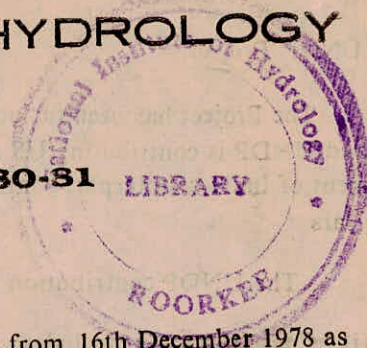


NATIONAL INSTITUTE OF HYDROLOGY ROORKEE

ANNUAL REPORT 1980-81



Introductory Remarks

The National Institute of Hydrology was set up with effect from 16th December 1978 as an autonomous Society registered under the Societies Registration Act, 1860 under the Ministry of Irrigation, Government of India with its headquarters at Roorkee, Uttar Pradesh.

The Institute is a premier National Research Organisation entrusted with carrying out systematic scientific research activities in basic theoretical and applied hydrology which has very great relevance to national planning and developmental activities in the area of water resources.

Organisation

The President of the Society is the Union Minister for Irrigation. The affairs and funds of the Society are being managed, administered, directed and controlled subject to rules, bye-laws and orders of the Society by the Governing Body with Secretary, Department of Irrigation as its Chairman.

The other members of the Governing Body have been drawn from several other ministries and organisations including Central Water Commission, Central Ground Water Board, India Meteorological Department etc. The institute is headed by a Director and he is assisted with the supporting administrative and technical staff. On the scientific side an officer of the level of Scientist 'E' (Rs. 1500-2000) is in position and an offer of appointment has been made to fill up a post of Scientist 'F' (Rs 2000-2500) and the incumbent is likely to join at an early date. On the Administrative side, a Chief Administrative Officer (Rs. 1200-1600) and a Finance Officer (Rs. 1100-1600) have been managing the administrative and financial affairs of the Institute. The other supporting staff in position in March 1981 included, 3 Scientist 'C' (Rs 1100-1600), 4 Scientist 'B' (Rs. 700-1300), 3 Senior Research Assistants (Rs. 550-900), 1 Office Superintendent (Rs 550-900), 1 Senior Personal Assistant (Rs.550-900) 1 Technical Assistant (Rs. 425-800), 1 Research Assistant (Rs 425-800), 2 Upper Division Clerks (Rs. 330-560). 2 Stenographers (330-560), 5 Lower Division Clerks (Rs. 260-400) and 2 Tracers (Rs 260-430).

The Institute is functioning at Roorkee in a temporary accommodation provided by the University of Roorkee. The Institute will have its own building in about a year's time.

National Institute of Hydrology Library

R-3359

Date 22-3-86

ROORKEE (U.P.)

UNDP Project

The Project has been included in the Country Programme of UNDP assisted Projects and UNDP is contributing US (\$900,550) for establishing the Institute on which the Government of India counterpart contribution would be Rs. 72.82 lakhs spread over a period of 5 years.

The UNDP contribution is under 3 broad heads viz.,

(i) Consultancy: It includes visits on a number of occasions for a total period of 12 months by the Chief Technical Advisor and 6 man months consultancy by other experts to be identified by the Project. Prof. Maniak, Professor, Braunschweig University, West Germany has so far visited NIH 5 times approximately at 6 months intervals as the Chief Technical Advisor. During these visits, the workplan and the equipment to be procured under UNDP assistance were revised and the implementation of the project in all respects were followed up. A consultant on Surface Water Hydrology has visited the Institute in April 1980 and a consultant in Ground Water Hydrology will be visiting the Institute during the middle of 1981.

(ii) Study Tours and Fellowships: The original project document included a study tour for a period of 3 months each for Director and Senior Scientists and training fellowships for the scientific personnel for a total period of 120 man months. The Director completed a study tour for a period of 8 weeks when he visited several research educational and operational organisations in Europe, USA and Canada and had discussions with the scientists on recent trends in Water Resources research and also identified potential areas and places of training for the scientists.

Necessary proposals for offering the fellowships/training in the field of Computer Hardware and Software and in the specialised fields of Hydrology viz., Ground Water Modelling, Watershed Simulation and Flood Routing Models have been approved by the Governing Body and the Scientists working in these areas are likely to go for training during the year 1981-82.

(iii) Equipment: There is a provision for equipment of US Dollars 454 000 under the UNDP Project. For the research work to be taken up by National Institute of Hydrology it is necessary to have a Remote Job Entry Station (mini-computer) with real time data logging facility, which may be connected to the University of Roorkee Computer Centre. A VAX-11/780 mini-computer system has been identified for the above purpose. UNDP has already placed an order for the system and the equipment is expected to be installed by the middle of 1981.

Since the administrative building where the mini-computer is to be finally located will not be ready in time, it has been decided to locate temporarily the mini-computer

in the present premises of National Institute of Hydrology.

Ancillary equipment available in India for use in the mini-computer system are being identified and procured. Furthermore, equipment to be provided for research work during the remaining period of project which can be procured within India or under UNDP Project are also being identified.

Meetings of the Authorities

A Special General Meeting of the NIH Society was held on September 12, 1980 and in this meeting the amendments/alterations to the Memorandum of Association of NIH as approved in the First Annual General Meeting were confirmed and certain alterations/amendments to the Rules and Regulations were also made. Further the progress report of the Institute was reviewed in this meeting. In addition, the Governing Body of NIH met 4 times during the year under review on 12-5-1980, 31-10-1980, 29-12-1980 and 27-3-1981 and several decisions concerning the implementation of the priority areas highlighted in the work plan, creation of additional posts in the Institute, procurement of equipment and provision of funds needed for the appropriate functioning of the Institute were taken.

A Technical Advisory Committee functioning for technical scrutiny of programmes of work to be taken up by NIH was reconstituted during the year under review. The revised functions of the Technical Advisory Committee are as under:-

- (i) Technical scrutiny of the research programme of the Institute and recommending priorities.
- (ii) carrying out technical scrutiny of the individual schemes drawn up by the National Institute of Hydrology for inclusion in the Annual/Five Year Plans/External assistance.
- (iii) examine the expansion proposals of the Institute.
- (iv) perform any other functions as may be assigned to it by the Governing Body.

One meeting of the Technical Advisory Committee was held on 22-2-1981.

Activities

The Government of India constituted during the year under review a Consultative Committee for UNDP aided project "NIH" at the National Institute of Hydrology essentially to recommend the policy, initiatives and coordination required to meet the objectives of the project as set forth in its project document. The Consultative Committee shall maintain close liaison with the other agencies concerned for the purpose of ensuring the fullest possible national participation in the development of the project. The Secretary, Department of Irrigation as its Chairman held its First meeting on 7.3.1981 with the representatives of Ministry of Finance, Ministry of Irrigation, Resident Representative of UNDP in India and Director, NIH and reviewed the workplan of the Institute and suggested that the Institute in

consultation with Chief Technical Advisor and the UNESCO (executing agency) should prepare a revised bar chart and workplan taking into account the current status of the project. Accordingly a revised workplan is being prepared in pursuance of the decisions taken in the Consultative Committee for NIH UNDP Project.

Research Activities :

The Governing Body, has approved a workplan defining the following as priority items of research:—

- (1) Hydrologic Analysis of streamflows in a basin.
- (2) Water Balance of river basins.
- (3) Watershed models including those for snowfed basins and basins with limited data
- (4) Method of operation of a system of reservoirs taking into consideration the effect of irrigation, flood control and power generation.
- (5) Evolution of mathematical models for storm precipitation for flood estimation.
- (6) Evolution of methodologies for flood estimation forecasting and control.
- (7) Methodology for groundwater estimation and development.
- (8) Study of extreme storms and floods and their implications in hydrologic synthesis.

Of these problems 1,3,4,5,6, and 7 have already been taken up for detailed study and problem 2 is also taken up as a part of problem 3. The Status of the different problems are as follows:

(1) Hydrologic Analysis of Streamflows in a basin :

Hydrologic Analysis of streamflows are generally based on statistical analysis techniques including frequency analysis, regression analysis, time series analysis, etc. A programme for frequency analysis of seasonal time series data was implemented in the DEC-20 system of the University of Roorkee. This programme fits to the given time series data a normal, log normal, square root normal, Pearson and Log Pearson distributions by methods of moments and tests the goodness of fit by Chi-square test. The programme is being modified to provide for exclusion of the highest or lowest values in a series which do not conform to the general statistical characteristics of the series (and are generally referred to as outliers). A subroutine to compute moving average of the time series for various time periods has been included so that the frequency characteristics of moving averages can also be determined.

The programmes have been used to determine the frequency characteristics of rainfall data in 7 observatory stations in the Upper Ganga Canal Command area and for frequency analysis of annual, monsoon and non monsoon seasons and Monthly rainfall data at Raiwala and Narora in Ganga River and at Okhala in Yamuna river.

(2) Watershed Models :

Watershed models are simulation models which represent the different hydrologic

processes taking place through a basin. Because of limitations of data availability in India two simple watershed models are being implemented. They are respectively the Betson rainfall runoff model based on API, rainfall runoff relationships and developed by TVA; and the USGS model implemented by Carrigon et al. The models are tested with data for a drain in Punjab. It is proposed to implement certain modifications in the programme to take into account environmental and hydrometeorological conditions in India.

A large number of watershed simulation models are available with NIH and they will also be progressively implemented and tested with Indian data. Some of the models include a provision for snowmelt from snowfed basins.

(3) Method of operation of a system of reservoirs taking into consideration the effect of irrigation, flood control and power generation :

There are several approaches for the study of reservoirs system operation. Simulation analysis is a satisfactory approach for the study. A number of computer programmes for reservoirs operation are available with NIH. A simple but extremely versatile programme for simulation of reservoirs system has been developed by Texas Water Development Board. This model considers reservoirs operating rules and different priorities for uses at different times and for future uses and has been found to be a relatively simple but very useful model for studying reservoir operation. It has been implemented in NIH as a first step in the study of reservoir operation for conservation and utilisation.

(4) Evolution of mathematical models for storm precipitation for flood estimation :

Statistical models including regression models for interpolation of missing data is under preparation. A report on hydrometeorological aspects for estimation of storm precipitation is also being prepared.

(5) Evolution of methodologies for flood estimation forecasting and control :

Two sub-problems have been taken up under this area and they include (a) Unit Hydrograph Analysis and (b) Flood Routing.

(a) Unit Hydrograph :

The computer programme for this research area consists of a set of procedures for separation of abstraction from rainfall and base flow from runoff and derivation of the unit hydrograph. The computer programme available with us is being modified and implemented. The input data consists of hourly recorded rainfall data from a number of stations in a basin. Thiessen weights for the stations are calculated from Thiessen polygons. The runoff data available in the form of recorded stage values may be converted into discharge data using rating curves.

Basically the programme aims at using the gauge-rainfall runoff data to implement multiple input system model and multi-station single input-single output system model. The runoff is separated into its components with baseflow and direct runoff. The parameters n and k of Nash model (gamma function) are calculated for different stations by method of moments. These parameters are then used to calculate unit impulse responses (instantaneous unit hydrograph). Its convolution with input rainfall expresses the open system values of direct runoff. The difference between calculated and observed values of direct runoff are squared and summed up to obtain criteria for effectiveness of the model in simulating observed direct runoff values.

A programme for determining a unit hydrograph and abstractions using a detection based discreet model has been implemented. Data for a basin obtained from small Catchment Directorate of CWC are used for testing and validating the above models.

(b) Flood Routing :

Literature in area of flood routing is being reviewed and available methodologies are critically analysed. A computer programme for flood routing through river reaches taking into account loss or gain in the reaches because of water table conditions and pumping is being implemented.

(6) Methodology for groundwater estimation and development :

A ground water model based on Tyson Weber approach with two layers has been developed and implemented in the University of Roorkee DEC-20 Computer System. It consists of 3 major sub-programmes namely GEOM Programme which describes the geometric configuration of the polygonal network into which the study area is divided and data for ground surface, aquifer layers^{and} sand percent values and provides for internal consistency checks: RECHARGE ABSTRACTION Programme, which uses rainfall and canal cropped area, groundwater and ~~the~~ other data to estimate seasonal recharges and abstractions from each of the polygons; and the main Groundwater Simulation Model. These are fully operational and have been used to study the Surface water groundwater interaction in Uppar Ganga Canal area.

The Governing Body and the Technical Advisory Committee have also identified specific case studies to be taken up as part of the research work of National Institute of Hydrology as follows:-

Problem No 1

Ganga Basin with proper care with reference to secrecy of data.

Problem No. 3

Mahanadi, Narmada and Godavari basins; Himalayan basins with snow contribution.

Problem No. 4

Narmada system, Damodar Valley ~~Corporation~~ and Bhakra Beas System.

Problem No. 5

Narmada system, Tapti, Subarnarekha and Godavari rivers.

Problem No. 6

Drainage of low lying areas; small catchment.

Problem No. 7

Ganga Yamuna Doab.

Specific sub-basins are being identified and data collection has already started. It is planned to collect, compile and put in computer adequate data for study in all the above areas for field oriented hydrologic research

In addition Governing Body has suggested research work under the broad area of Information Systems may also be taken up by NIH with particular reference to the following

(i) Development of an inventory of water resources data available in India; (ii) Development of a computer programme library with classifications and details of the programmes. Programmes available with NIH have already been classified and further work is under progress in both the area.

Buildings and Services

The National Institute of Hydrology is presently located in a building in University of Roorkee campus. It is to be located in an area of 6.5 acres within the University of Roorkee campus. The specific area has already been identified and agreed upon between University of Roorkee and the Government of India. Preliminary plans for the Administrative Building with floor area of 1400 sq m. have been prepared earlier by the CPWD. The Governing Body has since decided that the construction of the building may be entrusted to the University of Roorkee as a deposit work. The detailed plans and specifications for this building have been finalised and tenders have been called for the construction of the building. It is expected that the building construction will start by April 1 1981 and the building will be ready for occupation by the middle of 1982. Actions are also being taken for the provision of services of National Institute of Hydrology.

Accounts and Finance

The Government of India, Ministry of Irrigation provided as Grants-in aid an amount of Rs. 12 Lakhs to the Institut-e during the year under review. The actual expenditure for the year 1980-81 was of the order of Rs 11 lakhs. A provision of Rs. 33 lakhs has been made in the Budget Estimate for the year 1981-82. The audited statement of accounts for the year 1980-81 consisting of receipts and payments account and Income and Expenditure Account and the Balance sheet as at 31.3.1981 duly certified by the Auditor are enclosed.

Acknowledgement

In conclusion, it may be stated that the setting up of the National Institute of Hydrology is a very challenging assignment. There were a number of teething problems which the Institute has overcome. Whatever progress NIH has made till now is because of the advice, guidance and help that the Institute has received from the Hon'ble Minister of Irrigation who is the President of the Society. Our thanks are due to the Chairman, Shri C. C. Patel, Secretary, Department of Irrigation for his advice and support. We are also thankful to the members of the Governing Body and the Vice-Chancellor of University of Roorkee who has given us temporary accommodation for the office of NIH alongwith the other services and residential accommodation to staff.

THAKUR, VAIDYANATH AIYAR & Co.
CHARTERED ACCOUNTANTS
New Delhi, Calcutta, Bombay, Madras,
Patna, Kanpur and Chandigarh

Telegrams : "AUDIT"
Tele : 268793, 268794, 268796
212, Deen Dayal Marg,
New Delhi-110002
20 August 1981

**AUDITORS REPORT TO THE MEMBERS
OF
NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE**

We have audited the attached Balance Sheet and the Income and Expenditure Account of the National Institute of Hydrology as on 31st March, 1981 and report that we have obtained all the information and explanations which to the best of our knowledge and belief were necessary for the purpose of our Audit and that in our opinion and to the best of our information and according to the explanations given to us the accounts give a true and fair view:

1. In case of the Balance Sheet, the state of affairs of the Institute as on 31st March 1981 and
2. In case of Income and Expenditure Account of the deficit for the period ended on that date.

Sd/-
CHARTERED ACCOUNTANTS

SEAL

THAKUR, VAIDYANATH AIYAR & Co.
CHARTERED ACCOUNTANTS
New Delhi, Calcutta, Bombay, Madras,
Patna, Kanpur and Chandigarh

Telegrams : "AUDIT"
Tele : 268793, 268794, 268796
212, Deen Dayal Marg,
New Delhi-110002
20 August 1981

UTILISATION CERTIFICATE

Certified that the National Institute of Hydrology, Roorkee has incurred a sum of Rs 10,24,118.82 (Rupees Ten lakhs twenty four thousands one hundred eighteen, paise eighty two only) out of which Rs 6,22,255.29 (Rupees Six lakhs twenty two thousands two hundred fifty five, paise twenty nine only) is on acquisition of fixed and other assets and Rs 4,01,863.53 (Rupees Four lakhs one thousand eight hundred sixty three, paise fifty three only) on revenue expenditure against the grant-in-aid of Rs 12,00,000.00 (Rupees Twelve lakhs only) given to the Director, National Institute of Hydrology, Roorkee and the same has been verified with reference to the account records maintained by the Institute and has found to be correct.

Sd/-
CHARTERED ACCOUNTANTS

SEAL

THAKUR, VAIDYANATH AIYAR & CO.

Chartered Accountants

NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE

Receipts and Payments Account for the year ended 31st March, 1981.

Previous Year (Rs)	Receipts	Amount (Rs)	Previous Year (Rs)	Payments	Amount (Rs)
	<u>Cash and Bank Balances</u>		89,946	Salaries, Wages and Allowances	3,18,367.66
1,000	Cash in hand 1,000.00		29,327	Travelling and Conveyance	31,245.84
11,412	Savings deposit with State Bank of India Roorkee 4,25,873.47		12,881	Office Expenses	33,291.99
14,389	Drafts in hand — 4,26,873.47	4,26,873.47	13,945	Printing & Stationary	22,605.54
7,50,000	Grant-in-aid received from Govt. of India, Ministry of Irrigation, New Delhi 12,00,000.00	12,00,000.00	2,223	Postage and Telegrams	6,225.55
2,794	Interest on savings deposits 10,098.00	10,098.00	1,769	Audit fee and Expense	1,690.00
2,651	Miscellaneous Receipts 2,200.16	2,200.16	1,168	Stores and Equipments	11,321.23
—	Recovery of Advances 480.00	480.00	6,000	Computer Expenses	10,669.27
—	Consultancy & other fees from 'Water & Power Consultancy Organisation' Project 1,50,000.00	1,50,000.00	3,300	Grant-in-aid/Contribution/Subsidies	4,600.00
2,186	Recoveries of House Rent, Water & Electricity —	—	1,683	Hospitality Expenses	1,940.35
			14,752	Advertisement Expenses	3,808.36
			6,193	Miscellaneous Expenses	17,155.13
			—	Newspapers & Periodicals	17,894.61
			—	Expenses on WAPCOS Project	86,513.16
			16,611	Purchase of office equipments	45,863.50
			33,919	Purchase of Furniture & Fixtures	17,169.44
			—	Security deposit for petrol	1,000.00
			—	Fixed deposit with SBI, Roorkee towards excise bond	55,500.00
			16,688	Purchase of Library books	28,594.52
			—	Computer Machinery	9,216.00
			—	Cost of Steel and Cement	2,32,100.28
			815	Remittances to UOR	2,186.48
			1,07,038	Advances to University of Roorkee and others (As per schedule 'C' Annexed)	2,29,644.55

Contd.....

7,84,632

212, Deen Dayal Marg,
New Delhi - 110002
Dated : 20th August, 1981.
SEAL

EXAMINED AND FOUND CORRECT
As per our Report of even date
Sd/- Thakur Vaidyanath Aiyar
CHARTERED ACCOUNTANTS

17,89,651.63

<u>Cash & Bank Balances</u>			
—	Cash in hand	3,728.92	
1,000	Imprest with Chief Administrtrive Officer	1,000.00	
4,25,874	Savings deposit with SBI, Roorkee	<u>5,96,319.25</u>	6,01,048.17
			<u>17,89,651.63</u>

7,84,632

Sd/-
(D. Ramanathan)
Finance Officer,
NIH, Roorkee

Sd/-
(Dr. S. Ramaseshan)
Director,
NIH, Roorkee

THAKUR, VAIDYANATH AIYAR & CO.**NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE**

Chartered Accountants Income and Expenditure Account for the year ended 31st March, 1981

Previous year (Rs.)	Expenditure	Amount (Rs.)	Previous year (Rs.)	Income	Amount Rs.
1,10,760	Salaries, Wages & Allowances	3,18,517.10	2,794	Interest on Savings Deposits	10,098.00
29,327	Travelling & conveyance	31,245.84	2,851	Miscellaneous Income	2,200.16
12,280	Office expenses	36,544.60	—	Consultancy fee & other	1,50,000.00
13,945	Printing & Stationary	22,605.54		Receipts on WAPCOS Project	
2,223	Postage & Telegrams	6,225.55	1,97,613	Transferred from Grant-in-aid	4,44,785.16
1,769	Audit fee and expenses	2,190.00		Account to meet the	
1,168	Stores and equipment	10,517.36		expenditure for the year	
5,000	Computer expenses	10,669.27			
3,300	Grant-in-aid/contribution/subsidies	4,600.00			
1,683	Hospitality expenses	1,940.35			
14,752	Advertisement expenses	3,808.36			
6,193	Miscellaneous expenses	17,155.13			
—	News papers and periodicals	17,894.16			
—	Depreciation	35,256.09			
858	Expenditure on WAPCOS project	87,913.52			
2,03,258		6,07,083.32	2,03,258		6,07,083.32

212, Deen Dayal Marg,
New Delhi - 110002
Dated : 20th August, 1981.

SEAL

EXAMINED AND FOUND CORRECT
As per our Report of even date
Sd/- Thakur Vaidyanath Aiyar
CHARTERED ACCOUNTANTS

Sd/-
(D. Ramanathan)
Finance Officer,
NIH, Roorkee

Sd/-
(Dr. S. Ramaseshan)
Director,
NIH, Roorkee

THAKUR, VAIDYANATH AIYAR & CO.

Chartered Accountants

NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE

Balance Sheet as at 31st March, 1981.

Previous year (Rs.)	Liabilities	Amount (Rs)	Previous year	Assets	Amount (Rs)
	<u>Grant-in-aid</u>			<u>Fixed Assets (At cost less depreciation)</u>	
20,876	Balance brought forward from previous year	3,95,642.07	1,59,595	(As per schedule 'A' annexed)	2,25,182.27
	<u>Add</u>			<u>Building work-in progress</u>	
7,50,000	Received from Govt. of India	12,00,000.00			
7,70,876	Min. of Irrigation, N. Delhi	15,95,642.07	57,240	Advance to Roorkee University and other expenses	57,240.00
	<u>Less</u>		—	Cost of Cement & Steel	2,26,633.40
	(a) Cost of aquisition of fixed & other assets transferred to Asset Fund A/C		480	Advance to UOR & others (As per schedule 'C' Annexed)	2,29,644.55
(-) 1,77,620	<u>6,22,255.29</u>		2,363	Prepaid expenses	3,167.00
	(b) Transferred to Income & Expenditure A/c to meet the expenditure for the year		19,600	(As per schedule 'D' Annexed)	76,100.00
(-) 97,613	<u>4,44,785.16</u>	<u>10,67,040.45</u>	—	Due from Steel Authority of India Ltd.	5,466.88
3,95,642		5,28,601.62			

Contd.....

Asset Fund Account

Balance brought forward from previous year 2,39,378.03

Add

2,39,278 Transferred from Grant-in-aid a/c 6,22,255.29 8,61,533.32

31,231 Liability for expenses 34,347.33

(As per schedule 'B' annexed)

6,66,151

14,24,482.27

6,66,151

14,24,482.27

212, Deen Dayal Marg,
New Delhi - 110002
Dated : 20th August, 1981.
SEAL

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As per our Report of even date
Sd/- Thakur Vaidyanath Aiyar
CHARTERED ACCOUNTANTS

Cash & Bank Balances

1,000 Cash in hand 3,728.92
Imprest with Chief Administrative Officer 1,000.00

4,25,873 Balance with saving deposits with State Bank of India, Roorkee 5,96,319.25 6,01,048.17

Sd/-
(D. Ramanathan)
Finance Officer,
NIH, Roorkee

Sd/-
(Dr. S. Ramaseshan)
Director,
NIH, Roorkee

THAKUR, VAIDYANATH AIYAR & CO.

Chartered Accountants

NATIONAL INSTITUTE OF HYDROLOGY, ROORKEE

Schedule of Fixed Assets as on 31st March, 1981

Sl. No.	Particulars	Gross Block			Depreciation			Net Block	
		Cost as on 1-4-80	Additions during the year 1980-81	Total	Up to 31-3-80	For the year 80-81	Total	As on 31-3-81	As on 31-3-80
					Rate of Dep.				
1.	Furniture & Fixtures	53,020.12	17,169.44	70,189.56	10%	7,018.96	7,018.96	63,170.60	53,020.12
2.	Duplicating Machines	13,918.36	—	13,918.36	15%	2,087.75	2,087.75	11,830.61	13,918.36
3.	Library books	26,727.21	28,594.52	55,321.73	10%	5,532.17	5,532.17	49,789.56	26,727.21
4.	Office Equipments	16,611.11	45,863.50	62,474.61	15%	9,371.19	9,371.19	53,103.42	16,611.11
5.	Vehicles	49,318.10	—	49,318.10	20%	9,863.62	9,863.62	39,454.48	49,318.10
6.	Computer Machinery	—	9,216.00	9,216.00	15%	1,382.40	1,382.40	7,833.60	—
		<u>1,59,594.90</u>	<u>1,00,843.46</u>	<u>2,60,438.36</u>		<u>35,256.09</u>	<u>35,256.09</u>	<u>2,25,182.27</u>	<u>1,59,594.90</u>

212, Deen Dayal Marg,
New Delhi - 110002
Dated : 20th August, 1981.
SEAL

EXAMINED AND FOUND CORRECT
As per our Report of even date
Sd/- Thakur Vaidyanath Aiyar
CHARTERED ACCOUNTANTS

Sd/-
(D. Ramanathan)
Finance Officer,
NIH, Roorkee

Sd/-
(Dr. S. Ramaseshan)
Director,
NIH, Roorkee

THAKUR, VAIDYANATH AIYAR & CO.

Continuation page
Schedule 'B'

Schedule of liability of expenses as on 31-3-1981

Si No.	Head of Account	Amount (as on 31-3-1981)	As on 31-3-1980
1-	Maintenance of Car	2,105.34	1,447.07
2-	Electricity & Water Charges	2,285.34	1,028.88
3-	Rent, Rates & Taxes	237.00	1,157.60
4-	Telephones	72.00	—
5-	Salaries: NIH	8,348.82	14,344.30
	WAPCOS	2,258.36	858.00
6-	Leave Salary & Pension Contribution	16,827.45	10,895.55
7-	Audit fee 1980-81	2,000.00	1,500.00
	Unpaid Salary	213.02	—
		<u>34,347.33</u>	<u>31,231.40</u>

SEAL



THAKUR, VAIDYANATH AIYAR & CO.

Schedule of Advances as on 31-3-1981

Continuation page
Schedule 'C'

S. No.	Details	Amount (Rs)
1-	Advance to University of Roorkee for computer Charges	10,000.00
2-	Advance to University of Roorkee for providing two telephone connections	3,000.00
3-	Advance to the Post Master, Roorkee for providing four telephone lines	12,600.00
4-	Advance to the University of Roorkee for 60 KW power supply	55,168.00
5-	Advance to the University of Roorkee for constructing Urinals	1,500.00
6-	Advance to the Executive Engineer, University of Roorkee for installation of Computer	25,000.00
7-	Advance to the U.O.R. for white washing	4,800.00
8-	Advance to American Refrigerators for Air-conditioning plant	57,480.00
9-	Advance for purchase of vehicles	57,749.55
10-	Cycle Advance	1,507.00
11-	Festival Advance	840.00
	Total (Rs)	2,29,644.55

SEAL

THAKUR, VAIDYANATH AIYAR & CO.

Schedule of other deposits as on 31-3-81

Continuation page
Schedule 'D'

S. No.	Details	Amount (Rs)
1-	OYT Deposits	18,600.00
2-	Deposit with BHEL	1,000.00
3-	Security deposit for petrol purchase	1,000.00
4-	Fixed deposit with State Bank of India for excise security purposes	55,500.00

		Total (Rs) 76,100.00

SEAL