

REPORT OF THE
COMMISSION FOR APPORTIONMENT OF
WATERS OF INDUS RIVER SYSTEM.

9/c

HALEEM COMMISSION REPORT

I N D E X

CHAPTER-I.	Introductory	...	1 -18
CHAPTER-II.	Indus Basin and Barrages.	...	18-22
CHAPTER-III.	Dependable availability of water and recommendations of Fazle Akbar Committee.	...	22-49
CHAPTER-IV.	Synopsis of the cases of four Provinces.	...	49-74
CHAPTER-V.	Observations and Recommendations.	...	75-98
Total of Pages.			211

ENCLOSURES

I. Views of the Chief Justice of Pakistan dated June 27, 1982. Annexure 'I'

II. A. PUNJAB

Replies to Questionnaire. P-1
Synopsis of Case. P-2

B. SIND

Synopsis of Case. S-1
Replies to Questionnaire. S-2
Legal Issues. S-3

C. N.W.F.P.

Presentation of Case. N-1
Replies to Questionnaire. N-2

D. BALUCHISTAN

Synopsis and Replies. B-1

CHAPTER - I INTRODUCTORY

The economy of Pakistan is mainly agricultural in nature and is based upon irrigation of land with the waters of River Indus and its tributaries. The flow of water in the rivers and their canals is, therefore, life blood of the Country without which it will not be possible for us to have a firm and sound economy in Pakistan.

2. In early days the process of irrigation was confined to strips of land adjoining the river banks which normally received the river supplies mostly at the time of floods without any effort on the part of the cultivators. Later on irrigation was extended to other lands also by constructing water courses which carried water from the rivers when their level rose due to melting of snow and rains in the upper catchment areas. These water courses became regular water channels by the passage of time and were known as Inundation Canals.

3. In the early days the Indo Pakistan Sub-Continent was served by inundation canals only. After

the British occupation the then Government of India passed the Northern India Canal and Drainage Act of 1873, to cover the relationship between the British Government and the Indian States etc. in this regard. The policy regarding construction of new canals and apportionment of river waters for this purpose was laid down in 1866. The Government of India formulated a guide line which was faithfully followed by the successive Governments. The principle was that "the only project which should be entertained by the Government of India is the best that can be devised, irrespective of the territorial boundaries of the British and foreign States, in the benefits of which the native states should be allowed to participate on like terms with our own subjects".

4. It would be clear that since quite long the law of equitable apportionment has been applied to the disputes between Provinces of the British India and the Indian States. Consequently, in none of the projects sanctioned by the Government of India the area in which the water was to be utilized was

restricted to the watershed of the river from which it originated. This doctrine of apportionment was not strictly in conformity, if not at variance, with the law relating to riparian rights and the areas irrigated by inundation canals continued to have preference over the areas intended to be covered by the new projects.

5. After the British occupation attention was paid first to the area of the tributaries of River Indus. The first canal opened in 1859, was the Upper Bari Doab Canal on the River Ravi, the upper portion of which is now in India. The next canal was Sarhind Canal on the River Sutlej which was completed in 1882 and now lies in India. During the period from 1885 to 1901 the Lower Swat Canal, the Kabul River Canal, the Sidhnai Canal, Lower Chenab Canal and the Lower Jhelum Canal were constructed one after the other. The Baharpur Canal was commissioned in 1908 and Upper Swat Canal in 1914. The most ingenious pattern of inter-linking the rivers and using the surplus water of one river in the catchment areas of another river came

into being in the shape of Tripple Canal Project in 1915 which included the Upper Chelum Canal, the Upper Chenab Canal and the Lower Bari Doab Canal. Under the project the surplus water of Jhelum was poured into Chenab for use in the Lower Chenab Canal and that of Chenab was transferred to Ravi to feed the Lower Bari Doab Canal.

6. In December, 1921, the Government of India sanctioned the Sutlej Valley Project in the Punjab, which was completed in 1932. It consisted of eleven canals and four head-works, out of which one head-work and two canals are now in India. In 1923 the Sukkur Barrage Project was sanctioned and completed in 1932. The Haveli Canals Project, with its head-works at Trimmu, was sanctioned in 1937 and commissioned in 1939. The other projects on River Indus were constructed later on, e.g., Ghulam Muhammad Barrage in 1956, Taunsa Barrage in 1958 and Gudu Project in 1962.

7. In the Indo-Pakistan Sub-Continent, disputes over the adequate supplies of waters to the Provinces

and the Indian States concerned are of a very long standing. In 1901 when the Punjab Government submitted to the Government of India their proposals with regard to Lower Bari Doab Project for their approval it was pointed out that the proposed project was likely to interfere with the inundation canals of the Bahawalpur State and the Punjab Government had to give assurance, under the directions of the Government of India, to the Bahawalpur Darbar that the Government would be willing to incur any expenditure to safeguard the interests of Bahawalpur State and also to award reasonable compensation for any unavoidable injury. The project was, ultimately, not proceeded with. It may be observed here that the doctrine of "prior apportionments having preferential rights" was maintained all along and the Canal Act, 1873, did not apply to the disputes among the Provinces, or among the Indian States or among the Provinces and the Indian States.

8. In 1924, in a dispute between the Punjab and the united Provinces relating to the Jamra River the Government of India observed that it was far more

serious to withdraw the existing than to refuse fresh withdrawals. The controversy over the distribution of water of Indus River and its tributaries is very old and appears to date back to the year 1919 when the report of the Indian Cotton Committee, which was keenly interested in Sukkur Barrage Project, then under construction, was published. Sind being a part of the Province of Bombay at that time, the Government of Bombay was very apprehensive as to the effects on the availability of water for the Barrage after certain projects which were then under consideration with the Government of the Punjab were completed. In those days both in the Provinces of Punjab and the area now called Sind certain projects were simultaneously under consideration with the Provincial Governments, e.g., Sutlej Valley, Thal and Haveli Projects in the Punjab and the Sukkur Barrage Project in Sind. However, after considering all the pros and cons, the Government of India sanctioned Sutlej Valley Project in the Punjab and the Sukkur Barrage Project in Sind with the approval of the Secretary of State for India. The Government of

the Punjab, however, vehemently protested against the approval of the Sukkur Barrage Project in Sind resulting into a strong objection on the part of the Government of Bombay, within whose jurisdiction the existing Province of Sind lay, alleging that the Punjab had more than its due share of water for its vast schemes of perennial irrigation while Sind was far behind in this respect. The Bombay Government also complained that while examining the proposal with regard to the Sutlej Valley Project in the Punjab, they had not been consulted regarding its likely effect on Sind, and that they were faced with a situation that on completion of the Sutlej Valley Project, the water availability for Sukkur Barrage would be far less than that on which the scheme of Sukkur Barrage was originally based. The Government of India, however, were of the view that sufficient water was available both for the projects of Sukkur Barrage in Sind as well as the Sutlej Valley Project in the Punjab. The Federal Government further decided that no new major projects in either of the two Provinces would be sanctioned without the other party being given full information and timely notice.

INDUS DISCHARGE
COMMITTEE

9. In September, 1921, the Government of India set up a Committee known as the Indus Discharge Committee to co-ordinate and scrutinize the results obtained from the new system of water gauging instituted in Punjab and Sind, which was introduced by Sir Thomas Ward the then Inspector General of Irrigation, which included establishment of discharge observation stations on the River Indus as well as its tributaries. The Committee reached the conclusion that the most important matter to be taken notice of was the amount of water either lost or gained in different parts of the river beds, i.e., the quantity of water absorbed or regenerated in the River Beds between different points of observation. Later on, it appears that differences between the Bombay and the Punjab Governments with regard to new projects undertaken by the Punjab were resolved. The Sukkur Project was completed in 1932 and various discharges allotted to the canals in accordance with the figures contained in the Project itself.

10. The matter, however, became complicated again because the existing canals in Khairpur and

Bahawalpur States had to be provided with water to save the economy of those States. At this stage Frontier Province also approached the Punjab and the Bombay Governments for some additional withdrawals from the River Indus for their Paharpur Canal and this demand of the Province was fully met without any objection either on the part of Bombay or Punjab.

In order to settle the pending issues, the Government of India constituted another Committee i.e., Indus Committee, 1935, which is commonly known as Anderson

ANDERSON COMMITTEE

Committee. This Committee, after investigating the claims of various Provinces, submitted its report some-time in the end of 1936. Later on, however, on a complaint from Sind under the provisions of the

Government of India Act, 1935, regarding non-availability of sufficient water for its various projects,

COMMISSION

another commission headed by Justice B.N. Rao, a Judge of the Calcutta High Court, was set up by the Govern-

ment of India in 1941, which is known as Rao Commission.

The Commission examined the whole case in detail with reference to a number of issues and submitted its

report to the Government of India in 1942. However,

before the Government of India could pass any order on the recommendations of the Rao Commission, new elections took place in the Country and ministries were formed in certain Provinces.

11. In 1946 a number of formal and informal conferences were arranged between the representatives of the Punjab and Sind to resolve these out-standing issues and a draft agreement was prepared which is known as Sind Punjab Draft Agreement. This draft agreement could not be enforced due to differences between the two Provincial Governments mostly on the financial issues involved therein. However, before any orders could be passed in this respect, the Country was divided into two Dominions of Pakistan and India.

SIND PUNJAB
DRAFT AGREEMENT

12. After the Partition of the Punjab Province, at the time of Independence, a dispute arose between Pakistan and India about the distribution of waters of Indus River and its tributaries between the two Countries. Consequently, the Indus Water Treaty between India and Pakistan was signed in 1960. The three Eastern Rivers of the Punjab, namely, the Sutlej, Beas

INDUS WATER
TREATY 1960

INDUS BASIN DEVELOPMENT
FUND AGREEMENT
1960

and Ravi were entirely given over to India and Pakistan agreed to enter an agreement for a period of ten years (1960-70), known as the Indus Basin Development Fund Agreement, 1960, to construct, with the help of the friendly Countries, replacement works in order to meet the deficiency of water supplies caused by the transfer of three Eastern Rivers to India, i.e., construction of link canals for transferring water from one Western River to another and construction of storages at Mangla and Tarbela in order to switch over the old canals to the new sources from three Western Rivers, viz, the Indus, the Jhelum and the Chenab. Besides, Pakistan also got a system of works which could lead to substantial irrigation development in the Country after construction of the two above mentioned storage reservoirs.

Gul Hayat Institute

13. After signing of the Indus Water Treaty,

SAFAR HUSSAIN
CHIEF.

1960, allocation of river waters to various projects in different Provinces, as a consequence of the Treaty, has been the subject matter of a good deal of controversy for the past so many years now. The

then West Pakistan Government set up in 1960, a Committee known as Akhtar Hussain Committee, for this purpose, which submitted its report in 1970. However, it appears that under the political strain of break up of One Unit into four Provinces the report was shelved without any consideration,

14. Another Committee was set up by the Federal Government under the Chairmanship of late Mr. Justice Fazle Akbar, a Retired Chief Justice of Pakistan, which submitted its report in the year of 1971, which, in fact, is the report of the Chairman as, according to him, the members of the Committee failed to work out any agreed recommendations. They did not even agree on purely technical issues. The Chairman had, consequently, no alternative but to formulate his own recommendations with the assistance of, and in consultation with, the officers of the then East Pakistan WAFDA. The Chairman's report does not appear to have been taken into consideration nor his recommendations implemented.

FAZLE AKBAR
COMMITTEE

Gul Hayat Institute

15. In 1977, a High Powered Indus Water Commission was constituted with the Chief Justice of Pakistan, as its Chairman, and the Chief Justices of the four High Courts in the Country as its Members, with a direction that the Commission should submit its report to the Council of Common Interests within a period of nine months and according to the terms of the Law Division's Notification of the 27th March, 1980, the meeting of the Commission held at Rawalpindi on the 20th February, 1980, was declared to be the first meeting for this purpose. The Indus Water Commission held its session at Rawalpindi from the 22nd of April, 1980, to the 30th of April, 1980, when the representatives of the Punjab, Sind and N.W.F.P. completed presentation of their respective cases, and the case of the Province of Baluchistan remained to be presented. The Indus Water Commission could not meet thereafter due to certain unavoidable reasons and according to the current position the stipulated period of nine months expired on the 20th November, 1980.

16. Now that the entire Commission has undergone a change due to the retirement of its Chairman and other members, the only course left open to us was that the case may be heard de-novo, which definitely would have taken a long time. In the circumstances, as desired by the President, the present Chief Justice of Pakistan examined the report of the Fazle Akbar Committee along with the cases of the four Provinces and formed his own recommendations in this regard which were sent to the President on the 27th June, 1983 (Appendix 'I').

17. On the 3rd March, 1983, the President addressed a letter to the Chief Justice of Pakistan, wherein he observed:-

"I entirely agree with your assessment that the non-settlement of this issue constitutes a national loss. It is, therefore, necessary that a speedy effort be made to find a permanent solution of the issue on a fair and equitable basis. Such a solution should take into consideration the legitimate interests of all the Provinces, on the one hand, and the overall national interests on the other. After having given this matter a well-considered thought, I

am of the opinion that no person could be better suited and more qualified than you to undertake this assignment. It would be appropriate if the Chief Justices of the High Courts of the four Provinces are associated in this task. Technical experts from all Provinces could present their respective view points before this High-Powered Body. A final recommendation could then be made by you on the issues involved.

In view of its importance and urgency, I will appreciate it if this assignment is given priority and your recommendations reach me by 15 April, 1983".

In compliance with the above mentioned directive of the President the Indus Water Commission, under the Chairmanship of the Chief Justice of Pakistan and with Chief Justices of Sind, Baluchistan, N.W.F.P. and the Punjab, as its Members, held a Session at Rawalpindi on the 15th of March, 1983, which was attended by the Technical experts from all the Provinces. A questionnaire was delivered to the Provincial Representatives directing them to submit their view points as well as answers to the questions included therein before the 27th of March, 1983.

18. The Commission held its meeting at Lahore on the 28th, 29th, 30th and the 31st March, 1983, when it heard at length the view points of the Technical experts representing the Punjab, Sind, N.W.F.P. and Baluchistan. The Provinces filed their written statements also along with replies to the questionnaire given to them.

(A set of these documents is annexed to this report as Annexures P'I' and P'2' from Punjab, S.'1', S.'2' and S.'3' from Sind, N'I' and N.'2' from the N.W.F.P. and B'1' from Baluchistan).

19. We have examined in detail the statements filed by various Provinces as well as the report of Fazle Akbar Committee and also heard the representatives of each Province separately. We decided to hear the case in the form of an inquiry and not in the form of a civil suit, which is usually tried on adversary basis. The past experience has shown, that the parties are usually prepared to go to any length in support of their respective claims without showing any consideration either to the interests of other parties or the Country as a whole. This is evident from the following

observations of late Mr. Justice Fazle Akbar in his forwarding letter also:-

"It is regrettable that the members of the Committee failed to work out any agreed recommendations. Unfortunately the lack of agreement was not restricted only to the question of apportionment; the members had generally failed to agree amongst themselves even on purely technical issues. I, therefore, had no other alternative but to formulate my own recommendations for the consideration of the President".

The Technical experts representing the Provinces were, therefore, directed to remain confined to the technical and statistical details with regard to the availability of water for the whole Country as well as their just and legitimate demands to meet the requirements of their respective Provinces.

20. It may not be out of place to mention here that at the time of presentation of Pakistan's case in connection with the Indus Water Treaty, 1960, it was considered essential that the facts and figures furnished by the Provinces should be without prejudice

as to the interests of the individual Provinces and that after the main question of water supplies had been settled with India and Pakistan's share clearly determined, the question of distribution of water amongst the Provinces (at that time Units of West Pakistan) would be decided, if necessary, by a specially constituted Commission.

CHAPTER - II INDUS BASIN AND BARRAGES

There is a detailed description of the Indus Basin Plain including River Indus and its various tributaries along with its geographical and climatic features in the 3rd Chapter of Justice Fazle Akbar's Report which need not be reproduced here. It would be sufficient to give a brief description of the rivers constituting the Indus Basin system. The main river, i.e., Indus, arises in Tibet behind the great wall of the Himalayas and flows down through Pakistan into Arabian Sea. Its total length is 1800 miles. The main rivers joining Indus on the right side are:-

- (i) Shyok River near Baltistan;

- (ii) Gilgit River;
- (iii) Kabul River near Attock, and
- (iv) Kurram River near Kalabagh.

On the left side it is joined by the River Panjnad near Multan, which name is given to the combination of five rivers of the Punjab, namely, Jhelum, Chenab, Ravi, Beas and Sutlej, out of which the last three, namely, Ravi, Beas and Sutlej have gone over to India as a consequence of Indus Water Treaty.

INDUS

60/rep.

2. At present the following Barrages and Dams exist on this River:-

- (i) Tarbela Dam about 30 miles up-stream of Attock;
- (ii) Barrage at Kalabagh, about 100 miles down-stream of Attock which serves the Thal Canal;
- (iii) About 40 miles down-stream from Kalabagh the Chashma Barrage has been constructed to feed Chashma Jhelum link and Paharpur Inundation Canal;
- (iv) Taunsa Barrage, 160 miles below Chashma Barrage;

- (v) About 60 miles below the confluences of Indus with Panjnad, the River Indus enters the Province of Sind. The 5th Barrage on the Indus, and the upper most in Sind, is Gudu Barrage;
- (vi) About 100 miles down-stream of the Gudu Barrage is the famous Sukkur Barrage; and
- (vii) About 200 miles down-stream of the Sukkur Barrage is located the 7th and the last barrage, Ghulam Muhammad Barrage.

Besides the above mentioned projects there are the following Barrages worth noting which are situated on other rivers in the Punjab before they join Indus in the form of Panjnad:-

(a) JHELUM
P.23/rep.

(i) Mangla Dam and Rasool Head Works on River Jhelum;

(b) CHENAB

(i) Marala Head Works feeding the upper Chenab Canal and the Marala Ravi Link;

(ii) About 40 miles below is the Khanki Head Works feeding the Lower Chenab Canal;

(iii) 15 miles further down-stream is the Qadirabad Barrage, which feeds the Qadirabad Balloki Link;

(iv) Trimmu Head Works feeding the Rangpur Canal, Haveli Canal and Trimmu Sidhnai Link, and

- (vi) Panjnad Head Works, after River Chenab is joined by the River Sutlej. It feeds two canals, the Abbasia Canal and Panjnad Canal.

RAVI
3. The first Barrage on the River Ravi is Madhopur Head Works, which is situated in India.

Pakistan
Ravi enters the Punjab a few miles up-stream of Lahore. It falls into Chenab near Sidhu after covering a course of about 450 miles. The important irrigation works on this river within Pakistan are:-

- (i) The Ravi Syphon, which is near the International Border where the B.R.B.D. Link crosses the River Ravi through a syphon under the River Bed;
- (ii) Balloki Head Works, which feeds the Lower Bari Doab Canal and the Bulloki Sulemanki Link, and

- (iii) Sidhnai Barrage, which feeds the Sidhnai Canals and the Sidhnai - Malsi-Bahawal Link.

- EJ
(i) The first Barrage on River Sutlej after its entry into Pakistan is Sulemanki Head Works, which feeds Pakpattan Canal, Eastern Sadiqia Canal and Fordwah Canal,

and

- (ii) Islam Head Works about 120 miles down-stream, feeding the Mailsi, the Bahawal and Qaim Canals.

4. As we have mentioned earlier, in 1920, a

2/rep.

system of Establishment of Discharge Observation Stations on River Indus and its tributaries was introduced by Sir Thomas Ward, the then Inspector General of Irrigation in India. The first gauging stations on each river as they emerge from the foot hills are:-

<u>RIVER</u>	<u>GAUGING STATION</u>
Indus	Kalabagh
Jhelum	Mangla
Chenab	Marala
Ravi	Madhopur
Beas	Mandi Plain
Sutlej	Rupar

The measuring site on the above mentioned rivers are at points where the upper most weirs or diversion

works have been constructed and are known as Rim Stations. Supplies are, however, withdrawn for irrigation purposes from these rivers even above the afore-said measuring points. These withdrawals are made either directly from the rivers or from their

tributaries which are not included in the river supplies gauged at the Rim Stations. These unaccounted for supplies are approximately = 4.9

M.A.F.

CHAPTER -III

DEPENDABLE AVAILABILITY OF
WATER & RECOMMENDATIONS OF
FAZLE AKBAR COMMITTEE.

On our request the Chairman of the Water and Power Development Authority in Pakistan furnished details of the recorded discharge data for 60 years period (1923 to 1982) containing statistics in this respect computed by different methods, e.g.:-

- (i) on the basis of 10 years Mean;
- (ii) 20 years Mean;
- (iii) 30 years Mean;
- (iv) 40 years Mean;
- (v) 60 years Mean;
- (vi) 40 years Median (Statistically determined at 50% Probability).

NOTE

According to the above mentioned methods the average recorded discharge has been ranging between 128.8 MAF minimum and 148.1 MAF maximum. Mr. Justice Fazle Akbar adopted the method of 40 years Mean, according to which the average discharge in the years 1961-82 was 139.4 M.A.F. The Commission would, however, prefer to adopt

the last method i.e., 40 years Median (Statistically determined as 50% probability), according to which, on annual basis, the total water discharge can safely be determined as 138.4 M.A.F. Based on the estimate made by WAPDA the available supplies for canal diversion purposes come to 112.1 M.A.F.

WAPDA NOTE

(C)

2. We find ourselves fully in agreement with the views expressed by late Mr. Justice Fazle Akbar that the available river supplies and storage facilities taken together by themselves are not sufficient to meet the requirements of the whole Basin and that it would not be possible to arrange for the supply of water required to commission all the plans of all the Provinces. Any recommendations in this connection should, according to us, be directed, in the first instance, to meet the requirements of the existing projects. The terms of reference to the Fazle Akbar Committee contained a direction that, while apportioning river waters among the four Provinces due consideration, inter-alia, should be given to the following factors:-

(a) the allocations of the four Provinces in

- the waters of Indus and its tributaries;
- (b) the consequences of the Indus Water Treaty 1960;
- (c) the availability of ground water and its co-ordinated use with the flow supplies;

and

- (d) the reasonable water requirements of the Provinces for agricultural, industrial and urban uses.

3. Justice Fazle Akbar's Report deals exhaustively with the above mentioned factors which have also been discussed briefly in the report of the Chief Justice of Pakistan (Mr. Justice Muhammad Haleem) dated the 27th June, 1982, and we need not repeat that discussion here. However, it may briefly be mentioned that:-

(A) While considering allocations of the four Provinces in the Country under the first Term of Reference, Mr. Justice Fazle Akbar kept in view the following allocations:-

- (i) the allocations sanctioned by the Government of India on the recommendations of the Anderson Committee in

1935, (known as Sanctioned Allocations);

(ii) the allocations based on planned requirements of the projects sanctioned by the Government from time to time, (known as Authorised Allocations);

(iii) the allocations which have been allowed under the terms of Sind Punjab Draft Agreement of 1945, and

(iv) where none of the above mentioned three allocations existed, he took into consideration the statistics based on the average uses of water during the last five years i.e. 1965-70.

SEQUENCES OF INDUS (B)
TREATY

As regards the consequences of the Indus Water Treaty, 1960, they were:-

- (i) the flow of three Western Rivers only namely, Indus, Jhelum and Chenab was allocated for the exclusive use of Pakistan, except for certain specified uses in Jammu and Kashmir, and eastern rivers went to India.
- (ii) Pakistan got a system of Works which, besides supplying the irrigation water to Pakistan, which in the past came from the flow of Eastern Rivers, also provided for a substantial irrigation development plan in Pakistan by making a provision for two storage reservoirs, namely, Mangla and Tarbela.

IND WATER

99/rep.

(C) On the question of the availability of ground water and its co-ordinated use with the flow supplies, the findings of Mr. Justice Fazle Akbar are as follows:-

- (i) that vast water resources exist in the ground under the irrigated areas of the Indus Plain;
- (ii) that very large quantities of usable ground water are available in the northern zone and that a much smaller volume is expected in the southern zone;
- (iii) that the massive ground water and reclamation programme in the Punjab aims at integration of both surface water and ground water;
- (iv) that historical rights to surface water cannot be taken away simply because there is ground water potential.

ABLE REQUIREMENTS

(D) While discussing reasonable requirements of the Provinces for agricultural uses, Mr. Justice Fazle Akbar pointed out that water supplies are limited in relation to canal commands and even after a raise in the supply on account of Mangla and

the Punjab, i.e., Haveli, Lower Sutlej Valley and Panjnad Canals, on the ground that priority should be given to earlier allocations over the latter ones. Justice Fazle Akbar, in spite of finding some weight in the argument, held that the rule of priority was a part of the doctrine of "equitable apportionment" and was subservient thereto. In the event of a conflict between the two the rule relating to equitable apportionment based on equity and justice should not be violated. He, therefore, decided that among different appropriations from the same stream the one prior in time would be deemed as superior in right. This aspect has been discussed by him in detail at pages 311-312 of his report giving details of the concerned projects including the years of their sanction as well as of their opening. According to Justice Fazle Akbar, on account of the loss of three Eastern Rivers the circumstances have become different as the historical supplies of the Punjab canals from those rivers was cut off, and in order to cut down the cost of replacement it was decided to feed the Lower Sutlej Valley, Panjnad and Haveli Canals from

2/HALEEM C.J./rep.

River Indus, even though the Haveli Project came into existence long after the completion of the Sukkur Barrage. Again Sind objected to feeding of those canals from the Indus on the ground of its likely effect on the main-stem projects of the Indus. This objection was raised by Sind Province after the Government had already spent over one hundred crore of rupees on their construction and the Taunsa Panjnad Link as well as the Jhelum Chashma Link had already been completed. He, therefore, held that Haveli, Lower Sutlej Valley and Panjnad Canals, which received supply through those two links, were not new canals, but only their original sources had been changed due to the circumstances over which none had any control. It would not therefore, according to him, be fair to give priority to the one or the other. Mr. Justice Fazle Akbar also decided that shortages whenever they occurred, should be shared by the various canals in proportion to their allocations for the period concerned.

SHARING OF THE
SURPLUS WATER.

5. As visualized by Mr. Justice Fazle Akbar, after completion of the Tarbela Dam, surplus water is now available for further development, besides meeting the allocations of all the existing canals. He proposed that during the post-Tarbela period, the surplus stored supplies may be distributed as follows:-

Punjab	-	40%
Sind	-	40%
N.W.F.P.	-	13%
Baluchistan	-	7%

He further suggested that surplus stored water should be apportioned in the way that the conveyance losses were minimised as far as possible.

INDUSTRIAL AND
URBAN USES.

6. The Industrial and Urban uses which, when compared to the irrigation uses, are rather insignificant should, according to Justice Fazle Akbar, be given the highest priority. These could, in his view, be generally met with from within the canal allocations. The water requirements of Karachi, however, needed special consideration and Justice Fazle Akbar recommended that 520 Cusecs from May to

October and 450 Cusecs from November to April, may be supplied to Karachi from the Ghulam Muhammad Barrage. Arrangements for the supply of this quantity, already existed at the time of writing of his report and was estimated to meet the requirements upto 1985. He, however, could not make any definite recommendation for the period beyond 1985, for want of accurate and reliable data and suggested that the Government should consider this question at the appropriate time.

SITUATION OF FOUR PROVINCES

7. While discussing the allocation of water to different Provinces, Mr. Justice Fazle Akbar expressed the opinion that all the four Provinces had suffered due to loss of the three Eastern Rivers as a consequence of Indus Water Treaty, 1960. He observed:-

PUNJAB
15/rep

- (A) "Punjab got some benefit from the construction of new links and canals provided for in the settlement plan, while the other three Provinces, namely, Sind, N.W.F.P. and Baluchistan did not receive any appreciable benefit from that plan. Punjab, no doubt, has been facing the problems of salinity and

Gul Hayat Institute

water logging; it has also to provide food for the growing population. Its area has, however, large quantities of ground water which is generally speaking suitable for irrigation purposes. In the Punjab, there has been a tremendous desire for the exploitation of ground water which is evident from a large number of public and private tube wells. Thus Punjab has been able to intensify its production to some extent besides reclamation of some of its lands".

10
116/rep.
(B) Sind, according to Justice Fazle Akbar, does not compare favourably with Punjab in respect of ground water. There is a limited quantity of usable ground water in the area of that Province. As a matter of fact according to the experts, soil in Sind is comparatively inferior in quality and requires a little more water for proper irrigation. Moreover, the Province has also to fight the problems of salinity and water logging. Crop intensity in the barrage areas is lower in Sind than in Punjab. For this reason, Justice Fazle Akbar treated Sind at par with the Punjab in the division of its waters.

N.W.F.P.
P.316/rep.

(C) As regards N.W.F.P. the Chashma Right Bank Scheme meant for improving the economic condition of Dera Ismail Khan was ready and N.W.F.P. needed water for that scheme, which also irrigates a part of the Punjab in the under-developed area of Dera Ghazi Khan District. It may not be out of place to mention here that the supplies allocated by the Government of India in 1937 on the recommendations of Andersen Committee for the proposed enlarged Pakarpur Canal were for the irrigation of areas both in N.W.F.P. and the Punjab. Similarly the Chashma Right Bank Canal was meant for the irrigation of areas in both the Provinces. He recommended that in the event of both the Provinces agreeing with the scheme the additional requirements of this canal shall be met with, during the periods of short supplies, from the respective shares of the two Provinces and during the flood period from the surplus river flows. The supplies of this canal should be shared by the two Provinces in the same proportion as the culturable commanded areas of the Provinces included in the scheme, viz 342,000 acres in N.W.F.P. and 158,000 acres

BALUCHISTAN

P.317/rep.

(D) Baluchistan, according to him, is facing an actual shortage of water both for domestic and agricultural uses and needs some more perennial supplies from Pat-Feeder.

8. Mr. Justice Fazlè Akbar, while determining the question of final apportionment, took into consideration:-

- (i) supplies available, and
- (ii) (a) the then existing withdrawals, and
(b) additional requirements for developing projects.

As a consequence of Indus Water Treaty, 1960, Pakistan has, according to him, been helped to construct a system of works known as "The Settlement Plan". No doubt that the main object of this plan was to make necessary provision for storage of flood waters and for the transfer of the flow-when-stored water from the Western Rivers to those canals system which originally depended on the three Eastern Rivers; but at the same time it also provided an element of development over and above the replacement facilities.

STORAGE RESERVOIRS

9. The two storage reservoirs namely, Tarbela and Mangla constituted the most important part of

the settlement plan resulting from the Indus Water Treaty, 1960. Originally the plan contemplated two reservoirs of a total live capacity of 8.95 M.A.F. (4.75 M.A.F. at Mangla and 4.20 M.A.F. at Tarbela). later on, the total capacity was increased to 14.6

21/rep/40 ours

M.A.F. (Mangla 5.3 and Tarbela 9.3 M.A.F.). Mangla

Dam has been so designed that it can be raised by another 40 feet, making an appreciable increase in its live storage capacity by about 3.7 M.A.F.

Similarly the Chashma Barrage is supposed to have a live capacity of 0.50 M.A.F. and is one of the replacement plan works. The object of the storage reservoirs is:-

- (i) to provide additional Rabi supplies;
- (ii) to supplement Kharif flows during the scarcity periods of early Kharif when the Kharif Crops are sown and during September when Kharif Crops matures and preparation are required to be made for Rabi sowing, and

- (iii) to lay foundation for future development

The figures worked out by Mr. Justice Fazle Akbar were by way of estimate only because at the time of his writing the report, Tarbela and Chashma reservoirs had not been commissioned. However, according to

exact and accurate calculations made by WAPDA

the inflows in these reservoirs are as follows:-

INFLOWS IN M.A.F.

	<u>BY 1979-80</u>	<u>1982-83</u>	<u>1984-85</u>
Mangla	4.78	4.75	4.71
Tarbela	9.37	9.03	8.93
Chashma	0.33	0.40	0.35
	<u>14.48</u>	<u>14.18</u>	<u>13.99</u>

In order to insure an effective utilization of the stored waters along with the available flow supplies of the three Western Rivers, viz, Chenab, Jhelum and Indus, both these items are to be taken into account together, as the stored water has to be released during the period of short supplies and used along with the flow supplies. Thus in the final apportionment, Justice Fazle Akbar considered reservoirs as part of the available adjusted flow supplies. The available supplies for utilization during the post-Tarbela period had been estimated by Fazle Akbar Committee as 112.80 M.A.F. (i.e. Kharif 76.30 and Rabi 36.50).

10. The allocations, planned requirements, average uses of 1965-70 and proposed uses of the existing canals have been dealt with in considerable detail in Chapter VIII of Justice Fazle Akbar's report and we need not recapitulate them here. However, in the table below, Justice Fazle Akbar has compared the proposed uses with the actual uses or allocations or planned requirements, wherever applicable:-

(325) Post Tarbela Uses.

Name of Canals	Sea- son	Alloca- tions, or actual uses of 1940-45	Planned Require- ments.	Average Uses of 1965-70	Proposed Post- Tarbela Uses.
i) I. PUNJAB CANALS.					
Thal Canal					
	K	2.20	3.66	2.21	3.66
	R	1.38	1.50	1.77	1.50
		to	to		to
		2.18	2.30		2.30
Total		3.58	4.16		4.16
		to	to		to
		4.38	5.96	3.98	5.96
ii) Taunsa Canals					
	K		4.04	4.45	4.04
	R		0.53	1.22	0.53
Total			4.57	5.67	4.57
iii) Panjnad Canals.					
	K	2.93	3.88	3.52	3.88
	R	0.81	0.97	1.04	0.97
		to	to		to
		0.95	1.11		1.11
Total		3.74	4.85		4.85
		to	to		to
		3.88	4.99	4.56	4.99
iv) Haveli Canals.					
	K	2.84		2.34	2.84
	R	0.90		0.90	0.98
		to			to
		1.31			1.31
Total		3.82		3.24	3.82
		to			to
		4.15			4.15
v) Sutlej Valley Canals.					
	K	9.16		8.57	9.16
	R	2.08		3.18	2.08
Total		11.24		11.75	11.24
vi) M.R.Link (Internal)					
	K	0.00	0.69	0.60	0.69
	R	0.00	0.00	0.11	0.00
Total		0.00	0.69	0.71	0.69
vii) C.B.D.C.					
	K	0.74		0.72	0.72
	R	0.43		0.47	0.47
Total		1.17		1.19	1.19
viii) Five Linked Canals.					
	K	10.29		12.21	12.21
	R	6.62		7.43	7.43
Total		16.91		19.64	19.64
Total for Total Punjab Canals.			50.74		52.43

(326)

Name of Canals	Season,	Allocations or actual uses of 1940-1945,	Planned Requirements.	Average Uses of 1965-70	Proposed post-Tarbela Uses.
II. SIND & BALUCHISTAN CANALS.					
ix) Sukkur Canals	K	15.18	15.67	14.95	15.67
	R	9.53	9.59	9.72	9.59
	Total:	24.71	25.26	24.67	25.26
x) Gudu Canals	K		9.40	7.22 (A)	9.40
	R		0.42	0.76	0.42
	Total:		9.82	7.98	9.82
xi) Ghulam Muhammad Barrage Canals	K		10.76	7.43 (A)	10.76
	R		0.65	1.86	0.65
	Total:		11.41	9.29	11.41
Total for Sind and Baluchistan Canals.	K			29.60	35.83
	R			12.34	10.66
	Total:			41.94	46.49
III. N.W.F.P. Canals.					
xii) Pehur Canal.	K	0.00		0.06	0.06
	R	0.00		0.04	0.04
	Total:	0.00		0.10	0.10
xiii) Paharpur Canal.	K	0.12		0.16	0.32
	R	0.08		0.05	0.18 (B)
	Total:	0.20		0.21	0.50
xiv) Other Canals.	K	2.37		2.92	3.00
	R	1.14		1.66	1.72
	Total:	3.51		4.58	4.72
Total for N.W.F.P. Canals.	K			3.14	3.38
	R			1.75	1.94
	Total:			4.89	5.32
GRAND TOTAL:	K			67.36	76.41
	R			30.21	27.83
	ANNUAL			97.57	104.24

(A) Actual withdrawals of kharif 1970 adopted in place of the average of 5 kharif seasons.

(B) This includes about 0.23 M.A.F. (0.15 M.A.F. in kharif and 0.08 M.A.F. in Rabi) for Dera Ghazi Khan area in the Punjab.

46/2nd report.

It would be evident from the tables on the preceding page

that Mr. Justice Fazle Akbar took into consideration 'Allocations or Actual Uses of 1940-45', "Planned Requirements" and average uses of 1965-70, upon which he based his proposals regarding post-Tarbela uses.

11. In the table at page 39 supply has been allocated to Sukkur and Gudu Projects as two distinct units, irrespective of the administrative boundaries of the two Provinces which were treated as a single unit. However, to avoid future disputes in the share of allocated supplies between Sind and Baluchistan, Justice Fazle Akbar indicated Baluchistan's share separately, after a detailed discussion in respect thereof on pages 328 to 332 of his report.

36-327/rep.

12. The Post-Tarbela share of Baluchistan was thus determined as 2.70 M.A.F. (2.22 M.A.F. in Khari and 0.48 M.A.F. in Rabi). The following table, included in Justice Fazle Akbar's report throws light about the increase in the shares of Provinces after the completion of Tarbela Dam. It shows the season-wise withdrawals as they existed at the time of

writing of his report (i.e., pre-Tarbela period and those proposed for post-Tarbela uses).

		Present Average with- drawals.	Proposed Post Tar- bela uses.	Increase in uses.
		MAF	MAF	MAF
PUNJAB	Kharif	34.62 (51%)	37.35 (49%)	2.73
	Rabi	16.12 (53%)	15.31 (55%) (-)	0.81
	Total:	50.74 (52%)	52.66 (51%)	1.92 (4%)
SIND AND BALUCHISTAN.	Kharif.	29.60 (44%)	35.83 (47%)	6.23
	Rabi.	12.34 (41%)	10.66 (38%) (-)	1.68
	Total:	41.94 (43%)	46.49* (44%)	4.55 (11%)

* The Post-Tarbela share of Baluchistan, as determined in paragraphs 13.32 to 13.39 infra comes to 2.70 MAF- 2.22 MAF in Kharif and 0.48 MAF in Rabi.

		Present Average with- drawals.	Proposed Post Tar- bela uses	Increase in uses.
		MAF	MAF	MAF
N.W.F.P.	Kharif	3.14 (5%)	3.23 (4%)	0.09
	Rabi	1.75 (6%)	1.86 (7%)	0.11
	Total:	4.89 (5%)	5.09 (5%)	0.20 (4%)
Total:	Kharif	67.36	76.41	9.05
	Rabi	30.21	27.83 (-)	2.38
	Annual:	97.57	104.24	6.67 (7%)

It will be observed that increase in the case of Punjab was estimated to be 4% while that of Sind and Baluchistan was 11%. Again it was 4% in case of N.W.F.P. The higher increase allowed in the

case of Sind and Baluchistan Canals was due to a large gap between the "Planned Requirements" of Ghulam Muhammad and Gudu Barrage Canals and their actual uses.

SHARING OF SUPPLIES
PAHARPUR CANAL

p.332/rep.

13. The Government of India on the recommendation of the Anderson Committee in 1937, allocated supplies for the proposed enlarged Paharpur Canal for irrigation of areas both in N.W.F.P. and the Punjab. The scheme of Chashma Right Bank Canal was also meant for irrigation of areas in both the above mentioned Provinces. Justice Fazle Akbar decided that in the event of the two Provinces agreeing to proceed with the scheme, the additional requirements of this Canal should be met with during the period of short supply from their respective shares, and during the flood period from the surplus river flows, in the same proportion as the culturable commanded areas of the two Provinces, included in the scheme, namely, 342,000 Acres of N.W.F.P. and 158,000 Acres of the Punjab.

39-Com of
N.F.P.

SMALL DEVELOPMENT
SCHEMES ON THE
TRIBUTARIES OF THE
MAIN RIVERS.

p.333 & 334/rep

14.

Justice Fazle Akbar recommended:-

- (i) that no restriction should be placed on an taking up of small development schemes of the kind taken up by the Agricultural Development Corporation, on the tributaries of the Indus, Jhelum and Chenab, excluding the Kabul River Basin, because these schemes needed only insignificant flood flows which do not have any material bearing on the flows of the main rivers. However, the usage of any "keen demand period flows" on such schemes should not be allowed without the approval of the Government of Pakistan;
- (ii) that in the hilly areas which are atleast 2500 feet above the sea level, no restriction should be imposed on small irrigation schemes as, being very small, they cannot affect the main rivers flow in any manner;
- (iii) that no restriction should be imposed on N.W.F.P. if that Province wishes to develop any further irrigation uses in the Kurram River Basin, Gomal River Basin and from the torrents of the Kohat District, as long as they do not adversely affect the existing uses of water on those rivers; and

Gul Hayat Institute

(iv) that no limitation whatsoever, should be placed on Baluchistan in developing the water resources on the Indus Bank tributaries flowing through its areas, as they do not add much to the Indus flow but, on the other hand, cause considerable damage to the irrigated areas along its right bank.

OF ACTION
THE PRO-

15. It was also recommended that each Province should be free to distribute the supplies allocated for its use among its various canals, provided that this action did not affect the shares of other Provinces by altering the river gains and losses.

CANAL

16. He further recommended that the representatives of Sind and Punjab should work out jointly each year an agreed programme of canal closures on the Indus main and at the Panjnad in order to minimise the wastage of valuable Rabi supplies.

FOR
TION

17. Lastly Mr. Justice Fazle Akbar suggested that a permanent Body with the name of Indus River Authority consisting of a Chairman and four Members may be appointed by the Federal Government in order to:-

- (i) lay down the basis for the regulation of surface waters among the Provinces according to their fixed allocations and priorities;
- (ii) report on the availability of supplies for new schemes;
- (iii) fix reservoir release patterns and "draw-down" levels;
- (iv) co-ordinate the Provincial activities in connection with gauging and recording the surface water flow and usage data, and
- (v) settle promptly any question that may arise between two or more Provinces regarding the distribution of river waters.

18. We understand that a Committee known as Water Allocation Committee, headed by the Chief Engineering Advisor, Ministry of Water and Power and including, as its Members, the Secretaries of Irrigation and Agriculture Departments of all the four Provinces, Ministry of Food and Agriculture, Government of Pakistan, and senior officers of WAPDA was created some times back, which is functioning satisfactorily.

So the duties proposed to be performed by the Indus Water Authority can safely be assigned to this Body.

INSTRUCTION OF
ADDITIONAL STORAGE

346/rep.

19. Before concluding his report Justice Fazle Akbar emphasised the necessity of another storage reservoir on the Indus as, in his view, the Tarbela Dam is a rapidly depleting reservoir with an estimated useful life of 55 to 60 years only with an actual diminishing utility. We are told that another reservoir is under process at Kalabagh and would, in due course of time, be commissioned which would increase the availability of waters to an appreciable extent.

20. In our opinion the main findings and recommendations of Justice Fazle Akbar with regard to assessment of developed and potential water resources, order of priorities for their allocation and sharing of surplus and shortages are still valid and based on fair play to all the parties concerned. He was himself an eminent Judge and the Chief Justice of Pakistan and finding that the parties failed to

agree with each other even on technical details, he sought assistance from the officers of the then East Pakistan WAPDA. His report has, in it, a definite ring of impartiality, justice and equity. While agreeing with most of his recommendations and findings, the present Indus Water Commission had to consider the entire question de-novo keeping in view the latest statistics with regard to availability of river flows, existing withdrawals and dependable supplies available for allocations during the post-Tarbela as well as the post-Kalabagh periods.

21. While examining this problem de-novo in its entirety we have kept the following principles in view:-

- (i) the ideology of Pakistan and its national integrity i.e., all parts of the Country have equal rights over all its resources and each one of us is responsible for the political, ideological, and physical stability and progress of the Country as a whole; which can be achieved only if even handed justice is done to all the parties to this dispute;

(ii) that the water and land resources granted by Allah Almighty to Pakistan must be utilized judiciously in order to derive the maximum benefit for the maximum number of inhabitants of the Country irrespective of any narrow, provincial, parochial or tribal considerations;

(iii) while trying to solve the problems arising between the Provinces, the parties should adopt the attitude, as if they are members of a single community undivided by political or administrative boundaries, and

(iv) in the absence of such a co-operation and accommodating attitude on the part of the parties the rights and liabilities of the Provinces and the States should be determined by applying the rule of equitable apportionment, each unit getting a fair share of waters of common rivers.

22. The Commission is of the view that within the framework of the above mentioned principles we should deal with this problem without any further delay. The exact apportionment of water among the Provinces should

have been made and enforced before the commissioning of Tarbela Reservoir. This issue must be settled in all its technicalities once for all before finalisation of the planned report of Kalabagh Project by the end of the year 1983.

CHAPTER - IV

SYNOPSIS OF CASES OF
THE FOUR PROVINCES.

1. At the commencement of the proceedings we issued the following questionnaire:-

QUESTIONNAIRE

" The table at page 305 of Mr. Justice Fazle Akbar's report contains figures with regard to Post-Tarbela availability of water from Indus, Jhelum and Chenab Rivers calculating the average supply as 112.8 MAF:-

- Q. Whether this estimated supply is the same or has now changed and, if so, to what extent?

This table should be revised and made upto date in view of the existing supply position.

2. The tables at pages 325 to 328 of the Fazle Akbar report contain detailed figures with

regard to proposed Post-Tarbela uses of various canals in the Country based on the supply position mentioned in the preceding paragraph:-

Q. If there has been any change in the supply position, the tables should be revised and made upto date in the light of those changes without disturbing the inter se proportion among different canal uses?

3. According to the observation of Mr. Justice Fazle Akbar (pages 314-315), surplus water was also to become available for further development purposes after meeting the proposed allocations of the then existing canals and he had directed that during the Post-Tarbela period the surplus stored supplies should be distributed among the Provinces.

Q. What is the position at present in respect of the surplus stored supplies of water which would be available for distribution among the Provinces?

4. The Provinces should also give their minimum requirements in respect of surplus water, based on their projects, keeping in view the ground water potential as well.

Q. What steps have so far been taken about the construction of another storage reservoir on River Indus as recommended by Mr. Justice Fazle Akbar in order to meet the gradually diminishing capacity of the existing reservoirs?

We also directed all the four Provincial Governments to file synopsis of their cases. The Punjab, Sind, N.W.F.P. and Baluchistan filed the replies to the questionnaire as well as synopsis of their respective cases.

2. We now propose to deal briefly with the case of each Province as under:-

A. CASE OF PUNJAB

I. EXISTING CANAL USES

1. Average uses of existing canal systems for the seven years post-Tarbela period 1975 to 1982 may be considered as the existing uses. These existing uses are the best yardstick of the needs, and are indicators of a recent break-through in irrigated agriculture. These uses must be protected as the first priority. Table No.2.1 at pages 20 and 21 of Document-P:1 gives information for all canal systems in Pakistan.

Punjab consumed 33.82 MAF in Kharif and 20.51 MAF in Rabi,
Total 54.33 MAF.

2. Punjab requests a small increase in these uses due to restraints on certain canal systems. This is shown in Table No.2.1 at page 20 of Document P.I, columns 8, 9, 10. The suggested level for the existing canal systems is 35.97 in Kharif, 20.97 MAF in Rabi,
Total 56.94 MAF.

II. AVAILABILITY OF RIVER SUPPLIES

1. Fazle Akbar Report data on Average river rim stations flows is for the 30 years period 1940 to 70. The data should now be made upto date as average for the years period from 1940 to 82.

2. At this stage, the values for river losses and gains, reservoir operations, effect of reservoir siltation, and uses outside Pakistan on the Western rivers may be modified in the light of post-Tarbela 1975-82 experience, and also in the light of information in WAPDA Publications WRM No.145 and WIR No.179. The outflow to Sea has also to be adjusted accordingly.

3. Kalabagh Dam is in an advanced stage of planning and will become operational by 1993. Post-Kalabagh position of river availability has to be taken into consideration at this stage so that new projects may be planned and executed in time by the provinces.

4. The results of Punjab study for the post-Tarbela but pre-kalabagh availability are given in Table No.1.9 at page 13 of Document-P.I. Total system availability is 77.2 MAF in Kharif, 37.6 MAF in Rabi, Total 114.8 MAF. Corresponding figures in Fazle Akbar Report at page 305 are 76.3 MAF in Kharif, 36.5 MAF in Rabi, Total 112.8 MAF.

5. The estimate of post-Kalabagh availability is given in Table 1.10 at page 14 of Document-P.I. The values are 80.6 MAF in Kharif, 40.4 MAF in Rabi and Total 121.0 MAF.

III. NEW PROJECTS BASED ON 100 DAY SURPLUS FLOOD FLOWS

1. In summer, about 41 MAF river water runs waste to sea below Kotri for more than 100 days.

(WAPDA Publication WPM 179, Table IV-A, Page 14). Even

ignoring 10 MAF contribution from the Eastern Rivers, this flow is 31 MAF. Map No.4 shows the position. Known projects of all provinces can use only a small part of this surplus summer flow. There should, therefore, be no restrictions on any province to undertake use of these supplies on new areas. Letting this water run to sea is a colossal waste and a great national tragedy. Late Justice Fazle Akbar gave his sharing formula at page 315 of his Report only for stored surplus supplies and said nothing about water running waste to sea and estimated by him as 22 MAF in the table at page 305 of Report.

2. Punjab has a number of projects ready, based on the use of these surplus flood supplies. Map No.9 shows the projects discussed in Question No.4, page 26 of Document P1. Copies of some of the projects have been placed before the Honourable Commission. A summary of water requirements is given in Table No.4 at page 32 of Document P1. Punjab needs only 4.95 MAF supply in 100-Day period to bring to life 3.8 million acres of barren but fertile commanded lands. This will add more than Rs.500 crore annually to national wealth.

3. In post-Kalabagh period, when more stored supplies would be available, the remaining Kharif requirements of these projects (3.1 MAF) can be improved.

IV. TARBELA AND MANGLA COMMANDS

1. As a consequence of Indus Waters Treaty, 1960, Canal Systems in Pakistan are being operated in two commands shown in the Map No.1. The Indus Command is shown as purple, and the Jhelum-Chenab Command is shown as yellow. This operating arrangement has been followed with the approval of Government of Pakistan. WAPDA operates the system in this approved manner as may be seen as such in WAFDA Publication WRM 179, Table III-B (Pages 10, 11, 12), III-C (Page 13), V-B (Pages 16, 17) and V-C (Page 18).

2. The Jhelum-Chenab Zone or Mangla Command is the Upper Zone and no water can be carried to it from the lower Indus river. Any shortage in Mangla command cannot be relieved by the Indus Water. The two commands have, therefore, to share their surpluses and shortages independently among the respective command canals.

3. No future storage potential exists in the Jhelum-Chenab Zone or Mangla Command while all future storages lie only on the Indus River. River water supply position in lean periods is already critical in Mangla Command. It is, therefore, indicated that this Command may be helped by integrating it with the Indus River through an Upper Indus Link. A tentative alignment of such a link from Tarbela storage to Jhelum River considered during Indo-Pakistan Water Dispute is shown in Map No. 10.

V. SHARING OF SURPLUS STORED SUPPLIES

1. While determining provincial shares in future surplus stored supplies, important factors for consideration are Existing Areas under Canal Command, Existing Cropped areas, New Projects for flow irrigation ready for implementation, Total available potential of culturable commandable waste land, rural population depending on land, and economic use of water. Reference may please be made to Maps No. 2, 3 and 5. These factors are given in para 3.5, page 24 of Document 1. In Post-Kalabagh period, Punjab's fair share comes to 68% from these considerations. In the past, water was allocated

to specific irrigation projects and not to provinces.

2. The Commission may kindly take notice of very high water allowances of certain canals (Map No.7 and 8), and the heavy consequential water-logging (Map No.6) in the areas served by these canals, when deciding on sharing of surpluses.

VI. GROUND WATER

It is Punjab's consistent view that existence of ground water as a factor for determining apportionment of river waters should not be considered. This has never been done historically so far. The World Bank adopted the same policy during Indo-Pakistan Water Dispute 1950 to 1960. Late Justice Fazle Akbar has also observed "that historical rights to surface water cannot be taken away simply because there is ground water potential". (Reference page 341, para 3(v), Fazle Akbar Report). Recently while sanctioning Chashma Right Bank Canal Project, Government of Pakistan ignored the existence of good quality ground water at shallow depths in the upper reaches in D.I. Khan district. Ground water is an uncertain, local source, of inferior quality water.

formed out of losses from the existing irrigation system and is exploitable at great cost by the individual farmers.

B. SIND

AD-HOC DISTRIBUTION ARRANGEMENTS OF TARBELA STORAGE WATER

The Tarbela storage waters after the teething troubles of the Dam works, became available on assured basis with effect from Rabi 1977-78. In the absence of a final decision on the Water Apportionment Case, the Federal Government decided to lay down its ad-hoc inter-provincial distribution arrangements on the following basis:-

- (a) The ad-hoc shares fixed by the Federal Government shall be without prejudice to the rights and claims of the provinces in the Main Water Apportionment Case.
- (b) The ad-hoc shares were not to become the precedents for future.
- (c) They would be effective for the particular season only.

The ad-hoc arrangements for inter-provincial sharing of the Indus surface-cum-storage water supplies

on the above basis were as follows:-

- (a) The requirements of Paharpur Canal of N.W.F.P. were to be met in full.
- (b) The Pat Feeder of Baluchistan was allowed to draw the same supplies as during Rabi 1976-77 (These were about 0.5 MAF).
- (c) The flow-cum-stored waters of the Indus main (including Tarbela and Chashma reservoirs) were to be first utilised to meet the ten year average uses (for the period 1960-61 to 1969-70) of the canals taking off directly from the Indus (excluding Paharpur Canal) and Haveli, Panjnad and Lower Sutlej Valley Canals served by Chashma-Jhelum, Taunsa-Panjnad and Trimmu-Sidhnai-Mailsi-Bahawal links.

The remaining surplus water and shortages, if any, were to be distributed among various canal systems.

in the same proportion as their average withdrawals during the ten year period mentioned above. However, each Province would have the freedom to re-distribute its share among its various canals.

2. Thus in the history of Indus Basin, the Lower Tributary Canals were thrust on Indus main, in spite of the fact that sufficient water resource is available in Jhelum and Chenab Rivers plus Mangla storage for meeting

the genuine requirements of these canal systems.

3. In Rabi season 1978-79 the earlier distribution arrangements for the year 1977-78 were followed.

4. During Rabi 1979-80 the ratios between Sind and Punjab were changed from 67.63% for Sind and 32.37% for Punjab to 65% for Sind and 35% for Punjab much against the protest lodged by Sind.

There was no rationale in changing the earlier decided ratios. The change was introduced arbitrarily on the plea that the earlier share ratios, if repeated again, may assume the character of permanency.

5. For the year, 1980-81, the sharing ratios between Sind and Punjab were maintained the same as during Rabi 1979-80. This decision was taken by the Ministry of Water and Power without calling the usual meeting of the Provincial Representatives.

6. In Rabi, 1981-82 upon the representation of Sind the sharing ratios were slightly changed and fixed as 66.67% for Sind and 33.33% for Punjab. The slight upward revision in ratio for Sind did not fully restore

the original share ratio fixed in the year 1977-78 and 1978-79.

7. For the year, 1982-83, the ratios as fixed for Rabi 1981-82 have been maintained.

8. Recapitulating the distribution arrangements between Sind and Punjab since 1977-78 to 1982-83, the position is as follows:-

PERCENTAGE SHARE RATIOS

RABI	SIND	PUNJAB
1977-78	67.63%	32.37%
1978-79	67.63%	32.37%
1979-80	65.00%	35.00%
1980-81	65.00%	35.00%
1981-82	66.67%	32.33%
1982-83	66.67%	32.33%

9. It is prayed that the injury suffered by Sind in ad-hoc distribution arrangements by way of transfer of Indus water to the tributary canals and authorisation of share much less than its right, may be redeemed.

PROVINCE WISE RARI WITHDRAWALS/USLS.

DURING the year 1977-78 to 1982-83.

When Ad-hoc distribution arrangements of Indus Surface-cum-storage water supplies ONLY were in force.

PROVINCE.	Average usos.	SPDA* allocations.	In MAF.
			%age increase
PUNJAB.	19.80	14.65	34.2
SIND.	14.96	13.23	13.1
BALUCHISTAN.	0.79	0.24	229.0
N.W.F.P.	0.13	0.13	NIL.

* Sind Punjab Draft Agreement 1945 (SPDA) allocations given on page 26 of SYNOPSIS OF SIND CASE.

NOTE.

1. Higher percentage increase achieved by the Punjab as a result of unjustified transfer of 4.56 MAF Indus surface-cum-storage water supplies through Chashma-Jhelum and Taunsa-Panjkora Lines to the Punjab lower Tributary Canals (Ravi/Trimmu, Lower Sutlej Valley and Panjkora Canals) and appropriation of Surface-cum-storage water supplies in Jhelum and Chenab rivers in their totality.
2. Higher percentage increase achieved by Baluchistan because of allocation of supplies to the unsanctioned Bat feeder.
3. Nil increase achieved by N.W.F.P. because of limitation of withdrawal capacity in Paharpur Canal.

Gul Hayat Institute

SIND'S VIEW POINT.
IN THE WATER APPORTIONMENT CASE.

1. Utilisable surface-cum-storage water supplies.

Availability

Kharif. 77.6 MAF.)
 Rabi. 40.4 MAF.) Page 36 of
 Annual. 118.0 MAF.) SYNOPSIS OF SIND CASE.

2. Existing water allocations* of Provinces as per Sind Punjab Draft Agreement, 1943.

PROVINCE.	In MAF.		
	KHARIF.	RABI	ANNUAL,
PUNJAB.	33.64	14.69 49%	48.33 46.9%
SIND.	35.51	13.23 46.1%	48.74 47.3%
BALUCHISTAN.	0.98	0.24 0.2%	1.22 1.2%
N.W.F.P.	3.18	1.83 4.1%	5.01 4.9%
TOTAL.	73.31	29.99	103.00

* On page 26 of SYNOPSIS OF SIND CASE.

III. Surplus surface-cum-storage water supplies available for further apportionment.

Kharif. 4.29 MAF.
 Rabi. 10.41 MAF.
 Total. 14.70 MAF.

77.60
 73.31
 4.29
 40.4
 29.99
 10.41

Page 37 of SYNOPSIS OF SIND CASE.

IV. Usable Ground water annual availability in CCA.

PROVINCE.	Actual pumpage 1974-75.			Potential.
	W.C. head.	At Canal head.	W.C. head.	Canal head.
Punjab.	24.12	32.16	46.55	62.07
Sind.	0.43	0.57	2.38	3.07
N.W.F.P.	0.39	0.52	1.59	2.12
Baluchistan.				
Total.	24.94	33.25	50.52	67.26

Pages 116, 118 and 120 OF SYNOPSIS OF SIND CASE.

V. Effective Rainfall contribution in Canal Commanded areas of the Punjab and Sind Provinces.

IN MAF.

PROVINCE.	Effective Rainfall contribution.			
	Kharif.		Rabi.	
	In Field.	Equivalent at Canal head.	In field.	Equivalent at Canal head.
Punjab.	7.94	19.21	1.21	2.93
Sind.	0.58	1.40	-	-
Total.	8.52	20.61	1.21	2.93

Annexure 'C' at page 130 OF SYNOPSIS OF SIND CASE.

VI. Apportionment of Surplus supplies.

Basis. Should be equitable.

Criteria of Equity. Water Availability from all sources of irrigation water supply viz, River waters, usable ground water and effective rain fall, should be the same per acre of CCA in each Province.

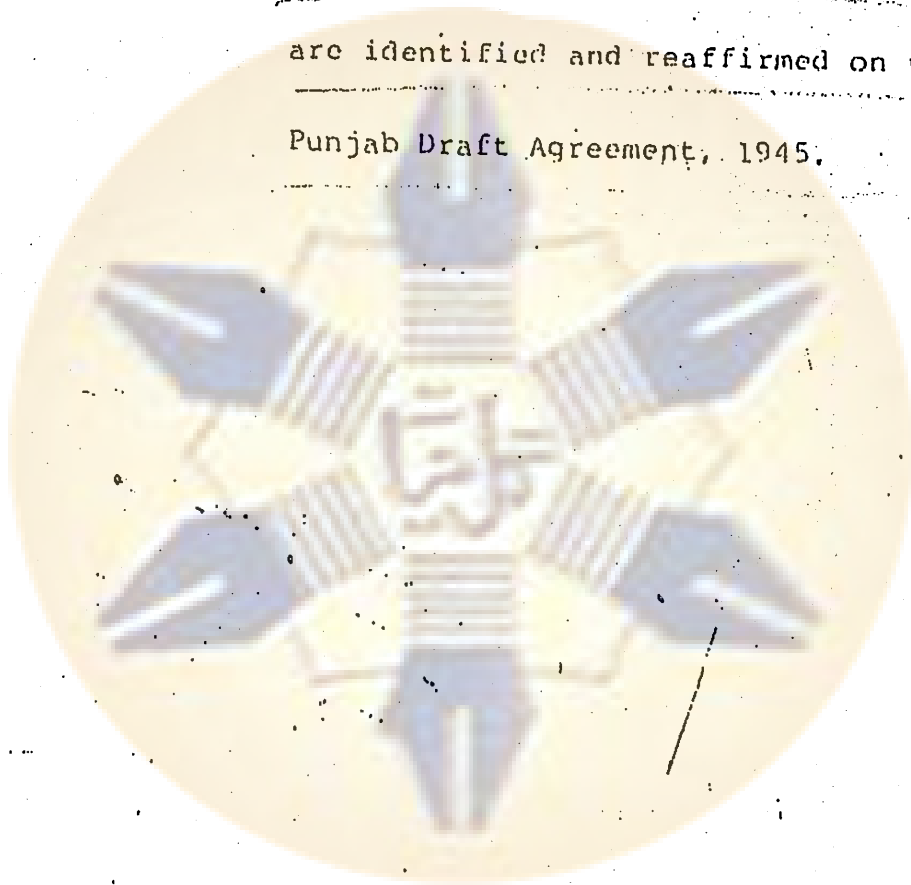
On the above basis the provincial percentage shares in the surplus waters during kharif and rabi would be as follows.

PROVINCE.	Share in Surplus.		Resultant water availability per acre of CCA. in feet.
	MAF.	MAF.	
<u>KHARIF.</u>			
Punjab.	-	-	3.34
Sind.	30	1.29	3.60
Baluchistan.	47	2.00	3.23
N.W.F.P.	23	1.00	3.37
	Total	4.29	
<u>RABI.</u>			
Punjab.	-	-	2.85
Sind.	82	8.63	2.81
Baluchistan.	4	0.28	2.39
N.W.F.P.	14	1.50	4.66
Total.		10.41	

* Due to allocation for the Chashma & Right Bank Canal.

Annexure "c" on page 130 of SYNOPSIS OF SIND CASE.

The above mentioned share ratios are applicable only when the existing water allocations of the province are identified and reaffirmed on the basis of Sind Punjab Draft Agreement, 1945.



Gul Hayat Institute

C. Case of N.W.F.P.

Statistics

A. Area

1) Gross Area	25.14 Million Acres
ii) Culturable Area	6.55 " "

B. Population

1) Settled Areas	10.885 Million
ii) FATA	2.175 "
Total	13.060

C. Canal Withdrawals

	K	R	Total
1) 1947	2.49	1.23	3.72 M.A.F.
ii) 1980-81	3.78	2.29	6.07 "

D. Requirements

1) Existing withdrawals	6.07 M.A.F.		
ii) Addl: for crop requirements	2.00 "	K 1.51	R 0.49
iii) Projects in hand	5.76 "	3.30	2.46
iv) Future Development	8.75 "	5.59	3.16
Total	22.58		
add: Ind: + urban	0.35		
	22.93		

E. Contribution of Kabul River

24.00 M.A.F.

F. Availability of Flows

	K	R	T	M.A.F.
1) Surface Flows	94.78	45.05	139.83	
ii) Ground Water (Year-2000)			44.00	
iii) Contribution by Easter Rivers (av.)	8.62	2.12	10.74	
Total			194.57	150.57

The surface flows at (i) above are based on the computerized data for the period 1940-77 supplied by WAPDA in IBP Publication No: 446 and Indus Water Sub Committee Vol:-II for the period 1940-70 based on the mean availability of Flows in the Indus.

G. Withdrawals by all Provinces

	<u>1947</u>	<u>1980</u>	
N.W.F.P.	3.72	6.07	M.A.F. 3.04
Punjab	35.60	55.80	" 54.49
Sind	27.76	46.19	" 65.11
+ Baluchistan			
Total		<u>108.06</u>	M.A.F.

H. Available for apportionment

The N.W.F.P. would reiterate that the allocations to existing canals be made to the provinces to the extent of their pre-partition historic uses and the balance kity including the groundwater component be apportioned as development share to the provinces so that they can meet their enhanced withdrawals of the existing canals and the development requirement of new projects.

The N.W.F.P. would submit that Indus Water could be equitably apportioned in one of the following manners:-

- 1) The extent of drainage area of each province in the Indus Basin.
- 2) Contribution of water by each province in the Basin.
- 3) Population Basis
- 4) Culturable area in each province.

Details of the allocation on each of the above cases is enclosed as annexure I,II,III,IV. A summary of the allocations is given below:-

Distribution of 150.57 maf

<u>S.No.</u>	<u>Punjab</u>	<u>Sind + Baluchistan</u>	<u>N.W.F.P.</u>
Case 1	<u>37.34%</u> 48.30 MAF	<u>41.75%</u> 74.34 MAF	<u>20.91%</u> 27.93 MAF
Case 2	N.A.	N.A.	<u>17.52%</u> 25.45 MAF
Case 3	<u>56.63%</u> 70.70 MAF	<u>27.78%</u> 58.12 MAF	<u>15.59%</u> 21.75 MAF
Case 4	<u>50.84%</u> 63.98 MAF	<u>35.67%</u> 67.28 MAF	<u>13.49%</u> 19.31 MAF

AREA STATISTICAL DATA OF N. E. F.

i. Gross area.	=	25.14 Million Acres.
ii. Culturable area.	=	6.55 -do-
iii. Area in Indus Basin.	=	25.14 -do-

POPULATION

i. Settled areas.	=	10885000
ii. FATA	=	2175000
TOTAL.	=	13060000

IMMEDIATE SCHEMES

a. New areas.		Requirements MAF.		
Name of Scheme.		Kharif	Rabi	Total.
i.	Chashma Right Bank Canal (Gravity Portion) excluding existing withdrawals of Paharpur Canal (Area 264000 Acres).	0.70	0.62	1.32
ii.	Lift Components (3 Lifts area 700000 Acres).	1.64	1.40	3.04
iii.	Pahar High Level Canal New area = 81000 Acres).	0.33	0.17	0.50
iv.	Khanpur Dam (18790 Acres).	0.03	0.03	0.06
v.	Lower Swat Canal.	0.33	0.06	0.39
vi.	Gomal Zam Project (Area = 100000 acres).	0.27	0.18	0.45
SUB TOTAL..		3.30	2.46	5.76

b. Raising intensities.

i.	Kabul Swat Chitral Basin.	0.73	0.09	0.82
ii.	Kurram Basin.	0.54	0.30	0.84
iii.	Gomal Basin(excluding Paharpur Canal).	0.05	0.03	0.08
iv.	Kohat Basin.	0.10	0.06	0.16
v.	Upper Indus Basin.	0.09	0.01	0.10
SUB TOTAL..		1.51	0.49	2.0

Grand Total (a+b).

(Next sheet.. 2....)

D. FUTURE REQUIREMENTS

	<u>Mkharaf</u>	<u>Gali</u>	<u>Canals</u>
i. Kabul Swat Chitral Basin (63000 Acres).	0.17	0.06	0.23
ii. Kurram Basin (Area 770000 Acres)	2.18	1.36	3.54
iii. Gomel Basin (Area 400000 Acres)	0.99	0.71	1.70
iv. Kohat Basin (289000 Acres).	0.82	0.51	1.33
v. Upper Indus Basin (Area 36000 Acres).	1.43	0.52	1.95
TOTAL	5.59	3.16	8.75

E. SUMMARY OF REQUIREMENTS

i. Existing Canals.	3.78	2.29	6.07 ✓
ii. Raising Intensities (c+b).	1.51	0.49	2.00 ✓
iii. Projects in hand (c-d).	3.30	2.46	5.76 ✓
iv. New areas (D)	5.59	3.16	8.75 ✓
v. Industrial and Urban Uses.	-	-	0.35
TOTAL ..	14.36	8.57	22.93

Gul Hayat Institute

Proposed allotment to the Provinces on the basis of the contribution of the Provinces to the Indus River system.

The average annual contributions made by the N.W.F. Province is as under:-

1. Kabul River at Attock	=	23.69	M.A.F.
2. Kurram River	=	1.18	"
3. Zams in D.I. Khan Distt.	=	0.60	"
Total	=	25.47	M.A.F.

The total surface water availability in the Indus Rivers system is as below:-

a. Flow at rim stations	=	141.3	M.A.F.
b. Uses not accounted for	=	4.0	"
Total	=	145.3	M.A.F.

The contribution of N.W.F.P. to the system is

$$= \frac{25.47 \times 100}{145.3} = 17.52\%$$

The share of N.W.F.P. therefore under the development component may be considered as 17.52%.

The contributions made by the other Provinces is not known due to non-availability of the data therefore the percentages in respect of the other Provinces have not been worked out.

Gul Hayat Institute

D. BALUCHISTAN CASE

(1) Total area of Pakistan is 3,10,000 Square

Miles. Out of which:-

Baluchistan	43%
Punjab	25.5%
Sind	18.8%
N.W.F.P.	12.7%

(2) Availability of water

Indus Basin (all the six rivers)

164 MAF

Eastern Rivers Average

24 MAF = 15%

Western Rivers in Pakistan

140 MAF = 85%

(3) The canal commanded area, as compared with their total areas of the Provinces, is as follows:-

<u>Province</u>	<u>Acres</u>	<u>C.C.A.</u>	
Punjab	509 lac	196 lac	= 38%
Sind	348 lac	128 lac	= 37%
N.W.F.P.	251 lac	680 lac	= 2.7%
Baluchistan	858 lac	9.20 lac	= 1.07%

(4) Actual cultivated area of the Provinces is as follows:-

<u>Province</u>	<u>Acres</u>	<u>Total</u>
Punjab	196 lac =	58%
Sind	12. lac =	38%
N.W.F.P.		
Baluchistan	4.8 lac =	1.4%

According to them Baluchistan has much more cultivable area which requires availability of water only.

(5) Dependable flow water at Rim Station is:-

(i) according to Punjab	126 MAF
(ii) according to Sind and Baluchistan.	142.40 MAF
(iii) according to N.W.F.P.	139.40 MAF
Justice Fazle Akbar (average of 1940-1970)	142.40 MAF
WAPDA (40 years mean)	133.48 MAF

(6) Usable quantity of stored water:-

Tarbela	9.30 MAF	8.5
Mangla	5.34 MAF	4.7
Chashma	0.79 MAF	0.3
	<u>15.43 MAF</u>	<u>13.5</u>

(7) Usable Ground Water Potential:

Punjab	<u>37 MAF</u>
Sind	5.67 MAF
N.W.F.P.	1.2 MAF
Baluchistan	Nil
	43.69 = <u>44 MAF</u>

(8) Actual pumpage out of 44 MAF:

Punjab	<u>23 MAF</u>
Sind	1.4 MAF
N.W.F.P.	0.064 MAF
Baluchistan	Nil

(9)

Actual usage of surface water on the
1975-1982 average:

Punjab	54.35 MAF	53.6%
Sind	41.84 MAF	41.2%
N.W.F.P.	3.05 MAF	3.0%
Baluchistan	2.21 MAF	2.2%
	<u>101.45 MAF</u>	

(10) The total requirements of Baluchistan consider-

ing all its needs comes to 17.58 MAF. However, in
deference to Commission's direction as to the
statement of the minimum requirements of water
fixed at
needed by Baluchistan it is 10.896 MAF. After
excluding 2.209 MAF already in use by Baluchistan
the Province needs about 8.7 MAF more.

(11) The requirements of Baluchistan, canal-wise
are in the table on the following page.

Gul Hayat Institute

WATER REQUIREMENTS OF CANALS IN BALUCHISTAN
ON REDUCED INTENSITIES.

CANAL SYSTEM	REQUIREMENT OF WATER (MAF)			
	KHARIF	RABI	DRINKING WATER	TOTAL
1. PATFEEDER	2.069	1.292	0.053	3.414
2. DESERT CANAL (UCH, MANUTHI)	0.50	---	---	0.50
3. BEGARI (NOOR WAH)	0.14	---	---	0.14
4. KIRTHER	0.466	0.442	---	0.908
5. KACHHI	2.743	3.138	0.053	5.934
GRAND TOTAL	5.918	4.872	0.106	10.896

Gul Hayat Institute

CHAPTER - V OBSERVATIONS AND
RECOMMENDATIONS.

We have examined, in detail the report of Mr. Justice Fazle Akbar and the synopses of cases prepared by the four Provinces. The Indus Basin Irrigation System is now very well integrated and all the four Provinces in the Country require its water for irrigation purposes. A number of Commissions and Committees were appointed, from time to time, by the undivided Government of India as well as the Government of Pakistan to determine the shares of different Provinces in the waters of the River Indus and its Tributaries. The real object behind all these exercises on the part of the Federal Government and the Commissions and Committees appointed from time to time was that the apportionment of water should benefit the Country as a whole. It will not, therefore, be desirable, to base the apportionment of river waters entirely on the administrative boundaries of the Provinces.

2. It would not be out of place to mention here that at the time of presentation of Pakistan's case

in connection with the Indus Waters Treaty, 1960, it was considered essential that the facts and figures, furnished by the Provinces to the Federal Government should be without prejudice as to the interest of the Provinces and that after the main question of water supplies had been settled with India and Pakistan's share clearly determined, the question of distribution of water among the Provinces (at that time Units of West Pakistan) would be decided, if necessary, by a specially constituted Commission. This question, as we have stated above, is to be determined and decided from the view point of Pakistan as a whole, and not on the basis of narrow Provincial considerations.

3. One of the terms of reference to the Fazle Akbar Committee was, the availability of ground water and its co-ordinated use with flow supplies. After discussing this question, Mr. Justice Fazle Akbar gave certain findings, which are on page 309 of his Report. His concluding observation is "that historical rights to surface water cannot be taken away simply because there is ground water potential". Some of the Provinces, other than Punjab, have criticised this

finding maintaining that irrespective of the historical rights to surface water, ground water potential should invariably be taken into account while determining allocation to a particular area. On principle, we are in agreement with the view that where there is a potential of ground water, in any particular area, that factor should not be ignored altogether while determining the water allocations of that area. But at the same time, there are certain other equally important factors which cannot be lost sight of, e.g.,

- (a) quality of ground water and its suitability for agricultural purposes;
- (b) ground water can be utilised mainly by digging tube-wells which themselves depend on continuous supply of energy in the form of electricity or oil; and
- (c) there is also the cost of wear and tear of the tube-well machinery and in certain cases it may prove to be an extremely uneconomical process of irrigation.

X One of the main complaints of Sind against the Punjab is that, while determining Punjab's share, its ground

water potential has not been taken into account and that Punjab has been allocated more water than its due share. Keeping in view all the above mentioned factors, it appears that Justice Fazle Akbar did take into account the ground water potential of the Punjab when he placed it at par with Sind in the matter of distribution of surplus water, allocating 40% of the total surplus water to each of the two Provinces in spite of the fact that Sind is a much smaller Province than Punjab from the view point of irrigated area, population and production of Crops like Wheat and Cotton etc. This equal apportionment of surplus water between Punjab and Sind appears to be somewhat justified in view of the circumstances explained in the comments of the Sind Government. The remaining 20% according to Justice Akbar, is to be divided between N.W.F.P. and Baluchistan at the rate of 13% and 7% respectively of the total water supplies.

4. The allocation of waters among the Provinces is to be made on a long term basis so that each Province is assured of a particular quantum of water

supply and can, with confidence, take in hand its future projects in accordance therewith. In this connection, however, the existing storage reservoirs cannot, for a long period, assure a steady supply. These reservoirs have a limited life and the constant process of siltation keeps on reducing their capacity, e.g., the capacity of Mangla and Tarbela Dams will not be the same after 25 years or so as it is today. After the expiry of their limited life we will need replacement reservoirs. The greatest stress has, therefore, to be laid for this purpose on the flow supplies. The factual year to year distribution will, however, depend on the variations in the surface flow and other relevant factors, but it will be in accordance with the guideline laid down in our recommendations contained in para 13.

5. As we have mentioned earlier the dispute about allocation of water is of a very long standing. Anderson Committee and Rao Commission were constituted mainly to settle the matter between these two Provinces. It will not be out of place to refer to the Sind Punjab Draft Agreement at this stage. Sind had taken the stand that the Sind Punjab Draft Agreement had been acted upon all

along. Although it was not legally ratified but the Federal Government had throughout recognised it as such, as is clear from the Federal Government's letter of the 26th March, 1953, to the Chief Secretary Sind. It was, according to Sind Government, acted upon during the period between 1947 and constitution of One Unit in 1955, as well as during the period of One Unit Administration, whenever and wherever required. The following observations can, however, pertinently be made about this draft agreement:-

- (a) parties to this agreement were the united Punjab and Sind and the former ceased to exist after the Partition, having been divided into two Punjabs i.e., East Punjab and West Punjab;
- (b) N.W.F.P., the then Bahawalpur State and Baluchistan were neither included in the negotiations nor consulted for the purposes of this agreement;
- (c) the agreement did not include any details about the requirements of Baluchistan, which are met from Sukkur and Gudu Barrages,

and

(d) the agreement was not ratified legally and certain errors were pointed out in it later on.

We are, however, of the view that Sind Punjab Draft Agreement should not be discarded altogether and its provisions, which have been followed after the Partition and during the One Unit Administration should be adhered to, because after the signing of the Indus Water Treaty and allocation of three Eastern Rivers, namely, Ravi, Beas and Sutlej, to India the situation has changed a good deal and the objections with regard to ratification of this draft agreement and certain other technical defects have ceased to be of any effective bearing on the question of distribution of water between Punjab and Sind.

6. Baluchistan has also complained that its water requirements are linked with those of Sind and the Province is getting its supplies from Sukkur and Gudu Barrages. Mr. Justice Fazle Akbar has, however, already determined the post-Tarbela share of Baluchis as 2.70 MAF (2.22 MAF in Kharif and 0.48 MAF in Rabi)

P.327/rep.

Baluchistan
Share
10/8/84

7. A point has been raised by the Chief Justice of Sind that the present allocation of 28.11 MAF for Kharif season for that Province is absolutely inadequate. It has been pointed out that in the Sind-Punjab Draft Agreement, 1945, the allocation for Kharif to that Province was 35.51 MAF and even Justice Fazle Akbar recommended that the Province should get 33.61 MAF. Since the shortfall of nearly 7 MAF caused anxiety to us, we requested the Chairman, WAPDA to come and explain the position and if possible to devise means to avoid this situation. The Chairman stated that at the moment more than 37 MAF is going down into the sea below Kotri Barrage. He recommended that this shortfall during the surplus flow period can be made out of this flow. Even in post-Kalabagh period there will be a surplus flow of 22 MAF going down Kotri Barrage. Sind can use upto 9 MAF out of that water to meet more than their full requirements. It is probable that they may not be able to utilize the surplus flows because of the silting of their canal system. When the canals are modified, they will be able to take their full designed capacity. This should satisfy the fears of Sind Province.

MR. JUSTICE FAZLE
AKBAR'S REPORT.

8. Mr. Justice Fazle Akbar was not himself an Engineer and he could have, after examining the claims of different Provinces with the assistance of technical experts only prescribed a just and reasonable guideline for the apportionment of waters among the Provinces. But the details, technical as well as statistical, with regard to actual distribution of water in accordance with that guide line, taking into consideration fluctuations in the supply and uses from time to time, was the main and primary function of the Engineers constituting the Committee headed by Mr. Justice Fazle Akbar, who should have discussed the terms of reference on an all Pakistan Basis and, keeping in view the principle of maximum good to the maximum people, helped their Chairman in submitting a unanimous report, but they unfortunately disagreed among themselves even on purely technical issues.

p. 336/rep.

9. Chief Justice Fazle Akbar has observed in his report that:-

"Attempt has been made to measure the respective interests of the Provinces

and to apportion both flow and stored water in a manner which should prove beneficial to all the Provinces interested in the waters of Indus and its tributaries. There may be minor points which are not specifically covered by the recommendations. If the Provinces concerned approach them in the spirit of mutual accommodation, they will be able to settle them in consonance with the main frame-work of the recommendations. They must remember that only through their co-operation the resources of Indus Basin could be exploited for the optimum benefit of all the people concerned".

However, from the presentation made by the four Provinces, it appears that this precious advice of the former Chief Justice of Pakistan has not been followed by the parties concerned.

10. No report, howsoever detailed or exhaustive it may be, can cover each and every aspect of a dispute. In the present case there are four parties, each anxious to get as much share of water as possible.

Now if we proceed with this matter in the form of a regularly tried law suit, giving each party a hearing de novo, We are afraid it will remain unsettled for a long time to come and it will be extremely difficult, in view of the irreconcilable stands taken by them before the Fazle Akbar Committee as well as before us, to satisfy each and every party fully. The longer this matter remains pending the more harmful it shall be for the collective interests of the Country because in the absence of proper allocation of water various projects for improvement in the agricultural economy of the Country will remain unattended to, while every passing day would make their construction and completion more and more costly due to constant rise in the prices of building material, labour charges etc.

11. The previous Committees, like Anderson Committee, Rao Commission etc., were more or less ad hoc in nature and their scope of inquiry was a limited one. Fazle Akbar Committee was in fact the first representative body, which undertook the task

13/rep.

of apportionment in a judicious and impartial manner. The Chairman, a former Chief Justice of Pakistan, and himself belonging to the then Province of East Pakistan, could not possibly have been influenced or have any leaning towards any particular party. In this taxing and arduous task, he got very little help from the other members of the Committee who were technical experts and, according to him, he was given considerable assistance by the Chairman and certain Officers of the then East Pakistan WAPDA, whose "sound technical knowledge and experience was of a great value and importance". The Chairman and the Officers of the East Pakistan WAPDA also can, with confidence be expected to be fairly impartial in this matter.

12. It is a matter of great regret that elaborate recommendations of Justice Fazle Akbar were not implemented. Had it been done so, this old and long standing dispute would have, after necessary adjustments and a few amendments here and there in order to meet the genuine difficulties of the Provinces, been satisfactorily settled long ago.

RECOMMENDATIONS

13. In view of our discussion in the preceding paragraphs our recommendations are as follows:-

(i) The findings of Mr. Justice Fazle Akbar regarding assessment of developed and potential water resources, order of priority for allocations of these resources, along with sharing of surpluses and shortages still hold the ground because their basis is the idea of the fair play to all and they provide a very judicious and equitable basis for the settlement of this dispute.

(ii) Already developed water resources and storage potentialities to be developed in future, even taken together, will not be sufficient to meet the total requirements of all the Provinces as claimed by them.

The first charge on the already developed water resources is, therefore, to meet the existing average withdrawals of the existing projects irrespective of the Province of their location. This object can be achieved only by following the doctrine of equitable apportionment in this respect.

(iii) After protecting the existing withdrawals, the surplus water, if any, should be shared

equitably by all the four Provinces for developing new projects. If, after meeting the requirements of existing withdrawals and sharing the surplus water, there are still certain surplus waters, e.g., due to supply from Eastern Rivers now in India, they can suitably be utilized for intensifying and modernizing the existing procedure of irrigation in the Country.

(iv) During the years of scarcity, the shortages should also be shared by various canals in proportion to their allocation for the periods concerned, because, according to the record, the waters of Indus River System have always been allocated to the canal to projects and not ~~the~~ Provinces as such. It will be evident also from the reports of the various Commissions and Committees constituted by the Government for this purpose, from time to time.

(v) After taking into consideration the factors, which help in determining the dependable water supplies from the three Western Rivers, namely, the Indus, Jhelum,

and Chenab and which are:-

- (1) Dependable rim station inflows;
- (2) Inflows below the rim stations;
- (3) Contribution of Eastern Rivers (Ravi, Sutlej-cum-Beas and Sutlej);
- (4) Existing uses above the rim stations in Pakistan;
- (5) Future uses outside Pakistan;
- (6) Losses and gains in the river channels;
- (7) Siltation of reservoirs, and
- (8) Reservoir and pond losses by evaporation seepage etc.

and adopting the statistics based on Median value on annual basis, WAPDA has determined the Post-Tarbela combined flow water and stored water availability for irrigation as 112.1 MAF during Post-Tarbela period and 121.2 MAF during Post-Kalabagh period in the hope that Kalabagh will be commissioned in 1992. The Commission agrees with the report of WAPDA.

(vi)

We are informed that on the basis of the result of monitoring of the completed SCARPS, the Government of Pakistan have already taken a decision that in future priority for public sector investment in connection with ground water resources will be given to those hazardous/ disastrous areas where the ground water is between 0-5 feet and the quality of water is unfit for irrigation purposes due to being marginally saline and alkaline. The areas with

usable ground water will be left for development by the private sector. It is, therefore, obvious that flow water cannot be equated with ground water. We therefore endorse the recommendations of Justice Fazle Akbar in this regard and consider both Punjab and Sind to be at par in the matter of water allocations.

- (vii) From the figures furnished by WAFDA, the protection of existing withdrawals, average withdrawals during the last five years post-Tarbela period, which were allowed from time to time by the Ministry of Water and Power for Rabi and early Kharif seasons, appears that the actual average uses for 1977-82 are 102.73 MAF as against 104.24 MAF proposed by Mr. Justice Fazle Akbar. The break up of figures relating to actual uses is as follows:-

ACTUAL AVERAGE USES FOR THE YEAR 1977-82

	<u>Kharif</u>	<u>Rabi</u>	<u>Average (Annual Total)</u>	
Punjab	34.66	19.83	54.49	53 %
Sind	28.11	14.93	43.04	41.9 %
Baluchistan	1.29	0.82	2.11	2.1 %
N.W.F.P.	1.80	1.29	3.09	(excluding about 3 MAF of Civil Canals etc.) 3.0 %
Grand Total:	65.86	36.87	102.73	

These figures relate to the ad-hoc distribution of water by the Federal Government among the Provinces.

The percentage inter se among the actual average withdrawals of the Provinces during the period 1977-82 shall be maintained with marginal adjustments among Punjab, Sind and NWFP so as to supply some more water to Sind during Rabi Season. Any dispute with

-TARBELA
CATIONS.

regard to the above mentioned marginal adjustments will be decided by the Implementing Agency.

(viii) Mr. Justice Fazle Akbar proposed the distribution of surplus waters to various Provinces in the following proportions:-

Punjab	40%
Sind	40%
N.W.F.P.	13%
Baluchistan	7%

But the actual water uses during the post-Tarbela period were, however, different from the proposed allocations based on the notional estimates of dependable availability of water supply. It appears that during Kharif time we have a surplus supply of about 10.00 MAF as against 8.00 MAF estimated by Mr. Justice Fazle Akbar.

(ix) According to WAPDA we have 10.00 MAF surplus Kharif supplies and 22.00 MAF as flood flows, which if allocated according to the formula laid down by Mr. Justice Fazle Akbar, the share of four Provinces in these two kinds of waters will be as follows:-

10.00 MAF SURPLUS KHARIF SUPPLIES

Punjab	4 MAF
Sind	4 MAF
N.W.F.P.	1.3 MAF
BAUCHISTAN	0.70 MAF
Total:	<u>10.00 MAF</u>

112.1
102.73
9.37

Gul Hayat Institute

THE FLOOD FLOWS 22 MAF

Punjab	8.80 MAF
Sind	8.80 MAF
N.W.F.P.	2.86 MAF
Baluchistan	1.54 MAF
Total:	<u>22.00 MAF</u>

We do not, however, subscribe to this mode of distribution of water among the Provinces because after considering presentation of all the four Provinces, we are convinced that the Provinces of N.W.F.P. and Baluchistan should have a larger share in the surplus supplies than that allocated to them either by Mr. Justice Fazle Akbar or under the existing ad hoc arrangements. We have, consequently, given careful consideration both to the requirements of these two Provinces and the ways and means of increasing their share in the surplus waters. We find that the allocation of 3.09 MAF, based on the average water supplies during the period 1977-1982, does not include withdrawals amounting to about 3.00 MAF used in the civil canals of water which shall continue to be exclusively used by that Province. Besides, Canal Zam Kurram Project will, on completion, bring additional water to NWFP exclusively. Similarly, N.W.F.P. will get its share from Khanper Dam also

1.30
2.86
4.16

efn

on its completion. We are of the view that the existing gauged and ungauged withdrawals as well as the future projects mentioned above will more than meet the present as well as the projected requirements of that Province. Baluchistan, on the other hand, does not have any such secure supplies except some unpredictable flood flows from flashy torrents, and needs a greater increase in the percentage of its share. Since an increase in the shares of NWFP and Baluchistan will naturally lead to reduction in the shares of Punjab and Sind, we propose to do so, but while re-determining the Provincial shares of water we do not wish to disturb the parity between the two major Provinces i.e., Punjab and Sind. We, therefore, fix the shares of the Provinces as under:-

Punjab	-	37%
Sind	-	37%
N.W.F.P.	-	14%
Baluchistan	-	12%

After the proposed increase in their shares has been assured the N.W.F.P. and Baluchistan would be in a position to undertake their immediate projects in order to utilize the increase in their respective shares, but till such time the proposed projects of these two Provinces are complete and the Provinces can utilize their water quota to its full, the additional allocation of water now made to them, will be utilized by the Punjab and Sind in equal shares, but as soon as the Projects in N.W.F.P. and Baluchistan are complete, their share of the additional water shall be diverted to ^{them} and the Provinces of Punjab and Sind will not lay any claim to that part of water by describing them as their existing withdrawals. Consequently, the surplus Kharif supplies should be distributed among the

Provinces, according to our proposal, as

follows:-

Punjab	3.70 MAF	4.0
Sind	3.70 MAF	4.0
N.W.F.P.	1.40 MAF	1.3
Baluchistan	1.20 MAF	0.7
Total:	10.00 MAF	

nature so that the Provinces are free from all doubts in this respect. If their future supplies are fully guaranteed they would be in a position to plan and manage their utilization, as far as possible, accurately and fully in accordance with the supplies assured to them.

(xii)

The WAPDA is of the view that during the Post-Kalabagh period the water availability will rise upto 121.2 MAF (Kharif 77.6 MAF and Rabi 43.6 MAF). However, the same proportion, that is:-

Punjab	37%
Sind	37%
N.W.F.P.	14%
Baluchistan	12%

should be followed during the Post-Kalabagh period also for sharing surpluses of the Kharif supplies, the Rabi supplies and the flood flows, along with any increase after completion of the projects in hand.

(xiii)

Short period flow of 22 MAF which is going to sea every summer should be utilized by early implementation of Kalabagh and other storages which are important also from the view point of generation of Hydro-electricity.

(xiv)

After protecting the projects ^{both} ~~in hand~~ ^{and projected} ~~in the~~ pre and post-Kalabagh periods, the Provinces may also utilise the surface flows for the augmentation of their irrigation systems.

(xiv) After shares of the Provinces in surplus waters are determined and their supplies assured, each Province should be free to distribute the supply allocated for its use among its various canals and projects, provided that this internal action does not, in any way, ^{adversely} affect the shares of other Provinces by altering the river gains and losses.

(xv) We have, in our recommendations, prescribed the main guide lines, while the factual distribution of water amongst the Provinces, both in Kharif and Rabi seasons, shall be done by the Implementing Agency.

13. We have made every effort to keep in view the interests of the individual Provinces while apportioning both the flow and the stored waters in a manner that it should be beneficial to the Country as a whole. It is quite possible that there may be a few points left out which, being not within our contemplation, are not discussed or covered in our report. If, however, the Provincial Governments approach them with the spirit of co-operation and mutual accommodation, they ^{to} will certainly be able to resolve them within the framework

of our recommendations.

15. Before concluding We would like to record our appreciation of the efficient and masterly way in which the representatives of the Provinces presented their respective cases. Our thanks are specially due to Major General Dr. Ghulam Safdar Butt, Chairman, WAPDA, who assisted the Commission in examining the whole question from the technical point of view in a commendable manner and also to Mr. A. S. Shibli, Secretary Indus Water Commission, whose untiring efforts, devotion to duty and keen interest in this task have been of immense help to us.

Dr. Ghulam Safdar Butt
Chairman

Mr. A. S. Shibli
Member

Mr. A. S. Shibli
Member

Member

Member

Dated: Lahore, the
12th April, 1933.

COMMISSION FOR INDUS WATERS APPORTIONMENT
MODIFICATIONS MADE IN THE RECOMMENDED AWARD
IN CONSULTATION WITH CHAIRMAN WAPDA AND
THEIR IMPLICATIONS

Clause	Text	Implication (s)																											
(vii)	<p>Actual average withdrawals for the years 1977-82 are:-</p> <table border="1"> <thead> <tr> <th rowspan="2">Province</th> <th colspan="3">(MAF)</th> </tr> <tr> <th>Kharif</th> <th>Rabi</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Punjab</td> <td>34.66</td> <td>19.53</td> <td>54.49</td> </tr> <tr> <td>Sind</td> <td>25.11</td> <td>14.93</td> <td>43.04</td> </tr> <tr> <td>Baluchistan</td> <td>1.29</td> <td>0.52</td> <td>2.11</td> </tr> <tr> <td>NWFP</td> <td>1.50</td> <td>1.29</td> <td>3.09</td> </tr> <tr> <td>Total:</td> <td>65.56</td> <td>36.27</td> <td>102.73</td> </tr> </tbody> </table> <p>Existing about 3 MAF of civil canals</p> <p>These figures relate to the ad-hoc distribution of water by the Federal Government among the Provinces</p> <p>The percentage inter-se among the actual average withdrawals of the Provinces during the period 1977-82 should be maintained with marginal adjustment among Punjab, Sind and NWFP so as to supply some more water to Sind and NWFP during Rabi season. Any dispute with regard to the above mentioned marginal adjustment will be decided by the implementing agency.</p>	Province	(MAF)			Kharif	Rabi	Total	Punjab	34.66	19.53	54.49	Sind	25.11	14.93	43.04	Baluchistan	1.29	0.52	2.11	NWFP	1.50	1.29	3.09	Total:	65.56	36.27	102.73	<p>To account for the ungauged civil canal withdrawals of NWFP and thus equate with the total existing uses indicated under Para 15 on p. of NWFP presentation</p> <p>To accommodate the request of Sind / NWFP for some increased Rabi supplies in pre-Kalabagh period</p>
Province	(MAF)																												
	Kharif	Rabi	Total																										
Punjab	34.66	19.53	54.49																										
Sind	25.11	14.93	43.04																										
Baluchistan	1.29	0.52	2.11																										
NWFP	1.50	1.29	3.09																										
Total:	65.56	36.27	102.73																										
(viii)	<p>We do not, however, subscribe to this mode of distribution of water among the Provinces because, after considering presentation of all the four Provinces, we are convinced that the Provinces of NWFP and Baluchistan should have a larger share in the surplus supplies than that allocated to them either by Mr. Justice Fazl-i-Akbar or under the existing adhoc arrangements. We have, consequently, given careful consideration both to the requirements of these two Provinces and the ways and means of increasing their share in the surplus waters. We find that the allocation of 3.09 MAF, based on the average water supplies during the period 1977-82, does not include withdrawals amounting to about 3.00 MAF used in the civil canals of water which shall continue to be exclusively used by that Province. Besides, Gomai Dam and Furrum Project, will on completion bring additional water to NWFP exclusively.</p>	<p>To cover NWFP claim for developments in Gomai and Furrum basins as mentioned under Paras 27 & 28 on page 9 of NWFP presentation. In addition NWFP requirements of 0.06 MAF are also protected for Khanp Dam Project (Para 23 on page</p>																											

Similarly, NWFP will get its share from Khanpur Dam also on its completion. We are of the view that the existing gauged and ungauged withdrawals the allocation during pre- and post-Kalabagh as well as the future projects mentioned above will more than meet the present as well as the projected requirements of that Province.

Pre-page

Baluchistan on the other hand does not have any such secure supplies except some unpredictable flood flows from flashy torrents, and needs a greater increase in the percentage of its share. Since an increase in the shares of NWFP and Baluchistan will naturally lead to reduction in the shares of Punjab and Sind, we propose to do so, but while re-determining the provincial shares of water we do not wish to disturb the parity between the two major Provinces i.e. Punjab and Sind. We, therefore, fix the shares of the Provinces as under:-

Punjab	37%
Sind	37%
NWFP	14%
Baluchistan	12%

xii)

WAPDA is of the view that in the post-Kalabagh period the water availability will rise upto 121.2 MAF (Kharif 77.6 MAF and Rabi 43.6 MAF). However, the same proportion that is:-

Punjab	37%
Sind	37%
NWFP	14%
Baluchistan	12%

to accommodate Sind's request for additional withdrawal particularly in Kharif

should be followed during the post-Kalabagh period also for sharing surpluses of the Kharif supplies, the Rabi supplies and the flood flows along with any increase after completion of the projects in hand

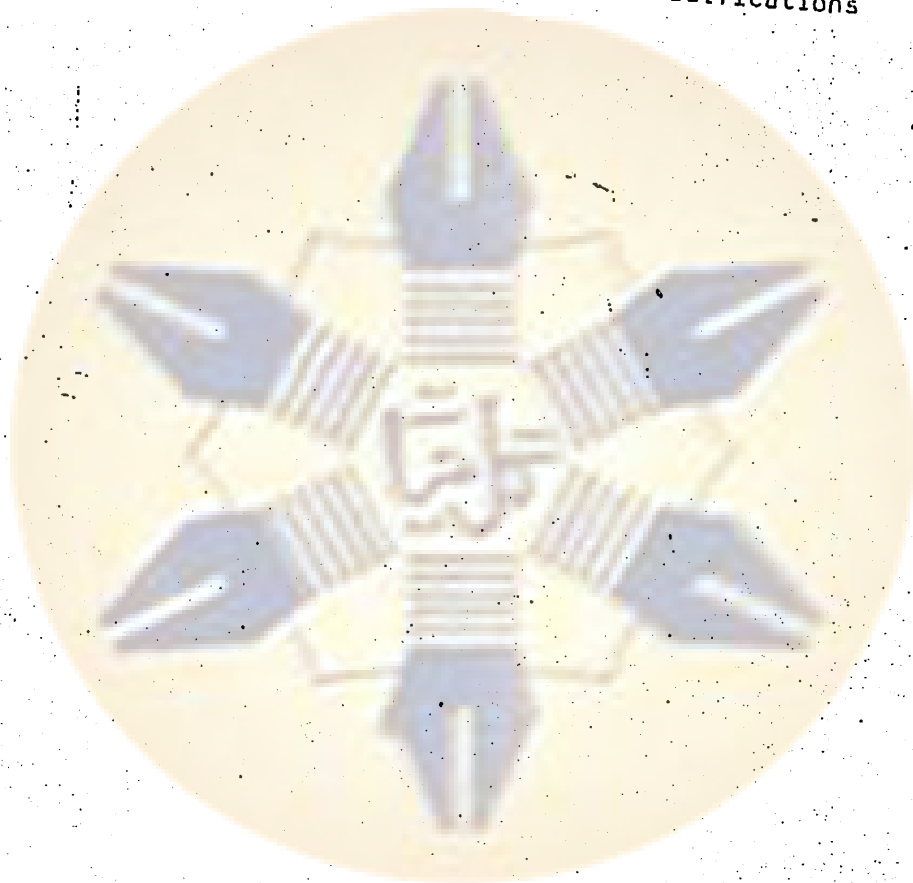
Gul Hayat Institute

(xiv)

After protecting the projects in hand and those projected in the pre and post-Kalabagh periods, the provinces may also utilise the surface flows for the augmentation of their irrigation systems

This para was added after discussions of March 12, 1983 between Chairman WAPDA and the Technical Delegation from NWFP. This was to assure them taking up of the projected schemes such as Pehur High Level, Upper Swat as well as raising the intensities on the existing canals. The quantum involved in the raising of intensities may be 1.08 MAF as under Para 17, page 6 of NWFP presentation.

NOTE:- The portions underlined reflect modifications



Gul Hayat Institute

I have had the privilege of going through the report of the Commission. Whereas I am in agreement as far as the enunciation of principles are concerned, on the basis of facts accepted by the Commission supplied by WAPDA, I regret to disagree. The reasons for my disagreement are summarised below -

Paragraph 12 (i)

I agree with the enunciation of the principle in paragraph 12(i). I would insist however that while applying the principle of equitable apportionment, the data be acceptable to the concerned Province.

Paragraph 12(ii).

It is equally correct that the developed and storage potentialities to be developed in future are taken together will not be sufficient to meet the total requirements of all the claimants and the first charge on the already developed resources should be to meet the existing average withdrawals of the existing projects. In order to ensure equitable apportionment it is important that the existing withdrawals as obtaining in the respective provinces before partition are taken as the datum and not the existing projects irrespective of the Provinces. This will also have a check on unauthorised withdrawals. In fact the doctrine of equitable apportionment will be violated if the principle of "existing projects irrespective of the Province of their location" is taken into consideration and adopted as the basis.

Paragraph 12 (iii)

There is no quarrel with the principle en-unciated in paragraph (iii). However, the crucial points are the existing withdrawals and in this respect I would reiterate my views expressed in paragraph 12(ii) above that the existing withdrawals for the purposes of apportionment should be based on the prepartition withdrawals.

I disagree with the views that the supply from eastern rivers now in India should be exclusively utilized for intensifying and modernizing the existing procedure of irrigation within the commands of already developed canals. In fact that supply from eastern rivers in India should be allocated to the main water budget for apportionment amongst the respective four provinces.

Paragraph 12 (iv)

No comments.

Paragraph 12 (v).

I do not agree with the figure of 112.1 MAF as adopted by the present Commission on the recommendations of Wapda. In fact the availability as worked out on the basis of data supplied by Wapda for the period 1940-80 is 139.18 MAF, which after adjustment works out to 127.28 MAF, viz; 83.29 MAF in Kharif and 43.99 MAF in Rabi.

10.74 MAF is also available from the eastern rivers which added up to 127.28 MAF will make a total surface available flow of the order of 138.02 MAF. For the detailed analysis refer to appendix-I.

Paragraph 12 (vi).

Whether the investment for development of ground water is made by the public or private sector, the fact remains that a huge potential of ground water to the extent of 44 MAF in the country is available which can not be ignored while making the apportionment. Justice Fazle Akbar, himself has recognized the importance of the ground water and has argued that this potential should be accounted for. The present Commission has also rightly observed that the availability of ground water should not be ignored altogether. International Agencies, World Bank, Asian Development Bank have been advocating the uses of ground water in conjunction with the Surface flows. WAPDA has recognised the above fact and has been taking the ground water into account while preparing various SCARP Schemes. It is pointed out that about 33 MAF are already being pumped from ground water resources.

Therefore 44 MAF being the usual ultimate ground water be also added to the total water budget 138.02 as detailed below -

1. Western Rivers Surface flow.	127.28
2. Eastern Rivers Surface flow.	10.74
3. Ground Water potential.	44.00
Total availability.	182.02

-----4-----

Paragraph 12(vii).

The Commission has indicated the total withdrawals of NWFP as 3.09 MAF which is not correct. The total withdrawals of NWFP comprise the following systems -

a) Govt. controlled canals.	3.88 MAF
b) Civil Canals.	2.19 MAF
Total	6.07 MAF

104.24
102.73
1.51

The withdrawals of the Govt. controlled canals are intimated in monthly returns to various agencies viz -

- i) Pakistan Commissioner for Indus Waters
- ii) Director Indus Waters Treaty Punjab.
- iii) Director Indus Waters Treaty Sind.
- iv) Director Resource Management WAPDA.
- v) Chief Engineer, Indus Waters Apportionment Quetta.

The withdrawals of civil canals are however not intimated to any of the above agencies. These canals have historical rights and are protected under the law. They get precedence even over the Govt. controlled canals. Since they are an integral part of the irrigation system, these withdrawals can not be ignored. The rights and withdrawals of the civil canals have been recognized by Fazle Akbar Committee and their data always formed part of the NWFP case in the previous as well as in the case of this Commission.

WAPDA has intimated the figure of 3.09 MAF in their report, perhaps in a misunderstanding or through lack of knowledge of the actual situation.

Ironically WAPDA has adopted the figure of 4.00 MAF as NWFP withdrawals above Kalabagh Rim station vide W.R.M. 145 while working out the total availability of flows in the rivers. It does not include the withdrawals below the Rim station i.e. Kurram and Gomai basins. The Late Fazal-e-Akbar had adopted a figure of 3.72 MAF as pre-partition figures for the purpose of apportionment. The NWFP withdrawals in 1965-70 were considered as 4.89 MAF. WAPDA has also adopted this figure in their publication No.446 while computing the total withdrawals from the system. It is, therefore, surprising that the present Commission has adopted the figures of 3.09 MAF as the withdrawals of NWFP. Obviously the Commission has based these figures on the information furnished by WAPDA which are wrong and need to be corrected. To read as 6.07 MAF the Chairman WAPDA be recalled and reexamined on the question of actual existing withdrawals.

Paragraph 12 (viii) .

It is not correct that Justice Fazal-i- Akbar had worked out Kharif surplus as 8 MAF. The surplus computed by him as 8.67 MAF was for Rabi (page 305, 326). On the contrary, this Commission has worked out a surplus in Kharif only, committing the entire rabi availability to the existing canals thus leaving no water in rabi for development purpose. The kharif surplus will be of no value as the canals shall have to run as non-perennial channels. This will render all the NWFP development schemes viz CRBC, Pehur High Level Canal, Lower Swat (remodelling) as barely kharif channels. Such a situation is not acceptable and more so in the case of CRBC which has been committed by the Federal Government as PERENNIAL canal to which approval has already been accorded by the Federal Government and work on the main canal catering for about 10,700 cusecs has already been taken in hand. Similarly while approving the gravity phase of the project, Government of Pakistan gave a categorical commitment for a perennial canal of 10,700 cusecs, comprising both gravity and lift canals. Likewise, the right side tunnel of Pehur High Level Canal has also been partly completed and the PC-I caters both for rabi and kharif supplies. Moreover, the remodelling of lower Swat Canal, Warsak Canal, Kabul River Canal and other age old canals cater for PERENNIAL supplies. A similar position^{is} in respect of Gomul Zam and Khanpur Dam Projects. No supplies in rabi would simply mean upsetting the entire existing system already functioning and distorting the planning and execution of the projects in hand.

Like Justice Fazle Akbar, no basis have been given for fixing the per-centages of 37, 37, 14 and 12 for Sind, Punjab, NWFP and Baluchistan respectively. The

The distribution on the above per-centage for kharif surplus is meaningless without rabi allocations. The proposal put forth by the representative of NWFP during presentation that all allocation to the existing canals be made on prepartition historic withdrawals and the balance after accounting for the ground water as well as the eastern river flows be considered as development component and distributed amongst the four Provinces on any of the basis given in para 12 (xii).

Paragraph 12 (ix).

Wapda's version of rendering 10 MAF as surplus in kharif is absolutely incorrect. Similarly the figures of 22 MAF as exhibited by Wapda is also incorrect. The actual surplus after meeting the post Tarbela withdrawals of all the Provinces would be as follows :-

$$182.02 \text{ minus } 105.31 = 76.71$$

(The figure of 105.31 MAF includes NWFP canal withdrawals of 6.07 MAF).

Requirements of NWFP would be met to some extent if allocation is made on the basis of ;

Punjab = 37%

Sind. = 37%

NWFP. = 14%

Baluchistan. = 12%

This proportion will, however, not be acceptable if the availability is assessed at any level lower than above.

Paragraph 12 (x)

No comments.

Paragraph (xi).

- 8 -

Paragraph 12 (xii).

The surplus shown in the report of Chairman, WAPDA after construction of Kalabagh dam would be 15.93 MAF viz 9.15 MAF in Kharif and 6.78 MAF in rabi, whereas the Commission's report indicates a surplus of 9.1 MAF only (121.2 - 112.1) , thus reducing the surplus by 6.83 MAF. As against the above, the correct position of availability is 182.02 MAF. Deducting the present usage of 105.31 MAF the net surplus during pre-Kalabagh period would work out to 76.71 MAF. After the construction of Kalabagh Dam the total surplus would be $76.71 + 15.93 = 92.64$ MAF.

The requirements of NWFP against the above availability is as under :

	<u>Kharif</u>	<u>Rabi</u>	<u>Total.</u>	
Existing withdrawal.	3.78	2.29	6.07	MAF.
Raising Intensity.	1.51	0.48	2.00	MAF.
Projects in hand.	3.30	2.46	5.76	MAF.
New areas.	5.59	3.16	8.75	MAF.
Total:-	14.18	8.40	22.58	MAF.

The Government of NWFP has suggested some alternatives for arriving at a rational basis for the distribution of the Development Component of the water.

These alternatives are :-

1. Population.
2. Culturable commanded area.
3. Drainage in the basin.
4. Contribution to the Indus Basin System.

Sufficient consideration has not been given to those suggestions

Paragraph 12 (xiii).

The principle is acceptable. Wapda, however, does not seem to be clear about the exact amount of escapages. In its report W.R.M. 145 the total escapages have been intimated as 19 MAF whereas Chairman, Wapda in his report submitted to this Commission has intimated the total flows

to the sea as 22.00 MAF.

Paragraph 12 (xiv).

No comments.

Paragraph 12 (xv).

The implementation of these recommendations should be entrusted to the Indus Commission consisting of a Chairman and representatives of the 4 Provinces.

Paragraph 13.

The Commission has made the apportionment of the flow and stored waters on the basis of data furnished by WAPDA which is apparently incorrect. NWFP has brought out the factual position in respect of the apportionable surplus as well as its own requirements. It is requested that this Commission will kindly take note of the proposals made by NWFP and apportion the water accordingly.

Paragraph 14.

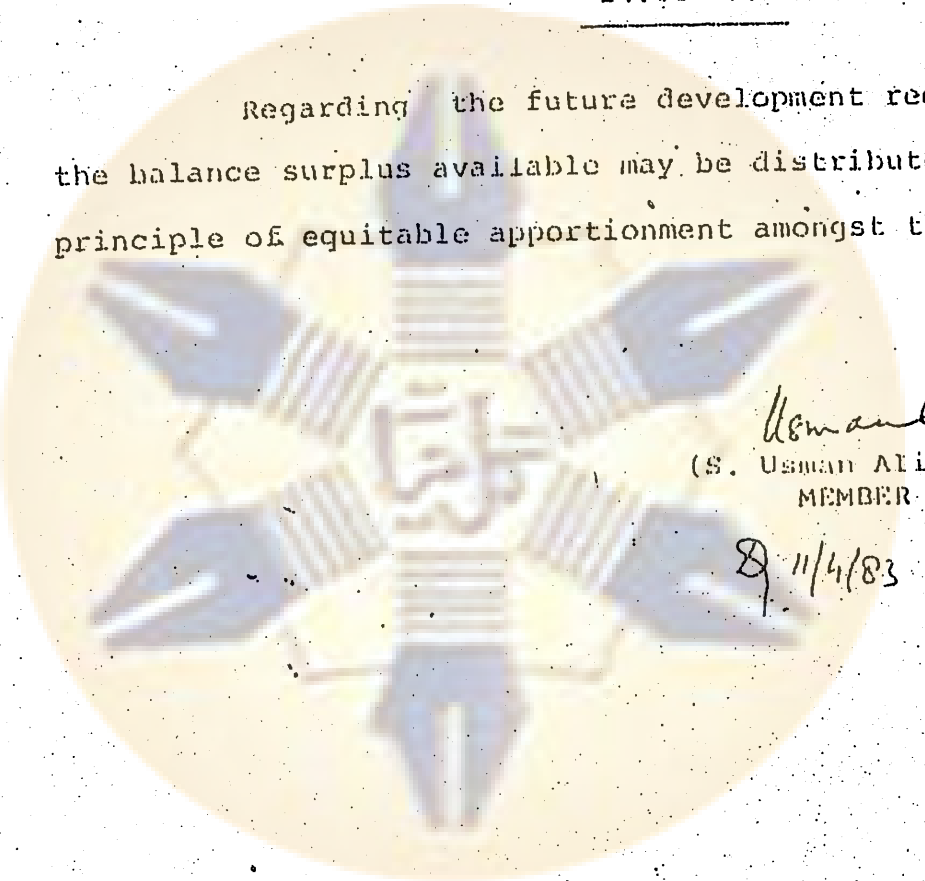
It is true that flood and ground water are the gifts of God. But the perennial surface flow, to which every co-sharer is entitled, is a far greater bounty of Almighty Allah. It is expected that the Commission would strictly adhere to the principle of equitable apportionment while allocating this gift emanating from various sources to the provinces.

In conclusion, the priority of protecting the existing canal, the projects in hand namely Chashma Right Bank Canal including lift component Pehur High Level Canal, Remodelling of Lower Swat, Khanpur Dam and Gomal Zam Project and raising of intensities must be highlighted to save NWFP from total devastating consequences. The minimum requirements for the safe-guard of the above are

given as under :-

Existing withdrawals.	=	6.07	MAF
Projects in hand.	=	5.76	MAF
Raising intensities.	=	2.00	MAF
		<hr/>	
Total		13.83	MAF
		say	
		14.00	MAF
		<hr/>	

Regarding the future development requirements ,
the balance surplus available may be distributed on the
principle of equitable apportionment amongst the Province.


Usman Ali Shah
(S. Usman Ali Shah)
MEMBER

D. 11/4/83

Gul Hayat Institute

CALCULATIONS FOR NET AVAILABILITY FOR CANAL DIVERSIONS.

In a computerised study for submission to the Commission, WAPDA in its publications No. 446 worked out the mean availability for Western Rivers at the rim stations as 139.04 MAF on annual mean basis. This study covers the period of 1940 to 1977 i.e. 37 years. For subsequent years studies have been carried out by WAPDA for the total availability at the rim stations for Western Rivers in WRM-168. The net availability for canal diversions according to these publications would work out as follows -

2. An important factor is to work out Gain and Losses" in the integrated system which has very strong bearing on the ultimate availability of the surface flows. Losses for 15 years i.e. 1962 to 1977 as under -

<u>Kharif</u>	<u>Rabi</u>	<u>Net</u>
-0.2	+ 5.8	=5.6

3. According to the data of 3 years viz; 1978

to 1980 (WRM 168) and the period 1962-1977, the data for 18 years i.e. 1962 to 1980 would be computed for arriving at the net losses and gains as under -

<u>Kharif</u>	<u>Rabi</u>	<u>Net</u>
- 1.72	+5.42	+3.70

In WAPDA publication No. WRM 145 covering the subsequent post Tarbela period (1978-1980), the losses and gains have been worked out as under -

<u>Kharif</u>	<u>Rabi</u>	<u>Net</u>
-12.5	+3.00	-9.5

4. It would be clear from the above that the losses in Kharif are 1.72 MAF against 12.5 MAF as given in WRM No. 145. Although we strongly believe that there is no loss in Kharif,

as it is cent percent made up by the high flows in the system escaping to the sea. Even if we accept loss of 1.72 MAF the net availability involved works out as under:-

	<u>Kharif</u>	<u>Rabi</u>	<u>Total</u>	<u>Source.</u>
Availability at rim station on Western rivers (mean 1940-1980).	116.82	22.36	139.18	(IBP 446 & WRM 169, 177).
Withdrawals of NWFP above rim station.	2.6	1.4	4.0	(WRM 145)
Evaporation losses in reservoirs above rim station.	(-) 0.4	- 0.2	- 0.6	(WRM 145)
Uses out side Pakistan.	(Insignificant as adopted by Justice Fazle Akbar).			
System losses(-) and gains (+)	- 1.72	+ 5.42	+ 3.70	(IBP 466 and live storage IBP 446).
Storage adjustment.	- 15.01	+ 15.01	-	
Escapages.	- 19.0	-	- 19.0	(WRM 145).
Total :-	83.29	+ 43.99	127.28	

5. Wapda has wrongly calculated this figures as 108.20 MAF on page 111.20 WRM 145. Wapda has incorrectly adopted the median values instead of mean as were adopted by Mr. Justice Fazle Akbar, NWFP, Sind and Baluchi-tan just to reduce the apportionable surface flows from the Western Rivers.

6. By considering the ultimate ground water potential and flows of Eastern rivers, the availability would work out as under :-

<u>Source.</u>	<u>Kharif</u>	<u>Rabi</u>	<u>Total</u>
Western River.	83.29	43.99	127.28
Eastern rivers (WRM 155, 168 & 177).	8.62	2.12	10.74
Ultimate ground water potential as per Dr. Lieftinck (Kharif 60%, Rabi = 40%).	26.40	17.60	44.00
Total:	118.31	63.71	182.02