd

- Beginning 7 years after the diversion of water from the Kishenganga/Neelum River for power generation by the KHEP, either Party may seek reconsideration of the minimum flow in paragraph above through the Permanent Indus Commission and the mechanisms of the Treaty.
- This Final Award imposes no further restrictions on the operation of the KHEP, which remains subject to the provisions of the Treaty as interpreted in this Final Award and in the Court's Partial Award.
- The decision of the Court of Arbitration is final and binding on both parties and there is no further appeal /review mechanism.

# Monitoring of E-flows

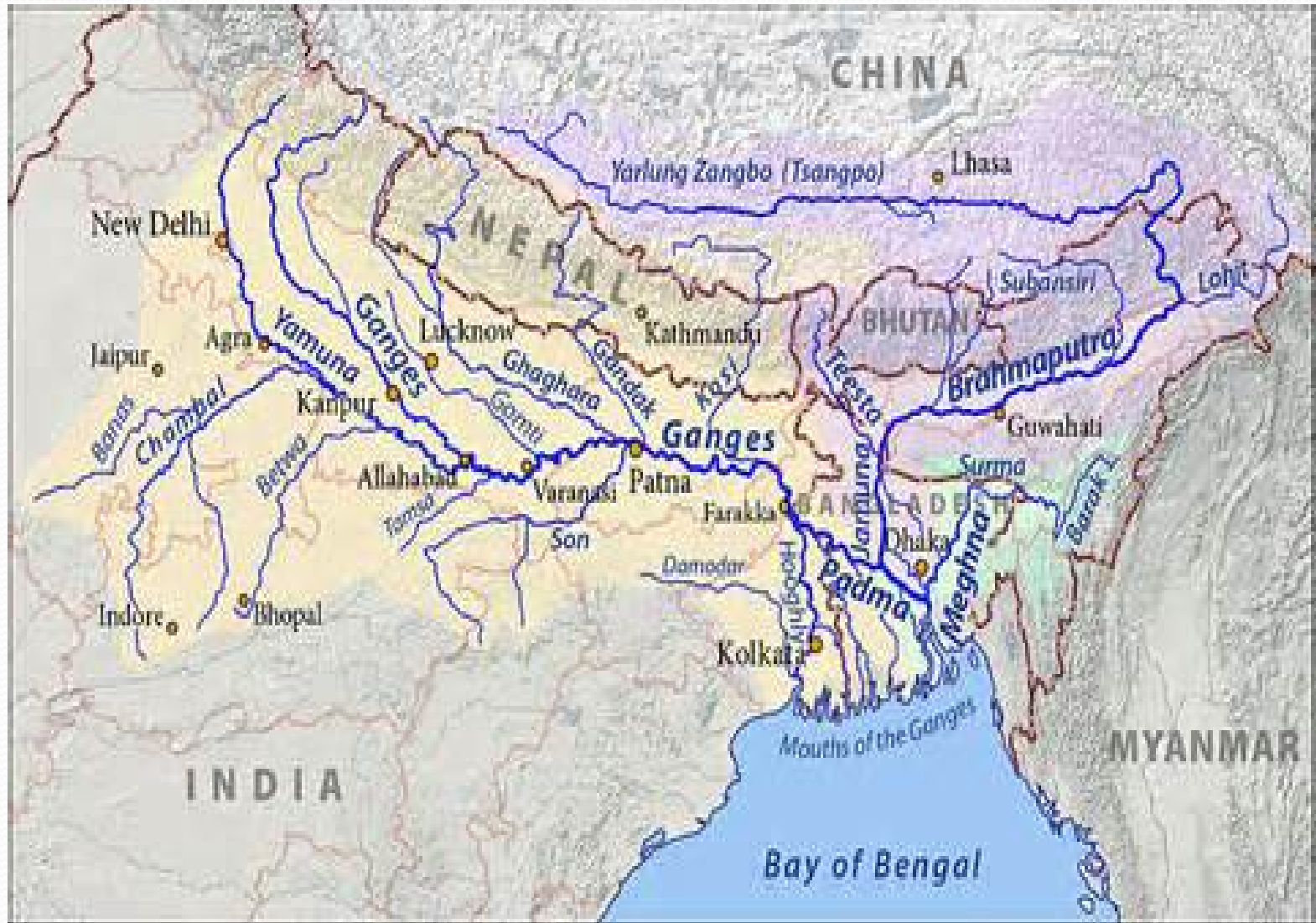
- Pakistan had requested that the Court establish a monitoring regime to permit it to evaluate India's compliance with the minimum flow fixed in this Award.
- In the Court's view, the appropriate is the Permanent Indus Commission.
- The Court recalls that Article VI(1) of the Treaty already requires the Parties to exchange “(a) Daily (or as observed or estimated less frequently) gauge and discharge data relating to flow of the Rivers at all observation sites” and “(b) Daily extractions for or releases”
- In light of the foregoing provisions, it is neither necessary, nor within the Court's purview, to instruct the Commission as to the manner in which it carries out its responsibilities or to mandate a special monitoring regime in implementation of this Award.

# MOU with China on Sutlej

- In April, 2005, an MOU was signed for supply of hydrological information by China to India in respect of Langquin Zangbo / Sutlej River in flood season.
- Accordingly, the Chinese side provided hydrological information to India beginning from monsoon 2006.
- On expiry of the above MOU in 2010, the revised MOU was signed on 16th December, 2010.
- Joint Expert Level Mechanism (JELM) have been set up to discuss interaction and cooperation on the provision of flood season hydrological data, emergency management and other issues regarding trans-border rivers.



# River Ganges



# MOU WITH NEIGHBOUR COUNTRIES ON GANGA AND ITS TRIBUTARIES

- Ganga river basin is one of the largest river basins in India.
- In Ganga basin, India is sharing its boundary with other countries as Nepal, China and Bangladesh.
- In case of Nepal and China, India is the lower riparian whereas in case of Bangladesh, India is the upper riparian.
- It covers a geographical area of 10,80,000 km<sup>2</sup> out of which 8,61,452 km<sup>2</sup> (80%) lies in India. The remaining catchment lies in Nepal (13%), in Bangladesh (4%) and in Tibet Autonomous Region of China (3%).
- In India, the Ganga basin covers eleven States viz., Uttarakhand, Uttar Pradesh, Himachal Pradesh, Haryana, Delhi, Rajasthan, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand and West Bengal.
- The total length of the main River Ganga, from its origin at Gangotri Glacier at Gomukh, to the mouth of the Hooghly River on Bay of Bengal is 2525 km.



## **Kosi River Agreement 1954(Revised in 1966):**

- Agreement provides for construction of barrage and related works in Nepal territory on Kosi river.
- Agreement authorizes Nepal to withdraw water from Kosi basin for irrigation and other purposes as may be required from time to time.
- Agreement authorizes India to regulate all balance supplies in Kosi river at barrage site as available from time to time and generate hydropower.
- Nepal is entitled to use 50% of the power generated around barrage site on payment of agreed tariff.

## MoU in 1997

- Provides to harness the water resources of river Kosi for carrying out studies for preparation of DPR of Sapta Kosi High Dam Project and Sun Kosi Storage-cum-Diversion Project
- Provides for establishment of India Nepal Joint Project Office.
- (JPO) was set up in August' 2004.
- The tenure of JPO has been extended upto February, 2015 to complete field investigation and preparation of DPR

# Agreement on Gandak Project 1959 (amended in 1964):

- Provides for the construction of a barrage –at Nepal-India border
- as well as embankments and irrigation canals on both sides of the Gandak river
- Provides for diversion of water annually for irrigation in India and Nepal(GCA in Nepal 143500 acres) ;
- Generation of hydropower( installed capacity 15 MW).
- Agreement authorizes Nepal to withdraw water from Gandak basin for irrigation and other purposes as may be required from time to time without any prejudice to above requirement.

# Mahakali Treaty, 1996

- The treaty covers Sarda Barrage, Tanakpur Barrage and Pancheshwar Project
- Defines principles of planning, design and implementation of the Pancheshwar Project, a joint Indo-Nepal project on the Mahakali River, for obtaining the benefits in form of power, irrigation, flood control etc.
- The Treaty provides that both parties have equal entitlement in the utilization of water of Mahakali river without prejudice to their respective existing consumptive use

- It gives Nepal the right to a supply of 28.35 cumecs and 4.25 cumecs water during wet and dry season respectively from the Sarda Barrage.
- Requires India to maintain a minimum flow ( $10 \text{ m}^3/\text{s}$ ) of water downstream of the Tanakpur and Sarda barrage to preserve the river's ecosystem.
- It gives Nepal the right to a supply of 28.35 cumecs and 8.5 cumecs water during wet and dry season respectively from the Tanakpur Barrage.
- It gives Nepal the right to a supply of 70 million KWh of energy annually on continuous basis free of cost from Tanakpur power station.
- Requires India to supply 10 cumecs of water for irrigation of Dodhara Chandani area of Nepal
- The Treaty provides for establishment of Mahakali River Commission for implementation of the Treaty.

- During the 3rd meeting of Joint Committee on Water Resources (JCWR) held from 29.09.08 to 01-10-08 at Kathmandu (Nepal), it was decided to set up Pancheshwar Development Authority (PDA)
- The constitution of PDA has been notified on 7th August 2014.
- The Terms of Reference of the Authority includes, inter-alia, preparation of Detailed Project Report (DPR) acceptable to both the countries.
- All the parameters including height of the dam would be finalised by the PDA at the time of finalisation of the DPR of the project, acceptable to both sides.
- It has been agreed to have a corpus fund of IRs. 20.00 crore with both India and Nepal contributing IRs.10.00 crore each, for preliminary works of Pancheshwar Development Authority (PDA).

# Agreement with Bangladesh

- Prime Ministers of Bangladesh and India signed a treaty on sharing of Ganges water in **lean period** in 1996 for 30 years.
- The flows of the Ganges would be shared at Farakka between the two countries from January 1 and May 31
- India would maintain flow at Farakka equal to flow based on 10 day average availability of water of the period(1949-1988).
- India and Bangladesh each would get a flow of guaranteed 35,000 cusecs in alternate 10 day period from March 1 to May 10 .
- The two countries also agreed to the need for mutual cooperation in augmenting the flow of the Ganges on a long-term basis, and for entering into similar accords in sharing the flows and developing the water resources of other common rivers.
- The Treaty also provides for setting up of Joint Committee for implementation of terms of the Treaty.
- The Treaty is being implemented to the satisfaction of both the countries since 1997.



➤ As per the provision of the Treaty a Joint Committee has been set up for implementing, joint inspection and monitoring of the sharing arrangements at Farakka in India and at Hardinge Bridge in Bangladesh .

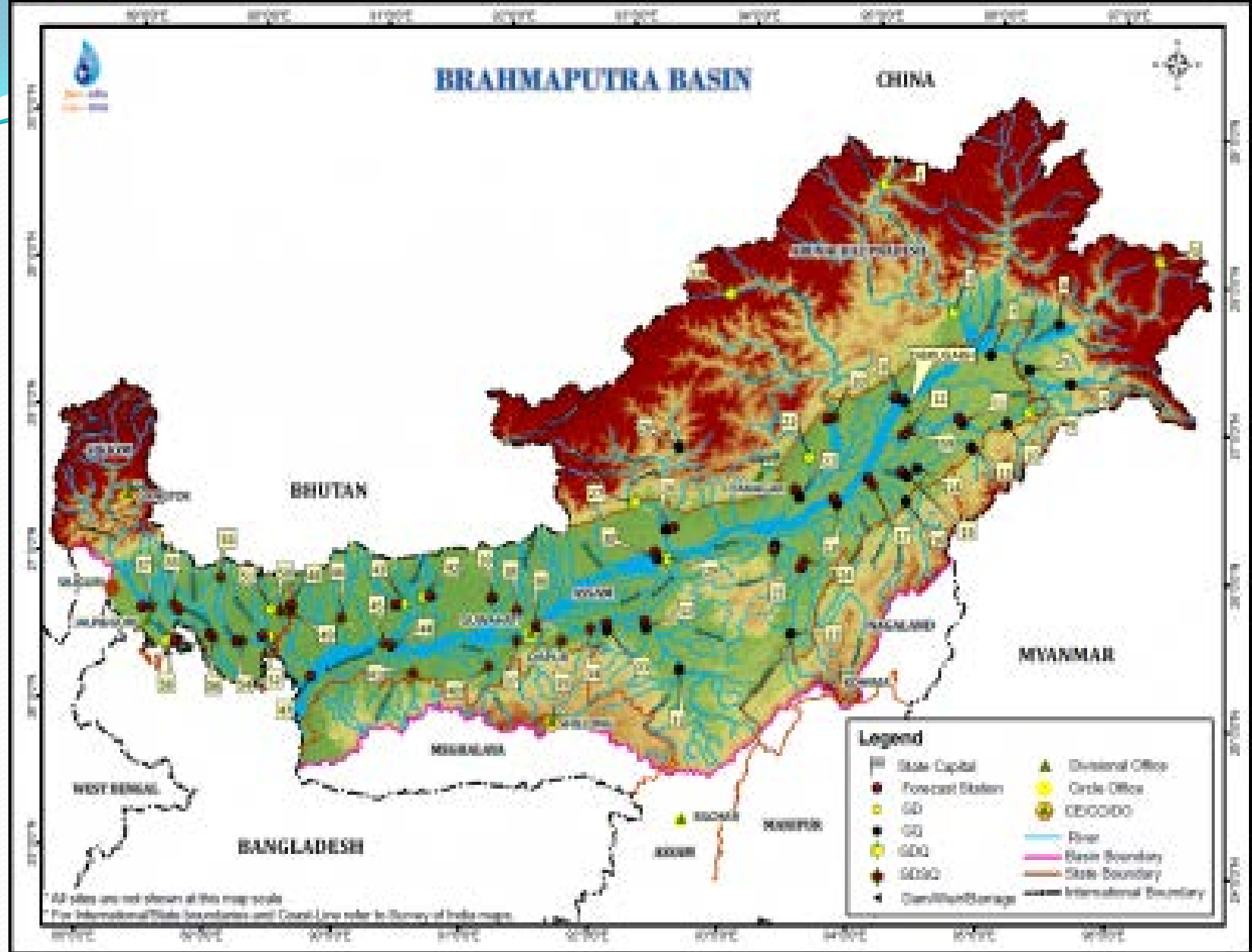
➤ India provides the flood data of Farakka for Ganga and flood data of Pandu, Goalpara and Dhubri for Brahmaputra and Silchar for Barak during monsoon period to Bangladesh for use by their flood forecasting and warning arrangements

➤ Data of river Teesta, Manu, Gumti, Jaldhaka and Torsa etc is also given.

➤ The transmission of flood forecasting information from India has enabled the civil and military authorities in Bangladesh to take precautionary measures and shift the population affected by flood to safer places.

➤ Discussions have been continuing with Bangladesh for sharing of waters of Teesta & Feni rivers besides other six common rivers namely; Manu, Muhri, Khowai, Gumti, Jaldhaka and Torsa.





Central Water Commission- Ghaghar River Basin

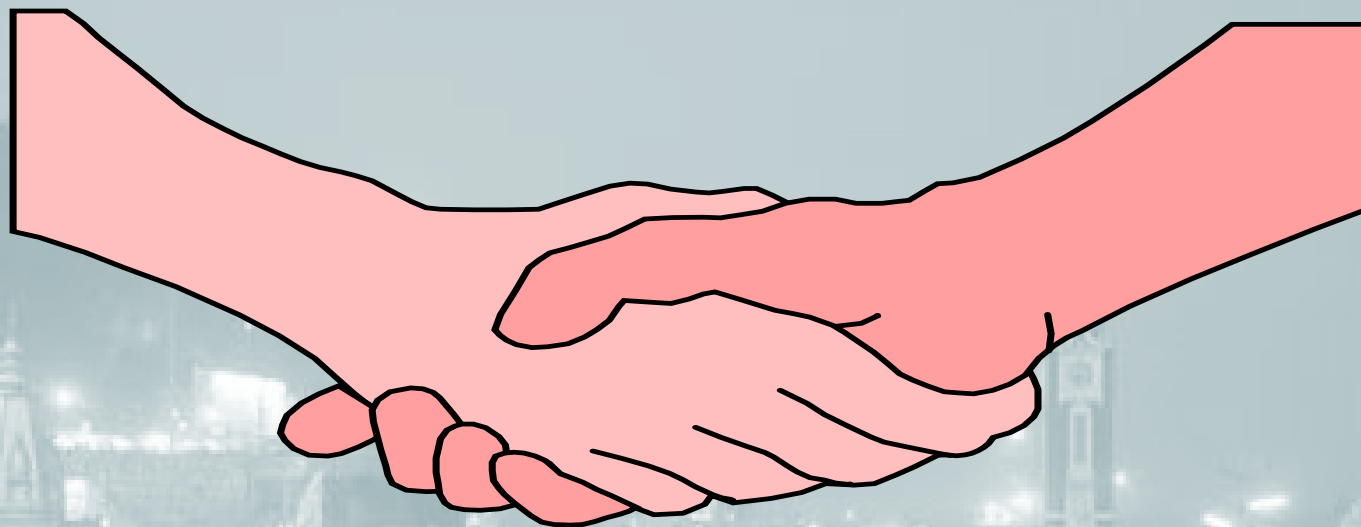
# Treaty/Agreement in Brahmaputra basin

- India signed an agreement with Bhutan in 1974 for construction of Chukha HE Project on a tributary of Brahmaputra located in Bhutan.
- As per the Agreement, India is to provide 60% of the total capital cost as grant and 40% of the cost as loan for construction of the project.
- Installed capacity of the Plant is 84 MW and average head is 466.34m
- Bhutan agreed to sold surplus power to India at mutually agreed rate.
- India signed another agreement with Bhutan in 1993 for construction of Tala HE Project on Wangchu a tributary of Brahmaputra located in Bhutan.

- As per the Agreement, India is to provide 60% of the total capital cost as grant and 40% of the cost as loan for construction of the project.
- Installed capacity of the Plant is 6x170 MW.
- Bhutan agreed to sold surplus power to India at mutually agreed rate.
- Ministry of Water Resources is also operating a separate scheme for setting up of flood forecasting system on rivers common to India and Bhutan .
- The present network in Bhutan comprises of 32 hydro-meteorological sites
- The data received from these stations are utilized by CWC for formulating flood forecasts.

- There is no Treaty/agreement with China on sharing waters of river Brahmaputra.
- The Government of India had entered into an MOU with China in the year 2002 for sharing of hydrological information on Yaluzangbu/ Brahmaputra river.
- A revised MOU was signed on 05-06-2008.
- As per MOU, the Chinese side is providing hydrological information (Water level, discharge and rainfall) in respect of three stations, namely Nugesha, Yangcun and Nuxia located on river Yaluzangbu/Brahmaputra from 1st June to 15th , October every year,
- The data is utilized in the formulation of flood forecasts by the Central Water Commission.

- In April, 2005, an MOU was signed for supply of hydrological information by China to India in respect of Langquin Zangbo/ Sutlej river in flood season.
- The Implementation Plan in this regard was signed in April 2008.
- Accordingly, the Chinese side provided hydrological information to India beginning from monsoon 2006.
- On expiry of the above MOU in 2010, the revised MOU was signed on 16th December, 2010.
- Joint Expert Level Mechanism (JELM) –have been set up to discuss interaction and cooperation on the provision of flood season hydrological data, emergency management and other issues regarding trans-border rivers.
- The Indian side of Joint Expert Level Mechanism (JELM) is headed by Commissioner (B&B), MoWR and Chief Engineer (FM), CWC is member of JELM.



**Thank you**